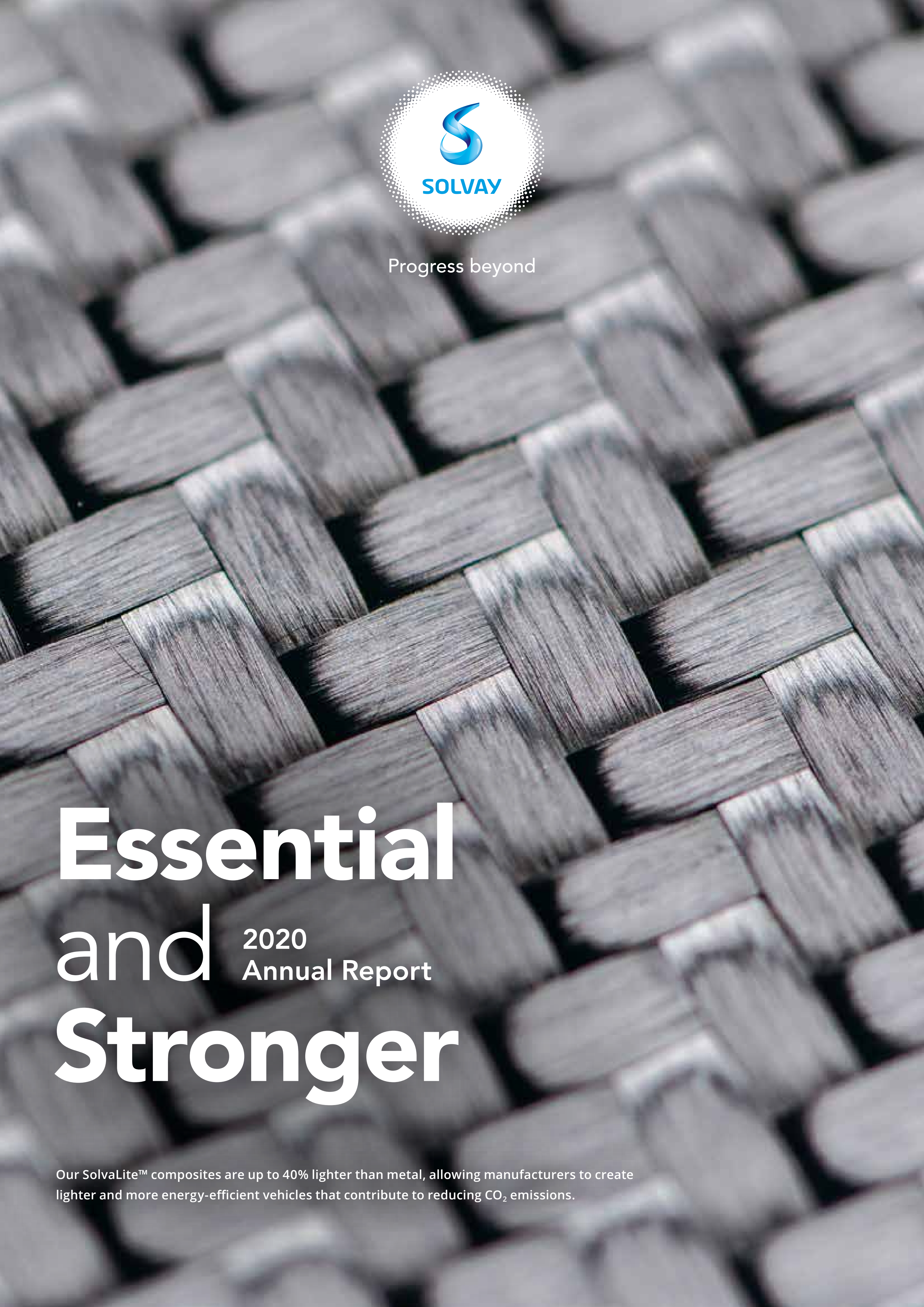


SOLVAY

Progress beyond

Essential and Stronger

2020 Annual Report

Our SolvaLite™ composites are up to 40% lighter than metal, allowing manufacturers to create lighter and more energy-efficient vehicles that contribute to reducing CO_2 emissions.

We bond people, ideas and elements to reinvent progress

Solvay's Udel® PSU is a polymer used in a variety of membrane filtration applications, such as renal dialysis, water treatment, and bioprocessing. An estimated 3 million people worldwide are being treated with hemodialysis membranes made from our products.

Contents

€963M

Free cash flow to Solvay shareholders from continuing operations

→ 7

€15M

collected by Solvay Solidarity Fund

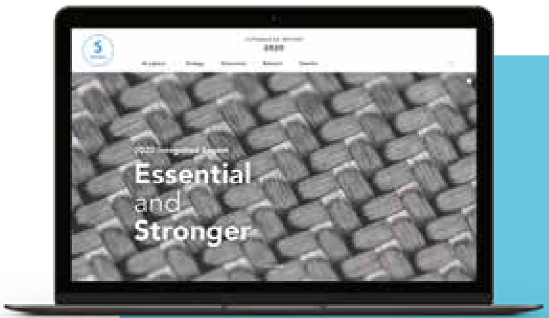
→ 15

3.75*

Dividend
in € per share

→ 7

Discover the full Integrated Report online



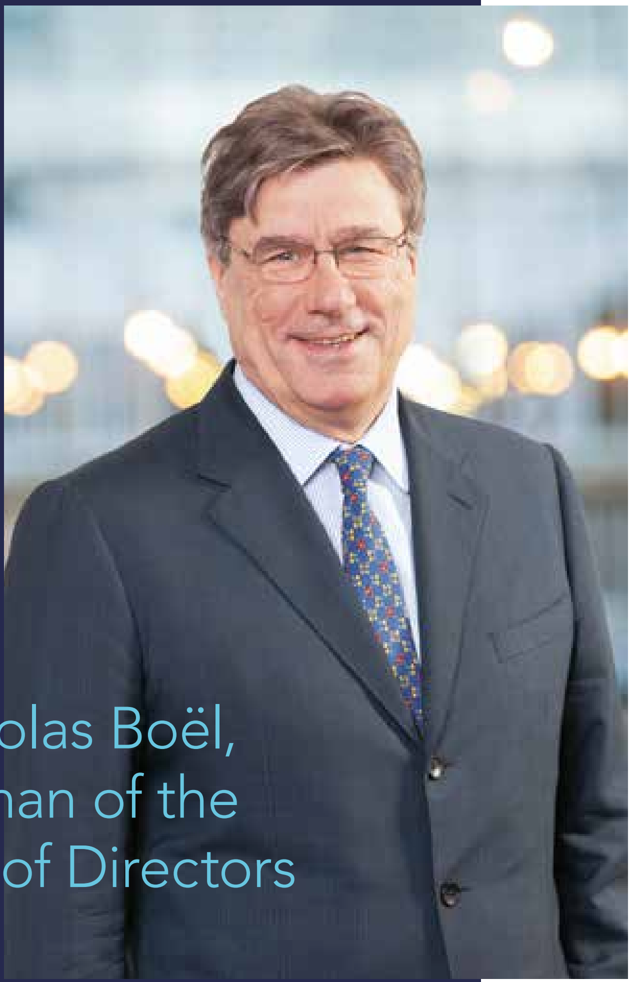
Read more about how Solvay emerged ***stronger*** from 2020 and ready for the rebound, having demonstrated that its activities are ***essential*** to society and the planet.

→ **reports.solvay.com/integrated-report/2020**

For greater insight into the Group, visit our corporate website:
www.solvay.com

*Recommended to the Shareholders meeting on May 11, 2021

2020 made us proud to be Solvay



by Nicolas Boël, Chairman of the Board of Directors

Looking back at 2020, beyond the superlatives which have been widely used to describe an "unprecedented" year, I observed that the crisis brought about pressing challenges on three fronts, prompting our Group to pursue a threefold mission.

First, Solvay needed to continue operating, in the face of an overwhelming health and subsequent economic crisis, which were the most severe our Group had witnessed since World War II. Second, we wanted to generate cash to be able to face the crisis, keep implementing our G.R.O.W. strategy and continue our transformation. Third, in a context of global lockdown, with some 10,000 employees working from home, a sizable portion of our workforce on furlough and tremendous pressure on everybody, it was imperative that we maintain the bonds that unite us and define us as a company.

"Solvay is a caring company, which sought to soften the consequences of the crisis for its employees and reward them for their exceptional efforts."

We all adapted, fast, with dedication and agility. The Board of Directors played its part, modernizing its ways of collaborating as a team. We increased the frequency of our meetings and made them more focused, more informative: our objective was to decrease the organization's level of anxiety and stress by bonding more intensely, by exchanging more information and taking quick decisions. We concentrated on what was essential – and we have consequently reached in my opinion a very high level of trust and collaboration. We fulfilled our mandates with diligence, earnestly and constructively challenging the projects presented for our review – it was positive energy.

The same positive energy prevailed across the entire organization. And it paid off, as you saw in our financial results, which allowed Solvay to create value for its shareholders while at the same time protecting and rewarding its employees and investing for the future. Solvay is staying true to its dividend policy, even in these extraordinary circumstances. Our Group indeed proposed to maintain the 2020 dividend at €3.75 per share. On behalf of the Board of Directors, I want to express my sincere gratitude to the people of Solvay for outstanding results and for their unrivalled engagement through this multifaceted crisis.

Solvay is a caring company, which sought to soften the consequences of the crisis for its employees and reward them for their exceptional efforts. To support those who suffered the severest hardship, we have taken solidarity to a new level, building on Solvay's roots and on our historical track record of responsible capitalism. The Solvay Solidarity Fund collected a total of €15 million from Solvay employees, from the Group's leadership team who relinquished 15% of their salaries, from Board members and from shareholders. I extend once again my deepest gratitude to all. Together, we are alleviating the suffering of employees and their families; together, we are even saving lives in our communities, as we for instance activated the Fund to the benefit of the new Covid section in the hospital located next to our plant in Devnya, Bulgaria. In India, we mobilized the SSF to help guar farmers, whose livelihood was jeopardised by the crisis. In total, the Fund provided financial support worldwide to 1,600 families last year.

I would say that we are emerging from 2020 feeling proud of Solvay, even perhaps a little more so than in previous years. I certainly am, and I observe it around me among the different stakeholder groups who bond to constitute the Solvay people. We have made decisions – some of them were difficult, with an impact on the organization and consequently, employment. But we always balanced safety, business, financial performance, communities and welfare. Speed and agility were indispensable, but not forced upon us: we acted quickly because we all concurred it was the just thing to do. That gave us the strength to face and overcome daily challenges while at the same time preparing Solvay for the future.

Nicolas Boël

Nicolas Boël
Chairman of the Board of Directors

We reinvented progress in 2020

2020 was the year we unveiled our Company Purpose... and literally just a few weeks after our inspiring inauguration, the tidal wave of Coronavirus submerged the world. With today's hindsight, I embrace this concomitance gratefully, because the outbreak and its consequences – albeit dramatic – allowed us to live our Purpose in full: "We bond people, ideas and elements to reinvent progress" was our beacon, our North Star. We demonstrated that we were essential to the world and we actually capitalized on the crisis, accelerating reforms to unleash our company's full potential. Today, I can proudly assert that we have emerged stronger.

by Ilham Kadri, President of the Executive Committee and CEO

As an industrialist, I am first and foremost satisfied to see that Solvay has become a safer workplace: last year, fewer colleagues than ever before sustained an injury requiring medical treatment.

2020 also turned out to be the most opportune year to nurture our special bonds with our customers, if only to keep the supply chain operating smoothly, even though half of the globe was under lockdown. But we went beyond: we remained at their service, we adapted to their unprecedented challenges, we proposed solutions and even won new customers! One touching anecdote illustrates our state of mind – our customer obsession – which prevailed at the time: when Boeing was asked by the US government to manufacture face shields to protect lives, they turned to Solvay for support and high performing materials. It is no coincidence: our ambition is to be the first ones our customers call, always. Many of them actually called us to share their worries as they were facing starkly declining markets – which in turn prompted us to quickly adapt.

We took immediate measures to rein in our own production and furloughed a large portion of our workforce. At the same time, because we cherish our bonds with our employees, we immediately put in place a safety net to limit the social impact of the general slowdown. With the generous support of our Group leaders, our employees and our shareholders, we also created the Solvay Solidarity Fund to alleviate the hardship endured by the most severely hit. We kept in constant contact, with some 10,000 people working from home, through regular surveys and frequent webcasts open to all, during which I explained how we were navigating the crisis. On those occasions, our employees also expressed particular pride in our ability to support our communities.

Within days, teams had transformed Solvay facilities to churn out urgently-needed, life-saving products. Solvay donated over 700,000 liters of hydrogen peroxide; 350,000 facemasks; 114,000 pieces of Personal Protective Equipment; 1,000,000 bottles of disinfectant gel; materials to produce over 6,700 reusable face shields… The page compiling our colleagues' initiatives was buzzing with an uninterrupted flow of generous news, acting as an emotional reminder that our activities are essential to the world. Governments concurred – and asked us to keep operating through all lockdowns, worldwide.

Our reactiveness as well as our ability to bond with our stakeholders allowed us to navigate the crisis successfully, which is reflected in our financial performance: 2020 was a year in which Solvay achieved an unprecedented level of Free cash flow. This made it possible, in turn, to remunerate our shareholders and pay a special reward to our employees, while at the same time unlocking investments for the future and maintaining our R&I effort.

"Today, I can proudly assert that we have emerged stronger."

Two innovations which we brought to the market in 2020 were particularly noteworthy in times of Covid: Amni® Virus-Bac OFF, a solution to make textile yarn permanently antiviral and antibacterial, hence blocking the retransmission of viruses. And our Actizone™ disinfection technology protects surfaces for 24 hours, killing more than 99.9% of bacteria and viruses, including the flu and human coronavirus. Looking further and beyond, we were proud to announce the creation of a hydrogen platform that will bring together all of our innovative material and chemical solutions to advance the emerging green hydrogen and fuel cells economy, where we see a potential addressable market of €3 billion for the Solvay group.

The Hydrogen platform as well as its Batteries and Thermoplastic Composites (TPC) peers are instrumental in Solvay's G.R.O.W. strategy, which we have begun deploying resolutely in 2020 – even though the crisis has prompted us to defer the Growth perspectives of our "G" segment. As part of our strategy, we have further accelerated the simplification of our portfolio with seven divestment operations totalling some €1.8 billion in net sales – including Polyamides. In the first quarter of 2020, we also aligned the structure of our GBUs, where relevant, to their new missions as set in our G.R.O.W. ambition. Furthermore, we have undertaken preparations for a sweeping reorganization of our business support activities, called WeShape, which was effectively launched at the outset of 2021.

As a final illustration of our ability to prepare for the future while at the same time navigating the crisis, we unveiled in 2020 our new sustainability ambition, Solvay One Planet, which is inspired by the United Nations Sustainable Development Goals. It features ten measurable commitments in three key focus areas: climate, resources and better life, which we presented to investors at a dedicated ESG webinar on October 2, 2020. We are for instance eliminating the use of coal for energy production, accelerating the circular economy and making paid parental leave accessible to all employees, worldwide, irrespective of gender or sexual orientation.

I am particularly proud that we raised the bar once again, as we aligned with the Science Based Targets initiative and decided to reduce our Greenhouse gas emissions twice as fast than under our previous goal for 2030, effectively closing up with a Paris Agreement trajectory. We more than lived up to our commitments last year, as we substituted coal for cleaner energies in two important production sites. Our emissions fell by 20%, including an 8% structural decrease (unrelated to the global economic slowdown) since 2018, which is more than twice the annual average dictated by the Paris Agreement.

We are honored to see our sustainability achievements acknowledged by independent observers. Yet we must keep progressing, with objectivity and transparency. We at Solvay acknowledge that we are in some instances not yet where we want to be, and we are activating all the levers we have at our hand to find solutions where needed. Even more importantly, we know for certain that we are part of the solution to create a better world for our children. Chemistry is the mother of all industries and we are present in every value chain; our innovation is instrumental to separate, combine and recombine elements, making products and materials more durable and reusable. Without us, there will be no green hydrogen, no zero emission cars or no circular economy.

We are consequently certain that the combination of our agility in times of crisis, our ability to reinvent ourselves and to develop innovative solutions, all inspired by an engaging purpose, opens fabulous opportunities to create sustainable shared value for all – for our clients, our employees, our shareholders and for the generations to come.

Ilham Kadri
President of the Executive Committee and CEO

Key figures

We are a science company whose technologies bring benefits to many aspects of daily life. Our innovative solutions contribute to safer, cleaner, and more sustainable products found in homes, food and consumer goods, planes, cars, batteries, smart devices, health care applications, water and air purification systems.

Our Group seeks to create sustainable shared value for all, notably through its Solvay One Planet plan crafted around three pillars: protecting the climate, preserving resources and fostering better life. Founded in 1863, Solvay today ranks among the world's top three companies for the vast majority of its activities.

Countries

64

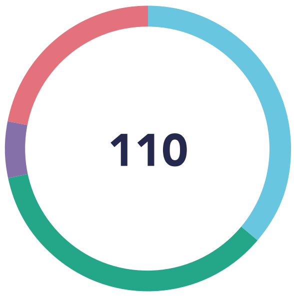
Solvay around the world

Europe | North America | Latin America | Asia & Rest of the world

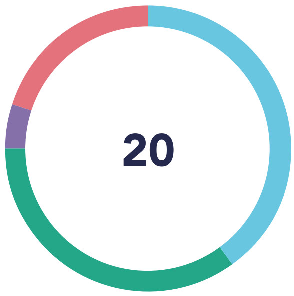
Net sales

Employees

Industrial sites



Major Research & Innovation centers



	Net sales	Employees	Industrial sites	Major Research & Innovation centers
Europe	29%	48%	40	8
North America	28%	24%	39	7
Latin America	11%	10%	7	1
Asia & Rest of the world	32%	18%	24	4

Research & Innovation

1,950
Employees

€291M
R&I effort

15%
New sales ratio*

77%
of expected R&I revenue from "Sustainable solutions"**

* % of products / applications < 5 years, **according to our SPM methodology

Financial indicators (2020 versus 2019)
Social and environmental indicators (2020 versus 2018)

Climate Resources Better life

1,945
Underlying EBITDA
In € million
–13.9% organic basis[1]

10.1
Greenhouse gas emissions[5]
Million tons CO_2eq.
–20% constant scope

52%
Sustainable solutions (SPM)
% of Group sales
+2 pp

963
Free cash flow[2]
In € million
+58.8%

27
Solid fuels
Petajoules
–18%

70
Non-recoverable industrial waste
Thousand tons
–27%

6.9%
ROCE[3]
–1.2 pp

107
Pressure on biodiversity[6]
–12%

313
Intake of freshwater
Million m^3
–5%

3.75[4]
Dividend
In € per share
Stable

5%
Circular economy[7]
% of Group sales based on circular raw materials or energy
+1 pp

0.40
Medical treatment accident rate[8]
Per million hours worked
–26%

24.6%
Women in mid & senior management
+0.9 pp

1: Organic growth excludes forex conversion and scope effects. 2: Free cash flow to Solvay shareholders is the free cash flow after payment of net interests, coupons of perpetual hybrid bonds and dividends to non-controlling interests. This represents the cash flow available to Solvay shareholders, to pay their dividend and/or to reduce the net financial debt. 3: Return on Capital employed, 4: Recommended to the Shareholders meeting on May 11, 2021, 5: Total greenhouse gas emissions, scopes 1 and 2, 6: in number of animal or plant species potentially impacted in one year. ReCiPe method for biodiversity impact assessment,
7: Circular economy indicators are still in the development phase, in the frame of the Circulytics® approach, co-developed with the Ellen MacArthur Foundation, 8: Rate of accidents with medical treatment, with or without work stoppage; employees and contractors

Management report

Solef® PVDF, a high performance material for Li-on batteries, has been awarded the Efficient Solutions label by the Solar Impulse Foundation.

Executive summary

Although the year 2020 came with substantial challenges, each of them showcased the breadth and depth of Solvay's strengths, as the information in this Annual Report reflects.

As a leader in providing solutions to some of the world's most pressing needs, in 2020 we were able to supply numerous products to help manage the pandemic. We were also able to continue to address increasing needs to:

- Conserve scarce resources;
- Ramp up hyper-connectivity;
- Support mobility;
- Prioritize clean sources of energy;
- Make healthcare and sanitization solutions more accessible;
- Enable more efficient, cleaner product manufacturing; and
- Increase agricultural yields.

Solvay accomplished all this while moving toward a low-carbon and more inclusive global economy.

Sustainability is integrated in all our key strategic decisions, including research and innovation, capital expenditure, M&A activities and investment decisions. There are the reasons that, in 2020, The Wall Street Journal named Solvay as one of the world's 100 most sustainable companies. Solvay is also recognized as a leader in the ESG reporting frameworks and independent ESG raters.

This 2020 Annual Report documents this convergence, and should be read in complement of the 2020 Integrated Report. Here are just a few highlights from these:

Financial sustainability. Knowing that financial sustainability is the foundation for all other types of sustainability, we took numerous steps to enhance our financial foundation and performance, including by:

- Delivering seven straight quarters of strong free cash flow;
- Achieving cost savings of €332 million; and
- Reducing net debt by €1.2 billion.
- Making exceptional contributions to our pension plan to put us on track to reduce pension cash costs by €100 million per year;
- Structurally improve working capital, including reducing receivable overdue levels by a record amount.

Leaders in areas of rapidly growing demand. In 2020, we took numerous significant steps to align our core products, services, and competencies with the most rapidly growing markets, regulatory, policy, and scientific demands, including:

- Launching two virus fighting innovations, which helped prevent the spread of COVID-19;
- Adding a Key Accounts Program that is generating new business from our largest clients;
- Providing advanced materials to support growing demand for hyper-connectivity;
- Supporting the semi-conductor sector with key chemicals and materials;
- Supplying polymers for new generation OLED and flexible displays;
- Launching our Green Hydrogen Platform;
- Supplying key materials to the 3D printing sector and partnering with software companies to provide complete 3D printing solutions;
- Supplying innovative products to meet the world's new standards for cleanliness; and
- Renewing key aerospace contracts.

Positioning Solvay as a sustainable company. We took numerous steps to strengthen our commitments, including:

- Launching Solvay ONE Planet aligned with our G.R.O.W. strategy and Purpose;
- Adding Science-Based Targets;
- Coal phase-out and deployment of an energy transition programme;
- Partnering with Mitsubishi to recycle more advanced materials;
- Creating many products that support human health including two key anti-viral products and a large number of personal protection equipment items;
- Supplying bio-based ingredients to the organic and natural consumables markets;
- Initiating a battery recycling partnership with Veolia and ramping up our programs that extract and purify key battery elements.

Putting our people first. We took numerous steps to recruit, retain, protect, listen to, value, and support our employees. In 2020, we:

- Created the Solvay Solidarity Fund to help employees adversely affected by the pandemic;
- Enabled remote working as the Group's global standard;
- Added pulse surveys to our many employee communications programs;
- Strengthened talent pipeline with programs encouraging STEM-related careers and educational sessions; and
- Set a goal of achieving gender parity amongst our mid- and senior level managers by 2035.

We thank you for your interest in Solvay. Together, we can fulfill our purpose to bond people, ideas and elements to reinvent progress and change the future.

C

Corporate Governance Statement

Corporate Governance statement

1. INTRODUCTION

GRI Disclosures 102-25

Solvay SA – headquartered in Belgium – is committed to the highest Belgian governance principles and seeks to consistently strengthen its corporate governance practices and disclosures, emphazing transparency and promoting a culture of sustainable long-term value creation.

Solvay's governance bodies are responsible for maintaining the Group's long-term thinking, pursuing the vision of Solvay's founder, and implementing the Group's strategy. The Board of Directors is entrusted with challenging and supporting the Executive Committee in implementing Solvay's strategy.

This Corporate Governance Statement adheres to the recommendations of the 2020 Belgian Corporate Governance Code (the "Belgian Governance Code"), which companies can apply on a "comply or explain" basis. The Corporate Governance Statement includes additional factual information with respect to Solvay's corporate governance practices and relevant modifications thereto, together with details on directors and executive compensation and of relevant events that took place during the preceding year.

Except for the principles set out in 7.6 and 7.9 of the Belgian Governance Code (see Compensation Report) this Corporate Governance Statement complies fully with all the recommendations of the Belgian Governance Code.

The Corporate Governance Charter (the "Charter") adopted by the Board of Directors of Solvay on December 11, 2019 is available on Solvay's website and describes the main aspects of the Solvay Group's corporate governance, including its governance structure and the internal rules of the Board of Directors, the Executive Committee, and other committees set up by the Board of Directors.

2. CAPITAL, SHARES AND SHAREHOLDERS

2.1. CAPITAL

Solvay's capital amounts to €1,588,146,240 and comprises 105,876,416 issued shares. No changes were made to the Company's capital in 2020.

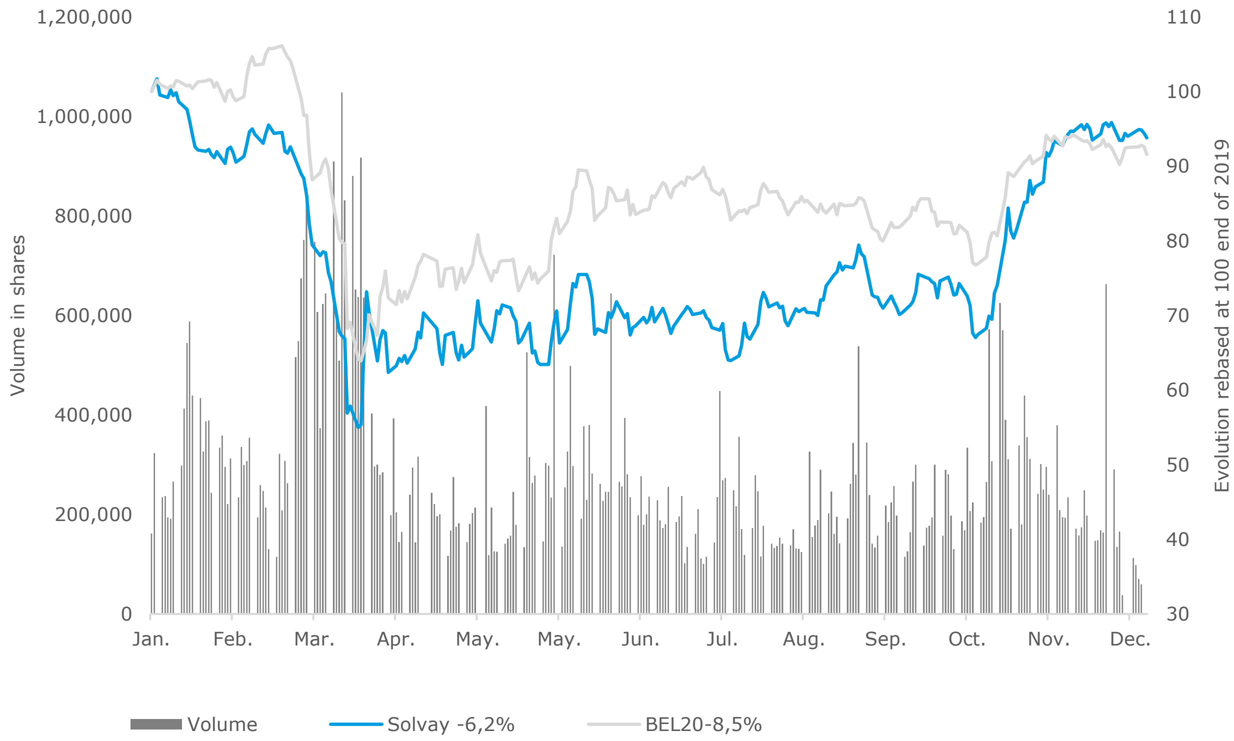
2.2. SOLVAY SHARES

Solvay (SOLB.BE) is listed on Euronext Brussels, its primary listing. Solvay has a secondary listing on Euronext Paris. Solvay shares are also traded over the counter (OTC) as a Level 1 sponsored American Depository Receipt (ADR) through Citibank since October 1, 2016.

Solvay is a constituent of the BEL20, the main Belgian index. In September 14, 2018 Solvay became part of the Next20 index following the exit from the CAC40 index in France. Solvay is still considered to be the largest (specialty) chemicals company on the Paris stock exchange. Solvay shares are part of other major indexes including the BEL Chemicals, STOXX family (DJ STOXX and DJ Euro STOXX), MSCI index, Euronext 100, Dow Jones Sustainability TM World Index, and FTSE4Good Index.

During 2020, the average share price (at end of day close) was €79.32 while the 52-week range was €52.82 – €105.25 per share. Average daily trading volume as reported by Euronext was 278,870 shares in 2020, compared to 256,046 shares in 2019. Solvay's closing share price on December 31, 2020 was €96.88, which represents a decrease of 6.2% compared to the end of 2019. It was impacted by the covid-19 related slowdown at the end of the first quarter along with global markets, peers and customers. After the second and third quarters stabilization, third quarter earnings (with relative portfolio resilience, strong cash generation and high levels of cost reductions) were a catalyst for a recovery during the last quarter of the year.

Solvay share prices and trading volumes from January 2, 2020 to December 31, 2020



2.3. SHAREHOLDERS

2.3.1. Shareholder Structure

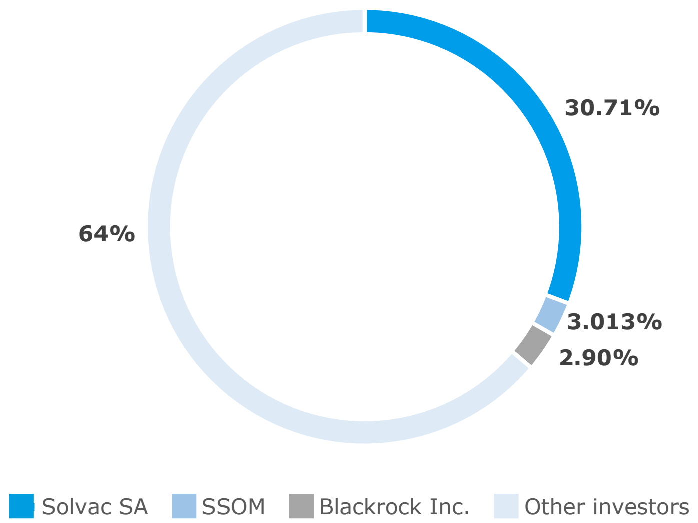
As at December 31, 2020, the Company's capital was represented by 105,876,416 ordinary shares (to be considered as denominators for transparency notifications). All Solvay shares are entitled to the same rights. There are no different classes of shares and the "one share, one vote" principle is upheld.

Solvay ordinary shares can be held as:

- Registered shares: within Solvay's Register, managed by the Solvay Registered Shares Management Service. This type of holding enables shareholders to benefit from free custody and administration fees, invitation to Shareholders' General Meeting, dividend and tax reporting paid, etc. Solvac SA holds its shares in registered form.
- Dematerialized shares: remain with a financial intermediary, who manages them.

The chart below represents Solvay's shareholder structure, including the notifications made by shareholders as of December 31, 2020. The transparency notifications are required by Belgian law and/or pursuant to Solvay's bylaws, when the shareholding crosses the thresholds of 3%, 5%, 7.5% or any multiple of 5%.

Shareholder structure



- Solvac SA gave notice that it held 30.71% of Solvay's capital on March 28, 2018.
- Solvay Stock Option Management SRL notified Solvay, through Solvac SA, that its shareholding amounted to 3.013% (voting rights) on March 28, 2018.
- Blackrock Inc., an institutional investor, gave notice on December 8, 2020, that it holds a 2.90% interest. In 2020, Blackrock Inc. crossed the 3% threshold (up or down) 30 times, generating the same amount of notifications to Solvay.

The remaining shares for approximately 64% are thereby held by institutional and retail shareholders.

Solvac

Solvay's largest shareholder is Solvac SA ("Solvac"), which holds 21,375,033 shares, representing 30.71% of Solvay's issued share capital.

Solvac SA is a public limited liability company established under Belgian law, founded in 1983 and its annual reports indicate that its primary asset consists of shares in Solvay

Solvac's shares are traded on Euronext Brussels and have approximately 13,000 shareholders. Among them, more than 2,300 persons are related to the founding families of Solvay, which combined hold approximately 77% of Solvac shares.

Solvac's Board has expressed its strategic investment objective in Solvay in its 2019 Corporate Governance Statement:

"*Solvac supports the development of Solvay's strategy focused on its transformation towards world leadership in advanced materials and specialty chemicals. Solvac supports the Solvay One Planet initiative and its ambitious commitments. Solvac underlines the importance for it to see Solvay maintain its policy of stable and, if possible, increasing dividends, as well as prudent financial discipline leading to an investment grade qualification of its short and long term debt.*"

Considering Solvac's stated investment objective and its engagement track-record with Solvay since its initial investment in 1983, a relationship agreement with Solvac has not been considered necessary and there is no requirement to have Solvac representation on Solvay's Board.

Solvay Stock Option Management

Solvay Stock Option Management SRL, is an indirect subsidiary of Solvay, and holds 3.013% of Solvay's capital through shares and purchase options. These are held as part of the Group's strategy to hedge the risk linked to stock options granted by Solvay to senior executives of the Group.

2.4. RELATIONS WITH INVESTORS AND ANALYSTS

Solvay has an open and constructive dialogue with the investment community as it seeks to promote a sound understanding of strategic objectives and performance delivery, founded on strong ESG (Environment, Social and Governance) credentials.

Solvay also embraces and adheres to guidelines issued by the FSMA (Belgian Financial Services and Markets Authority) and it complies fully with disclosure obligations defined by Belgian law and contained in the Market Abuse Regulation (EU) 596/2014 (MAR).

Solvay provides accurate information in a transparent, timely, and meaningful manner to help the investment community understand Solvay's business and strategy, leading to a fair valuation by the market. Extensive information about Solvay's business operations, strategy, and financial performance may be found in a wide variety of regulatory and other publications, such as the Annual Integrated report, financial reports and press releases, as well as on the company's website (www.solvay.com).

The Head of Investor Relations and her team ensure a close relationship with the investment community throughout the year. The CEO and the CFO also prioritize interactions with various members of the investment community and during the sanitary crisis have held a significant number of interactions throughout the year via roadshows and investor conferences using digital technologies.

All these interactions are based on public information and any new presentation material is made available on Solvay's website immediately.

In early 2020, quickly after COVID-19 started impacting all our global operations and people, Solvay set up the "Solvay Solidarity Fund" to take our Purpose a step further by supporting our employees and their loved ones through hardship due to the global coronavirus pandemic. In its willingness to promote a form of responsible capitalism, Solvay proposed to its shareholders to contribute to the "Solvay Solidarity Fund", by donating a portion of their final 2020 dividend. €12 million were raised by shareholders.

Whilst Solvay's ESG efforts are communicated through its public disclosures as well as discussed in its investor engagements, Solvay's held its first ESG-focused webinar on October 2 2020 to present the Solvay One Planet Program. The webinar, hosted by the CEO, was attended by current shareholders, potential investors, market analysts, employees, and other market participants. The recording of the event is available on the website.

2.4.1. Interactions with Solvac and Solvay founding families

Solvay has regular meetings with its major reference shareholder Solvac, and presentations that are used are published on Solvay's website. The CEO and CFO gave two digital presentations to Solvac's Board of Directors following the announcement of Solvay Group's half and full-year results. An additional training has been organized on risk management.

In 2020, Solvay's management participated at three digital events organized by Solvay's founding families to update them on strategy and results

2.4.2. Interactions with sell-side analysts

Solvay is covered by 22 sell-side analysts who regularly publish research on the Company. In 2020, two brokers dropped coverage due to their own restructurings and one broker initiated coverage on Solvay. The up-to-date list of covering analysts can be found on Solvay's website.

Apart from regular individual meetings, emails, phone conversations, Solvay organizes quarterly conference calls between CEO and CFO and the sell-side analysts following the publication of Group's results. Although specifically geared to analysts, these conference calls are accessible live to all investors and remain available subsequently through replay or transcript on Solvay's website.

2.4.3. Interactions with institutional investors

Solvay mainly interacts with institutional investors following the announcement of Solvay's quarterly, half- and full-year results. As a result of COVID-19, in 2020, all one-on-one meetings and investors conferences were attended by Solvay digitally.

In 2020, Solvay participated in 37 events (among which 17 interactions were with senior management), consisting of 13 digital roadshows and 24 digital conferences in countries across Europe, North America and Asia.

In many of the meetings with the financial community, the Solvay's CEO and the CFO are present. They discuss different topics, including quarterly earnings results, market conditions, the prospects for the current year and the medium-term strategy. Particular attention was given in 2020 on how management was adapting to the COVID-19 crisis, highlighting for example the accentuated focus on cash generation and the deepening and acceleration of temporary and structural cost reduction measures.

2.4.4. Interactions with stewardship teams at shareholders and ESG research providers, including proxy advisors

At least once a year, Solvay's practice has been for the Head of Investor Relations and the Group Corporate Secretary to reach out directly to stewardship teams of certain institutional investors and to ESG Research providers, including proxy advisors. The purpose of this engagement exercise is to better understand the changes to their methodologies and policies as well as actively solicit their feedback as to how Solvay can further improve upon its ESG practices and disclosures.

2.4.5. Interactions with individual investors

Every shareholder has access to clear, comprehensive, transparent information tailored to his or her individual needs through a dedicated section on Solvay's website called "Shareholders' corner" (available in French, Dutch and English). Every shareholder is encouraged to also subscribe to the Solvay Investors' Club to ensure timely information is sent to them directly. In addition, Solvay's Investors Relation team (investor.relations@solvay.com) and Solvay's Shareholder Service (shareholders@solvay.com) responds to all queries.

Solvay also engages with private banks, regularly interacting with their analysts and participating at their events dedicated to private investors.

In 2020, Solvay participated in two digital events tailored for individual shareholders in Belgium.

3. GENERAL MEETINGS OF SHAREHOLDERS

At the Ordinary Shareholders' Meeting held on Tuesday, May 12, 2020, 59.73% of the shares were represented. All the resolutions were approved as follows:

Resolutions	Votes in favor
Approval of the compensation report	95.2%
Approval of the 2019 accounts and distribution of earnings	98.1%
Discharge of liability to the Board members	98.3%
Discharge of liability to the external auditor	98.6%
Approval of the compensation policy	96.9%
Appointment of Aude Thibaut de Maisières as Board member	98.9%
Confirmation as independent Board member of Aude Thibaut de Maisières	79.9%

An Extraordinary General Meeting was scheduled for April 3, 2020 to vote on several amendments to the Articles of Association. Given the legal quorum of 50% of the shares represented was not achieved, a second Extraordinary General Meeting was called for May 12, 2020. All the resolutions were supported as follows:

Resolutions	Votes in favor
Replacement of Article 7bis of the Articles of Association on the increase of the authorized capital	96.7%
Authorization to buy back own shares	98.4%
Means of voting at the shareholders' meeting	99.99%
New articles of association	99.5%

4. BOARD OF DIRECTORS AND BOARD COMMITTEES

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The Charter defines the role and mission, functioning, size, composition, training, and evaluation of the Board of Directors. The internal rules of the Board of Directors are attached to the Charter.

4.1. BOARD OF DIRECTORS

4.1.1. Structure and composition

As at December 31, 2020 the Board was composed of 15 Directors and had the following attributes:

- The role of Chair and CEO are separated;
- 14 of the 15 Directors on the Board are non-executive, representing a wide diversity of competencies as highlighted in the table below;
- 11 of the 15 Directors have been recognized as independent by the Ordinary Shareholders' Meeting, according to the criteria defined by the Belgian Governance Code and further refined[1] by the Board of Directors;
- 5 of the 15 Directors were appointed in the last three year;
- Directors represent seven different nationalities;
- More than half of the Board is comprised of women Directors; and
- The overall meeting attendance by Directors stood at 98,6 %.

Mr. Jean-Marie Solvay left the Board at the Ordinary Shareholders' Meeting of May 12, 2020, and was replaced by Ms Aude Thibaut de Maisières. Her mandate will expire at the end of the Ordinary Shareholder's Meeting to be held in May 2024.

At the end of the Ordinary Shareholders' Meeting of Tuesday, May 11, 2021:

- the mandate of Ms Evelyn du Monceau will expire and will not be proposed for renewal (age limit);
- Mr. Edouard Janssen will be proposed for a four-year term at the Ordinary Shareholder's Meeting of Tuesday May 11,2021;
- the mandates of Mr Nicolas Boël, Ms Ilham Kadri, Mr Bernard de Laguiche, Ms Françoise de Viron, and Ms Agnès Lemarchand will expire and they will be proposed for a four-year term until the end of the Shareholders' Meeting of 2025;
- the mandate of Mr Hervé Coppens d'Eeckenbrugge will expire and it will be proposed to be renewed for a three-year term. His mandate will expire at the end of the Shareholders' Meeting of 2024;
- the mandate of Mrs Amparo Moraleda will expire and she is not a candidate for a term renewal for personal reasons. A further new candidate will be proposed at the Ordinary Shareholder's Meeting of Tuesday May 11,2021.

[1] According to the Corporate Governance Charter, a criteria has been added to the existing ones in the Belgian Corporate Governance Code : one year of waiting between on mandate in Solvay and Solvac Board

✪ Year of first appointment ☑ Presence at Board meetings in 2020

Nicolas Boël

Belgian
Non independent Director
✪ 1998 ☑ 10/10

Born in: 1962

Solvay SA mandates: Chairman of the Board of Directors, Chairman of the Finance Committee, Chairman of the Compensation Committee, Member of the Nomination Committee

Directorship expiry date: 2021

Diplomas: MA in Economics (Université catholique de Louvain, Belgium). Master of Business Administration (College of William and Mary, Virginia, US)

Others directorships:
- Publicly-listed companies: Board Member of Sofina SA.

Ilham Kadri

French/Moroccan
Non independent Director
✪ 2019 ☑ 10/10

Born in: 1969

Solvay SA mandates: Chairwoman of the Executive Committee, Director, Member of the Finance Committee

Directorship expiry date: 2021

Diplomas: Degree in chemical engineering from l'Ecole des Hauts Polymères in Strasbourg, PhD in macromolecular physico- chemistry from Strasbourg's Louis Pasteur University

Others directorships:
- Publicly-listed companies: Board Member of A. O. Smith Corporation and L'Oreal SA.

Bernard de Laguiche

French/Brazilian
Non independent Director
✪ 2006 ☑ 10/10

Born in: 1959

Solvay SA mandates: Member of the Executive Committee until September 30, 2013, Director, Member of the Finance Committee & Member of the Audit Committee since May 13, 2014

Directorship expiry date: 2021

Diplomas: MA in Economics and Business Administration, HSG (Universität St. Gallen, Switzerland). MBA in Agribusiness, University of São Paulo (USP ESALQ)

Others directorships:
- Publicly-listed companies: Managing Director of Solvac SA.

Jean-Marie Solvay

Belgian
Non independent Director
✪ 1991 ☑ 4/4

Born in: 1956

Solvay SA mandates: Director, Member of the Innovation Board, Member of the Compensation and Nomination Committees until May 2020

Directorship expiry date: 2020

Diplomas: Advanced Management Programme – Insead

Others directorships:
- Publicly-listed companies: None.
- Other roles: Albrecht RE Immobilien GmbH & Co. KG (CEO); Chair of the International Solvay Institutes; Board Member of The Innovation Fund.

Charles Casimir-Lambert

Belgian
Non independent Director
✪ 2007 ☑ 10/10

Born in: 1967

Solvay SA mandates: Director. Member of the Finance Committee

Directorship expiry date: 2023

Diplomas: MBA Columbia Business School (New York, USA)/London Business School (London, UK). Master's degree (lic.oec.HSG) in Economics, Management and Finance (Universität St. Gallen, Switzerland)

Others directorships: None

Hervé Coppens d'Eeckenbrugge

Belgian
Independent Director
✪ 2009 ☑ 10/10

Born in: 1957

Solvay SA mandates: Independent Director, Member of the Finance and Audit Committees

Directorship expiry date: 2021

Diplomas: MA in Law from the Université catholique de Louvain (Belgium). Diploma in Economics and Business, ICHEC (Belgium)

Others directorships:
- Publicly-listed companies: None
- Other roles: Vital Renewable Energy Company LLC (Board Member)

Evelyn du Monceau

Belgian
Independent Director
✪ 2010 ☑ 9/10

Born in: 1950

Solvay SA mandates: Independent Director, Member of the Compensation and Nomination Committees

Directorship expiry date: 2021

Diplomas: MA in Applied Economics from the Université catholique de Louvain (Belgium)

Others directorships:
- Publicly-listed companies: Chair of the Board and Chair of the Governance, Remuneration and Nomination Committee of UCB SA; Board Member of La Financière de Tubize SA.
- Other roles: Member of the Corporate Governance Committee (Belgium).

Françoise de Viron

Belgian
Independent Director
✪ 2013 ☑ 10/10

Born in: 1955

Solvay SA mandates: Independent Director, Member of the Compensation and Nomination Committees.

Directorship expiry date: 2021

Diplomas: Doctorate of Science (Université catholique de Louvain, Belgium). Master in Sociology (Université catholique de Louvain, Belgium)

Others directorships:
- Publicly-listed companies: None.
- Other roles: Professor at the Faculty of Psychology and Education Sciences and Louvain School of Management (Université catholique de Louvain, Belgium). Chairman and Director of AISBL EUCEN – the European Universities Continuing Education network.

Amparo Moraleda Martinez

Spanish
Independent Director
✪ 2013 ☑ 10/10

Born in: 1964

Solvay SA mandates: Independent Director, Member of the Compensation and Nomination Committees

Directorship expiry date: 2021

Diplomas: Degree in Industrial Engineering, ICAI (Universidad Pontifica Comillas, Spain) PDG. IESE Business School (Universidad de Navarra, Spain)

Others directorships:
- Publicly-listed companies: Board Member and Chair of the Remuneration, Nomination and Governance Committee of Airbus SE; Board Member and Chair of the Remuneration Committee of CaixaBank SA; Board Member of Vodafone plc
- Other roles: Member of the Supervisory Board of CSIC (Consejo Superior de Investigaciones Científicas); Member of the Advisory Board of SAP Spain; Member of the Advisory Board of SAP Spain; Member of the Board of Directors of Airbus Foundation

Rosemary Thorne

British
Independent Director
✪ 2014 ☑ 10/10

Born in: 1952

Solvay SA mandates: Independent Director, Member of the Audit Committee (Chairwoman since May 2018)

Directorship expiry date: 2022

Diplomas: Honours Degree in Mathematics and Economics from the University of Warwick (UK). Fellow of the Chartered Institute of Management Accountants FCMA and CGMA. Fellow of the Association of Corporate Treasurers FCT

Others directorships:
- Publicly-listed companies: None
- Other roles: Board Member and Chair of Audit Committee of Merrill Lynch International (UK)

Gilles Michel

French
Independent Director
✪ 2014 ☑ 10/10

Born in: 1956

Solvay SA mandates: Independent Director, Member of the Finance Committee, Member of the Compensation and Nomination Committees since March 2018

Directorship expiry date: 2022

Diplomas: École Polytechnique (France). École Nationale de la Statistique et de l'Administration Économique (ENSAE) (France). Institut d'Études Politiques (IEP)

Others directorships:
- Publicly-listed companies: Board Member of IBL Ltd. and Lead Independent Director and Chair of the Compensation Committee and of the Governance, Appointment and Corporate Social Responsibility Committee of Valeo SA

Marjan Oudeman

Dutch
Independent Director
✪ 2015 ☑ 10/10

Born in: 1958

Solvay SA mandates: Independent Director, Member of the Audit Committee since May 12, 2015

Directorship expiry date: 2023

Diplomas: Law degree, Rijksuniversiteit Groningen (the Netherlands). Masters Degree in Business Administration, Simon E. Business School, University of Rochester (New York, USA), and Erasmus Universiteit Rotterdam (the Netherlands)

Others directorships:
- Publicly-listed companies: Board Member of Aalberts NV; Board Member and Chair of the Audit Committee of UPM-Kymmene Oyj and Novolipetsk Steel
- Other roles: Board Memeber of SHV Holding NV

Agnès Lemarchand

French
Independent Director
✪ 2017 ☑ 9/10

Born in: 1954

Solvay SA mandates: Independent Director, Member of the Compensation and Nomination Committees

Directorship expiry date: 2021

Diplomas: Ecole Nationale Supérieure de Chimie de Paris (France). Chemical engineering degree from MIT (Boston, US). MBA degree from INSEAD

Others directorships:
- Publicly-listed companies: Board Member and Chair of the Corporate Social Responsibility Committee of Compagnie de Saint-Gobain SA; Board Member of bioMerieux SA

Philippe Tournay

Belgian
Independent Director
✪ 2018 ☑ 10/10

Born in: 1959

Solvay SA mandates: Independent Director. Member of the Audit Committee

Directorship expiry date: 2022

Diploma: MA in economics LSM-UCL (Université Catholique de Louvain, Belgium). INSEAD, International Director Programme (IPD) 2020

Other directorships:
- Publicly-listed companies: None
- Other roles: Vice Chairman of Fondation Tournay Solvay

Matti Lievonen

Finnish
Independent Director
✪ 2018 ☑ 10/10

Born in: 1958

Solvay SA mandates: Independent Director. Member of the Audit Committee

Directorship expiry date: 2022

Diplomas: BSc (Eng.), Savonia University of Applied Science. EMBA, Aalto University. DSc (Tec.) h.c Aalto University

Other directorships:
- Publicly-listed companies: Board Chair and Chair of the Nomination and Remuneration Committee of Fortum Oyj
- Other roles: CEO of Oiltanking GmbH; Member of the Shareholder Committee of Wintershall DEA

Aude Thibaut de Maisières

Belgian
Independent Director
✪ 2020 ☑ 6/6

Born in: 1975

Solvay SA mandates: Independent Director

Directorship expiry date: 2024

Diploma: MBA Columbia Business School (New York, USA), MSc London School of Economics (London, UK), MA University of La Sorbonne (Paris, France)

Other directorships:
- Publicly-listed companies: None
- Other roles: Member of the Investment Committee of The Innovation Fund; Co Founder, Sonic Womb Productions (London, UK)

4.1.2. Director skills and qualification Matrix

The members of the Board of Directors collectively bring a wide set of skills and experiences that is required to develop and oversee the Group's long term strategy and also helps the Board to identify which skills may be needed when considering new Board members.

These skills and experiences represented at the Board of Directors range from strong experience of international industries and markets, for many of them at executive level, to functional domains like human resources.

Each Director's skills and experience are presented in the below Board Skills Matrix.

	Chemical industry	Finance	Corporate management	Industrial	Research & development	Digital/IT	Sustainable development	Human resources	International experience
Nicolas Boël		●	●	●			●	●	●
Ilham Kadri	●	●	●	●	●	●	●	●	●
Bernard de Laguiche	●	●	●	●			●		●
Jean-Marie Solvay	●		●		●		●	●	
Charles Casimir-Lambert	●	●	●				●	●	●
Hervé Coppens d'Eeckenbrugge	●	●	●				●	●	
Evelyn du Monceau	●	●	●				●	●	●
Françoise de Viron	●		●		●	●	●	●	
Amparo Moraleda Martinez	●		●	●		●	●		
Rosemary Thorne		●	●				●		●
Gilles Michel	●	●	●	●			●		
Marjan Oudeman	●	●	●	●			●	●	●
Agnès Lemarchand	●	●	●	●			●		
Matti Lievonen	●	●	●	●		●	●		●
Philippe Tournay	●	●	●				●		
Aude Thibaut de Maisières	●	●			●	●			●

4.1.3. Functioning of the Board of Directors

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In 2020, the Board held five meetings and five additional meetings given the crisis context. Each director's attendance is shown in the table in section 3.1.1. Structure and composition.

The Board of Directors' discussions, reviews, and decisions were focused on, but not limited to, the annual review of Group's strategy, strategic projects (acquisitions, divestments, capital expenditures, etc.), capital allocation, financial reporting, , review of Solvay's sustainability initiatives, risk management, intra group restructuring, Board composition, and the reports and resolution proposals to the Shareholders' Meeting.

In light of COVID-19, the Board of Directors also oversaw the swift implementation of necessary measures to protect the health & safety of employees across its entire operations, ensuring compliance with applicable rules in each of the locations in which Solvay operates. To monitor the well-being of its employees, Solvay set-up the Pulse Survey, the results of which were regularly shared with the Board of Directors. At the same time, steps were taken to ensure business continuity, supply chain management, and ongoing support to all of Solvay's customers around the world.

The Board of Directors increased its interactions with the Executive Committee to ensure that all necessary measures were implemented pro-actively with a regular and reinforced monitoring of the evolution and impacts of COVID-19 on the Group's business and its stakeholders.

The evolution of the financial situation of the Group was closely monitored and focused on the cash flow management (reduction of costs, reduction of Capex, working capital requirement). Restructuring measures were also decided to adapt the structure of the business activities particular in Composite Materials whose main market (aeronautics) was severely affected by the COVID 19 crisis. These measures resulted in the shutdown of two industrial sites (US & UK) and the streamlining for the GBU organization.

Solvay created the Solvay Solidarity Fund which received generous contributions from its shareholders, executives and employees. Through this collaboration, Solvay was able to help the Group's employees that were heavily impacted by COVID-19.

During 2020, article 7:96 of the Code of Companies and Associations related to the conflict of interests has been applied by the Board of Directors on February 25, 2020 in the context of the decisions relating to the CEO remuneration:

"*Prior to any discussion or decision of the Board of Directors on this agenda item, Ilham Kadri declared that she has a direct financial interest in the implementation of the Board's decisions relating to her 2019 Bonus and her 2020 compensation.*

In accordance with Article 7:96 of the Code of Companies and Associations, Ilham Kadri withdrew in order not to attend the Board's deliberations on this decision and not to take part in the vote.

The Board has established that Article 7:96 of the Code of Companies and Associations is applicable to this decision.

Bonus 2019: The Board had an exchange of views on the evaluation of the CEO's performance in 2019, and on the score attributed to each of the individual and collective objectives, which at the end of this exchange were unanimously approved.

The Board underlines that achievements of the new CEO during the first year of her mandate is above expectation in all areas.

In line with the recommendation of the Compensation Committee, the Board sets the STI 2019 of the CEO at 118.4% of her base Salary, i.e. an amount of EUR 1,361,600.

The Board congratulates Ilham Kadri on the results achieved in 2019.

The Board sets the CEO's compensation for 2020:

- Base Salary: EUR 1,150k – unchanged;
- Bonus: principles unchanged;
- LTI: unchanged principles; amount of the LTI 2020: 862.5 kEUR in SOP and 862.5 kEUR in PSU (unchanged amounts).

The Board also approves the CEO's 2020 objectives as recommended by the Committee and attached to the Report".

4.1.4. Evaluation

Board evaluations are undertaken every two to three years with the objective to identify how it can improve its own functioning and better follow best practices. They focus primarily on the Board composition (including diversity and skills considerations), its functioning, disclosures and interactions with executive management, and the composition and functioning of the Committees it creates.

The evaluation was carried out at the end of January 2020, and consisted of a questionnaire built based on the evaluation process of Guberna (Belgian Association for Governance). All members of the Board, except the Chair, took part in the evaluation.

The responses were very homogeneous, notably on the execution and implementation of Solvay's business and sustainability strategy and on the cultural evolution of the Group. The interaction and way of working with the new CEO and the Executive Committee is appreciated by all Directors. As an area of improvement identified by the evaluation, the Board will dedicate more time to Human Capital (e.g. talent development) and innovation.

4.1.5. Induction and continuous Board training

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An Induction Program is in place for new Directors and open to each Director who wishes to participate. The program includes a review of the Group's strategy and activities and of the main challenges in terms of growth, competition, as well as finance, research & innovation, human resources management, legal context, corporate governance, and compliance.

Site visits are part of the Board's Continuous Training Program, combining meetings with management and local teams, business presentations and field tours. In 2020, due to COVID-19, no site visit was organized for the Board of Directors.

Every year the Board of Directors dedicates a specific session to receive updates on various themes to better understand the Group's strengths and weaknesses, including regarding ESG topics, and to determine the impacts of emerging trends on the Group's business and performance. In 2020, the Board of Directors received updates regarding Solvay's ESG risks and opportunities.

4.2. BOARD COMMITTEES

The Board of Directors has set up the following permanent Committees: Audit Committee, Finance Committee, Compensation Committee, and Nominations Committee. The Board has not set a standalone Board-level Committee to review Solvay's ESG performance, risks and opportunities as this is handled by the Board as a whole.

The terms of all the various Committee members expire on May 14, 2022.

	Independent Director	**Audit Committee**	**Finance Committee**	**Compensation Committee**	**Nomination Committee**
Mr. Nicolas Boël			Chairman Attendance: 6/6	Chairman Attendance: 3/3	Member Attendance: 4/4
Ms. Ilham Kadri			Member Attendance: 6/6		
Mr. Bernard de Laguiche		Member Attendance: 6/6	Member Attendance: 6/6		
Mr. Jean-Marie Solvay				Member Attendance: 1/1	Member Attendance: 1/1
Mr. Charles-Casimir Lambert		Member (1) Attendance: 3/3	Member (2) Attendance: 3/3		
Mr. Hervé Coppens d'Eeckenbrugge	•	Member Attendance: 6/6	Member Attendance: 6/6		
Ms. Evelyn du Monceau	•			Member Attendance: 3/3	Member Attendance: 4/4
Ms. Françoise de Viron	•			Member Attendance: 3/3	Member Attendance: 4/4
Ms. Amparo Moraleda Martinez	•			Member Attendance: 3/3	Chairwoman Attendance: 4/4
Ms. Rosemary Thorne	•	Chairwoman Attendance: 6/6			
Mr. Gilles Michel	•		Member Attendance: 6/6	Member Attendance: 2/3	Member Attendance: 4/4
Ms. Marjan Oudeman	•	Member Attendance: 6/6			
Ms. Agnès Lemarchand	•	Member (1)* Attendance: 4/4		Member (2)* Attendance: 2/2	Member (2)* Attendance: 2/3
Mr. Matti Lievonen	•	Member (2)* Attendance: 3/3	Member Attendance: 5/6		
Mr. Philippe Tournay	•	Member (2)* Attendance: 3/3			
Ms. Aude Thibaut de Maisières	•				

(1) *until May 2020
(2) *from May 2020

- Ms. Aude Thibaut de Maisières will be appointed to replace Evelyn du Monceau as member of the Nomination and of the Compensation Committees when she will leave the Board at the end of the Ordinary Shareholders' Meeting of May 11, 2021. Aude Thibaut will complete the current Committee member mandates of Evelyn du Monceau until the Ordinary Shareholders' Meeting of May 2022.
- Ms. Amparo Moraleda will leave the Nomination and Compensation Committees at the Ordinary Shareholders' Meeting of May 2021. The Chairmanship of the Nomination Committee will be assumed by Mr. Gilles Michel.

4.2.1. The Audit Committee

Composition:

- All members are non-executive directors, a majority of whom are independent.
- The members must fulfill the competency criterion by virtue of the training and the experience they gained in previous functions (see section 3.1.1. regarding the composition of the Board of Directors).
- The Secretary is a member of the Group's internal legal department.

Meetings:

- Six in 2020, including four before the Board meetings scheduled to consider the publication of periodic results (quarterly, semiannual and annual).
- Meeting attendance was 100%.

Activities:

- Review and consider reports from the CFO, the head of the Group Internal Audit, and the auditor in charge of the external audit (Deloitte, represented by Mr. Michel Denayer and Ms. Corine Magnin).
- During the period under review, the Audit Committee reviewed the independence and effectiveness of the external auditor, Deloitte.
- Examine the quarterly report by the Group General Counsel on significant ongoing legal disputes and reports on tax and intellectual property disputes.
- Meet with the auditor in charge of the external audit whenever such a meeting is deemed useful. Monitor and assess risk exposure as well as the effectiveness of internal controls and mitigation plans.
- Meet once a year with the Chairman of the Executive Committee and CEO (Ms. Ilham Kadri); all other Board members are invited on that occasion to discuss the major risks facing the Group.

4.2.2. The Finance Committee

Composition

- Seven members,
- Mr. Karim Hajjar (Executive Committee member and CFO) is invited to attend Finance Committee meetings.
- The Secretary is Mr. Michel Defourny, Group Corporate Secretary.

Meetings:

- The Finance Committee met six times in 2020
- Attendance was 97,6%.

Activities

- Gives an opinion on financial matters such as the amounts of the interim and final dividends, the levels conditions and currencies of indebtedness, monitoring the credit strength of the Group's balance sheet, hedging foreign exchange and risks, the hedging policy for the long-term incentive plans, the content of financial communication, and financing major investments.
- Finalizes the preparation of the press releases announcing the Group's results.
- When called upon, it gives opinions on Board policies on the above matters.
- Makes recommendations to the Board of Directors.
- Specifically, in 2020, the Committee also met to understand management's actions in relation to liquidity management and its strategies for preserving credit strength in the face of uncertainty related to the evolving COVID-19 crisis.

4.2.3. The Compensation Committee

Composition:

- All members are non-executive directors, a majority of whom are independent.
- The Compensation Committee has the expertise necessary to perform its mission.
- The Chairwoman of the Executive Committee is invited to meetings, except in the case of matters that concern her personally.
- The Secretary is Mr. Michel Defourny, Group Corporate Secretary.

Meetings:

- Meetings are prepared by the Group Chief People Officer, who attends the meetings.
- Three meetings were held in 2020.
- Meeting attendance was 95,2%.

Activities:

The Compensation Committee fulfills the duties imposed on it by Article 7:100 of the Code of Companies and Associations). It advises the Board of Directors on:

- The preparation of the Company's compensation policy and compensation report,
- The compensation levels for members of the Board of Directors and the Executive Committee,
- The Chairwoman of the Executive Committee's compensation, short and long-term incentives, and performance assessment,
- The allocation of long-term incentives (performance share units and stock options) to the Company's senior management.

The Compensation Committee prepares the annual compensation report for the Corporate Governance Statement and receives a yearly report about the compensation of General Management.

4.2.4. The Nominations Committee

Composition:

- All members are non-executive directors, a majority of whom are independent.
- The Chairwoman of the Executive Committee is invited to meetings, except in the case of matters that concern her personally.
- The Secretary is Mr. Michel Defourny, Group Corporate Secretary.

Meetings:

- Four meetings were held in 2020
- Meeting attendance was 96,4%.

Activities:

The Nomination Committee gives its opinion on the composition and appointments to the Board of Directors (chairman, new members, renewals, and committees), to Executive Committee positions (chairman and members), and to general management positions.

In 2020, taking into account the results of the externally facilitated Board evaluation process and the succession plans, the Nomination Committee reviewed the composition of the Board of Directors to ensure that the relevant skills and experience are represented to help oversee Solvay's long-term strategy whilst ensuring continuity and stability to navigate the COVID-19 crisis.

This review by the Nominations Committee resulted in the unanimous proposal of the Board to the AGM for mandate renewals and new Board members

5. EXECUTIVE COMMITTEE

The role, responsibilities, composition, procedures and evaluation of the Executive Committee are described in detail in the Charter. In addition, the internal rules of the Executive Committee are attached to the Charter.

As at December 31, 2020 the Executive Committee was composed of the following six members.

✪ Year of first appointment ☑ Presence at meetings in 2020

Ilham Kadri

French/Maroccan
✪ 2019 ☑ 13/13

Born in: 1969
Term of office ends: 2023

Diplomas and main Solvay activities: Degree in chemical engineering from l'Ecole des Hauts Polymères in Strasbourg, PhD in macromolecular physico- chemistry from Strasbourg's Louis Pasteur University.

Chairwoman of the Executive Committee and CEO

Karim Hajjar

British
✪ 2013 ☑ 13/13

Born in: 1963
Term of office ends: 2021

Diplomas and main Solvay activities: BSC (Hons) Economics (The City University, London). Chartered Accountancy (ICAEW) Qualification.

Executive Committee member and CFO.

Augusto Di Donfrancesco

Italian
✪ 2018 ☑ 13/13

Born in: 1959
Term of office ends: 2022

Diplomas and main Solvay activities: Graduated from Pisa University with a Master's degree in Chemical Engineering, Senior Executive program from London Business School. Member of the Plastics Europe steering Board.

Executive Committee Member Solvay

Vincent De Cuyper

Belgian
✪ 2006 ☑ 13/13

Born in: 1961
Term of office ends: 2022

Diplomas and main Solvay activities: Chemical engineering degree (Catholic University of Leuven). Master's in Industrial Management (Catholic University of Leuven). AMP Harvard.

Executive Committee member.

Hua Du

Chinese
✪ 2018 ☑ 13/13

Born in: 1969
Term of office ends: 2022

Diplomas and main Solvay activities: BS Chemistry (Being University) PhD. Organic Chemistry (University of Illinois, UrbanaChampaign),

Executive Committee member.

Hervé Tiberghien

French
✪ 2019 ☑ 13/13

Born in: 1964
Term of office ends: 2021

Diplomas and main Solvay activities: Master in Human Resources, HEC St Louis, Brussels, Belgium

Executive Committee member and Chief People Officer

During the year 2020 no change occurred in the composition of the Executive Committee.

- On March 1st 2020, The Board of Directors renewed for a two-year term the mandate of Mr. Augusto Didonfrancesco and Mr. Hua Du. Their mandates will expire in March 2022.
- On May 1st 2020, the Board of Directors renewed for a two-year term the mandate of Mr. Vincent De Cuyper. His mandate will expire in May 2022.
- On November 4, 2020 the Board of Directors renewed for a two-year term the mandate of Ilham Kadri as Executive Committee Chairwoman. Her mandate will expire on January 1st 2023.

The crisis was also an opportunity to accelerate new ways of working fostering efficiency and team spirit within the Executive Committee.

- Prior to the crisis a new Biorhythm was set-up by the Executive Committee, to have monthly deep-dive reviews on People, Strategy, Finance, Innovation and some other specific topics depending on current events. With the crisis, the Executive Committee quickly adapted its own ways of working, switching from weekly to daily meetings, with automated data reporting to follow the business and operational evolution on a daily basis. Weekly calls with the full Senior Leadership Team - including GBU presidents and Function leaders - were set-up to keep a high level of proximity in volatile and uncertain times, sharing best practices, observations and pulse from the field. The benefits observed were such, that these meetings - while slightly less frequent - will remain. Executive Committee leaders were personally involved in several work streams to manage the Covid-19 crisis. This new approach helped in making faster decisions and fostering a closer team spirit.
- Furthermore, the Executive Committee made sure to balance the short- and long-term objectives. More specifically, the Executive Committee focused on ensuring safety, cash, operational continuity and investments for the short-term while selectively and decisively investing in the future (such as our battery and hydrogen platforms) for the long-term.

6. COMPENSATION REPORT

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Introduction and updates

Covid-19 impact

Unprecedented challenges impacted the Group and its stakeholders from early 2020 driven by concerns around the impact of Covid-19 on the Group, our employees and the societies around us and the overall business environment. These concerns had a significant impact on the compensation programs and required critical decisions, like a salary freeze for executives and employees and adjustments to the targets in the short term incentive plan (as explained further in this report).

Solvay Solidarity Fund as a response to Covid-19

Solvay Solidarity Fund was established in April 2020 with the aim of supporting employees and communities experiencing hardship as a result of Covid-19. Beyond the important participation by the Group's shareholders, non-executive Directors and employees, Senior management (including CEO and Members of the Executive Committee) all contributed 15% of their salary (from June till December 2020) to the Fund. More information on Solvay Solidarity Fund can be found in 2020 Integrated Report.

Changes in the Belgian Law

On April 28th, 2020 a law was passed, the EU Directive 2017/828. This law addresses requirements regarding the presentation and the content of the remuneration report in Belgium. This compensation report has been drawn up in accordance with this new regulation.

Moreover, this compensation report was established in accordance with the 2020 Belgian Code of Corporate Governance (the "Code") and the explanatory note on the remuneration report drawn up by the Belgian Corporate Governance Committee.

Shareholder and Proxy Advisor engagement

As explained in the Section 2.4.4. of the Governance Report, Solvay continued its effort to actively reach out to its stakeholders to discuss its approach to governance, including compensation topics. This is part of the Company's ongoing stakeholder engagement program. Solvay also engaged with relevant Proxy Advisors for mutual updates and to solicit feedback on its practices and disclosures. Solvay will continue with these engagement exercises as part of its commitment to continue this constructive dialog with its shareholders and other stakeholders to sustain and build on the high level of trust demonstrated in past Shareholder Meetings

At last year's Ordinary Shareholders' Meeting, Solvay's Compensation Policy and Report was approved by 96.9% and 95.2% of its shareholders, respectively. This level of shareholder support continues to be one of the highest in the Belgian market.

6.1. GOVERNANCE

The Compensation Report for the corporate governance was prepared by the Compensation Committee.

6.2. BOARD OF DIRECTORS COMPENSATION

Solvay SA directors are remunerated, in line with the Compensation Policy, with fixed emoluments, the common basis of which is set by the Ordinary Shareholders' Meeting, and any complement thereto by the Board of Directors on the basis of Article 26 of the bylaws, which states that:

- "Directors shall receive fixed emoluments payable; the Shareholders' Meeting shall determine the amount and terms of payment";
- "That decision shall stand until another decision is taken";
- "The Board of Directors shall be authorized to grant directors with special duties, different from their Director's mandate, fixed emoluments in addition to those provided for in the above paragraph";
- "Each of the Directors responsible for day-to-day management and members of the Executive Committee, are also entitled to variable compensation determined by the Board of Directors on the basis of their individual results and of the consolidated results of the Solvay Group".

6.2.1. Board of Directors individual compensation

The Ordinary Shareholders' Meetings of June 2005 and May 2012 (for Board attendance fee) approved the directors' pay, starting from the 2005 financial year, to be set as follows:

Board fees by type	Gross amount
Annual gross fixed compensation	€35,000
Board Meeting attendance fee	€4,000
Audit Committee Chairman attendance fee	€6,000
Audit Committee Member attendance fee	€4,000
Compensation, Nominations and Financial Committee Chairman attendance fee	€4,000
Compensation, Nominations and Financial Committee member attendance fee	€2,500

(1) Director sitting on both the Compensation Committee and the Nominations Committee does not receive double compensation. The same applies if the meetings of both Committees take place on the same day
(2) No attendance fees for the Chairman of the Board, the Chairman of the Executive Committee and the Executive directors taking part in these committees

- For the Chairman of the Board, the Board of Directors used its authorization under Article 24 of the bylaws to grant an additional yearly fixed compensation of € 250,000 gross, unchanged since 2012.
- Non-executive Directors do not receive variable compensation linked to performance. More specifically, non-executive Directors are not entitled to annual bonuses, stock options or performance share units, or to any supplemental pension scheme;
- The Company reimburses directors' travel and expenses for meetings related to their Board and Board Committee functions.

Solvay recognizes that the Code recommends partial compensation of its Board members in shares, but such a feature does not currently exist in our Compensation Policy. The Compensation Committee considers that the current Compensation Policy remains relevant, aligned with Solvay's long-term strategy, and mirrors Belgian market practice.

The Compensation Committee, frequently reviews the Company's Compensation Policy and market practices. Any changes to the Compensation Policy will be submitted to our Shareholders and only be implemented after shareholder's consent.

The Chairman of the Board is the sole non-executive Director for whom the Group provides administrative support (including the provision of an office, use of the General Secretariat and a car). The other non-executive Directors receive logistical support from the General Secretariat when needed. The Company also provides customary insurance policies covering the Board of Directors' activities in carrying out their duties.

The Compensation Committee has not made any changes to the compensation packages (levels of mix) for the Board of Directors since 2012 and does not foresee any major changes shortly.

6.2.2. Amount of the compensation and other benefits granted directly or indirectly to the members of the Board by the Company or by an affiliated company

Gross compensation and other benefits granted to directors

	2019		2020					
In €	**Board of Directors and Committees attendance fees**	**Total gross amount including fix fees**	**Board fixed compensation**	**Board Meeting attendance fee**	**For the role in Finance Committee**	**For the role in Audit Committee**	**For the role in Compensation & Nomination Committee**	**Total gross amount including fix fees**
N. Boël	-	-	-	-	-	-	-	-
Fixed emoluments + attendance fees	40,000	75,000	35,000	40,000	-	-	-	75,000
"Article 24" supplement	-	250,000	250,000		-	-	-	250,000
Ilham Kadri	36,000	65,167	35,000	40,000	-	-	-	75,000
J-M. Solvay (1)	55,000	85,000	12,778	16,000	-	-	2,500	31,278
B. de Laguiche	74,000	109,000	35,000	40,000	15,000	28,000	-	118,000
C. Casimir-Lambert	64,000	99,000	35,000	40,000	7,500	12,000	-	94,500
H. Coppens d'Eeckenbrugge	74,000	109,000	35,000	40,000	15,000	28,000	-	118,000
E. du Monceau	46,000	81,000	35,000	36,000	-	-	15,000	86,000
F. de Viron	55,000	90,000	35,000	40,000	-	-	12,500	87,500
A. Moraleda	57,000	92,000	35,000	40,000	-	-	21,000	96,000
R. Thorne	76,000	111,000	35,000	40,000	-	42,000	-	117,000
G. Michel	54,500	89,500	35,000	40,000	15,000	-	12,500	102,500
M. Oudeman	60,000	95,000	35,000	40,000	-	28,000	-	103,000
A. Lemarchand	60,000	95,000	35,000	36,000	-	12,000	10,000	93,000
P. Tournay	36,000	71,000	35,000	40,000	-	16,000	-	91,000
M. Lievonen	46,000	81,000	35,000	40,000	12,500	16,000	-	103,500
A. Thibaut de Maisières (2)	-	-	22,222	24,000	-	-	-	46,222
J-P Clamadieu (3)	4,000	9,833	-	-	-	-	-	-
Y-T de Silguy (4)	25,000	37,935	-	-	-	-	-	-
Total	**862,500**	**1,645,433**	**775,000**	**592,000**	**65,000**	**182,000**	**73,500**	**1,687,500**

(1) Up to May 12, 2020
(2) From May 12, 2020
(3) Up to March 1, 2019
(4) Up to May 14, 2019

6.3. EXECUTIVE COMMITTEE COMPENSATION

6.3.1. Solvay's compensation philosophy

Solvay's Compensation Policy aims at ensuring that its Executives are rewarded according to their role, responsibilities, and performance in contributing to Solvay's long-term strategy.

- The compensation structure is designed in line with the following principles that equally apply to the Members of the Executive Committee, other senior executives and all other employees.
- Total compensation is set to be competitive in the relevant market and sector in order to attract, retain, and motivate high caliber talent needed to deliver the Group's strategy and drive business performance.
- Short and long-term variable[2] compensation is tied directly to the achievement of strategic objectives; driving sustainable performance and recognizes excellent results once delivered; and
- Compensation decisions are compliant and equitable, and balance cost and value appropriately.

6.3.2. Compensation structure and policy

Every year, the Compensation Committee gathers compensation data from a globally recognized external compensation consultant. Solvay's frame of reference for assessing relevant pay practices is a selection of European chemical and industrial manufacturing peers. The Company reviews the composition of this peer group regularly.

The peer group currently includes 15 European multinational companies based in six different countries (Belgium, France, Germany, Netherlands, Switzerland, and the UK).

• Air Liquide	• DSM	• Rolls Royce
• BAE Systems	• Evonik	• Saint Gobain
• BASF	• Johnson Matthey	• Umicore
• Bayer	• Lanxess	• Valeo SA
• Covestro	• Michelin	• Vallourec

Solvay aims at positioning the remuneration levels at or around the relevant market median for Total Cash Target (sum of Base salary and Variable pay target amount) and benefits. Variable compensation, both short- and long-term, is designed to provide an opportunity to receive above median pay if executives deliver superior performance, supporting the pay for performance philosophy.

[2] Long-Term variable pay plans are offered to senior executives and high potential talents.

6.3.3. Compensation opportunities and pay mix of the CEO and Members of the Executive Committee.

Name position	Fixed Compensation	Variable Compensation					
	Annual Base Salary	Value measurement	Short Term Incentive Target	LTI target issued as Performance Share Units	LTI target issued as Stock Options	Total LTI Value	Total direct compensation
Ilham Kadri CEO & Chairman of the Executive Committee	€1,150,000	Amount	€1,150,000	€862,500	€862,500	€1,725,000	€4,025,000
		% of salary	100%	75%	75%	150%	Fixed 30%/ variable 70%
Karim Hajjar CFO & Executive Committee member	€790,704	Amount	€553,493	€250,000	€250,000	€500,000	€1,844,197
		% of salary	70%	32%	32%	63%	Fixed 43%/ variable 57%
Vincent De Cuyper Executive Committee member	€624,240	Amount	€436,968	€250,000	€250,000	€500,000	€1,561,208
		% of salary	70%	40%	40%	80%	Fixed 40%/ variable 60%
Hua Du Executive Committee member	€620,978	Amount	€434,684	€250,000	€250,000	€500,000	€1,555,662
		% of salary	70%	40%	40%	81%	Fixed 40%/ variable 60%
Augusto Di Donfrancesco Executive Committee member	€605,000	Amount	€423,500	€250,000	€250,000	€500,000	€1,528,500
		% of salary	70%	41%	41%	83%	Fixed 40%/ variable 60%
Hervé Tiberghien Chief People Officer & Executive Committee member	€380,000	Amount	€266,000	€250,000	€250,000	€500,000	€1,146,000
		% of salary	70%	66%	66%	132%	Fixed 33%/ variable 67%

6.3.3.1. Fixed Compensation and Benefits

Base salary

The base salary reflects the individual’s experience, skills, duties, responsibilities and the contribution of the individual and role within the Group.

Base salary is reviewed annually and may be adjusted, considering a number of factors, including: (1) comparable salaries in appropriate comparator groups; (2) changes within the scope of the role; and (3) changes in the Group’s size and profile.

Pension and other benefits of the CEO

In accordance with the Belgian legal requirements, the CEO has a separate contractual agreement, given her self-employed status in Belgium, with pension, death-in-service, and disability rules. The CEO also receives a company car in line with market practice in Belgium

Pension and other benefits of the Members of the Executive Committee

The Executive Committee Members, excluding the CEO, are entitled to pension, death-in-service, and disability benefits on the basis of the provisions of the plans applicable in their home countries.

Other benefits, such as medical plans and company cars or car allowances, are also provided according to local policies. The nature and level of these other benefits are aimed to be in line with median market practice and other executives of the Group.

6.3.3.2. Short- and Long-Term Variable Compensation

2020 Short-Term Incentive (STI) plan

As approved by the 2020 Annual Shareholders Meeting, the 2020 Short-Term Incentive plan (STI) provides a target opportunity of 100% of Annual base salary (capped at 150% of the target) for CEO and 70% of annual base salary (capped at 200% of target) for all other Members of the Executive Committee.

The STI plan uses two performance categories:

- **Group performance** (60% for the CEO; 70% for other Executive Committee Members)
- **Individual performance** (40% for the CEO; 30% for other Executive Committee Members). Considering the role and expectations towards external and internal stakeholders, the weight of individual performance is slightly higher for the CEO vs the other Members of the Executive Committee.

Individual performance is measured against pre-determined non-financial, both quantitative as well as qualitative objectives defined by the Board of Directors for the CEO and then cascaded by the CEO to other Executives. Achievement of Individual objectives for the Members of the Executive Committee is assessed by the CEO, afterwards reviewed and validated by the Board of the Directors. Assessment of the Individual performance for the CEO is completed by the Compensation Committee, afterwards reviewed and validated by the Board of the Directors. In 2020, targets were set linked to the long term vision of the Group; deployment and execution of the GROW strategy (announced in a late 2019), deployment of enterprise leadership culture and human capital strategy among others that have been revised mitigating the impact of Covid-19.

Group performance

Pre-Covid-19

The approved Short-term Incentive plan for the Executive Committee:

- Organic EBITDA Growth; weighted at 70% of the Group's performance with a minimum and maximum threshold as the most important financial priority for the year;
- Free Cash Flow conversion; weighted at 20% of the Group's performance; and
- Achievement of a set of sustainability goals included in Solvay ONE Planet (which is crafted around three pillars: protecting the climate, preserving resources and fostering better life), weighted at 10% of Group performance.

Covid-19 Adjustment

In May 2020, the Board viewed cash management to be of paramount importance for the Group in response to the growing uncertainties triggered by Covid-19. As a result, the Board of Directors adjusted the Group performance measures and the weight to better align the changed focus of the Executive Committee members and all other senior leaders with Solvay's strategic priorities as follows:

- Organic EBITDA Growth weighted at 20% of the Group's performance keeping the targets unchanged;
- Free Cash Flow to Shareholders from continuing operations at 70% of the Group's performance instead of Free Cash Flow conversion rate; and
- Achievement of sustainability goals included in Solvay ONE Planet remained unchanged at 10% of Group performance.

2020 Group performance results for STI calculation

Solvay delivered a Free Cash Flow of €963 M in 2020, which allows the Company to retain its obligations towards shareholders in a form of dividend guidance despite uncertainty in the market and sustain a solid overall financial position. This also had a positive impact on the 2020 overall STI achievement as indicated in the table below.

Group Performance Measures	Weight	Threshold	Target	Maximum	Actual result	Performance % used in STI calculation
Free Cash Flow to Shareholders	70%	€450M	€600M	€750M	€963M	200%
Underlying EBITDA Growth	20%	-3%	1%	4%	-16%	0%
Solvay One Planet objectives	10%	At level of 2019 achievement	Improvement compared to 2019	Significant improvement compared to 2019	Improved	113%

In order to take into account multiple perspectives on an exceptional year (2020), the reduction of EBITDA and record cash generation, the Board has decided to apply its discretion and adjust the Group performance factor from 151% to 129% for the STI payout calculation for the Members of the Executive Committee and the CEO. The same adjustment will be applied on the entity factor for the STI calculation for other Executives.

2021 STI plan

In alignment with the Compensation policy approved in 2020 Group performance in 2021 will be based on achievement of Underlining EBITDA growth, Free Cash Flow conversion rate and Solvay One Planet objectives.

Long-term incentive (LTI)

Long-term incentives are delivered using a 50/50 mix of stock options (SOP) and performance share units (PSU).

At the time of annual grant, the Board of Directors retains the right to exercise discretion, both upwards and downwards of 50% of the target grant value, to ensure that the value of the award granted, appropriately reflects the Company's ambitions for the next performance period. Where discretion is exercised, the 50/50 split principle between SOP and PSU grants will be respected and the rationale for the use of such discretion will be disclosed. Each annual LTI grant is subject to Board approval.

Following the principles set in the Code, the Compensation Committee in 2021 will review the Company's share-based remuneration (including the equity vehicles used) and application of shareholding guidelines for Executive Committee Members, including the CEO, effective financial year 2022. Such evaluation will consider market practice, with consideration of requirements of the Code, as well as shareholder feedback gained during Solvay's engagement program.

Long-term Incentive award opportunity

The LTI value granted to the CEO has the annual economic value target of 150% of the base salary and a maximum of 200% of base salary. For all other Members of the Executive Committee the annual economic value of the total LTI grant is set at €500,000 with a maximum of €750,000.

Stock options (SOP)

Under Belgian law, unlike other jurisdictions, taxes on stock options are due at the time of grant. Therefore Solvay, like other Belgian companies, sets no additional performance criteria for determining the vesting of stock options. The options have a vesting period of over three calendar years (i.e. options will vest on the first day of the 4th year after the grant year) followed with a four-year exercise period.

The SOP gives each beneficiary the right to buy Solvay shares at a strike price corresponding to the fair market value of the shares upon grant.

Every year, the Board of Directors determines the volume of stock options available for distribution, based on an assessment of the economic fair value at grant using the Black Scholes valuation formula. The total volume of options available is subsequently allocated to the eligible population.

SOP Features

- Options are granted at the money (or fair market value);
- Options become exercisable for the first time after three full calendar years following grant;
- Options have a maximum term of eight years;
- Options are not transferable inter vivos; and
- The plan includes a bad leaver clause.

Performance Share Units (PSUs)

The PSUs ensure alignment with market best practices, allowing Solvay to remain competitive to attract, retain, and motivate key executives.

The PSUs vest after three years from the date of grant conditional on meeting pre-set performance objectives and are cash settled. The minimum payout may vary from zero if the "threshold" target is not met, to maximum payout of 120% if the "upper" (or "maximum") target is achieved.

Every year, the Board of Directors determines the budget available for distribution based on the 30 days average closing of Solvay's share price on the Euronext, preceding the grant date. The total volume of PSUs available is subsequently allocated to the eligible population.

PSU Features

- The plan is purely cash-based and does not encompass any transfer of shares to beneficiaries. As such, it does not dilute shareholders' interests;
- The vesting of awards is based on meeting pre-set performance targets (see below);
- The performance period is three years;
- An employment condition applies;
- The plan has a claw back provision for a period of three years after the payout in case of erroneous results;
- Payout in cash based on the value of Solvay shares at vesting; and,
- Dividends accrue only in respect of vested awards and are paid at the end of the performance period.

The Board of Directors assesses the achievement of the targets set, based on the audited results of the Group.

The Board of Directors may use discretion to re-evaluate the targets. Where such discretion is applied by the Compensation Committee, the rationale for the use of such discretion will be disclosed. Additionally, discretion, if used, would be subject to the award limit stated under the Compensation Policy. The Compensation Committee has not applied such discretion in recent past.

As disclosed in last year's Remuneration Report, the performance measures used for PSUs are aligned with Solvay's G.R.O.W. strategy, announced in 2019, and are based on:

- Sum of 3 year underlying EBITDA growth metric on year over year basis expressed as a % (40% of the award);
- ROCE % as a measurement of efficiency of capital employed as recommended by the investor community (40% of the award); and
- Greenhouse Gas (GHG) emissions reduction (20% of the award) as a measurement of progress towards meeting the "protecting the climate" pillar under Solvay One Planet.

The Board of Directors has elected to use the Underlying EBITDA growth measurement as part of the key performance indicators for both the STI and the LTI to emphasize the importance of the EBITDA growth as a key priority and driving force towards the financial sustainability and long-term profitability of the Company so that short-term gain is not delivered at a price of long-term results.

Claw back

The Company has the right to claim to any PSU plan participant, during a period of three years from the date of the payment, the reimbursement of undue amounts paid in accordance with the Plan, on the basis of erroneous results that were subsequently adjusted or corrected.

2017-19 LTI Performance Share Unit plan performance results

The PSU award granted in 2017 vested in June 2020 based on a three-year performance period ending on December 31, 2019. Performance against the performance targets are summarized below. There was no Compensation Committee discretion applied.

Group Performance Measured over 3 years period	Weight	Threshold (80% achievement)	Target (100%)	Maximum (120% achievement)	Actual result	Achievement compared to target	Performance % used in PSU calculation
Sum of underlying EBITDA YoY growth %	40%	<15%	20%	>25%	13%	65%	0%
CFROI base point variation	40%	<30 bp	50 bp	>80 bp	30bp	80%	32%
Greenhouse gas intensity kg/€	20%	> 5,6 kg/€	5,3 kg/€	< 5,0 kg/€	5.18 kg/ €	108%	22%
Total	100%						54%

According to the 2017 PSU plan rules, the vesting of the PSU was conditional of meeting the objectives set. The performance achieved against the targets set resulted in 54% of the PSU awards to vest. The share price differential (grant share price vs. share price at vesting), and the total dividends considering the number of vested units calculated over three years (€11.10 per unit) has resulted in a payout of 36.8% of the PSU value at grant.

2021 LTI

LTI program for 2021 remains unchanged in line with Compensation policy of the Group.

6.3.4. Amount of compensation paid and other benefits granted directly or indirectly to the Chairman of the Executive Committee and other Members of the Executive Committee

According to the Compensation Policy and based on the Board of Directors' assessment of the performance of the Group and its executives the compensation of the Chairman of the Executive Committee and other Members of the Executive Committee was as follows:

	Fixed remuneration/Base salary	Variable remuneration		Total Direct Compensation	Extraordinary items (4)	Benefits		Total Remuneration	Proportion of fixed and variable remuneration
Name, Position		**Annual variable pay based on 2020 results**	**The value of vested equity based compensation 2020 (2)**			**Pension**	**Other (3)**		
Ilham Kadri, CEO & Chairman of the Executive Committee	1,150,000	1,695,100	NA	2,845,100	236,523	662,375	283,139	**4,027,137**	52% 48%
Karim Hajjar, CFO & Executive Committee member	885,359	750,000	92,053	1,727,412	0	224,203	274,146	**2,225,761**	62% 38%
Vincent De Cuyper, Executive Committee member	662,256	530,000	110,511	1,302,767	0	184,822	46,738	**1,534,327**	58% 42%
Hua Du, Executive Committee member (1a)	620,978	590,000	73,674	1,284,652	0	62,098	119,968	**1,466,718**	55% 45%
Augusto Di Donfrancesco, Executive Committee member (1b)	605,000	640,000	110,511	1,355,511	0	93,720	89,706	**1,538,937**	51% 49%
Herve Tiberghien, Chief People Officer & Executive Committee member	322,000	420,000	NA	742,393	0	100,391	117,847	**960,631**	56% 44%

(1a) Expatriate assignment in Belgium; compensation paid in HKD; exchange rate 1Eur = 8.857 HKD
(1b) Expatriate assignment in Belgium
(2) PSU 2017-2019 paid in June 2020
(3) Long-term benefits (e.g. death-in-service, disability & medical benefits) & benefits in kinds (e.g. company vehicle, education, expatriation package expenses, tax filing assistance).
(4) The additional cash payment represents a top-up payment in relation to the 2019 STI Award and was made to compensate Mrs Ilham Kadri for the lost opportunity as a result of Solvay erroneously not given Mrs Kadri, like other Executives, access to the normal processing and payment options of the STI-award (which is normally delivered either in cash or in warrants or in share options based on the Euronext Index SICAV).

6.4. STOCK OPTIONS AND PSU ALLOTTED IN 2020 TO EXECUTIVE COMMITTEE MEMBERS

In 2020, at the proposal of the Compensation Committee, the Board of Directors allocated stock options to approximately 50 senior executives of the Group, with an exercise price of €95.80. Executive Committee Members were offered a total of 138,707 options in February 2020. All options granted were accepted in full.

In combination with the stock option plan, the Board of Directors granted performance share units (PSU) to approximately 430 executives and critical high potential talents, for a possible payout in three years' time if pre-set performance objectives (i.e. underlying EBITDA growth, ROCE, and GHG emissions reduction) are met. Executive Committee members were granted a total of 22,053 PSU in February 2020.

Stock Options and PSU allotted in 2020 to Executive Committee Members

Country	Name	Function	Number of Options(1)	Number of PSU's(2)
Belgium	Kadri, Ilham	CEO / Chairman of the Executive Committee	56,632	9,003
Belgium	Hajjar, Karim	Member of the Executive Committee	16,415	2,610
Belgium	De Cuyper, Vincent	Member of the Executive Committee	16,415	2,610
Belgium	Di Donfrancesco, Augusto	Member of the Executive Committee	16,415	2,610
Belgium	Du, Hua	Member of the Executive Committee	16,415	2,610
Belgium	Tiberghien, Herve	Member of the Executive Committee	16,415	2,610
TOTAL			**138,707**	**22,053**

(1) Stock options: Black Scholes fair value for February 2020 grant was €15.23
(2) PSU's share price for February 2020 grant was €95.80

Stock Options granted and held in 2020 by Executive Committee Members

	Balance on 31/12/2019	*Changes during the year*					Balance on 31/12/2020
Name		**Granted in 2020**	**Exercised in 2020**	**Expired in 2020**	***Vested***	***Non vested***	
Kadri, Ilham	48,537	56,632	0	0	0	105,169	105,169
Hajjar, Karim	108,417	16,415	0	0	56,021	68,811	124,832
De Cuyper, Vincent	105,751	16,415	0	0	53,852	68,314	122,166
Di Donfrancesco, Augusto	110,007	16,415	4,256	0	53,852	68,314	122,166
Du, Hua	91,679	16,415	5,110	1,000	37,913	64,071	101,984
Tiberghien, Herve	0	16,415	0	0	0	16,415	16,415
Total	**464,391**	**138,707**	**9,366**	**1,000**	**201,638**	**391,094**	**592,732**

6.5. COMPARATIVE INFORMATION ON THE EVOLUTION OF COMPENSATION AND COMPANY PERFORMANCE

The below table shows the change in compensation for members of the Board, CEO, and Members of the Executive Committee in comparison to the Group's performance over a period of 5 years.

	2016	2017	2018	2019	**2020**
Remuneration in €					
Remuneration of the Board	1,473,000	1,434,572	1,824,260	1,645,433	1,687,500
Remuneration of the CEO Ilham Kadri	-	-	-	4,347,990	4,027,137
Remuneration of members of the Executive Committee	5,260,063 (1)	6,619,926 (1)	9,501,971 (2)	6,499,400 (3)	7,726,374 (4)
Average remuneration of employees	61,931	66,274	66,691	69,220	61,945
Solvay performance					
Underlying profit for the period (€ million)	907	992	1,131	1,113	650
EBITDA (€ million)	2,284	2,230	2,230	2,322	1,945
Free Cash Flow (€ million)	876	871	989	1,072	1,206

(1) V. De Cuyper, R. Kearns, K. Hajjar, P. Juery
(2) V. De Cuyper, R. Kearns (9m), K. Hajjar, P. Juery, C. Tandeau de Marsac (10m), A. Di Donfrancesco (10m), H. Du (10m)
(3) V. De Cuyper, K. Hajjar, A. Di Donfrancesco, H. Du, H. Tiberghien (4m), P. Juery (2m), C. Tandeau de Marsac (2m)
(4) V. De Cuyper, K. Hajjar A. Di Donfrancesco, H. Du, H. Tiberghien

For the purpose of the comparison, the following is considered for the calculation of the Remuneration of CEO and Members of the Executive Committee: fixed remuneration paid in 2020, STI for the results of 2020, PSU value for the results of 2017-2019 plan paid in June 2020, excluding grant or vested value of LTI's during the 2020 (as SOP's do not represent a value until exercise and PSUs that vest on December 31 are paid in the following year considering the performance of the Group over the vesting period), value of benefits and pension contributions.

For Average remuneration of employees: "Wages and direct social benefits" divided by the number of FTE on year over year bases for continued operations.

As defined by the law of April 28, 2020, the Group going forward will publish the ratio between the highest paid member of the management (CEO) and the lowest paid employee in Belgium. For 2020 this ratio is 108x.

Lowest paid employee is defined as a full time employee in Belgium who has worked for a full year and holds the lowest base salary on the year end, actual total remuneration received by such employee is considered in the calculation of the ratio.

Publishing of this ratio is a new practice required by the law and as such it will be assessed and evaluated in the future considering the evolution of the ratio.

6.6. STATEMENTS OF COMPLIANCE OF REMUNERATION FOR CHAIRMAN AND MEMBERS OF EXECUTIVE COMMITTEE

The remuneration package of Ms. Ilham Kadri, the Chairman of the Executive Committee (or CEO) and the other Members of the Executive Committee, are in compliance with Article 7:91 of the Belgian Code of Companies and Associations and is set by the Board of Directors based on recommendations of the Compensation Committee. This remuneration package is also compliant with the Belgian Code of Corporate Governance (2020) except in points explained below.

Under Article 7:91 of the Code, in the absence of statutory provisions to the contrary or express approval by the Annual General Meeting of Shareholders, at least 25% of the variable compensation shall be linked to pre-determined performance criteria that are objectively measurable over a period of at least two years, and at least another 25% should be based on pre-determined performance criteria that are objectively measurable over a period of at least three years.

Variable compensation consisted of an annual incentive based on the performance achieved relative to the Group’s economic and sustainable development performance objectives, and on the performance of the individual as measured against a set of pre-determined individual objectives.

Members of the Executive Committee, including the CEO, receive Stock Options and PSUs as explained above.

Executive Committee Members’ expenses, including those of its Chairman (or the CEO), are governed by the same rules that apply to all senior management staff, i.e. the justification of all business expenses, item by item. Private expenses are not reimbursed.

In the case of mixed business/private expenses (e.g. cars), a proportionate rule is applied in the same way as to all management staff in the same position.

Pensions and retirement and death-in-service coverage for Executive Committee Members are in line with the schemes applicable to senior executives, following local policies. As for insurance, the Company takes out the same type of coverage for Executive Committee Members as it does for its senior managers.

The current Compensation Policy includes no guidance on share ownership as the Board of Directors believes that the current Compensation Policy, approved last year by Solvay’s shareholders, meets market practice and remains relevant to drive sustainable value creation for the Group. This last point derogates to the Belgian Corporate Governance Code.

According to the Belgian Law, any changes to the Compensation Policy need to be submitted for approval to Shareholders before implementation.

6.7. KEY PROVISIONS OF EXECUTIVE COMMITTEE MEMBERS' CONTRACTUAL RELATIONSHIPS WITH THE COMPANY AND/OR AN AFFILIATED COMPANY, INCLUDING PROVISIONS RELATING TO COMPENSATION IN THE EVENT OF EARLY DEPARTURE

Members of the Executive Committee, including its Chairman (or CEO), have directorships in Group subsidiaries as a function of their responsibilities. Where such directorships are compensated, they are included in the amounts given above, regardless of whether the position is deemed to be salaried or undertaken on a self-employed basis under local legislation.

Executive Committee Members will not benefit from any contractual departure indemnity linked to the exercise of their office. In case of early termination, only the legal system applies, except for the CFO, Karim Hajjar. His employment contract contains a contractual departure indemnity of 12 months of his salary after 5 years of seniority and a non-competition clause of 12 months. Non-competition clause of 12 months exists also for Herve Tiberghien and Augusto Di Donfrancesco.

In the event of a decision to terminate Ilham Kadri's contract, she will be eligible for a contractual indemnity of 12 months of her total target compensation. In the event Ilham Kadri resigns after January 2021, she is subject to a non-competition clause of 12 months with no extra compensation.

The above report and the decisions made during 2020 about the Compensation of the Executives of the Group are aligned with the Compensation Policy approved in the Annual Shareholders meeting on May 12th 2020.

The above is in line with Belgian Corporate governance code requirements.

7. MAIN CHARACTERISTICS OF RISK MANAGEMENT AND INTERNAL CONTROL SYSTEMS

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Solvay leaders and managers are accountable for the adequacy of the risk management and internal control framework in their respective entities (businesses, functions).

The Internal Audit & Risk Management Department (IA/RM) advises and ensures that leaders address the challenges at stake. The team is in charge of setting up a comprehensive and consistent system of risk management and internal control across the Group.

The extent to which Solvay is willing to take risks in the pursuit of its business strategy and objective to create shareholder value is defined by a number of qualitative and quantitative expressions of risk appetite, operated through measures such as limits, triggers and indicators. The Internal Audit & Risk Management Department (IA/RM) communicates directly with the Audit Committee, helping to align regularly the risk appetite of Management with the risk appetite of the Board.

Solvay has set up an internal control system designed to provide reasonable assurance that (i) current laws and regulations are respected, (ii) policies and objectives set by general management are implemented, (iii) financial and extra-financial information is accurate, and (iv) internal processes are efficient, particularly those contributing to the protection of its assets.

The five components of the internal control system are described below.

7.1. THE CONTROL ENVIRONMENT

As the foundation of the internal control system, the control environment promotes awareness and compliant behavior among all employees. Its various elements create a clear structure of principles, rules, roles, and responsibilities, while demonstrating general management's commitment to compliance.

- The **Solvay Management Book** lists guiding principles and defines the roles and responsibilities of the Executive Committee, Global Business Units "(GBU"), and functions. As the last edition date from 2017, the document is being reviewed.
- The new **Code of Business Integrity** is available on Solvay's website. More information can be found in the Chapter on Corporate Governance.
- An **Ethics Helpline**, managed by a third party, enables employees to report potential Code of Business Integrity violations if they cannot go through their managers or through the Compliance organization, or if they wish to remain anonymous. More information can be found in the Chapter on Corporate Governance and extra-financial section.
- **Standardized processes** are in place for financial and non-financial activities.

7.2. THE RISK ASSESSMENT PROCESS

The process of risk management takes into account the organization's strategic objectives and is structured into the following phases: risk analysis (identification and evaluation) & decision on how to manage the critical risks, risk management in action, Monitoring of those actions.

More information on Enterprise Risk Management, including a description of the Group's main risks and the actions taken to avoid or mitigate them, can be found in the "Risk management" section.

The approach to designing internal controls for major processes includes a risk assessment step defining which key control objectives to tackle. This is the case in particular for processes at subsidiary, Shared Services, GBUs, or corporate level, leading to the production of reliable financial reporting.

7.3. CONTROL ACTIVITIES

Solvay uses a systematic approach to designing and implementing control activities for the most relevant Solvay processes.

After a risk analysis and a risk assessment phase, the controls are designed and described by the corporate process managers with the support of the Risk Management team. The controls descriptions are used as a reference for the internal control assessment and roll-out across the Group.

At each level of the Group (corporate, Shared Services platforms, and GBUs), the manager operating the process is responsible for the control execution.

Agile internal control governance has been set up under the CFO's sponsorship: Corporate Process Owners and GBU representatives (Process Risk Coordinators) are part of a network aiming to promote an Internal Control system tailored to the risks of each GBU.

Solvay implements policies, processes, and red lines applicable to all employees in the following domains: management control, financing and cash flow, financial control, financial communication, tax, and insurance policies. Control activities are defined for all these financial processes and in major cross-Group projects, like acquisitions and divestitures. Furthermore, an online Financial Reporting Guide explains how the IFRS rules should be applied throughout the Group.

Financial elements are consolidated monthly and analyzed at every level of responsibility in the Company (Solvay Business Services, the finance director of the entity, Group Accounting and Reporting, and the Executive Committee). Elements are analyzed using various methods, such as a variance analysis, plausibility and consistency checks, ratio analysis, and comparison with forecasts.

Besides the monthly reporting analysis prepared by Group Controlling teams, the Executive Committee thoroughly reviews GBU performance every quarter in the context of business forecast reviews.

7.4. INTERNAL CONTROL MONITORING

The Audit Committee is in charge of monitoring the effectiveness of internal control systems. It supervises the work of Internal Audit and Risk Management with regard to financial, operational, and compliance monitoring. It is kept informed of the scope, programs, and results of the internal audit work, and it verifies that audit recommendations are properly implemented. The role and responsibilities of the Audit Committee are further detailed in the Charter.

Internal audit assignments are scoped, planned and defined on the basis of a risk analysis; due diligence focuses on the areas perceived as having the highest risks. All the consolidated entities within the Group are inspected by Internal Audit at least every five years. Internal Audit recommendations are implemented by management.

The Ethics and Compliance department coordinates investigations of potential Code of Business Integrity infringements.

7.5. INFORMATION AND COMMUNICATION

Group-wide information systems are managed by Solvay Business Services. A large majority of Group operations are supported by a small number of integrated ERP (Enterprise Resource Planning) systems. Financial consolidation is supported by a dedicated tool.

All financial reporting procedures and internal controls ensure that all material information disclosed by Solvay to its investors, creditors, and regulators is accurate, transparent, and timely, and that it fairly represents the Group's most relevant developments, financial fundamentals, and performance.

The Group Accounting and Reporting department circulates written detailed instructions to all financial actors involved before each quarterly closing.

The publication of the quarterly financial results is subject to various checks and validations carried out in advance:

- The Investor Relations team designs, develops, and issues messages and information about the Group with the needs of financial markets in mind. It does so under the supervision and control of the Executive Committee;
- The Audit Committee ensures that financial statements and communications by the Company and the Group, conform to generally accepted accounting principles (IFRS for the Group, Belgian accounting law for the Company); and
- The Board of Directors approves the consolidated periodic financial statements and those of Solvay SA (quarterly – consolidated only, semiannual and annual) and all related communications.

8. EXTERNAL AUDIT

The audit of the Company's financial situation, its financial statements, its extra-financial statements, and the conformity of those statements – and the entries to be recorded in the financial statements in accordance with the Code of Companies and Associations and the by laws – are entrusted to one or more auditors appointed by the Shareholders' Meeting from among the members, either natural or legal persons, of the Belgian Institute of Company Auditors.

The responsibilities and powers of the auditor(s) are set by law.

- The Shareholders' Meeting sets the number of auditors and their emoluments in accordance with the law. Auditors are also entitled to reimbursement of their travel expenses for auditing the Company's sites and administrative offices.
- The Shareholders' Meeting may also appoint one or more alternate auditors. Auditors are appointed for three-year renewable terms, which may not be revoked by the Shareholders' Meeting other than for good reason;
- The Audit Committee assesses the effectiveness, independence and objectivity of the external auditor having regard to the:
  - Content, quality and insights on key external auditor plans and reports; in particular those summarizing audit work performed on risks identified by the Company; and
  - Engagement with the external auditor during Committee meetings;
  - Robustness of the external auditor in their handling of key accounting principles; Provision of non-audit services.

At the Ordinary Shareholders' meeting of Tuesday May 14, 2019, the mandate of Deloitte has been renewed for a further three years. Deloitte is represented by Michel Denayer and by Corine Magnin as alternate auditor.

Please note that at the request of Deloitte, the Board of Directors acknowledged on November 6, 2019 that Deloitte will now be represented jointly by Michel Denayer and Corine Magnin.

For the year ended December 31, 2020, professional services were performed by Deloitte Bedrijfsrevisoren BV ovve CVBA, the member firms of Deloitte Touche Tohmatsu Limited, and their respective affiliates.

The yearly 2020 audit fees for Solvay SA were set at €1.2 million. They include the audit of the statutory and consolidated accounts of Solvay SA. Additional audit fees for Solvay affiliates in 2020 amount to €4.7 million. Supplementary non-audit fees of €2 million were paid in 2020 by Solvay SA and affiliates of which:

1) Invoiced by the statutory auditor of the Group:
   a) Other assurance missions: €0.5 million,
   b) Audit and reviews supporting divestiture activities: €0.6 million.
2) Invoiced by other Deloitte entities:
   a) Other assurance missions: €0.6 million,
   b) Consulting services: €0.3 million.

9. ITEMS TO BE DISCLOSED PURSUANT TO ARTICLE 34 OF THE BELGIAN ROYAL DECREE OF NOVEMBER 14, 2007

According to Article 34 of the Belgian Royal Decree of November 14, 2007, the Company hereby discloses the following items:

9.1. CAPITAL STRUCTURE AND AUTHORIZATIONS GRANTED TO THE BOARD

As at December 21, 2015, the capital of the Company amounted to €1,588,146,240, represented by 105,876,416 ordinary shares with no par value, fully paid up.

All Solvay shares are entitled to the same rights. There are no different classes of shares.

9.2. TRANSFER OF SHARES AND SHAREHOLDERS' ARRANGEMENTS

Solvay's bylaws do not contain any restriction on the transfer of its shares.

The Company has been informed that certain individual shareholders who hold shares directly in Solvay have decided to consult one another when questions of particular strategic importance are submitted by the Board of Directors to the Shareholders' Meeting. Each of these shareholders, however, remains free to vote as he or she chooses. None of these persons, either individually or in concert with others, reaches the initial 3% transparency notification threshold.

Solvay is not aware of any other voting agreements among its shareholders or of the existence of a concert between its shareholders.

9.3. HOLDERS OF SECURITIES WITH SPECIAL CONTROL RIGHTS

There are no such securities.

9.4. CONTROL MECHANISM OF ANY EMPLOYEE SHARE SCHEME WHERE THE CONTROL RIGHTS ARE NOT EXERCISED DIRECTLY BY THE EMPLOYEES

There is no employee share scheme with such a mechanism.

9.5. RESTRICTIONS ON THE EXERCISE OF VOTING RIGHTS

Each Solvay share entitles holders thereof to exercise one vote at Shareholders' Meetings.

Article 10 of the Company's by laws provides that the exercise of voting rights and other rights attached to shares that are jointly owned, or of which the usufruct and bare ownership rights have been separated or are pledged, are suspended pending the appointment of a single representative to exercise the rights attached to the shares. The voting rights attached to the shares in Solvay held by Solvay Stock Option Management are, as a matter of law, suspended.

9.6. APPOINTMENT, RENEWAL, RESIGNATION AND DISMISSAL OF DIRECTORS

The bylaws of the Company provide that the Company is to be managed by a Board of Directors composed of no less than five members, their number being determined by the Shareholders' Meeting (Article 12). Directors are appointed by the Shareholders' Meeting for four years (and may be reappointed).

The Board of Directors submits directors' appointments, renewals, resignations or dismissals to the Ordinary Shareholders' Meeting for approval. It also invites such Shareholders' Meetings to vote on the independence of the directors fulfilling the related criteria, having first sought the advice of the Nominations Committee, whose mission is to define and assess the profile of any new candidate using its criteria for appointment and for specific competences.

The Ordinary Shareholders' Meeting decides on proposals made by the Board of Directors in this matter by a simple majority.

If a directorship becomes vacant during a term of office, the Board of Directors may appoint a new member, subject to ratification by the next Ordinary Shareholders' Meeting.

9.7. AMENDMENT OF SOLVAY'S BYLAWS

Amendments to the Company's bylaws must be submitted as a resolution to the Shareholders' Meeting, at which at least 50% of the share capital or Solvay must be present or represented, and in principle must be passed by a 75% majority of the votes cast.

If the attendance quorum is not met at the first Extraordinary Shareholders' Meeting, a second Shareholders' Meeting may be convened and will decide without any attendance quorum requirement.

For certain other matters (e.g. amendment of the purpose of the Company), higher voting majorities may apply.

9.8. POWERS OF THE BOARD OF DIRECTORS, IN PARTICULAR TO ISSUE AND BUY BACK SHARES

9.8.1. Powers of the Board of Directors

The Board of Directors is the highest management body of the Company.

It is entrusted with all the powers that are not reserved, by law or under the bylaws, to the Shareholders' Meeting.

The Board of Directors has kept responsibility for certain key areas for itself and has delegated the remainder of its powers to an Executive Committee (further detailed in the Charter).

In all matters for which it has exclusive responsibility, the Board of Directors works in close cooperation with the Executive Committee, which in particular is responsible for preparing most of the proposals for decisions by the Board of Directors.

9.8.2. The Board's authorizations to issue and buy back shares

The Board of Directors was authorized, until December 31, 2016, to increase the capital by contributions in cash up to a maximum of €1.5 billion, of which a maximum amount of €1,270,516,995 to be allocated to the "capital" account and the remainder to the "issuance premium" account in the framework of the acquisition of Cytec Industries Inc. Said acquisition was completed on December 9, 2015, and in order to finance part of it, the Board of Directors proceeded with a share capital increase for an amount of €317,629,245 by issuing 21,175,283 new ordinary Solvay shares, with an issuance premium of €1,182,216,050. This special authorization is therefore no longer relevant.

The Shareholders' Meeting of May 12, 2020 has authorized the Board of Directors to acquire Solvay's own shares under the following conditions:

- Limitation to 10% of the shares,
- Any purchase to be made at market price,
- Five year duration,
- It can be used for any purpose except as an anti-take-over defence measure.

At the same Shareholder's meeting, has been authorized the right for the Board of Directors to increase the Capital of the Company under the following conditions:

- Limitation to 10% of the shares,
- Five year duration,
- The Board of Directors can cancel the preference right of existing shareholders at the occasion of any increase it decides under the authorization.
- It can be used for any purpose except as an anti-take-over bid defence.

9.9. SIGNIFICANT AGREEMENTS OR SECURITIES THAT MAY BE IMPACTED BY A CHANGE OF CONTROL OF THE COMPANY

The Ordinary Shareholders' Meeting of May 10, 2016 approved the change of control provisions relating to the December 2015 euro-denominated senior and hybrid bonds and the USD-denominated senior notes issued to finance the acquisition of Cytec and the general corporate purposes of the Solvay Group.

9.10. AGREEMENTS BETWEEN THE COMPANY AND ITS DIRECTORS OR EMPLOYEES PROVIDING FOR COMPENSATION IF DIRECTORS RESIGN OR ARE GOOD LEAVERS, OR IN THE CASE OF A PUBLIC TAKEOVER BID

Not applicable

R

Risk management

Risk management

In a context of global economic and political uncertainty, evolving power balances, changing growth dynamics, shortening market cycles, rapid technological evolution, and increased sensitivity and expectations related to climate change and energy transition, Solvay believes that effectively monitoring and managing risks is key to achieving its strategic objectives.

1. RISK MANAGEMENT PROCESS

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The anticipation, identification, management, mitigation, measuring, monitoring and prevention of risks are as integral to Solvay as the inherently related identification, management and optimizing of opportunities. This is demonstrated by substantial risk-related processes and provisions that Solvay maintains from the Board of Directors to front-line workers, supply chain partners and customers. These processes include:

1.1. RISK ANALYSIS AND DECISION ON HOW TO MANAGE THE CRITICAL RISKS

Although risks frequently involve more than one category, we divide our risk management into four broad categories: those involving the environment, people, economic and reputational topics. We also broadly place risks in three main categories: "main risks" (most critical), "emerging risks," and "other risks."

1.2. RISK MANAGEMENT IN ACTION

Solvay's Enterprise Risk Management methodology requires Business Units and Functions – and the Group as a whole – to prioritize risks, develop and deliver on mitigation plans and continually scan the environment to assess whether priorities and plans remain appropriate. These assessments are captured formally in dedicated dashboards that enable decisions and actions to be captured and progress measured.

1.3. MONITORING OF RISK MANAGEMENT ACTIONS

Critical risks for the Group are closely monitored by the Group Risk Committee – members of the Executive Committee are appointed as Risk Sponsors – to ensure that these risks are adequately addressed.

The Sustainable Development function helps cross-check the materiality of critical risks for the Group Risk Committee.

Leaders of businesses and functions integrate risk management in decision making to underpin delivery of objectives

Leaders of Business Units and functions are accountable for identifying, monitoring and managing the key risks in their domains. Risk management is strongly embedded in the day-to-day running of each entity, and operational managers are expected to anticipate and react rapidly when circumstances change.

Group's risk are overseen at Executive Committee level

Group level risks are managed with contributions from the Senior Leadership Team for identification, the Group Risk Committee for assessment, and the Executive Committee members for sponsorship for treatment and risk response. The Audit Committee meets once a year with the Chairwoman of the Executive Committee, the CEO, and all other members of the Board to discuss the major risks facing the Group. During the year, the Audit Committee benefits from Risk Owners' presentations on Group risks, for example on industrial safety, security, cyber risk, ethics, and compliance.

	Risk analysis & decision	Implementation	Monitoring
Board	Input through survey on Group risks		Annual Group Risks assessment & validation
Audit Committee	Input through survey on Group risks		- Assess effectiveness of risk management - Quarterly presentation by risk owners - Periodic assessment of Group risks (minimum annual)
Senior Leadership Team	Define risks at businesses & functions	- Mitigation plan developed with risk owners accountable for delivery - Ongoing systematic progress update - Regular update (minimum annual)	
Executive Committee	Input the decision on Group risks	- Oversees progress as individual Risk Sponsors - Ad-hoc risk sessions + Group risks dashboard 2/year	
Group Risk Committee*	Decides Group risks		

The independent Risk Management Function (part or Internal Audit and Risk management) supports the process and ensures consistency
(*) Group Risk Committee = ExCom extended with Heads of Industrial, Sustainable Development, Legal, Communication

Assessment of major projects linked to Solvay's transformation

An appropriate risk assessment methodology is applied to significant projects, such as acquisitions, major capital investments, and transversal projects.

Internal control is one aspect of risk management. Please refer to the Corporate Governance section of this Annual Report for a detailed description of Solvay's risk management and internal control system.

Crisis preparedness operates a structured network within the Group. Assigned members perform tasks and implement programs to ensure the readiness of their business units and functions. These programs include crisis simulations, media training for potential spokespersons, maintenance of key databases, and analysis of relevant internal and external events. The risks identified through the Enterprise Risk Management approach influence the scenarios used in the simulations.

2. SOLVAY'S MAIN RISKS

The Group Risk Committee assesses the impacts of risks using a four-level scale – low/medium/high or very high impact and their level of control.

Impact

Impact	**Low**	**Medium**	**High**	**Very high**
Economic	Less than €10 million	€10 million to €50 million	€50 million to €100 million	€100 million or larger
Injury to people	Nuisance (noise, smoke, odor)	1 or multiple First Aid Injuries or Shelter-in-place	1 irreversible Injury or multiple Reversible Injuries	1 or multiple Fatalities or multiple Irreversible Injuries
Reputation	-	- Local news headlines - Low activity in social media - Moderate to strong reaction from local stakeholders	- National news headlines - Strong activity in social media - Strong reaction from stakeholders	- International news headlines - Massive activity in social media - Severe reaction from all stakeholders
Environment	Non reportable Operating Permit Limits Exceed	- Damages limited to the immediate vicinity of the site - Minor impact on plants or animals around the site.	- Reversible damages off-site - Major impact on plants or animals around the site.	Long-term damages off-site (10 years)

Level of control

The Group risk committee assesses the level of control by considering the following questions:

- Are key controls clearly identified?
- Is the effectiveness of key controls assessed?
- Is the level of control adequate proportionate to the risk?
- Are additional mitigation actions appropriate?

Solvay main risks

The criticality level is determined by combining the risk's two ratings (impact and level of control) at the time of the assessment.

Criticality	**Stakeholders**	**Risk**		**Link with sustainable development high materiality aspects**
Very high	Employees Local Communities Customers	Security	↗	Data security
	Suppliers Employees Planet Investors	Compliance and business integrity	→	Management of the legal, ethics & regulatory framework
	Planet Local Communities	Environmental impact & Controversies	↗	Critical incident risk management Air quality Water and wastewater Waste Hazardous materials
	Employees Local Communities Suppliers	Operations safety	↘	Critical incident risk management Employee health and safety Hazardous materials
High	Customers Local Communities Employees Planet Investors	Climate change	→	Greenhouse gas emissions Biodiversity Energy management Product Design & Lifecycle Management Water and wastewater
Emerging risk	Customers Local Communities Employees Planet Investors	Regulatory framework for chemicals sustainability	Emerging	

Emerging risk: newly developing or changing risk that may have, on the long term, a significant impact which will need to be assessed in the future.

The description of the risks relevant to Solvay and the Group risk-reduction actions are listed below. The mitigation efforts described do not guarantee that risks will not materialize or impact the Group, but they show how Solvay proactively manages risk exposures.

2.1. SECURITY

➚ Higher risk due to a deteriorating context

2.1.1. Risk description

A security event such as terrorism, crime, violence, vandalism, theft, or cyber-attack, which would impact employees or other stakeholders, sites, assets, critical information, or intellectual property and could have negative consequences for the business.

2.1.2. Prevention and mitigation actions

- Solvay has a threat-, risk-based security approach to protecting sites, information, and people.
- A Group Security Director coordinates all security activities globally in order to ensure efficient security risk mitigation. A Chief Information Security Officer, reporting to the Group Security Director, coordinates all related information security activities.
- Three governance bodies lead the security risk management effort:
  - A Security Board, chaired by the CEO and provides strategic direction for the Group's security risk mitigation;
  - A Security Leadership Committee, chaired by the Group Security Director oversees all security activities and provides budget and priority recommendations to the Security Board;
  - A Security Coordination Working Group, chaired by the Group Security Director, which aims to run a continuous security threat monitoring program and an optimized security program for the Group.

Annual updates on the Information Security are made by the management to the Board.

Cyber security program

The three Governance bodies leading the security risk management effort also supervise the cyber security program;

- Use of assessment conducted by external experts;
- Use of penetration tests and internal phishing simulations;
- Substantial training of all Solvay Business Services professionals and mandatory security training for all employees;
- Cybersecurity tips are published regularly to increase employee awareness.

A significant cyber-attack could negatively impact the company's people, operations and results. Therefore, the Company will continue to solidify its cyber defenses to manage the evolving cyber threat landscape.

Insurance

Solvay is insured against the potential financial impact of a cyber event stemming from damage to assets, business interruptions, and cases of fraud.

2.1.3. 2020 main actions

This year in light of the Covid-19 pandemic, home office working has expanded the attack surface of Solvay with many end-point devices connected directly to the internet, instead of from our sites. Actions are in place: internal communication campaign " Five Tips to Protect Yourself From Hackers", internal phishing simulation email to our employees to test their reaction (17000 internal phishing emails sent out), improving our ability to apply remotely the latest security patches to our employees' workstations.

A comprehensive review of the actions is on-going.

2.2. COMPLIANCE AND BUSINESS INTEGRITY

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➔ Stable risk : mitigation actions are in line with expectations

2.2.1. Risk description

- Failure to comply with governmental laws and regulations in jurisdictions in which Solvay operates;
- Failure to comply with Solvay's Code of Business Integrity, including:
  - Intentional misstatements;
  - Corruption, misappropriation;
  - By passing corporate controls, and
  - Human rights violations.
- Failure to implement good governance in a joint venture;
- Failure to comply with chemical product usage standards, such as:
  - Inappropriate use of a Solvay product by Solvay personnel or customers can lead to adverse health and environmental impacts, property damage, and resulting litigation;
  - Production of faulty products include exposure to liability for injury, health impairment and damage, or product recalls. Product liability risk is generally higher for products used in medical devices, healthcare, food contact and feed applications, and sensitive applications in general;
  - Chemical and market regulations in countries where a product is marketed could have negative consequences.

Prevention and mitigation actions

Solvay's Code of Business Integrity, policies and procedures:

- Additions in 2020 to the Code of Business Integrity to address these issues. The new version has been deployed in early 2020, and applies to all employees, critical suppliers, and majority-owned joint venture partners.
- Addition of trainings and the requirement that all employees sign acknowledgement of reading the Code. In addition, Solvay has deployed several training courses and communication actions to address behavioral risks. Specific training courses to mitigate risks include:
  - Anti-bribery and anti-corruption;
  - Anti-competitive activity;
  - Confidential and proprietary information,
  - Conflict of interest;
  - Human Rights in Business Policy: reporting non-compliance,;
  - Use of a gifts and entertainment tracking system;
  - Use of third-party reporting hotlines and a Group-wide Speak Up program to report non-compliance.

Chemical product usage:

- Solvay Safety Data Sheets (SDS) ensure harmonized content by implementing a common worldwide SAP system for the Group. This SAP system has been fully implemented for Composite Materials in 2020.
- In particular for SVHC, according to Solvay definition, all GBU perform an annual inventory of those substances in the products they sell. Risk assessment and analysis of any available safer alternatives are performed for each SVHC identified in the inventory.
- SDS are constantly maintained and distributed worldwide for all products to all customers in compliance with local regulations and in the local language. Global Business Units ensure that SDS are revised at least every three years for all the products they sell.
- Recall procedures are developed and deployed as prescribed by the product stewardship programs.
- Insurance reduces the financial impact of a product liability risk, including for first-party and third-party product recalls.

2020 main actions

Business Integrity:

The new Code of Business Integrity was deployed in January 2020. As part of this deployment, all employees were required to read the new Code of Business Integrity, take a mandatory e-learning course, and sign an acknowledgement. The e-learning training course focused on Bribery & Corruption; Confidential & Proprietary Information; Conflicts of Interest; Harassment; and how to lodge Speak Up complaints. This is the first time in Solvay history that such a comprehensive and mandatory effort has been undertaken regarding the Code.

- 99% of employees received training on Solvay's Code of Business Integrity;
- The average time to complete the treatment of whistleblowing cases has been reduced by 50%;
- A module on Bribery & Corruption was included in the Code of Business Integrity training that all employees were required to take. Additionally, a separate Anti-Bribery and Anti-Corruption (ABAC) training has been made widely available to employees through the Group e-training platform. In 2021, a new ABAC campaign will be rolled out.

Chemical product usage:

The Solvay "Product Safety Management Process" (PSMP) identifies risks relating to products marketed by Solvay. It has been updated to integrate new regulatory requirements and additional potential risk causes (legal, supply chain, etc.). All GBUs have deployed this process with a specific focus on prioritizing the required risk assessments in the products portfolio and on regularly deploying risk assessments for the most sensitive product applications.

More info in the extra financial section: 3.1. Management of the legal, ethics, and regulatory framework (p.105)

2.3. ENVIRONMENTAL IMPACT AND CONTROVERSIES

↗ higher risk due to a deteriorating context

GRI Disclosures 413-2 416-2

2.3.1. Risk description

Solvay's activities impact the environment through:

- Use of raw materials based on fossil or non-renewable resources, consumption of energy;
- Access to scare resources, including water;
- Management of waste, by-products, emissions and effluents;
- Challenges and expenses related to meeting tightening regulatory standards and customer expectations, standards and purchasing decisions;
- Environment-related changes in investor sentiment and preferences, and
- Impact of people's view on environmental issues on the ability to recruit employees.

2.3.2. Prevention and mitigation actions

- The Group has a strategy to manage chemicals of concern and develop alternatives which reduce their human and/or environmental impact or phase them out.
- Implementation of a comprehensive program to reduce workplace chemical exposure using:
  - Chemical risk assessments, risk-based medical surveillance using both qualitative and quantitative methodologies;
  - Pandemic preparedness and mitigation plans;
  - Human bio monitoring, when warranted;
  - Improving and adapting working conditions;
  - Promotion of general physical and mental health; and
  - Setting more conservative in-house exposure limits for critical substances;
- Regular review and potential updating of standards governing discharges from plants;
- Use of Solvay's Sustainable Portfolio Management tool, which helps identify substances that can deliver needed results with more limited environmental impacts;
- Solvay's materiality analysis is revised on a yearly basis to align to evolutions of stakeholders expectations, including environmental impacts.

2.3.3. 2020 main actions

- Execution of Solvay One Planet, which has programs to:
  - Identify substances of concern and the development of alternatives, and
  - Meet its target of reducing pressure on biodiversity 30% by 2030 related to climate, terrestrial acidification, water eutrophication and marine ecotoxicity;
- Conducting research to create environmentally protective non-fluorosurfactant technology to substitute for the PFOA and PFNA that Solvay phased out years ago.

More information in the litigations section and in the financial statement section F34.B and F39 (p 239 & 263)

2.4. OPERATIONS SAFETY

➘ lower risk due to the maturiting of the process

2.4.1. Risk description

A major accident (occupational, process, transport) linked to our internal or outsourced activities may cause human, environmental or asset damages, lead to significant exposures or cause injuries or fatalities.

2.4.2. Prevention and mitigation actions

Since 2018, Solvay has redefined its HSE strategy and issued a new set of Minimum Requirements to create a shared understanding and approach to mitigating our major risks. As part of this new approach, Solvay also implemented a new way of working, including a more collaborative and supportive approach to HSE across the Group.

Solvay's HSE strategy is based on the following four levers:

- Culture: Promoting the safety culture across all employees and contractors;
- Continuous improvement: Utilizing networking, best practices, use of common methods and tools, Solvay HSE Minimum Requirements, external watch and benchmarking to improve our HSE performance;
- Competency: Ensuring all employees have the right level of knowledge and skills to put in place the HSE minimum requirements, beginning with key positions; and
- Compliance: Detecting and mitigating regulatory and non-regulatory compliance issues with a focus on priority risks in both operations and commercialized products.

There are four major operational risks considered:

1. An occupational safety incident which results in a fatality or irreversible (life-altering) injury;
2. A severe process safety incident which results in fatalities, irreversible injuries, environmental harm, and/or loss of physical assets;
3. A chronic exposure to occupational agents (chemical, physical, biological, psychological) known to cause work-related disease;
4. A severe transport accident in connection with hazardous chemical transportation which results in irreversible injuries, fatalities or environmental damages".

Occupational safety

Solvay has always focused on occupational safety, and the Group has seen a consistent reduction in the number of workplace injuries over the years.

Solvay continues its journey to creating a Safety Culture where all employees work together and care for one another, based on:

- Solvay's Safety Excellence Plan allows strong involvement and engagement of all Solvay employees. It includes activities such as Safety Days, Leadership Safety Visits, Behavior Based Safety programs, and an individual HSE annual objective for each employee;
- The Solvay HSE Minimum Requirements for the Solvay Life Saving Rules (SLSR) are one of the cornerstones, and are fully implemented;
- The Creating Safety program for leadership teams to change the mindset and behavior.

The results are positive with a 30% reduction in the total number of injuries and no fatalities over the last three years. Occupational Safety results are reviewed monthly by GBUs and at the Executive Committee level.

Industrial hygiene & Occupational Health

Solvay has implemented a comprehensive approach to reducing the chemical exposure risk in the workplace. Our approach includes:

- Chemical risk assessments, risk-based medical surveillance, using both qualitative and quantitative methodologies;
- Pandemic preparedness and mitigation plans;
- Human biomonitoring when warranted;
- Improving and adapting working conditions;
- Promoting general physical and mental health;
- Setting more conservative in-house exposure limits for critical substances.

Process safety management

Solvay has created and uses a Process Safety Management System. This system includes (not is limited to);

- A preventive risk-based approach founded on systematic Process Hazard Analyses, and the identification of critical scenarios for which mitigation action must be implemented in a committed time frame.;
- Management of changes (MOC);
- A team of process safety experts trained to apply the PHA methodologies.

Transport Safety

Identification and mitigation of transport-related risks including:

- Qualification standards for carriers of dangerous goods;
- Enhanced training;
- Implementation of safety procedures and guidelines;
- Collection and sharing of lessons learned; and
- Provision of worldwide emergency response hotlines in many languages.

Environment

As a minimum requirement,

- The discharges of substances, wastewater and atmospheric emissions from the plants must meet all applicable emission limit values;
- The disposal of wastes using appropriate technologies and qualified companies;
- In addition, for chronic releases of potentially dangerous chemicals, risk assessments are made on a periodic basis to ensure that the impact on the environment or on the neighboring population falls within strict limits, determined by environmental quality standards or by exposure limits.

2.4.3. 2020 main actions

Continuing Solvay transport safety program to reinforce preventive actions.

Occupational safety

- Implementation of the Solvay Life Saving Rules achieved at 95%;
- Continuing deployment of our Safety Culture program (training and sharing);
- Systematic tracking and analysis of High Severity Potential (HSPo) events;
- Adoption of the OSHA recordable incident reporting standard to enable better peer comparisons (replacing Medical Treatment Accident).

More information in the extra financial section: 3.3. Health, safety and environment management (page 111)

Industrial Hygiene

- Continued roll-out (now 85% deployed) of SOCRATES (Solvay Occupational Risk Assessment Tool for industrial hygiene to employees to
  - Provide easily accessed IH methods, tools and databases;
  - Enable consistent documentation of IH assessments; and
  - Enhance traceability of potential exposure throughout a person’s working life.

More information in the extra financial section: 3.3. Health, safety and environmental management (page 111)

Process Safety

- Review of Process Safety Management Audit protocol for all sites;
- 97% of Process Hazard Analysis in all sites have been done in line with Group requirements within the last five years (June 2021 target – 100%);
- All detected high-risk situations are treated within one year (extensions have to be duly authorized).

More information in the extra financial section: 6.8. Critical incident risk management (page 154)

Transport

- Improvement of our processes on Qualification of Dangerous Goods Carriers,
- Transport Emergency Response in all countries is being implemented,
- Global network of transport safety key people to contribute to the improvement plan.

More information in the extra financial section: 6.8. Critical incident risk management (page 154)

Environment

- Detailed annual reporting of environmental emissions (air and water), water management and waste (SERF). In particular,
  - Emissions of Substances of Very High Concern (SVHC) are tracked and used for regular exposure assessments; and
  - Internal emission reduction targets have been defined for SVHC's emissions to air and water;
- Reporting of all types of environmental non-compliance including emission limit exceedances related to a process upset or process safety incident;
- Assessment of potential climate change impacts on our operations due to flooding, water scarcity, hurricanes, and other environmental events. through the application of best-in-class models and collaboration with external experts;

More info in the extra financial section: 5.3. Air quality, 5.4. Water and wastewater, 5.5. Waste (pages 129, 130 & 132)

Occupational health

- Many actions have been launched to mitigate the impact of the global health crisis due to the Covid-19 pandemic, including:
  - Implementation of preventive measures, testing and return-to-work case management processes defined by the medical network;
  - Purchase and distribution of Covid-19 tests to work sites;
  - Creation of medical country/zone referents advising the crisis management teams;
  - Awareness and training of employees, including via wikipage, posters and additional communications; and
  - Mental health assessment surveys of frontline workers;
  - Establishment of pandemic-related working groups in individual countries or zones.

More info in the extra financial section: 6.1 Employees health and safety (page 134)

2.5. CLIMATE CHANGE

➔ Stable risk : mitigation actions are in line with expectations

2.5.1. Risk description

The Group strategy to address climate-related risks (as defined by TCFD - Task Force on Climate-related Financial Disclosures) could be ineffective and damage the environment, the lives of current and later generations of people, Solvay's reputation, causing business losses, undervaluation, and difficulty attracting long-term investors.

- Policies and legal context: regulations and actions to limit CO_2 emissions, for example increasing carbon taxes, barring internal combustion engines, mandating use of certain fuel types, tightening environmental standards;
- Technology: unsuccessful investment in new, lower-emission technologies;
- Markets: failure to adapt to changing customer behavior;
- Financial: inability to cope with investors' and lenders' uptake of climate change in their decisions;
- Changed climate: lack of anticipation of impacts on industrial operations and in the value chains, tightening environmental standards;
- Reputation: negative stakeholder attitudes if their climate change concerns are not addressed effectively.

2.5.2. Prevention and mitigation actions

- Implementation of a strategy focused on shifting to businesses with reduced environmental exposures and high value-adding potential that has positive environmental effects;
- Progression toward ambitious 2030 goals to reduce greenhouse gas emissions from operations by 26%, an annual pace aligned with the Paris Agreement objectives, and to phase-out the use of coal for energy where renewable alternatives exist;
- Assessment of potential climate change impacts on our operations due to flooding, water scarcity, hurricanes, and other environmental events through the application of best-in-class models and collaboration with external experts;
- Establishment of a task force which develops renewable energy and other types of energy transition projects adapted to local markets and regulations;
- Integration of an internal carbon price of €50 per metric ton CO_2 on greenhouse gas emissions from operations and an SPM assessment with all capital investment decisions worldwide;
- Alignment of R&I projects with market expectations and assessment of operations exposure pertaining to the environment with the SPM lens;
- Linking of long term incentive of senior executives to achievements on reducing greenhouse gas emissions;

2.5.3. 2020 main actions

Solvay mainly works on four workstreams:

- Review of climate-related risks and opportunities for each product in each market performed with the Solvay Sustainable Portfolio Management tool on an annual basis;
- Use of the 2040 scenario analysis, in line with the Task Force for Climate-Related Financial Disclosures and use of the International Energy Agency's Sustainable Development scenario, has been kept unchanged, as evolutions of the IEA Sustainable Development scenario were minor and did not justify an update of the long term analysis. The study showed that sales' opportunities could be larger than negative impacts on costs.
- Mapping of Solvay's acute climate-weather-related physical risks with our insurers indicating only 7 sites are in areas with an expected 2% annual change in exposures to floods and only 11 sites are located in wind-exposed areas.
- Mapping of Solvay's water scarcity risks in 2019, and development of action plans for the 21 sites considered "at risk" for water consumption or business interruption challenges;

More information in the extra financial section: 4. Climate section (page 118)

2.6. EMERGING RISK

2.6.1. Regulatory framework for chemicals sustainability

Risk description

- The Group closely watch the upcoming European Chemical Strategy for Sustainability (CSS) regulatory framework including on possible business and / or costs impacts, while also considering potential additional opportunities.
- The Biden administration is may develop a stricter regulatory framework for chemicals

The mitigation actions are under definition.

Note on geopolitical rivalries: While not listed as a separate emerging risk, the potential impacts of geopolitical rivalries on the Group businesses, operations and strategy are under scrutiny. Some aspects of these impacts are tackled when mitigating risks such as "compliance" or "security". Additional risk analysis will be performed in collaboration with the Government and Public Affairs Department.

3. OTHER RISKS

3.1. MARKET AND GROWTH – STRATEGIC RISK

3.1.1. Description

Pertains to Solvay's exposure to developments in its markets or its competitive environment, and the risk of making erroneous strategic decisions.

3.1.2. Prevention and mitigation actions

- Systematic and formal analysis of markets and marketing challenges with respect to investments and innovation project ramp-ups,
- Regular performance review of strategy deployment,
- Development of long term GDP+ growth markets: Mobility, Resources & Environment, Electrical & Electronics, and Agro, Feed & Food,
- Development of customized, mission-critical solutions with Solvay key accounts,
- Adaptation of operations to new energy and CO2 markets,
- Strong focus on cash conversion and generation,
- Disposal of businesses that fall below the cyclicality threshold.

3.2. SUPPLY CHAIN AND MANUFACTURING RELIABILITY RISK

3.2.1. Description

Risks related to raw materials, energy, suppliers, production, storage units, and inbound/outbound transportation.

- Inability of suppliers to deliver contracted volumes/ capacities (e.g. caused by force majeure) in line with required specifications or supplier with insufficient access to Logistic Service Provider capacities;
- Insufficient contracting of volumes/ capacities (both from volume and delivery timing perspective) to fulfill Solvay's demand;
- Delayed delivery of volumes/ capacities.

3.2.2. Prevention and mitigation actions

For manufacturing reliability:

- Maintaining wide distribution of production units around the world;
- Using Process Safety Management;
- Establishing the Group property loss prevention program focusing on the prevention and mitigation of damage to assets and loss of profit due to fire, explosion, accidental chemical release, and other adverse events like natural catastrophes.

For supply chain:

- Using third party corporate social responsibility assessment and adhering to the Solvay Supplier Code of Business Integrity;
- Ownership of mines and quarries of trona, limestone, and salt, and programs to reduce energy consumption;
- Improved planning processes to anticipate demand (volume and/ or timing);
- Maintaining contingency plans for the most critical suppliers.

More information in the extra-financial section: 3.5. Supply Chain and Procurement (page 115)

3.3. PROJECT SELECTION AND MANAGEMENT

3.3.1. Description

Allocation of resources to projects (capital expenditure, mergers and acquisitions) could be misaligned with Solvay's growth strategy. Major projects may face difficulties and risk falling short of their objectives.

3.3.2. Prevention and mitigation actions

The Investment and Executive Committees overseeing capex allocation and capex plans:

- The Investment Committee provides the Executive Committee with an analytical view of capex allocation efficiency and capex plans. Capex Excellence methodology is used for the project portfolio on smaller projects;
- Investment decisions (capital expenditure above €10 million and acquisitions) made by the Executive Committee or the Board of Directors include a sustainability challenge that includes a Sustainable Portfolio Management analysis;
- A performance analysis is conducted after implementation;
- The combination of these strengthens control of EBITDA conversion into cash and a conversion level comparable to peers.

3.4. REGULATORY, POLITICAL, AND LEGAL RISK

3.4.1. Description

- Laws and regulations change, with significant impact on permits, standards, legal exposures and costs,
- Solvay may be exposed to circumstances where the normal exercise of public authority is disrupted,
- Solvay may be exposed to actual and potential judicial and administrative proceedings (see Important Litigation section),
- Brexit: The European Union-United Kingdom Trade and Cooperation Agreement entered into force as of 1 January 2021. Duties will be zero if Rules of Origin (RoO) are met. Only a limited part of Solvay's activities is actually impacted (as an indication, the trade flow between the EU and the UK represents roughly 3% of the Group's net sales and 2% of invested capital),
- Rising protectionism and a weakening of the World Trade Organization has already impacted Solvay's business and may continue to do so in the future.

3.4.2. Prevention and mitigation actions

- The Group's balanced global presence reduces the impact of adverse regulatory and political developments.
- A Government Affairs and Country Management department works continuously with public officials at the national and international level. In some specific cases, Solvay can rely on the support of the local Belgian embassy.
- Financial provisions are made based on Solvay's awareness of legal risk.
- A Brexit task force has been established with the participation of impacted GBUs and relevant functions. The GBUs have identified the main risks and are working on mitigation actions aiming to minimize any disruption to our customers. The outcome is a minimal impact for Solvay (in the range of 5 MEUR, with roughly half of it a one-time cost only).
- Coordination between Corporate Trade, SBS and GBUs has increased to better identify risks and their mitigations.

3.5. FINANCIAL RISK

3.5.1. Description

- Liquidity risk (see note F34 to the consolidated financial statements, Financial instruments and financial risk management),
- Foreign exchange risk (see note F34 to the consolidated financial statements, Financial instruments and financial risk management),
- Interest-rate risk (see note F34 to the consolidated financial statements, Financial instruments and financial risk management),
- Counterparty risk (see note F34 to the consolidated financial statements, Financial instruments and financial risk management),

- Pension obligation risk (see note F34 to the consolidated financial statements, Financial instruments and financial risk management),
- Tax litigation risk (see note F34 to the consolidated financial statements, Financial instruments and financial risk management).

3.5.2. Prevention and mitigation actions

A prudent financial profile and conservative financial discipline:

- Investment Grade status: the Group is rated Baa2/P2 (stable outlook) by Moody's and BBB/A2 (negative outlook) by Standard & Poor's as of the 2020 closing,

Solvay promotes transparency of information and engages in regular discussions with leading credit rating agencies.

Strong liquidity reserves:

- As of the end of 2020, the Group has €1.1 billion in cash and cash equivalents (namely, other current financial instruments), as well as €3.0 billion of committed credit facilities (a multilateral revolving credit facility of €2.0 billion and an additional €1.0 billion from bilateral revolving credit facilities with key international banking partners); all undrawn at the end of 2020.
- The Group has access to a Belgian Treasury Bill program for €1.5 billion and, alternatively, to a US commercial paper program for US$500 million, both unused at the end of 2020.

Currency hedging policy:

Solvay monitors the foreign exchange market closely and takes hedging measures to:

- Limit the fluctuation of the Group's forecasted gross margin due to currency volatility for material exposures,
- Mitigate the foreign exchange transactional risk at Group level by limiting P&L impacts of rate fluctuations between the time of invoicing and the time of cash settlement

Interest rate hedging policy:

- The Group locks in the majority of its net indebtedness at fixed interest rates. Solvay monitors the interest rate market closely and enters into interest rate swaps whenever they are deemed appropriate.

Energy and CO_2 hedging policy:

- Solvay is hedging energy prices (gas, coal and electricity) based on the net exposure of our sales not indexed on energy prices. This policy includes multi-year hedging transactions.
- The Group is transitioning towards zero and low carbon intensity energy sources. This is a core element of the 26% reduction target for CO2 and other greenhouse gases emissions by 2030.
- The Group net exposure to carbon pricing is managed through hedging transactions spanning across the time horizon of the European Union Emissions Trading Systems.

Monitoring of Group counterparties' ratings:

- For its treasury activities, Solvay works with banking institutions of the high creditworthiness (investment grade - selected based on major rating systems) and minimizes the concentration of risk by limiting its exposure to each of these banks to a predefined threshold. A regular monitoring of Credit Default Swaps trends is performed to assess changes in bank credit worthiness and take rapid actions accordingly.
- For its commercial activities, Solvay's external customer risk and cash collection are monitored by a professional network of credit managers and cash collectors located in the Group's various operating regions and countries. Their controls are supported by a set of detailed procedures and managed through Corporate and GBU Credit Committees. These loss mitigation measures have led, over the past few years, to a record low rate of customer defaults.

Pension governance and pension plan optimization:

- Pension governance: Solvay engages proactively and constructively with trustees and stakeholders to ensure that funding, liability management and investment policies are appropriate, in line with best practices and in full compliance with y domestic regulatory expectations and laws
- Pension plan optimization: reducing the Group's exposure to defined-benefit plans by either converting existing plans into pension plans with a lower risk profile for future services or closing them to new entrants.
- For each of the main Group's pension plans, representing about 90% of the Group's gross or net pension obligations, ALM (Asset Liability Management) analysis are performed on a regular basis to identify and manage corresponding risks. of the Group's pension plans, representing about 90% of the Group's gross or net pension obligations, is performed every three years to identify and manage corresponding risks on a global basis.

Control processes for tax regulation compliance and transfer pricing policies:

- Control processes for tax regulation compliance include monitoring procedures and systems, thorough internal reviews, and audits performed by reputable external consultants.
- Transfer pricing policies, procedures and controls are aimed at meeting the requirements of the authorities.
- Solvay's Tax department pays close attention to the correct interpretation and application of new tax rules to avoid future litigation.

3.5.3. 2020 main actions

- Collection of €1.1 bn proceeds from the sale of the polyamide business allowing a deleveraging with repayment of short term commercial paper (€0.9bn) & pension contributions France, US & Germany €552 m.
- Issue €500 m hybrid NCMar26 in Sep20 at 2.5% (historically low) to early refinance €500 m NCJun21 hybrid (coupon at 5.2%) which was fully repaid following tender offer launched to reduce cost of carry.
- Additional committed credit facilities for a total of €3 bn at YE2020.
- Additional voluntary pension contributions: Germany up to €100m in Q4 2020. Further contribution of up to €250 m in Germany and Belgium under consideration for 2021 and 2022.

3.6. ENVIRONMENTAL RISK

3.6.1. Description

Managing or remediating historical soil contamination at a number of sites and complying with future changes in environmental legislation and regulations and customer and community expectations.

3.6.2. Prevention and mitigation actions

- Monitoring of sites with a history of soil contamination and rolling out of a risk-characterization program for affected sites;
- Strong governance through a dedicated Environmental Board composed of two Executive Committee members, Industrial Function, and Legal and Finance, to lead the environmental risk management effort.

3.7. IT RISK

3.7.1. Description

Inability to ensure continuity of services or to provide information services adapted to the needs of the business. Personal privacy and other risks from data breaches, losing competitive position owing to dated IT practices.

3.7.2. Prevention and mitigation actions

- Dedicated data network and regional internet gateways managed by trusted service providers,
- Annual IT audit program to ensure compliance with information system security policies.

4. LITIGATION

With its variety of activities and its geographic distribution, the Solvay Group is exposed to legal risks, particularly in the areas of product liability, contractual relations, antitrust laws, patent disputes, tax assessments, and HSE matters. In this context, litigation cannot be avoided and is sometimes necessary so as to defend the rights and interests of the Group.

The outcome of proceedings cannot be predicted with certainty. It is therefore possible that adverse final court decisions or arbitration awards could lead to liabilities (and expenses) that are not covered or not fully covered by provisions or insurance, and that could have a material impact on the revenues, and earnings of the Group.

Ongoing legal proceedings involving the Solvay Group that are currently considered to involve significant risks are outlined below. The legal proceedings described below do not constitute an exhaustive list.

The fact that litigation proceedings are reported below is unrelated to the merits of the cases. In all the cases cited below, Solvay is defending itself vigorously and believes in the merits of its defenses.

For certain cases, Solvay has created reserves/provisions in accordance with the accounting rules to cover financial risk and defense costs (see "Provisions for litigation to the consolidated financial statements" of the present document).

Antitrust proceedings

In Brazil, CADE (the Brazilian antitrust authority) issued fines against Solvay and others in May 2012 relating to the hydrogen peroxide activity and in February 2016 relating to the perborate activity (Solvay's shares of these fines amount to €29.6 million and €3.99 million respectively). Solvay has filed a claim with the Brazilian Federal Court contesting these administrative fines.

HSE related proceedings

- Asbestos Cases: as of today 21 civil proceedings have been brought before Italian Courts by past workers and relatives of deceased workers at Solvay sites seeking damages (provisionally quantified at EUR 12 million) in relation to diseases allegedly caused by exposure to asbestos. Five proceedings have ended with damages awarded for a total of about €40k. One proceedings has ended with a decision entirely favorable to Solvay (appeal is pending). Ten proceedings are currently pending before the Courts of first instance. One proceedings is presently pending before the Court of Appeal (damages amounting to €13k awarded by the Court of first instance). One proceedings is currently pending before the Cassation Court (damages amounting to €3k awarded by the Court of Appeal). Two proceedings settled before the Court of Appeal for about €8k each. One proceedings definitively terminated in favor of Solvay.
- Rosignano and Spinetta sites: criminal preliminary investigations respectively pending before the Criminal Court of Livorno and of Alessandria regarding the contamination of certain areas outside these industrial sites.
- Bussi site: administrative litigation pending in relation to the identification of the polluter of Bussi external areas (external discharges, sold in 2017) and of the industrial site (divested in 2016).
- PFAS: Solvay Specialty Polymers USA, LLC (SpP) is defending several litigation matters in the U.S. relating to per- and polyfluoroalkyl substances (PFAS) commenced by governmental entities or private plaintiffs, including claims involving in products liability, putative class action, personal injury, environmental contamination, natural resource damages, and medical monitoring.

Pharmaceutical activities (discontinued)

In the context of the sale of the pharmaceutical activities in February 2010, the contractual arrangements have defined terms and conditions for the allocation and sharing of liability arising out of the activities before the sale.

Subject to limited exceptions, Solvay's exposure for indemnifications to Abbott for liabilities arising out of sold activities is limited to an aggregate amount representing €500 million and with limited duration.

All post-closing indemnification claims made against Solvay have now been resolved except the following:

The sole remaining matter from the pharmaceutical divestiture relates to liabilities arising from private civil antitrust claims made against the buyer of the business. Solvay's potential exposure is limited to possible clawback of the €300 million received by Solvay as additional purchase price based on post-closing ANDROGEL® sales.

B

Business review

Business review

1. OVERVIEW OF THE CONSOLIDATED RESULTS

1.1. KEY FINANCIAL FIGURES

		IFRS			Underlying		
In € million	*Notes*	**FY 2020**	FY 2019	*% yoy*	**FY 2020**	FY 2019	*% yoy*
Net sales	***B1***	**8,965**	**10,244**	**-12.5%**	**8,965**	**10,244**	**-12.5%**
Net operating costs, excluding depreciation & amortization	*B2*	-7,214	-8,022	+10.1%	-7,020	-7,922	+11.4%
EBITDA	***B3***	**1,751**	**2,222**	**-21.2%**	**1,945**	**2,322**	**-16.2%**
EBITDA margin		-	-	-	21.7%	22.7%	-1.0pp
Depreciation, amortization & impairments	*B4*	-2,416	-1,906	-26.8%	-835	-818	-2.0%
EBIT		**-665**	**316**	**n.m.**	**1,110**	**1,503**	**-26.1%**
Net financial charges	*B5*	-179	-242	+26.3%	-284	-332	+14.5%
Income tax expenses	*B6*	-248	-153	-61.5%	-195	-305	+36.0%
Tax rate	*B6*	-	-	-	26%	28%	-2.2pp
Profit from discontinued operations	*B7*	163	236	-31.1%	19	247	n.m.
Profit/(loss) for the period		**-929**	**157**	**n.m.**	**650**	**1,113**	**-41.6%**
(Profit)/loss attributable to non-controlling interests		-33	-38	-14.6%	-33	-39	-15.7%
Profit/(loss) attributable to Solvay shareholders		**-962**	**118**	**n.m.**	**618**	**1,075**	**-42.5%**
Basic earnings per share (in €)	***B19***	**-9.32**	**1.15**	**n.m.**	**5.99**	**10.40**	**-42.4%**
of which from continuing operations	*B19*	-10.90	-1.14	n.m.	5.81	8.02	-27.5%
Dividend[1]	***B20***	**3.75**	**3.75**	**-**	**3.75**	**3.75**	**-**
Capex in continuing operations	***B8***	**-**	**-**	**-**	**611**	**826**	**-26.1%**
Cash conversion	*B8*	-	-	-	68.6%	64.4%	+4.2%
FCF to Solvay shareholders from continuing operations	***B9***	**-**	**-**	**-**	**963**	**606**	**+58.8%**
FCF to Solvay shareholders	*B9*	-	-	-	951	801	+18.8%
FCF conversion ratio		-	-	-	51.1%	27.8%	+23.4pp
Net working capital	*B10*	1,108	1,560	*-29.0%*	1,108	1,560	*-29.0%*
Net working capital/sales[2]	*B10*				14.7%	15.3%	*-0.6pp*
Net financial debt[3]	***B11***	**2,398**	**3,586**	**-33.1%**	**4,198**	**5,386**	**-22.0%**
Underlying leverage ratio	*B11*				2.2	2.0	+7.7%
CFROI	***B12***				**5.5%**	**6.4%**	**-0.9pp**
ROCE	***B13***				**6.9%**	**8.1%**	**-1.2pp**
Research & innovation	*B14*				291	336	-13.4%
Research & innovation intensity	***B14***				**3.2%**	**3.3%**	**-**

(1) Recommended dividend for 2020

(2) Net working capital/sales ratio is the average of the quarterly net working capital/sales ratios

(3) Underlying net debt includes the perpetual hybrids bonds, accounted for as equity under IFRS

1.2. HISTORICAL KEY FINANCIAL DATA

		As published				
In € million		2016	2017	2018	2019	**2020**
Income statement data						
Sales	a	11,403	10,891	11,299	11,227	9,714
Net sales	b	10,884	10,125	10,257	10,244	8,965
Underlying EBITDA	c	2,284	2,230	2,230	2,322	1,945
Underlying EBITDA margin	d	*21.0%*	*22.0%*	*21.7%*	*22.7%*	*21.7%*
IFRS EBIT	e	962	976	986	316	-665
Underlying profit for the period	f	907	992	1,131	1,113	650
IFRS profit for the period	g	674	1,116	897	157	-929
Underlying profit attributable to Solvay share	h	846	939	1,092	1,075	618
IFRS profit attributable to Solvay share	i	621	1,061	858	118	-962
Cash flow data						
Capex	j	981	822	833	967	643
of which from continuing operations	k	929	716	711	826	611
Cash conversion	l = (c+k)/c	59.3%	67.9%	68.1%	64.4%	68.6%
FCF	m	876	871	989	1,072	1,206
FCF to Solvay shareholders	n	527	466	725	801	951
Balance sheet data						
Net working capital	o	1,396	1,414	1,550	1,560	1,108
Net working capital/sales	p = µ(o/a)(2)	*15.3%*	*13.8%*	*15.3%*	*16.0%*	*14.7%*
Underlying net debt(3)	q = r+s	6,556	5,346	5,105	5,386	4,198
Perpetual hybrid bonds	r	2,200	2,200	2,500	1,800	1,800
IFRS net debt	s	4,356	3,146	2,605	3,586	2,398
IFRS equity	t	9,956	9,752	10,624	9,625	7,304
Equity attributable to non-controlling interests	v	250	113	117	110	106
Perpetual hybrid bonds in equity	u	2,188	2,188	2,486	1,789	1,787
Equity attributable to Solvay share	w = t-u-v	7,518	7,451	8,021	7,725	5,411
Underlying leverage ratio(4)	x = -q/c	*2.60*	*2.17*	*2.01*	*2.00*	*2.16*
Other key data						
CFROI	z	*6.3%*	*6.9%*	*6.9%*	*6.5%*	*5.5%*
Research & innovation	A	350	325	352	336	291
Research & innovation intensity	B = -A/b	*3.2%*	*3.2%*	*3.4%*	*3.3%*	*3.2%*

(1) These data are not presented on pro forma basis, i.e: excluding impacts of IFRS16 Leases for 2018

(2) Average of the quarters

(3) Underlying net debt includes the perpetual hybrid bonds, accounted for as equity under IFRS

(4) For the years 2016-2019, as net debt at the end of the period did not yet reflect the net proceeds to be received on the divestment of discontinued operations, whereas the underlying EBITDA excluded the contribution of discontinued operations, the underlying EBITDA was adjusted to calculate the leverage ratio. Polyamide's underlying EBITDA was added.

The table above presents the historical figures of the Group as published at the reference date. These data have not been affected by possible subsequent restatements due to perimeter changes, IFRS/IAS standards evolution, changes in definition of APM, etc.

Over the reference periods, the following main changes have occurred:

2016:

- Divestment of Solvay's share in Inovyn joint venture on July 7;
- Acetow and Vinythai businesses presented as discontinued operations and as assets held for sale;
- Divestment of Latin American chlorovinyls activities (Indupa) on December 27.

2017:

- Vinythai transaction completed end of February;
- Acetow transaction completed end of May;
- Divestment of Polyamide business classified as discontinued operations and assets and liabilities held for sale at the end of September 2017.

2018:

- Divestment of Polyamide business still classified as discontinued operations and assets and liabilities held for sale since September 2017.

2019:

- Implementation of IFRS 16;
- Divestment of Polyamide business still classified as discontinued operations and assets and liabilities held for sale since September 2017.

2020

- Disposal of the Polyamide business completed on January 31, 2020.
- At the end of December 2020, the assets and liabilities related to some businesses have been reclassified as "held for sale" (assets for a total amount of € 229 million and liabilities for a total amount of € 110 million):
  - the Peroxides sodium chlorate business line and related assets in Povoa (Portugal);
  - the various fluorine chemicals assets in Onsan, South Korea, part of Special Chem;
  - the commodity amphoterics surfactants activities in Novecare;
  - the Peroxides sodium percarbonate business line and related assets in Bad Hönningen (Germany);
  - the Barium Strontium business and the joint venture with Chemical Products Corporation (CPC); and
  - the Process Materials business (part of Composites).

1.3. MAIN EVENTS IN 2020

Restructuring

Solvay has launched since the beginning of the year restructuring plans, hence accelerating the alignment of its worldwide organization with its G.R.O.W. strategy and responding to the challenging economic environment. The plans are leading to approximately 1,300 net redundancies, including 620 for the Composite Materials launched in Q2 2020. A provision has been accrued for €123 million during 2020.

Portfolio

On January 31, 2020, Solvay announced it had formally completed the divestment of its Performance Polyamides activities to BASF and Domo Chemicals. The transaction is based on an enterprise value of € 1.6 billion and the selling proceeds net of costs of disposals on the combined transaction were €1.3 billion (selling proceeds of €1.5 billion received on January 31, 2020). The capital gain after taxes was €140 million after the agreement on the final purchase price with DOMO Chemicals, finalized in Q4 2020 while the final agreement with BASF is pending and is expected to be finalized in Q1 2021 without significant changes.

In 2020, in line with its GROW strategy, Solvay began the process of exploring options to sell certain business lines. In October, agreements were reached to sell Solvay's interests in a few business lines, including the sodium chlorate business and related assets in Portugal (part of Peroxides), certain fluorine chemicals and our site in Korea (part of Special Chem).

On November 5, 2020, Solvay and Composites One LLC, entered into an exclusive negotiation period for the acquisition of Solvay's Process Materials (PM) business by Composites One. The PM business provides a broad array of vacuum bagging materials including bagging films, breather fabrics, release films and fabrics, peel plies, sealant tapes plus valves and hoses. Additionally, the business is a leader in the manufacture of tailored consumable kits and hard and soft tooling. An agreement (subject to applicable legal and social consultation in the respective countries) has been signed for the sale of the process materials product line (part of Composites). This business line has sales of approximately € 80 million in 2020 and operates 6 production sites in the US, France, Italy and the UK. The transaction is expected to be completed in Q1 2021.

On November 23, 2020, Solvay reached an agreement with Latour Capital to sell its technical-grade barium and strontium business in Germany, Spain and Mexico as well as its sodium per carbonate business in Germany. Solvay's barium and strontium business includes a joint venture with Chemical Products Corporation (CPC), which is part of the transaction. The agreement is a key step towards streamlining Solvay's portfolio while reducing the Group's footprint by exiting its position in niche technical-grade chemicals markets. The divestment also aligns with Solvay's G.R.O.W. strategy, announced last year. The transaction is expected to be completed in Q1 2021.

On December 22, 2020, Solvay signed an agreement to sell its North American and European amphoteric surfactant business to OpenGate Capital, a private equity firm with headquarters in Los Angeles, California (USA). The sale includes three production sites supporting the amphoteric product lines located in University Park, Illinois (USA), Genthin, Germany, Halifax, United Kingdom, and a tolling business in Turkey. The agreement also includes tolling and service agreements between Solvay and OpenGate to ensure a seamless transition and minimal customer disruption. Solvay expects to close the sale by the end of March 2021 pending completion of all required social dialogues and regulatory approvals.

COVID-19 impact

Underactivity

The total net impact of COVID-19 on full year 2020 EBITDA is estimated at €-434 million, after short term mitigation actions related to labor costs (including furloughs) and indirect spend. COVID-19 has triggered some impacts and actions that have been described in detail in the Q2 and Q3 financial report. The updated impacts in Q4 are summarized below:

During Q4 2020 Solvay had most of its production plants running fully to support the recovery of the business. Industrial activity was however still lower by about 5% compared to 2019. Administrative sites in Europe, USA and Brazil remained closed to protect employees from the COVID pandemic while locations in Asia (Shanghai, Seoul, Tokyo) reopened. For FY 2020, industrial activity was on average lower by about 10% compared to 2019.

During Q4 2020, approximately 450 employees were impacted by furlough (equivalent to approximately 87 Full Time Equivalents). During 2020, approximately 6,370 employees were impacted by furlough (equivalent to approximately 426 Full Time Equivalents). Solvay has guaranteed to all employees, regardless of their country of employment, 70% of their gross monthly base pay for up to 3 months. To mitigate the impacts of underactivity, Management has ensured that the unit costs in inventory have not been artificially increased by abnormally low levels of production. This analysis was included as part of the global assessment of the COVID-19 impact on EBITDA as mentioned above.

Impairment tests

A review was undertaken during Q2, 2020, to assess whether the consequences of COVID-19 indicated that some assets could be impaired. The review confirmed that there was an indication of impairment for CGUs with the lowest impairment headroom at December 31, 2019 (see Note F27 in 2019 Annual report). The following impairment charges were taken in Q2 2020:

- Composite materials: impairment loss of €0.8 billion;
- Technology solutions: impairment loss of €0.3 billion;
- Oil & gas: impairment loss of €160 million;
- Other small assets: impairment loss of €189 million.

During Q3, 2020, there were no new indicators of impairment and, as a result, a new impairment test was not performed. During Q4 an impairment test for Goodwill was performed based on the budget 2021 and the Mid Term Plan 2022-2024, and did not lead to any additional impairment. The impairment tests performed at the CGU level at December 31, 2020 did not lead to any additional impairment of assets, as the recoverable amounts of the (groups of) CGUs were higher than their carrying amounts.

Financing

On August 25, 2020, Solvay announced it successfully issued a perpetual hybrid bond for an aggregate nominal amount of €500 million, to be used for general corporate purposes, including the possible repayment of other indebtedness. The new €500 million hybrid bond has a perpetual maturity with a first call date on December 2, 2025 and will pay a fixed coupon of 2.5% (with corresponding yield of 2.625%) until March 2, 2026 (first reset date) with a reset every five years thereafter. The notes will rank junior to all senior debt and will be recorded as equity (and coupons will be recorded as dividends) in accordance with IFRS requirements. On August 25, 2020, Solvay Finance SA (subsidiary of Solvay) announced it had launched a cash tender offer to holders of its outstanding €500 million 5.118% deeply subordinated fixed to reset rate perp-NC5.5 bonds which are irrevocably guaranteed on a subordinated basis (ISIN: XS1323897485). On September 2, 2020, Solvay published the final results of the repurchase operation related to the €500 million 5.118% deeply subordinated perpetual hybrid bonds (ISIN: XS1323897485) which led to the full reimbursement.

Solvay has used a portion of the Performance Polyamides sale proceeds to prefund a part of the pension liabilities in France. This additional voluntary contribution amounts to approximately €380 million. Solvay also voluntarily contributed approximately €80 million to the US pension plans in Q1 2020 and €95 million to the German pension plans in Q4 2020.

2. PREPARATION BACKGROUND

2.1. COMPARABILITY OF RESULTS & RECONCILIATION OF UNDERLYING INCOME STATEMENT INDICATORS

Besides IFRS accounts, Solvay also presents underlying Income Statement performance indicators to provide a more consistent and comparable indication of Solvay's economic performance. These figures adjust IFRS figures for the non-cash Purchase Price Allocation (PPA) accounting impacts related to acquisitions, for the coupons of perpetual hybrid bonds classified as equity under IFRS but treated as debt in the underlying statements, and for other elements to generate a measure that avoids distortion and facilitates the appreciation of performance and comparability of results over time.

2.2. ALTERNATIVE PERFORMANCE METRICS (APM)

Solvay measures its financial performance using alternative performance metrics, which can be found below. Solvay believes that these measurements are useful for analyzing and explaining changes and trends in its historical results of operations, as they allow performance to be compared on a consistent basis. Definitions of the different metrics presented here are included in the glossary at the end of this Annual Report.

2.3. DESCRIPTION OF THE OPERATIONAL SEGMENTS

GRI Disclosures 102-7

2.3.1. Materials

Materials offer a unique portfolio of high-performance polymers and composite technologies used primarily in sustainable mobility applications. Its solutions enable weight reduction and enhance performance while improving CO_2 and energy efficiency. Major markets served include next-generation mobility in automotive and aerospace, healthcare and electronics.

Specialty Polymers

With over 1,500 products, Specialty Polymers offers the widest range of high performance polymers in the world, allowing tailor-made solutions such as pushing the limits of metal replacement in the electronics, automotive, aircraft, and healthcare industries. The GBU has unparalleled expertise in three technologies: aromatic polymers, high barrier polymers, fluoropolymers.

Composite Materials

Composite Materials is a top-tier supplier to the aerospace engineered materials market known for its expertise in design materials and process engineering. We deliver optimal material solutions to address our customer's most challenging demand for new high- performance materials that reduce weight, improve aerodynamics, and ultimately lower the total part costs for customers. The business supplies composites technologies to civil and military aircraft manufacturers which comprises the majority of sales, with the balance of sales into various industrial markets.

2.3.2. Chemicals

Chemicals host chemical intermediate businesses focused on mature and resilient markets. Solvay is a world leader in soda ash and peroxides and major markets served include building and construction, consumer goods and food. Its Silica, Coatis and RusVinyl businesses are also high quality assets with strong positions in their markets. This segment provides resilient cash flows and the company selectively invests in these businesses to become the #1 cash conversion chemical player.

Soda Ash & Derivatives

Soda Ash & Derivatives is a world leader for the production of soda ash and sodium bicarbonate, sold primarily to the flat and container glass industries but also used in detergents, agro, and food industries. It provides resilient profitability thanks to good pricing, dynamics growing at GDP rate, underpinned by high-quality assets.

Silica

Silica focuses on highly dispersible silica, used primarily in fuel-efficient and performance tires. The primary focus of the business is to develop innovative solutions for global tire manufacturers.

Coatis

Coatis is a provider of glycerine-based sustainable solvents solutions and specialty phenols mainly for the Latin American market. It enjoys an undisputed market leadership position in Brazil for Phenol & Derivatives used in the production of synthetic resins employed in foundries, construction, and abrasives.

Peroxides

Solvay is a market leader in hydrogen peroxide, both in market share and technology. Hydrogen peroxide (H_2O_2) is used mainly by the paper industry to bleach pulp. Its properties are also of interest to many markets, such as chemicals, food, textiles, and the environment.

2.3.3. Solutions

Solutions offer a unique formulation & application expertise through customized specialty formulations for surface chemistry & liquid behavior, maximizing yield and efficiency of the processes they are used in while minimizing the eco-impact. Novecare, Technology Solutions, Aroma and Special Chem focus on specific areas such as resources (improving the extraction yield of metals, minerals and oil), industrial applications (such as coatings) or consumer goods and healthcare (including vanillin and guar for home and personal care).

Novecare

Novecare develops and produces formulations that alter the properties of liquids. It offers solutions to the oil and gas industry using an extensive range of surface chemistries combined with applications expertise. Novecare also provides specialty solutions for home and personal care, agriculture, and coatings markets.

Technology Solutions

Technology Solutions is a global leader in specialty mining reagents, phosphine-based chemistry, and solutions for stabilization of polymers. Its portfolio includes world class, leading-edge technologies and unrivalled technical service and applications expertise that support our customers in developing tailor-made solutions, in particular for mining, where Solvay's products allow customers to extract metal concentrates from increasingly more complex and depleted ores.

Aroma Performance

Aroma Performance is a world's largest integrated producer of vanillin for the flavors & fragrances industries and also produces synthetic intermediates used in pharmaceuticals, agrochemicals, and electronics.

Special Chem

Special Chem produces fluor and rare-earth formulations for automotive, semi-conductor, and lighting applications. With its industrial know-how, global presence, and R&I proximity, Special Chem has positioned itself as a strategic partner for the automotive sector as a producer of materials used in emission control catalysis and aluminum brazing, and as a producer of cleaning and polishing materials for electronics.

2.3.4. Corporate & Business Services

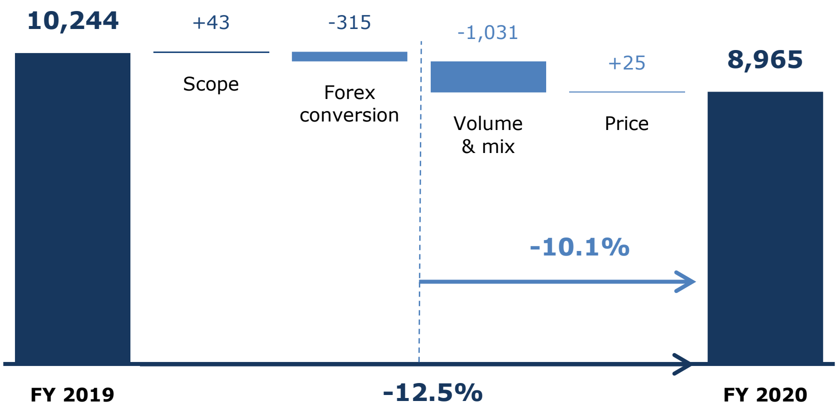
Corporate & Business Services includes corporate and other business services, such as Group research & innovation or energy services, whose mission is to optimize energy consumption and reduce CO_2 emissions.

3. UNDERLYING GROUP FIGURES

NOTE B1: NET SALES

Net sales evolution

FY yoy net sales bridge (in €million)



Net sales of €8,965 in 2020 were down 12.5% (10.1% organically) as civil aero and oil & gas challenges were moderated by resilient demand in healthcare, consumer goods, personal care, and electronics. The strong recovery of the automotive market in Q4 2020 partially offset the negative covid impact observed in Q2 and Q3 2020. Full year sales, excluding civil aero and oil & gas, were down 5%.

The decrease in sales in 2020 was mainly due to lower volumes yoy (-10.1%), while prices were slightly up.

Sales by end-market

2020 sales by end-markets *(in%)*	**Materials**	**Chemicals**	**Solutions**	**Solvay**
Aeronautics and Automotive	48%	14%	8%	22%
Electrical and Electronics	13%	0%	7%	7%
Resources and environment	8%	9%	19%	12%
Agro, feed and food	3%	19%	16%	13%
Consumer goods and healthcare	12%	23%	17%	18%
Building and construction	4%	11%	9%	8%
Industrial applications	11%	23%	24%	20%

NOTE B2: UNDERLYING RAW MATERIAL & ENERGY COSTS

The overall raw materials expense of the Group amounted to circa €2.2 billion in 2020 (vs. €2.7 billion in 2019). The raw materials expense can be split into several categories: crude oil derivatives for 37%, minerals derivatives for 24% (e.g. glass fiber, sodium silica, calcium silicate, phosphorus, sodium hydroxide…), natural gas derivatives circa 11%, biochemicals for 11% (e.g. glycerol, guar, fatty alcohol, ethyl alcohol…) and others for 17% (composites...).

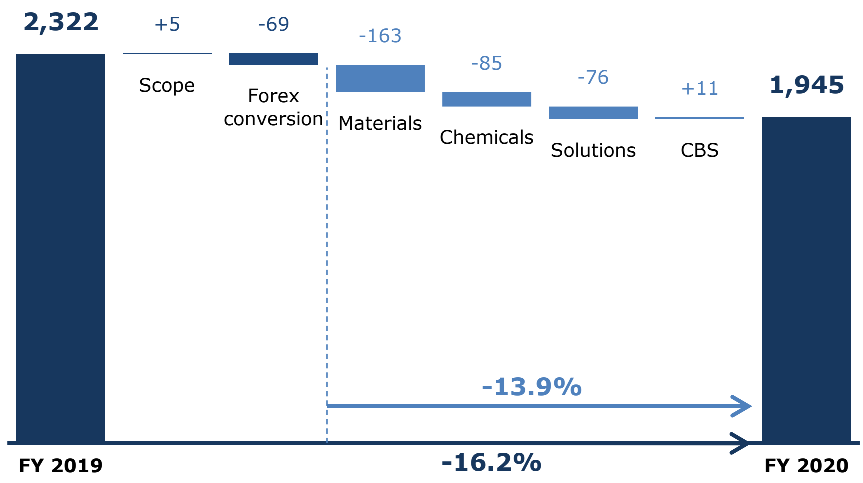
Net energy costs represented about €0.49 billion (vs.€0.61 billion 2019). Energy sources were spread over gas for 68% coke, pet coke, coal, and anthracite for 29%, electricity for 2% and steam, fuel oil, and others for 3%. Half of the costs were incurred in Europe (48%) followed by the Americas (30%), and Asia and the rest of the world (22%).

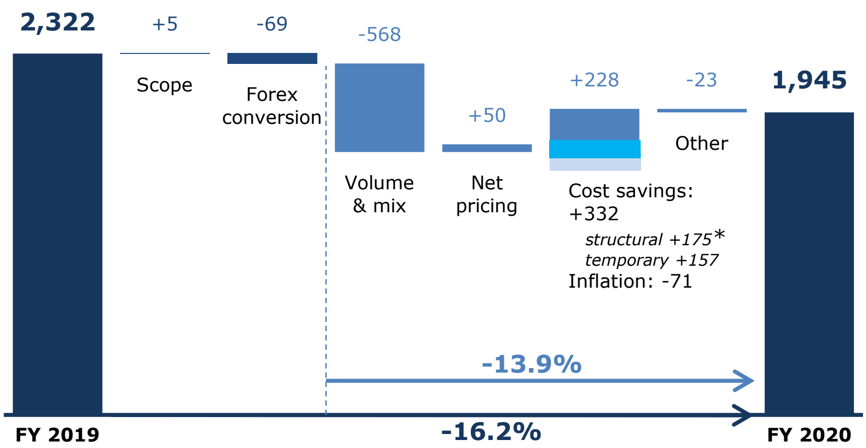
The Group has reduced its overall energy intensity by 7% since 2012. Key factors in this progress have been the SOLWATT® energy efficiency program rolled out at most plants worldwide and the dissemination of technological breakthroughs to improve the overall energy efficiency of its operations. More information in the Extra-financial section of this Annual Report 4.2. Energy.

NOTE B3: UNDERLYING EBITDA

Underlying EBITDA evolution

FY yoy underlying EBITDA bridge (in € million)





* includes €19 million of variable costs savings

Cost savings reached €330 million for full year 2020, of which €175 million are structural savings. Within the structural savings, approximately 50% are related to restructuring initiatives, 35% from indirect spend, and 15% from productivity and efficiency improvements. **Underlying EBITDA** of €1,945 million was down 16.2% (14% organically) for the full year 2020 as a result of the lower sales volumes. The EBITDA margin was 21.7% for the year thanks to sustained pricing and delivery of cost measures. The total net impact of COVID-19 on full year 2020 EBITDA is estimated at € (434) million, after mitigation actions related to labor costs (including furloughs) and indirect spend (COVID-19 has triggered some impacts and actions that are described in detail in the quarterly financial reports).

NOTE B4: UNDERLYING DEPRECIATION & AMORTIZATION

Amortization and depreciation & impairment charges were €835 million in 2020, compared to €818 million in 2019.

NOTE B5: UNDERLYING NET FINANCIAL CHARGES

In € million		**FY 2020**	FY 2019
Cost of borrowings		-114	-139
Interest on loans & short term deposits		8	15
Other gains & losses on net indebtedness		-8	-4
Net cost of borrowings	a	**-113**	**-128**
Coupons on perpetual hybrid bonds	b	-91	-105
Interests and realized foreign exchange gains (losses) on the RusVinyl joint venture	c	-19	-18
Cost of discounting provisions	d	-64	-85
Result from equity instruments measured at fair value through other comprehensive income	e	3	4
Net financial charges	f = a+b+c+d+e	**-284**	**-332**

Underlying net financial charges reduced vs 2019 mainly following the early repayment in 2019 of the US$ 800 million Senior US$ bonds of Solvay Finance America LLC, with the issuance of a 10-year Senior bond (€ 600 million) with a 0.5% yearly coupon. Solvay also modified the quantum of hybrid financing, calling a €700 million hybrid bond at 4.20% in May 2019, partly pre-financed by a €300 million hybrid bond at 4.25% issued in November 2018. Discounting costs decreased as a result of the applicable discount rates for post-employment provisions.

NOTE B6: UNDERLYING INCOME TAXES

In € million		**FY 2020**	FY 2019
Profit/(loss) for the period before taxes	a	827	1,171
Earnings from associates & joint ventures	b	83	92
Interests and realized foreign exchange gains (losses) on the RusVinyl joint venture	c	-19	-18
Income taxes	d	-195	-305
Tax rate	e = -d/(a-b-c)	**26%**	**28%**

The 2.2 percentage point decrease is mainly due to a more favorable mix of taxable profit by country.

NOTE B7: UNDERLYING PROFIT FROM DISCONTINUED OPERATIONS

In 2019, discontinued operations mainly consisted of the Performance Polyamides activities to be sold to BASF and Domo Chemicals. The contribution of discontinued operations to the profit of Solvay amounted to €247 million (+14.4% compared to 2018 PF). Free cash flow from discontinued operations in 2019 amounted to €195 million.

The transaction has been completed on January 31, 2020. As a result, the contribution of discontinued operations to the profit of Solvay in 2020 was limited to €19 million. Free cash flow from discontinued operations in 2020 amounted to €-11 million

NOTE B8: CAPEX

(in € million)		FY 2020	FY 2019
Acquisition (-) of tangible assets	a	-454	-751
Acquisition (-) of intangible assets	b	-81	-106
Payment of lease liabilities	c	-108	-110
Capex	d = a+b+c	**-643**	**-967**
Capex in discontinued operations	e	-33	-141
Capex in continuing operations	f = d-e	**-611**	**-826**
Materials		-193	-300
Chemicals		-184	-204
Solutions		-144	-203
Corporate & Business Services		-90	-119
Underlying EBITDA	g	**1,945**	**2,322**
Materials		712	883
Chemicals		816	945
Solutions		566	663
Corporate & Business Services		-149	-169
Cash conversion	h = (f+g)/g	**68.6%**	**64.4%**
Materials		72.9%	66.0%
Chemicals		77.4%	78.4%
Solutions		74.6%	69.3%

Capex in continuing operations was €611 million in 2020, a decrease of 25.9% compared to €825 million in 2019. The reduced capex is one of the measures taken in the context of the COVID-19 crisis.

NOTE B9: FREE CASH FLOW

(in € million)		FY 2020	FY 2019
Cash flow from operating activities	a	1,242	1,815
of which voluntary pension contributions	b	-552	-114
Cash flow from investing activities	c	711	-880
of which capital expenditures required by share sale agreement	d	-14	-59
Acquisition (-) of subsidiaries	e	-12	-6
Acquisition (-) of investments - Other	f	-46	-16
Loans to associates and non-consolidated companies	g	-6	10
Sale (+) of subsidiaries and investments	h	1,297	-31
Recognition of factored receivables	i	-22	-23
Increase/decrease of borrowings related to environmental remediation	j	6	8
Payment of lease liabilities	k	-108	-110
FCF	l = a-b+c-d-e-f-g-h-i+j+k	**1,206**	**1,072**
FCF from discontinued operations	m	-11	195
FCF from continuing operations	n = l-m	**1,217**	**878**
Net interests paid	o	-103	-118
Coupons paid on perpetual hybrid bonds	p	-119	-115
Dividends paid to non-controlling interests	q	-32	-39
FCF to Solvay shareholders	r = l+o+p+q	**951**	**801**
FCF to Solvay shareholders from discontinued operations	s	-11	195
FCF to Solvay shareholders from continuing operations	t = r-s	**963**	**606**
Dividends paid to non-controlling interests from continuing operations	u	-32	-39
Underlying EBITDA	v	1,945	2,322
FCF conversion ratio	w = (t-u)/v	**51.1%**	**27.8%**

Free cash flow to shareholders from continuing operations reached a record €963 million, a €360 million increase versus 2019, an outstanding performance when considering the €377 million lower EBITDA. Results reflect significant structural improvement and continued discipline in working capital management, reduced cash taxes (including a €78 million one-off reduction), lower capex and pension cash costs of €292 million.

NOTE B10: NET WORKING CAPITAL

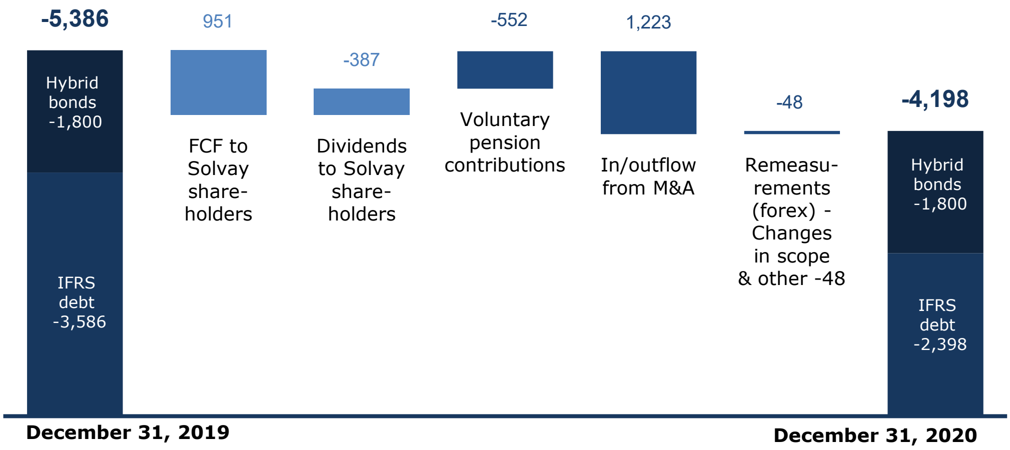
(in € million)		2020 December 31	2019 December 31
Inventories	a	1,241	1,587
Trade receivables	b	1,264	1,414
Other current receivables	c	519	628
Trade payables	d	-1,197	-1,277
Other current liabilities	e	-720	-792
Net working capital	f = a+b+c+d+e	**1,108**	**1,560**
Sales	g	2,418	2,710
Annualized quarterly total sales	h = 4*g	9,673	10,841
Net working capital / sales	i = f / h	**11.5%**	**14.4%**
Year-to-date average	j = μ(Q1,Q2,Q3,Q4)	14.7%	15.3%

Net working capital over sales improved to 14.7% in 2020, due to the strong focus on working capital management and despite the lower sales.

NOTE B11: UNDERLYING NET DEBT

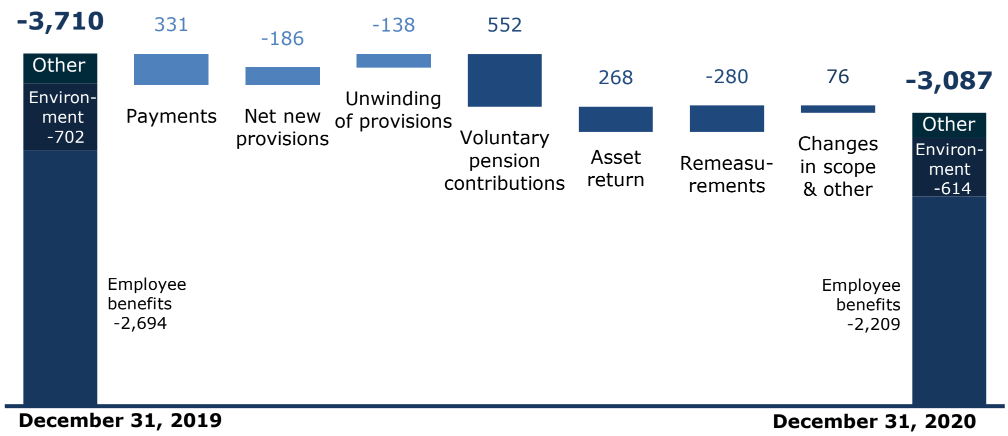
(in € million)		2020 December 31	2019 December 31
Non-current financial debt	a	-3,233	-3,382
Current financial debt	b	-287	-1,132
IFRS gross debt	c = a+b	-3,519	-4,513
Underlying gross debt	d = c+h	-5,319	-6,313
Other financial instruments	e	119	119
Cash & cash equivalents	f	1,002	809
Total cash and cash equivalents	g = e+f	1,121	928
IFRS net debt	i = c+g	**-2,398**	**-3,586**
Perpetual hybrid bonds	h	-1,800	-1,800
Underlying net debt	j = i+h	**-4,198**	**-5,386**
Underlying EBITDA (LTM)	k	1,945	2,322
Adjustment for discontinued operations	l	-	366
Adjusted underlying EBITDA for leverage calculation	m = k+l	1,945	2,688
Underlying leverage ratio		**2.2**	**2.0**

Underlying net financial debt decreased by €1.2 billion in 2020 to €4.2 billion, driven by the closing of the Polyamides sale in the first quarter (€1.3 billion proceeds less voluntary pension contributions of €0.6 billion) and a record free cash flow. Leverage at the end of 2020 was 2.2x versus 2.0x at the end of 2019.



NOTE B12: PROVISIONS

Provisions are down by €623 million to €3.1 billion thanks primarily to the €552 million voluntary pension contributions made in 2020 (in addition to the €114m contributions made in December 2019) and to a lesser extent the reduction of environmental liabilities driven mainly by foreign exchange. The €552 million voluntary pension contributions include €95 million contribution to the German plans at the end of December 2020.



NOTE B13: CFROI

CFROI		FY 2020			FY 2019		
(in € million)		**As published**	**Adjustment**	**As calculated**	**As published**	**Adjustment**	**As calculated**
Underlying EBIT	a	1,110	-	1,110	1,503	-	1,503
Underlying EBITDA	b	1,945	-	1,945	2,322	-	2,322
Underlying earnings from associates & joint ventures	c	83	-	83	92	-	92
Dividends received from associates & joint ventures [1]	d	25	-	25	25	-	25
Recurring capex [2]	e = -2.3%*m	-	-	-408	-	-	-409
Recurring income taxes [3]	f = -28%*(a-c)	-	-	-288	-	-	-395
Recurring "CFROI" cash flow data	g = b-c+d+e+f	**-**	**-**	**1,191**	**-**	-	**1,450**
Materials	-	-	-	456	-	-	581
Chemicals	-	-	-	497	-	-	573
Solutions	-	-	-	353	-	-	426
Corporate & Business Services	-	-	-	-115	-	-	-130
Tangible assets	h	4,717	-	-	5,472	-	-
Intangible assets	i	2,141	-	-	2,642	-	-
Right-of-use assets	j	405	-	-	447	-	-
Goodwill	k	3,265	-	-	4,468	-	-
Replacement value of goodwill & fixed assets [4]	l = h+i+j+k	10,528	9,369	19,897	13,028	7,007	20,035
of which fixed assets	m	6,858	10,870	17,728	8,114	9,685	17,799
Investments in associates & joint ventures [5]	n	495	4	499	555	-36	519
Net working capital [5]	o	1,108	346	1,454	1,560	233	1,793
"CFROI" invested capital	p = l+n+o	**-**	**-**	**21,850**	**-**	**-**	**22,347**
Materials		-	-	6,260	**-**	**-**	6,396
Chemicals		-	-	6,492	**-**	**-**	6,747
Solutions		-	-	6,376	-	-	6,587
Corporate & Business Services		-	-	2,964	-	-	2,870
CFROI	q = g/p	**-**	**-**	**5.5%**	**-**	**-**	**6.5%**
Materials		-	-	7.3%	-	-	9.1%
Chemicals		-	-	7.7%	-	-	8.5%
Solutions		-	-	5.5%	-	-	6.5%

[1] Excluding discontinued operations
[2] Currently estimated at 2.3% of replacement value of fixed assets
[3] Currently estimated at 28% of underlying EBIT
[4] The adjustment reflects the quarterly average over the year.
[5] The adjustment reflects the difference between the estimated replacement value of goodwill and fixed assets, and the accounting value. The changes over time come from foreign exchange variations, new investments and portfolio moves. It also reflects the quarterly average over the year.

NOTE B14: ROCE

(in € million)		FY 2020	FY 2019
EBIT	a	1,110	1,503
Non-cash accounting impact from amortization & depreciation of purchase price allocation (PPA) from acquisitions	b	-181	-214
Numerator	c = a+b	**929**	**1,289**
WC industrial	d	1,674	1,932
WC Other	e	-242	-139
Tangible assets	f	4,997	5,470
Intangible assets	g	2,361	2,753
Right-of-use assets	h	422	462
Investments in associates & joint ventures	i	499	519
Other investments	j	46	40
Goodwill	k	3,621	4,864
Denominator	l = d+e+f+g+h+i+j+k	**13,379**	**15,901**
ROCE	***m = c/l***	***6.9%***	***8.1%***

ROCE has been defined as one of the key performance metrics to evaluate the success of the G.R.O.W. strategy. In 2020, the ROCE decreased to 6.9%, mainly as a result of lower profitability.

NOTE B15: RESEARCH & INNOVATION

(in € million)		FY 2020	FY 2019
IFRS research & development costs	a	-300	-323
Grants netted in research & development costs	b	26	26
Depreciation, amortization & impairments included in research & development costs	c	-89	-83
Capex in research & innovation	d	-54	-70
Research & innovation	e = a-b-c+d	**-291**	**-336**
Materials		-126	-131
Chemicals		-32	-43
Solutions		-103	-115
Corporate & Business Services		-30	-47
Net sales	f	**8,965**	**10,244**
Materials		2,695	3,199
Chemicals		2,948	3,328
Solutions		3,316	3,710
Corporate & Business Services		6	6
Research & innovation intensity	g = -e/f	**3.2%**	**3.3%**
Materials		4.7%	4.1%
Chemicals		1.1%	1.3%
Solutions		3.1%	3.1%

R&I effort further decreased during 2020 as result of group wide operational cost reduction programs in the context of the COVID-19 crisis. Corporate R&I efforts were strongly redirected towards the material activities in preparation of the new G.R.O.W strategy.

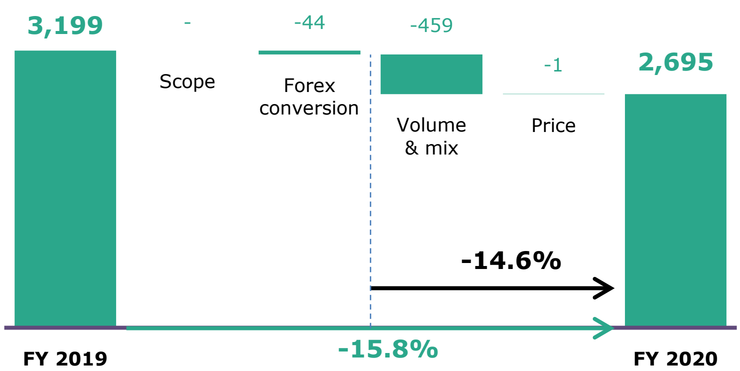
4. UNDERLYING FIGURES PER SEGMENT

SEGMENT OVERVIEW

In € million	FY 2020	FY 2019	% yoy	% organic
Net sales	8,965	10,244	-12.5%	-10.1%
Materials	2,695	3,199	-15.8%	-14.6%
Specialty Polymers	1,820	1,927	-5.5%	-
Composite Materials	875	1,272	-31.2%	-
Chemicals	2,948	3,328	-11.4%	-7.7%
Soda Ash & Derivatives	1,450	1,661	-12.7%	-
Peroxides	642	683	-6.0%	-
Coatis	470	535	-12.1%	-
Silica	386	449	-13.9%	
Solutions	3,316	3,710	-10.6%	-8.3%
Novecare	1,566	1,789	-12.5%	-
Special Chem	761	864	-11.9%	-
Technology Solutions	555	632	-12.2%	-
Aroma Performance	435	425	+2.2%	-
Corporate & Business Services	6	6	-0.3%	-
EBITDA	1,945	2,322	-16.2%	-13.9%
Materials	712	883	-19.3%	-18.7%
Chemicals	816	945	-13.7%	-9.4%
Solutions	566	663	-14.5%	-11.8%
Corporate & Business Services	-149	-169	+11.4%	-
EBITDA margin	21.7%	22.7%	-1.0pp	-
Materials	26.4%	27.6%	-1.2pp	-
Chemicals	27.7%	28.4%	-0.7pp	-
Solutions	17.1%	17.9%	-0.8pp	-

NOTE B16: MATERIALS SEGMENT

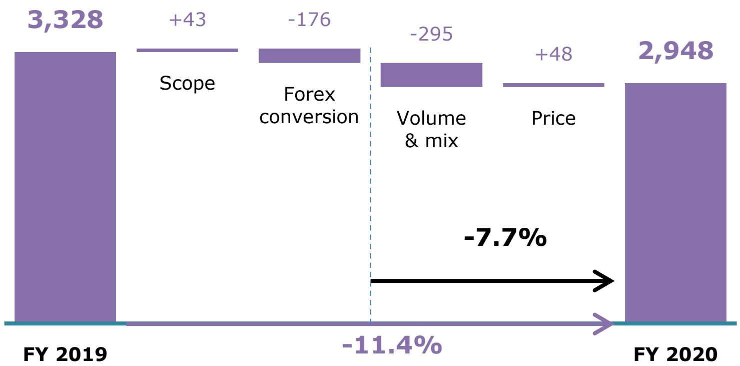
In € million	FY 2020	FY 2019	% yoy
Net sales	2,695	3,199	-15.8%
Specialty Polymers	1,820	1,927	-5.5%
Composite Materials	875	1,272	-31.2%
EBITDA	712	883	-19.3%
EBITDA margin	26.4%	27.6%	-1.2pp
EBIT	460	627	-26.7%
Capex in continuing operations	193	300	-35.7%
Cash conversion	72.9%	66.0%	+6.9pp
CFROI	7.3%	9.1%	-1.8pp
Research & Innovation	126	131	-3.8%
Research & Innovation intensity	4.7%	4.1%	+0.6pp



Sales in full year 2020 were down 15.8% (14.6% organically) as a result of volume declines in civil aerospace and automotive markets. Full year EBITDA was down 19.3% (18.7% organically), while swift cost actions and sustained pricing protected the segment's 26.4% margins.

NOTE B17: CHEMICALS

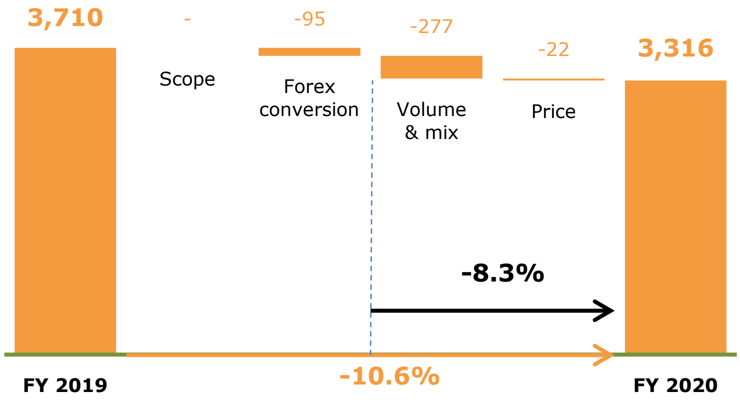
In € million	**FY 2020**	FY 2019	% yoy
Net sales	2,948	3,328	-11.4%
Soda Ash & Derivatives	1,450	1,661	-12.7%
Peroxides	642	683	-6.0%
Coatis	470	535	-12.1%
Silica	386	449	-13.9%
EBITDA	816	945	-13.7%
EBITDA margin	27.7%	28.4%	-0.7pp
EBIT	552	693	20.3%
Capex in continuing operations	184	204	-9.6%
Cash conversion	77.4%	78.4%	-1.0pp
CFROI	7.7%	8.5%	-0.8pp
Research & Innovation	32	43	-25.6%
Research & Innovation intensity	1.1%	1.3%	-0.2pp



Full year 2020 sales in the segment were down 11.4% (7.7% organically) due to lower volumes and currency fluctuations, offset partly by price. EBITDA in 2020 was down 13.7% (9.4% organically), as cost mitigation measures supported a large part of the volume decline and preserved 27.7% EBITDA margin.

NOTE B18: SOLUTIONS

In € million	FY 2020	FY 2019	% yoy
Net sales	3,316	3,710	-10.6%
Novecare	1,566	1,789	-12.5%
Special Chem	761	864	-11.9%
Technology Solutions	555	632	-12.2%
Aroma Performance	435	425	+2.2%
EBITDA	566	663	-14.5%
EBITDA margin	17.1%	17.9%	-0.8pp
EBIT	350	448	-21.9%
Capex in continuing operations	144	203	-29.2%
Cash conversion	74.6%	69.3%	+5.3pp
CFROI	5.5%	6.5%	-0.9pp
Research & Innovation	103	115	-10.4%
Research & Innovation intensity	3.1%	3.1%	-



Full year 2020 sales were down 10.6% (8.3% organically) due mainly to lower volumes. EBITDA was down by 14.5% (11.8% organically) as cost mitigation offset most of the impact, leading to 17.1% EBITDA margin for the year.

NOTE B19: CORPORATE & BUSINESS SERVICES

In € million	FY 2020	FY 2019	% yoy
Net sales	6	6	-0.3%
EBITDA	-149	-169	+11.4%
EBIT	-252	-265	+5.0%
Capex in continuing operations	90	119	-24.3%
Research & Innovation	30	47	-36.2%

Full year underlying EBITDA was €-149 million, €20 million better, reflecting mainly cost reductions and austerity measures.

5. RECONCILIATION OF UNDERLYING AND IFRS MEASURES

Besides IFRS accounts, Solvay also presents underlying Income Statement performance indicators to provide a more consistent and comparable indication of Solvay's economic performance. These figures adjust IFRS figures for the non-cash Purchase Price Allocation (PPA) accounting impacts related to acquisitions, for the coupons of perpetual hybrid bonds classified as equity under IFRS but treated as debt in the underlying statements, and for other elements to generate a measure that avoids distortion and facilitates the appreciation of performance and comparability of results over time.

EBITDA on an IFRS basis totaled €1,751 million, versus €1,945 million on an underlying basis. The difference of €194 million is explained by the following adjustments to IFRS results, which are done to improve the comparability of underlying results:

- €26 million in "Earnings from associates & joint ventures" for Solvay's share in the financial charges of the Rusvinyl joint venture and the foreign exchange losses on the €-denominated debt of the joint venture, following the 30% devaluation of the Russian ruble over the period. These elements are reclassified in "Net financial charges".
- €148 million to adjust for the "Result from portfolio management and major restructuring", excluding depreciation, amortization and impairment elements. This result comprises €122 million restructuring charges for the efficiency measures announced on February 26, 2020 and the Composites restructuring plan announced on May 15, 2020 and net expenses for €26 million related to disposals of subsidiaries.
- €20 million to adjust for the "Result from legacy remediation and major litigations", primarily environmental expenses.

EBIT on an IFRS basis totaled €-665 million, versus €1,110 million on an underlying basis. The difference of €1,776 million is explained by the above-mentioned €194 million adjustments at the EBITDA level and €1,582 million of "*Depreciation, amortization & impairments*". The latter consist of:

- €181 million to adjust for the non-cash impact of purchase price allocation (PPA), consisting of amortization charges on intangible assets, which are adjusted in "Cost of goods sold" for €1 million, in "*Administrative costs*" for €11 million, in "*Research & development costs*" for €3 million, and in "*Other operating gains & losses*" for €166 million.
- €1,401 million to adjust for the impact of impairments reported in "*Result from portfolio management and major restructuring*" as a result of the impairment tests undertaken during Q2 2020 to assess the consequences of the COVID-19 crisis on the Composite Materials, Technology Solutions and Oil & gas assets – See Q2 Financial Report for further details.

Net financial charges on an IFRS basis were €-178 million versus €-284 million on an underlying basis. The €-105 million adjustment made to IFRS net financial charges consists of:

- €-91 million reclassification of coupons on perpetual hybrid bonds, which are treated as dividends under IFRS, and as financial charges in underlying results.
- €-19 million reclassification of financial charges and realized foreign exchange result on the €-denominated debt of RusVinyl as net financial charges.
- €5 million for the net impact of increasing discount rates on the valuation of environmental liabilities in the period.

Income taxes on an IFRS basis were €-248 million, versus €-195 million on an underlying basis. The €53 million adjustment includes mainly the tax effect of the adjustments of profit before taxes and valuation allowances on deferred tax assets on losses and other temporary differences.

Discontinued operations generated a profit of €163 million on an IFRS basis and €19 million on an underlying basis. The €-144 million adjustment to the IFRS profit relates mainly to the expected capital gain after taxes (subject to customary post-closing purchase price adjustments) on the divestment of the polyamide activities.

Profit / (loss) attributable to Solvay shareholders was €-962 million on an IFRS basis and €618 million on an underlying basis. The delta of €1,579 million reflects the above-mentioned adjustments to EBIT, net financial charges, income taxes and discontinued operations. There was no impact from non-controlling interests.

6. NOTES TO THE FIGURES PER SHARE

HISTORICAL KEY SHARE DATA

		2016	2017	2018	2019	**2020**
Number of shares (in 1000 shares)						
Issued shares at end of year	a	105,876	105,876	105,876	105,876	105,876
Treasury shares at end of year	b	2,652	2,358	2,723	2,466	2,718
Shares held by Solvac	c	32,511	32,511	32,511	32,511	32,511
Outstanding shares at the end of the year	d = a-b	103,225	103,519	103,154	103,411	103,158
Average outstanding shares (basic calculation)	e	103,294	103,352	103,277	103,177	103,140
Average outstanding shares (diluted calculation)	f	103,609	104,084	103,735	103,403	103,170
Data per share (in €)						
Equity attributable to Solvay share	g = .../d [2]	72.83	71.98	77.76	74.70	52.45
Underlying profit for the period (basic)	h = .../e [2]	8.19	9.08	10.57	10.41	5.99
IFRS profit for the period (basic)	i = .../e [2]	6.01	10.27	8.31	1.15	-9.32
IFRS profit for the period (diluted)	j = .../f [2]	5.99	10.19	8.27	1.15	-9.32
Gross dividend [3]	k	3.45	3.60	3.75	3.75	3.75
Net dividend [3]	l = k*(1-...%) [4]	2.42	2.52	2.62	2.62	2.62
Share price data (in €) [5]						
Highest	m	112.30	132.00	120.65	111.45	105.25
Lowest	n	70.52	106.30	85.44	82.26	52.82
Average	o = v/u	89.32	118.69	110.07	95.53	78.95
At the end of the year	p	111.35	115.90	87.32	103.30	96.88
Underlying price/earnings	q = p/h	13.6	12.8	8.3	9.9	16.2
IFRS price/earnings	r = p/i	18.5	11.3	10.5	90.0	-10.4
Gross dividend yield	s = k/p	3.1%	3.1%	4.3%	3.6%	3.9%
Net dividend yield	t = l/p	2.2%	2.2%	3.0%	2.5%	2.7%
Stock market data [5]						
Annual volume (in 1000 shares)	u	86,280	62,642	70,715	65,292	71,670
Annual volume (in € million)	v	7,707	7,435	7,784	6,238	5,659
Market capitalisation, end of year (in € million)	w = p*d	11,494.1	11,997.8	9,007.4	10,682.3	9,994.0
Velocity	x = u/a	81.5%	59.2%	66.8%	61.7%	67.7%
Velocity adjusted for free float	y = u/(a-b-c)	122.0%	88.2%	100.1%	92.1%	101.4%

(1) These data are not presented on pro forma basis, i.e: excluding impacts of IFRS16 Leases for 2018.
(2) The numerator can be found under the same label in the historic key financial data table in section 1 of the Business review.
(3) Recommended 2020 dividend, pending General Shareholders meeting on May 11, 2021.
(4) Belgian withholding tax applicable in year of dividend payment, i.e. the following year: 27% in 2016, 30% from 2017 onward.
(5) The stock market data are based on all trades registered by Euronext.

NOTE B20: EARNINGS PER SHARE

		FY 2020	FY 2019
Profit attributable to Solvay share (in € m)			
Underlying profit for the period	a	618	1,075
Underlying profit from continuing operations	b	599	828
IFRS profit for the period	c	-962	118
IFRS profit from continuing operations	d	-1,124	-118
Number of shares (in 1000 shares)			
Issued shares at end of year	e	105,876	105,876
Treasury shares at end of year	f	2718	2466
Outstanding shares at the end of the year	g = e-f	103,158	103,411
Average outstanding shares (basic calculation)	h	103,140	103,177
Average outstanding shares (diluted calculation)	i	103,170	103,403
Data per share (in €)			
Underlying profit for the period (basic)	j = a/h	5.99	10.41
Underlying profit from continuing operations (basic)	k = b/h	5.81	8.02
IFRS profit for the period (basic)	l = c/h	-9.32	1.15
IFRS profit from continuing operations (basic)	m = d/h	-10.90	-1.14
IFRS profit for the period (diluted)	p = c/i	-9.32	1.15
IFRS profit from continuing operations (diluted)	q = d/i	-10.90	-1.14

Underlying earnings per share from continuing operations were down 27.5% at €5.81, mainly due to the 16.2% lower EBITDA. Total underlying earnings per share in the full year was down 42.4%, as the discontinued Polyamide operations were present 12 months in 2019 and only one month in 2020.

NOTE B21: DIVIDEND

The Board of Directors decided to recommend to the General Shareholders' Meeting of May 11, 2021 the payment of a total gross dividend of €3.75 per share. The dividend for the fiscal year 2020 is in line with the Group's dividend policy of maintaining a stable to increasing dividend whenever possible and, as far as possible, never reducing it.

Given the interim dividend of €1.50 gross per share, with 30% withholding tax, paid on January 18, 2021, the balance of the dividend in respect of 2020, equals €2.25 gross per share, which will be paid on May 19, 2021, provided prior agreement by General Shareholders Meeting.

7. OUTLOOK

First quarter 2021 EBITDA is estimated to be between €520 million and €550 million, and Free Cash Flow is expected to be between €600 and €650 million for full year 2021. Free cash flow indications reflect the benefits of reduced pension and financial charges, higher restructuring costs, reinvestment in working capital and capex to support innovation and growth.

Additional structural cost savings are estimated at €150 million in 2021, more than offsetting fixed cost inflation, expected at around €75 million. This would take cumulative cost reductions over 2 years (2020-2021) to €325 million.

E

Extra-financial statements

Extra-financial statements

1. OVERVIEW OF THE CONSOLIDATED RESULTS

GRI Disclosures 201-1

1.1. CLIMATE

		Units	2020	2019	2018	2017	2016
	PRIORITY ASPECTS						
	Greenhouse gas emissions						
R	Total direct greenhouse gas emissions (Scope 1)	Mt CO_2 eq.	8.9	10.6	10.4	10.2	10.9
R	Total indirect CO_2 emissions – Gross market-based (Scope 2)	Mt CO_2	1.2	1.4	1.9	2.1	2.5
R	Total greenhouse gases emissions (Scope 1 and 2)	Mt CO_2	10.1	12.0	12.3	12.3	13.4
L	Total Scope 3 emissions	Mt CO_2 eq.	28.8	32.6	34.2	-	-
	Total Scope 1 + 2 + 3	Mt CO_2 eq.	38.9	44.6	46.5	-	-
	Biodiversity						
L	Species potentially affected	Number	107	116.2	121.9	-	-
	HIGH MATERIALITY ASPECTS						
	Energy						
	Fuel consumption for energy production	PJ	99	107	93	92	96
	Secondary energy purchased for consumption	PJ	34	38	45	49	53
	Energy sold	PJ	31	32	23	22	23
L	Primary energy consumption	PJ	103	113	115	119	126
	Solid fuels	PJ	27	32	33	38	33

1.2. RESOURCES

		Units	2020	2019	2018	2017	2016
	PRIORITY ASPECTS						
	Product design and life cycle management						
	Revenue breakdown by SPM heat map categories						
R	Solutions	%	52	53	50	49	43
R	Neutral	%	27	27	30	31	33
R	Challenges	%	8	7	7	8	8
R	Not evaluated	%	13	13	13	12	16
	SPM Solutions: sales by main impact category						
	Climate	€ billion	1.6	2.2	2.2	-	-
	Resources	€ billion	3.2	3.5	3.1	-	-
	Better Life	€ billion	3.1	3.3	3.1	-	-
	Total Solutions net sales	€ billion	4.7	5.4	5.1	-	-
	Absolute air emissions						
L	Nitrogen oxides – NOx	metric tons	5,587	6,197	7,704	9,432	11,115
L	Sulfur oxides – SOx	metric tons	2,808	2,888	3,750	4,562	5,343
L	Non-methane volatile organic compounds – NMVOC	metric tons	3,286	4,109	4,252	4,142	4,941
	Freshwater withdrawal						
R	Total freshwater withdrawal	Million cubic meter	314	330	330	326	494
	Freshwater withdrawal in water-stressed areas	Million cubic meter	29.0	-	-	-	-
	Waste production in absolute						
R	Non-hazardous industrial waste	1,000 tons*	1,457	1,596	1,602	1,641	1,463
R	Hazardous industrial waste	1,000 tons*	71.6	86.6	93.1	99.7	188.6
R	Total industrial waste	1,000 tons*	1,529	1,682	1,696	1,741	1,651

1.3. BETTER LIFE

		Units	2020	2019	2018	2017	2016
	PRIORITY ASPECTS						
	Employee health and safety						
	Accidents frequency rates						
R	MTAR - Employees	accidents per million hours worked	0.35	0.44	0.58	0.63	0.73
R	MTAR - Contractors	accidents per million hours worked	0.54	0.43	0.48	0.70	0.86
R	MTAR - Employees + Contractors	accidents per million hours worked	0.40	0.44	0.54	0.65	0.77
R	LTAR - Employees	accidents per million hours worked	0.57	0.73	0.71	0.70	0.69
R	LTAR - Contractors	accidents per million hours worked	0.96	0.51	0.52	0.52	0.90
R	LTAR - Employees + Contractors	accidents per million hours worked	0.68	0.66	0.65	0.65	0.76
	RIIR - Employees + Contractors	accidents per 200,000 hours worked	0.37	-	-	-	-
	Occupational illness frequency rate (OIFR)	per million hours worked	0.49	0.54	0.33	0.06	0.08
	Diversity and inclusion						
	Women in senior + middle management						
R	Senior and Middle management	%	24.7	24.3	23.7	-	-
	Gender diversity by employee category						
R	Women in senior management	%	15	14	15	16	14
R	Women in middle management	%	26	26	25	24	23
R	Women in junior management	%	34	33	33	32	33
R	Women in non-managerial positions	%	20	20	20	21	19
R	Total women in Solvay	%	24	23	23	23	22
	Solvay's workforce by age						
	Under 30 years old	Number	2,928	2,649	2,800	2,765	3,242
	Between 30–49 years old	Number	12,425	13,422	13,605	13,578	15,107
	50 years old and older	Number	8,310	8,084	8,096	8,116	8,681
	Total headcount	Number	23,663	24,155	24,501	24,459	27,030
	Net Promoter Score						
L	Solvay's Net Promoter Score (NPS)	%	NA	33	42	36	27
	HIGH MATERIALITY ASPECTS						
	Corporate Citizenship						
	Solvay Group donations, sponsorships and own projects	M€	1.9	3.6	3.9	-	-
	Hazardous materials						
	Solvay Substances of Very High Concern (SVHC) found in products sold						
L	All SVHCs(1)	Number	40	29	31	35	20
L	Percentage of completion of analysis of safer alternatives program for marketed products(2)	%	51	54	39	49	18
	Of which effective replacement	%	0	0	0	32	-
	Critical incident risk management						
	Process safety incident						
L	Process Safety Incident rate	Number	0.9	0.9	1.0	0.9	0.7
L	Process Safety Incidents with High or Catastrophic severity	Number	0	1	1	-	-
L	Process Safety Incidents with environmental consequences	Number	26	34	47	-	-
L	… with operating permit exceedance	Number	14	16	12	-	-
L	… without permit exceedance	Number	12	18	35	-	-

	Units	**2020**	2019	2018	2017	2016
MODERATE MATERIALITY ASPECTS						
Generated Economic Value						
Sales	€ million	9,714	11,227	11,299	10,891	10,045
Interests on lending and short-term deposits	€ million	8	15	13	15	13
Earnings from associates and JV accounted for using MEQ	€ million	58	95	44	44	85
Income from non consolidated investments	€ million	7	8	7	5	11
Result from discontinued operations	€ million	163	236	201	241	82
Distribution of Generated Economic Value						
Operating costs	€ million	6,022	6,791	7,184	6,532	5,732
Employee wages and benefits	€ million	1,999	2,308	2,229	2,275	2,238
Current taxes	€ million	116	143	124	191	190
Payment to providers of funds	€ million	660	697	653	723	707
Community contribution	%	0	0	0	0	0
Economic Value Retained	€ million	1,153	1,642	1,374	1,474	1,369
Recruitment, development and retention						
Solvay's workforce by region						
Europe	Headcount	11,428	11,264	11,444	11,351	13,030
Women	%	26	25	25	25	23
Permanent staff	%	89	97	98	97	97
Asia-Pacific and rest of the world	Headcount	4,336	4,411	4,415	4,696	5,229
Women	%	25	25	25	25	24
Permanent staff	%	77	73	71	62	62
North America	Headcount	5,553	6,175	6,592	6,057	6,424
Women	%	21	20	20	20	20
Permanent staff	%	100	100	98	100	100
Latin America	Headcount	2,346	2,305	2,050	2,355	2,347
Women	%	20	20	21	21	21
Permanent staff	%	93	98	98	100	100
Total	Headcount	23,663	24,155	24,501	24,459	27,030
Women	%	24	23	23	23	23
Permanent staff	%	90	93	93	91	91

R = Reasonable assurance

L = Limited assurance

2. BASIS OF PREPARATION

GRI Disclosures 102-46

Main reporting frameworks used to prepare the Annual Report and the Integrated Report:

- **Global Reporting Initiative (GRI)**: The GRI standards are the main reference for Solvay's sustainability reporting;
- **United Nations Global Compact**: the information provided serves as a progress report on implementation of the United Nations Global Compact's ten principles;
- **International Integrated Reporting Council (IIRC)**: Solvay adheres to the principles and content elements of Integrated Reporting, as described in the "International Framework" published by the IIRC;
- **2014/95/EU**: Solvay uses the GRI Standards to comply with Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information. The Directive was transposed into Belgian law in September 2017;
- **Sustainability Accounting Standards Board (SASB)**: Solvay aligns its materiality analysis with the SASB approach to prepare the SASB Materiality Map™. For more details, see the Materiality Analysis section of this chapter.
- **World Business Council for Sustainable Development (WBCSD)**: Solvay's report aligns with the WBCSD ESG Disclosure Handbook guidance in terms of process and content selection.
- **World Economic Forum**: Measuring Stakeholder Capitalism - Towards Common Metrics and Consistent Reporting of Sustainable Value Creation - September 2020: Solvay reports on the WEF report Core Metrics and Disclosures.
- **United Nations Sustainable Development Goals**: Solvay has identified the 9 Sustainable Development Goals on which it can have the most impact, through its operations or throughout the value chain, in line with the materiality analysis.
- **TCFD - Task force on Climate-related Financial Disclosures**: Solvay's report includes the alignment to the 11 recommendations of the TCFD.

2.1. REPORTING PRACTICES

GRI Disclosures 102-8 102-46 102-48

2.1.1. Reporting scope and boundaries

Unless stated differently, the environmental and social reporting boundaries are consistent with the financial reporting scope and boundaries, as described in the "List of companies included in the consolidation scope" in the financial statements. In other words, social and environmental indicators are consolidated according to the equity share approach, as described in the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard.

Unless stated differently, past years are not restated for extra-financial indicators. Solvay uses the "rolling base year" approach, as described in the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard.

The reporting scope includes all high materiality aspects, as identified in Solvay's materiality analysis. Some low or moderate materiality aspects have been included because they are requested by specific groups of stakeholders.

2.1.2. Greenhouse gas emissions

Solvay uses the following references:

- the Guidance for Accounting & Reporting Corporate Greenhouse Gas Emissions (GHG) in the Chemical Sector Value Chain published by the World Business Council for Sustainable Development;
- the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard;
- the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Standard.

To better reflect its sustainability policy, Solvay decided to apply the market-based method to calculate CO_2 emissions associated with purchased electricity. To fully comply with Global Reporting Initiative requirements, the following criteria (in decreasing order of priority) are applied when selecting the CO_2 emission factor of each electricity supply contract:

- **Energy attribute certificates** – emission factors resulting from specific instruments such as green energy certificates;
- **Contract-based** – the emission factor obtained from contract agreements on specific sources for which there is no emission of specific attributes;
- **Supplier/utility emission rates** – the emission factor that is disclosed as a result of the supplier's retail mix;
- **Residual mix** – if a residual mix is unavailable, grid-average emission factors are used as a proxy;
- **Location-based** – if none of the above factors is available, it is the national emission factor published by national authorities or the International Energy Agency. Based on a World Resources Institute (WRI) recommendation, Emissions, and Generation Resource Integrated Database (eGRID) emission factors published by the United States Environmental Protection Agency are used for the US, instead of the state emission factor. Grid emission factors, published by the Ministry of Ecology and Environment are used for China, instead of the state emission factors.

2.1.3. Energy

Energy consumption components are converted into primary energy, according to the following conventions:

- Fuels, using the net calorific values;
- Steam purchased, taking into account the reference value of boiler efficiency related to the fuel used for its generation (e.g. 90% efficiency based on the net calorific value for natural gas);
- Electricity purchased, assuming an average efficiency of 39.5% for all types of power production except for nuclear power (33%), hydro (100%), solar (100%), and wind (100%) based on net calorific value (source: International Energy Agency (IEA)).

2.1.4. Safety

The Medical Treatment Accident Rate (MTAR), Lost Time Accident Rate (LTAR) are calculated based on million hours worked, Reportable Injury or Illness (RII), and Process Safety Rate are calculated based on 200 thousand hours worked. The reporting scope includes subcontractors where indicated.

2.1.5. Social

Headcount is provided for two scopes:

1. Solvay Continuous Operations include continuous operations only and match the presentation of the financial accounts;
2. Solvay Total Headcount also considers discontinued operations.

Apprentices, trainees, and students are excluded from the numbers. Headcount refers to employees that have a contract with Solvay and are classified as active, as they have a position in the organizational chart. Full-Time Equivalent (FTE) corresponds to active employees times capacity utilization.

2.2. MATERIALITY ANALYSIS

GRI Disclosures 102-32 102-46 102-47 102-49

Solvay bases its sustainability priorities on a materiality analysis. This approach identifies economic, environmental, and social aspects on which Solvay has the most impact, positive or negative.

Solvay uses two external references for its materiality analysis:

- Global Reporting Initiative (GRI) for the materiality analysis process;
- Sustainability Accounting Standards Board (SASB) for the list of aspects and for prioritization criteria.

2.2.1. Materiality table

Category	Moderate materiality	High materiality and Priorities
Governance	Customer privacy Data security Selling practices and product labeling Risk management	Management of the Legal, Ethics and Regulatory framework
Climate	Physical Impacts of Climate Change	Greenhouse gas emissions Energy Biodiversity
Resources	Supply chain and procurement Materials sourcing and efficiency	Product Design & Lifecycle Management Air quality Water and wastewater Waste
Better life	Recruitment, development and retention Product quality Access & Affordability	Employee health and safety Employee engagement and well-being Diversity and inclusion Customer welfare Corporate Citizenship Hazardous materials Critical incident risk management

2.2.2. Materiality analysis process

Solvay's Sustainable Development Function coordinates the analysis with an internal network of the Solvay Way Champions in the Global Business Units and Functions. Experts in each Corporate Function have reviewed the analysis of each aspect, paying particular attention to consistency with the Group's risk analysis.

Identification of aspects	**Use of the SASB Materiality Map® list of aspects.** **The SASB Materiality Map® identifies likely material sustainability aspects on an industry-by-industry basis.**
Prioritization of aspects	Use of the SASB Materiality Map® prioritization criteria: - Evidence of interest - Evidence of financial impact - Forward looking adjustment The network of the "Solvay Way Champions" and internal experts for each highly material aspect were involved in the prioritization analysis.
Validation	Review the analysis by the Executive Committee and the Global Business Units and Corporate Functions leaders. The review includes a verification of the consistency with the analysis of the Group's main risks, and a comparison with the result of the analysis of the SASB for the chemical sector.
Review	A review led by the Sustainable Development function takes place annually, based on feedback from stakeholders and Solvay experts. The findings inform and contribute to the prioritization review in the next reporting cycle.
Stakeholders inclusiveness and sustainability context	Indirectly taken into account through: The exhaustive list of aspects of the SASB's "Materiality Map®"; The "evidence of interest criteria", which includes the analysis of documents from representatives of stakeholders groups, with emphasis on written evidence.
Report	The high materiality aspects are included in Solvay's dashboards and reported in the Annual Report, with assurance from Corporate Auditors.

2.2.3. 2020 updates

- Material aspects have been categorized under Governance, Climate, Resources, Better Life instead of the SASB Materiality Map® dimensions, so as to be consistent with the presentation of Solvay's priorities in Solvay ONE Planet.
- Biodiversity has been moved from "moderate materiality" to "high materiality and priority". The evidence of stakeholder interest in this topic is strong enough for us to consider it a priority even if as of today, financial impact on Solvay is low.
- The list of priorities has been adapted, in line with the priorities of the Solvay ONE Planet sustainability ambition, which gave a greater focus on impacts.
- "Waste and Hazardous Materials" has been split in two distinctive aspects, respectively under Resources and Better Life.

The Covid-19 crisis confirmed the priorities defined during the Solvay ONE Planet preparative work, and in particular:

- An increased emphasis on climate change and biodiversity, with evidence of the link between human activities and the pandemic, and the changes in air quality during lockdown phases.
- An increased emphasis on social aspects, with evidence of minorities being the most vulnerable populations.

2.2.4. Why is it material?

The tables below summarize Solvay's assessment of high materiality aspects for each category. The corresponding United Nations Sustainable Development Goals are used to describe what impacts are considered, where they may occur and how they may be caused. For more information about these goals, see https://www.globalgoals.org/.

Governance

Aspect	Boundaries	Evidence of interest	Evidence of financial impact	Forward looking adjustment	Materiality
Management of the Legal, Ethics and Regulatory framework Alignment to ethics frameworks and regulatory requirements	Operations Value chain SDG-12	High High materiality for the Chemical industry	Medium Revenue, costs: yes Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	High

Climate

Aspect	Boundaries	Evidence of interest	Evidence of financial impact	Forward looking adjustment	Materiality
Greenhouse gas emissions Management of Scope 1, 2, and 3 greenhouse gas emissions	Operations Value chain SDG-13	High High materiality for the Chemical industry; Solvay is more CO_2-intensive than the chemical industry average	High Revenue, costs: yes Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	Priority
Energy Energy production and consumption optimization and management of energy transition	Operations Upstream value chain SDG-13 SDG-7	High Solvay is more energy-intensive than the chemical industry average	High Revenue, costs: yes Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	Priority
Biodiversity Management of impacts on biodiversity through operations and throughout the value chain	Operations Value chain SDG-14 SDG-15	High Priority issue at planetary scale	Low Revenue, costs: low Assets, liabilities: no Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	Priority

Resources

Aspect	Boundaries	Evidence of interest	Evidence of financial impact	Forward looking adjustment	Materiality
Product Design & Lifecycle Management Management of value chain economic, environmental and social impacts of products and services.	Operations Value chain SDG-12	High High materiality for the chemical industry	High Revenue, costs: yes Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	Priority
Air quality Management of emissions of air pollutants from operations	Operations SDG-15	High High materiality for the chemical industry	High Revenue, costs: yes Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	High

Aspect	Boundaries	Evidence of interest	Evidence of financial impact	Forward looking adjustment	Materiality
Water and wastewater Management of water withdrawals, discharge and consumption	Operations SDG-6 SDG-14	High High materiality for the Chemical industry	High Revenue, costs: yes Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	Priority
Waste Management of solid wastes from operations, including hazardous wastes	Operations SDG-12	High High materiality for the Chemical industry	High Revenue, costs: yes Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	Priority

Better Life

Aspect	Boundaries	Evidence of interest	Evidence of financial impact	Forward looking adjustment	Materiality
Employee health and safety Occupational safety, industrial hygiene and health management of employees and contractors	Operation ContractorsS DG-3	High High materiality for the Chemical industry	High Revenue, costs: yes Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	Priority
Employee engagement and wellbeing Management of labor practices, social dialogue and employee wellbeing	Operations SDG-8	High Historical commitment of the Solvay Group since its foundation	Medium Revenue, costs: yes Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: no Externalities: yes	High
Inclusion and diversity Non-discrimination and diversity management in operations and management structures	Operations SDG-8	High Growing importance of regional diversity for specific business units	Medium Revenue, costs: yes Assets, liabilities: no Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	Priority
Customer welfare Customer relations and customer satisfaction management	Downstream value chain SDG-12	Medium High for some business units (access to customers’ development pipelines)	High Revenue, costs: yes Assets, liabilities: no Cost of capital: no	Yes Probability, magnitude: yes Externalities: yes	High
Corporate Citizenship Management of community relationships, corporate citizenship and philanthropy, Business programs for social needs	Local communities Value chain Society at large SDG-17	High May be linked to license to operate; potential positive or negative impacts beyond chemicals value chain impacts	Low Revenue, costs: no Assets, liabilities: yes Cost of capital: no	Yes Probability, magnitude: yes Externalities: no	High
Hazardous materials Management of hazardous materials in raw materials, production processes, and sold products	Operations Value chain SDG-3	High High materiality for the Chemical industry; REACH/SVHC	High Revenue/cost: yes Asset/liability: yes Cost of capital: no	Yes Probability/ magnitude: yes Externalities: yes	High

Aspect	Boundaries	Evidence of interest	Evidence of financial impact	Forward looking adjustment	Materiality
Critical incident risk management Process safety programs and management of environmental accidents' consequences	Operations Local communities SDG-3	High High materiality for the Chemical industry	High Revenue/cost: yes Asset/liability: yes Cost of capital: no	Yes Probability/magnitude: yes Externalities: yes	High

2.3. WORLD ECONOMIC FORUM: MEASURING STAKEHOLDER CAPITALISM: CORE METRICS AND DISCLOSURES

Solvay discloses most of the sustainability disclosure topics & accounting metrics listed in the WEF report "Measuring Stakeholder Capitalism - Towards Common Metrics and Consistent Reporting of Sustainable Value Creation" - September 2020.

Theme	Governance: Core metrics and disclosures	
Governing purpose	Setting purpose The company's stated purpose, as the expression of the means by which a business proposes solutions to economic, environmental and social issues. Corporate purpose should create value for all stakeholders, including shareholders.	Fully disclosed
Quality of governing body	Governance body composition Composition of the highest governance body and its committees by: competencies relating to economic, environmental and social topics; executive or non-executive; independence; tenure on the governance body; number of each individual's other significant positions and commitments, and the nature of the commitments; gender; membership of under-represented social groups; stakeholder representation.	Fully disclosed
Stakeholder engagement	Material issues impacting stakeholders A list of the topics that are material to key stakeholders and the company, how the topics were identified and how the stakeholders were engaged.	Fully disclosed
Ethical behavior	Anti-corruption 1. Total percentage of governance body members, employees and business partners who have received training on the organization's anti-corruption policies and procedures, broken down by region. a) Total number and nature of incidents of corruption confirmed during the current year, but related to previous years; and b) Total number and nature of incidents of corruption confirmed during the current year, related to this year. 2. Discussion of initiatives and stakeholder engagement to improve the broader operating environment and culture, in order to combat corruption.	Fully disclosed
	Protected ethics advice and reporting mechanisms A description of internal and external mechanisms for: 1. Seeking advice about ethical and lawful behavior and organizational integrity; and 2. Reporting concerns about unethical or unlawful behavior and lack of organizational integrity.	Fully disclosed
Risk and opportunity oversight	Integrating risk and opportunity into business process Company risk factor and opportunity disclosures that clearly identify the principal material risks and opportunities facing the company specifically (as opposed to generic sector risks), the company appetite in respect of these risks, how these risks and opportunities have moved over time and the response to those changes. These opportunities and risks should integrate material economic, environmental and social issues, including climate change and data stewardship.	Fully disclosed

Theme	Planet: Core metrics and disclosures	
Climate change	Greenhouse gas (GHG) emissions For all relevant greenhouse gases (e.g. carbon dioxide, methane, nitrous oxide, F-gases etc.), report in metric tons of carbon dioxide equivalent (tCO_2e) GHG Protocol Scope 1 and Scope 2 emissions. Estimate and report material upstream and downstream (GHG Protocol Scope 3) emissions where appropriate.	Fully disclosed
	TCFD implementation Fully implement the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). If necessary, disclose a timeline of at most three years for full implementation. Disclose whether you have set, or have committed to set, GHG emissions targets that are in line with the goals of the Paris Agreement – to limit global warming to well below 2°C above preindustrial levels and pursue efforts to limit warming to 1.5°C – and to achieve net-zero emissions before 2050.	Fully disclosed
Nature loss	Land use and ecological sensitivity Report the number and area (in hectares) of sites owned, leased or managed in or adjacent to protected areas and/or key biodiversity areas (KBA).	Fully disclosed
Freshwater availability	Water consumption and withdrawal in water-stressed areas Report for operations where material: megaliters of water withdrawn, megaliters of water consumed and the percentage of each in regions with high or extremely high baseline water stress, according to WRI Aqueduct water risk atlas tool. Estimate and report the same information for the full value chain (upstream and downstream) where appropriate.	Partially disclosed: information on water consumption in water stress areas upstream and downstream is not available An estimate of total upstream water consumption is disclosed.

Theme	People: Core metrics and disclosures	
Dignity and equality	Diversity and inclusion (%) Percentage of employees per employee category, by age group, gender and other indicators of diversity (e.g. ethnicity).	Fully disclosed
	Pay equality (%) Ratio of the basic salary and remuneration for each employee category by significant locations of operation for priority areas of equality: women to men, minor to major ethnic groups, and other relevant equality areas.	Data is disclosed according to legal requirements of various countries but currently metrics are not unified. Work is going on to define the appropriate consolidation metric.
	Wage level (%) Ratios of standard entry level wage by gender compared to local minimum wage. Ratio of the annual total compensation of the CEO to the median of the annual total compensation of all its employees, except the CEO.	Data is disclosed according to legal requirements of various countries but currently metrics are not unified. Work is going on to define the appropriate consolidation metric. CEO compensation fully disclosed.
	Risk for incidents of child, forced or compulsory labor An explanation of the operations and suppliers considered having significant risk for incidents of child labor, forced or compulsory labor. Such risks could emerge in relation to: a) Type of operation (such as manufacturing plant) and type of supplier; and b) Countries or geographic areas with operations and suppliers considered at risk.	Fully disclosed
Health and well-being	Health and safety (%) The number and rate of fatalities as a result of work-related injury; high-consequence work-related injuries (excluding fatalities); recordable work-related injuries; main types of work-related injury; and the number of hours worked. An explanation of how the organization facilitates workers' access to non-occupational medical and healthcare services, and the scope of access provided for employees and workers.	Fully disclosed
Skills for the future	Training provided (#, $) Average hours of training per person that the organization's employees have undertaken during the reporting period, by gender and employee category (total number of hours of training provided to employees divided by the number of employees). Average training and development expenditure per full time employee (total cost of training provided to employees divided by the number of employees).	Fully disclosed

Theme	Prosperity: Core metrics and disclosures	
Employment and wealth generation	Absolute number and rate of employment 1. Total number and rate of new employee hires during the reporting period, by age group, gender, other indicators of diversity and region. 2. Total number and rate of employee turnover during the reporting period, by age group, gender, other indicators of diversity and region.	Fully disclosed
Community and social vitality	Economic contribution 1. Direct economic value generated and distributed (EVG&D), on an accruals basis, covering the basic components for the organization's global operations, ideally split out by: – Revenues – Operating costs – Employee wages and benefits – Payments to providers of capital – Payments to government – Community investment 2. Financial assistance received from the government: total monetary value of financial assistance received by the organization from any government during the reporting period.	Fully disclosed
	Financial investment contribution 1. Total capital expenditures (CapEx) minus depreciation, supported by narrative to describe the company's investment strategy. 2. Share buybacks plus dividend payments, supported by narrative to describe the company's strategy for returns of capital to shareholders.	Fully disclosed
Innovation of better products and services	Total R&D expenses ($) Total costs related to research and development.	Fully disclosed
Community and social vitality	Total tax paid The total global tax borne by the company, including corporate income taxes, property taxes, non-creditable VAT and other sales taxes, employer-paid payroll taxes, and other taxes that constitute costs to the company, by category of taxes.	Fully disclosed

2.4. TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURE

The Financial Stability Board Task force on Climate-related Financial Disclosures (TCFD) developed voluntary, consistent, climate-related financial risk disclosures for use by companies in providing information to investors, lenders, insurers, and other stakeholders.

The task force structured its recommendations around four themes that represent key aspects of how organizations operate: governance, strategy, risk management, and metrics and targets.

This section addresses the disclosures, with links to the relevant sections of the Annual Report, and provides a self-assessment of Solvay’s level of alignment with the TCFD recommendations.

Governance

- The Charter of Corporate Governance describes how the Board of Directors manages sustainability-related aspects and is available on the Solvay website. The Board thus devotes at least one meeting per year to an update on trends in global sustainable development issues, including climate change risks and opportunities;
- A Climate Risks Officer has been appointed at the Executive Committee level. He is in charge of ensuring that climate-related aspects are adequately considered in the Group’s strategy and operations.

Strategy

- Long-term horizon assumptions are presented in the description of megatrends. See in particular the description of the “Resource constraints and demand for sustainability” megatrend. Medium-term assumptions (in the coming five years) are explained in the description of Solvay’s main markets. Short-term assumptions (one year) are presented in the Group’s outlook.
- Climate-related risks and opportunities were fully reviewed in 2019 and are described in the “Risk Management” chapter. Four main risk categories were analyzed:
  - Value chain transition risks (using the Sustainable Portfolio Management methodology);
  - Scenario analysis using as reference the International Energy Agency “Sustainable Development” scenario;
  - Acute physical risks linked to droughts, hurricanes and earthquakes;
  - Chronic physical risks linked to water scarcity.
- A scenario analysis was made in 2019, using as reference the International Energy Agency “Sustainable Development” scenario. Impacts on energy and CO_2 costs (including impact on raw material costs) and impacts on main markets have been assessed. Four Executive Committee members were directly involved in the exercise. According to this exercise, the order of magnitude of favorable impacts on markets outweighs the negative impact on energy and CO_2 costs.
- The presentation of the Group’s main risks does not include a differentiation between short-, medium-, and long-term horizons. Quantification of impacts is not disclosed.

Risk management

- The risk management process, the main risks, and the process used to rank them are described in the "Risk Management" chapter;
- Analysis of value chain sustainability-related risks and opportunities is done through the Sustainable Portfolio Management methodology, for each product in each application or market, including the climate change transition risks;
- “Greenhouse gas emissions” (GHG) have been identified as a priority aspect in the Group’s materiality analysis. “Climate transition risks” have been identified as part of the Group’s main risks. Links between main risks and high materiality issues are part of the materiality analysis process. "Climate-related physical risks" have been ranked up to now as “moderate materiality aspects”;
- The Sustainable Portfolio Management tool is a requirement in key Group processes and in particular in the assessment of capital expenditures projects, Research and Innovation projects, and acquisition and divestiture projects.

Metrics and targets

- The strategic objectives used to drive sustainable value creation are described in the Solvay scorecard. They have been fully reviewed in the context of the "Solvay ONE Planet" sustainability ambition published in February 2020.
- Greenhouse gas emissions, energy consumption, and Sustainable Portfolio Management metrics and targets are reported in the "Extra-Financial Statements" chapter. Solvay has committed to review its 2030 objectives to reduce greenhouse gas emissions in line with the Science Based Targets initiative requirements for a "well below 2°C" trajectory.
- Greenhouse gas Scope 1, Scope 2 and Scope 3 emissions are fully reported and audited. The scope of emissions reporting is consistent with financial reporting.

2.5. UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

In 2015, the United Nations established a set of goals to end poverty, protect the planet, and ensure prosperity for all. Each of these 17 Sustainable Development Goals (SDGs) includes specific targets to be achieved by 2030. Achieving the SDGs requires efforts by governments, the private sector, civil society, communities, and individuals.

Nine leading chemical companies, including Solvay, and two industry associations formed a dedicated working group, convened by the World Business Council for Sustainable Development (WBCSD). The Group took a leadership role in piloting and refining the three-step framework described in WBCSD's SDG Sector Roadmap Guidelines.

In the context of this exercise, Solvay identified the Sustainable Development Goals where the Group can have a material impact, positive or negative. The Group then integrated these sustainable development goals into its materiality analysis as the official agenda of the "Planet" (Governments and NGOs) stakeholder group.

This preliminary list was reviewed in 2019, within the context of the Solvay ONE Planet sustainability ambition, with an increasing focus on impacts of products and operations. Solvay's main impacts can be grouped into three categories: climate, resources, and quality of life. The corresponding list of SDGs on which Solvay can have the most impact, positive or negative, through its operations and the products it sells, is the following:

- **Climate and biodiversity**, through the Group's energy consumption and greenhouse gas emissions and their impacts on air and water, but also through products that impact customers' energy consumption or greenhouse gas emissions.

- **Resources**, through the Group's raw materials consumption, water consumption, effluents, emissions, and waste generation, but also through products' life cycles and end-of-life management.

- **Better Life**, through the Group's management of hazardous materials, people, process and product safety, through social dialogue initiatives, and through its product portfolio.

2.6 SUSTAINABILITY ACCOUNTING STANDARDS BOARD (SASB)

Solvay bases its materiality analysis on the SASB Materiality Map® list of material aspects. In some cases, aspects have been rephrased to fit the vocabulary commonly used in the chemical industry, or combined differently.

Solvay list of material aspects	2020 SASB Materiality Map® topics list
Management of the Legal, Ethics and Regulatory framework	Business ethics, Competitive behavior, Human rights
Supply chain and procurement	Supply chain management, Materials sourcing and efficiency
Risk management	Systemic risk management
Greenhouse gas emissions	GHG Emissions
Energy	Energy Management
Biodiversity	Ecological Impacts
Product Design & Lifecycle Management	Product design & lifecycle management, Business model resilience
Air quality	Air quality
Water and wastewater	Water & Wastewater Management
Waste	Waste
Employee health and safety	Employee health & safety
Employee engagement and well-being	Labor practices
Diversity and inclusion	Diversity and inclusion
Recruitment, development and retention	Employee engagement
Customer welfare	Customer welfare
Corporate Citizenship	Community relations
Hazardous materials	Hazardous materials management, Product safety
Critical Incident Risk Management	Critical Incident Risk Management

Solvay discloses most of the sustainability disclosure topics & accounting metrics listed in the SASB Chemicals Sustainability Accounting Standard version October 2018:

Topic	SASB - CHEMICALS disclosure topics	
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Fully disclosed
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Fully disclosed
Air Quality	Air emissions of the following pollutants: (1) NOX (excluding N2O), (2) SOX, (3) volatile organic compounds (VOCs), and (4) hazardous air pollutants (HAPs)	NOx, SOx, VOCs disclosed Hazardous air pollutants not disclosed
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable, (4) total self-generated energy	Fully disclosed
Water Management	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	Fully disclosed
	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	All process incidents are disclosed, not limited to water
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Fully disclosed
Hazardous Waste Management	Amount of hazardous waste generated, percentage recycled	Fully disclosed
Community Relations	Discussion of engagement processes to manage risks and opportunities associated with community interests	Fully disclosed
Workforce Health & Safety	(1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees	Fully disclosed
	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	Fully disclosed

Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	Fully disclosed
Safety & Environmental Stewardship of Chemicals	(1) Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment	Fully disclosed with a categorization considering a number of international references
	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact	Fully disclosed
Genetically Modified Organisms	Percentage of products by revenue that contain genetically modified organisms (GMOs)	Not disclosed
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Fully disclosed
Operational Safety, Emergency Preparedness & Response	Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR)	Fully disclosed with specific severity rate
	Number of transport incidents	Fully disclosed
Activity metric	Production by reportable segment	Solvay cannot share information that can be considered competitively sensitive for antitrust compliance reasons.

2.7. MEMBERSHIP IN ASSOCIATIONS

GRI Disclosures 102-13

The Group maintains a dialogue with stakeholders and is a member of several associations at the global, regional, and national levels. Trade associations adopt policy positions as close as possible to a consensus, and member companies can still express disagreement in a number of ways, including internal discussion within working groups or public stances that differ from those of the trade associations.

Solvay participates in working groups and policy coordination groups. Solvay senior representatives sit on the steering boards of many of those associations. The list of major association memberships in the regions and countries where Solvay is present is as follows.

2.7.1. International Council of Chemical Associations

Solvay is an active member of the International Council of Chemical Associations (ICCA). Solvay's CEO Ilham Kadri is a member of the Board of Directors. Responsible Care® is an essential part of ICCA's contribution to the Strategic Approach to International Chemicals Management (SAICM). Through Responsible Care®, global chemical manufacturers commit to pursuing an ethic of safe chemicals management and performance excellence worldwide.

2.7.2. BusinessEurope

BusinessEurope is the leading European business trade association whose direct members are national business federations. Selected companies may participate in BusinessEurope through the Advisory and Support Group (ASG). BusinessEurope and its members campaign for the issues that most influence the business performance and growth of European companies, in Europe and globally. Within this framework, Solvay provides its input through its participation in working groups dealing with energy, environment, and research, as well as trade policy.

2.7.3. European Round Table of Industrialists

The European Round Table of Industrialists (ERT) is a forum that brings together around 50 CEOs of European companies. Solvay CEO Ilham Kadri is a member of the Steering Committee of the ERT. Among its activities, the ERT advocates policies to improve European competitiveness, growth, and employment. In particular, Solvay actively participates in the working groups dealing with energy, trade, competitiveness & innovation, jobs & skills, and finance, as well as with competition policies. Karim Hajjar is a member of the ERT Finance Task Force, and sustainable finance is a key part of the agenda.

2.7.4. World Business Council for Sustainable Development

The World Business Council for Sustainable Development (WBCSD) is a CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world. Solvay has been an active member since 2010, and Solvay CEO Ilham Kadri is personally involved, serving as vice-chair of the WBCSD Executive Committee and co-chairing the People Program. Solvay CFO Karim Hajjar serves as co-chair of the Redefining Value Program. Solvay has taken active roles in four of the six programs:

- **Redefining Value Program**: Redefining Value helps companies measure and manage risk, gain competitive advantage, and seize new opportunities by understanding environmental, social, and governance (ESG) information. By building collaborations and developing tools, guidance, case studies, engagement, and education opportunities to help companies incorporate ESG performance into mainstream business and finance systems, the ultimate goal is to improve decision-making and external disclosure, eventually transforming the financial system to reward the most sustainable companies;
- **Circular Economy**: The future of business is circular, and there's no room for waste in it. Factor 10, the WBCSD's circular economy program, brings circularity into the heart of business leadership and practice. It builds a critical mass of engagement within and across businesses to spur the circular economy to deliver and scale solutions needed to build a sustainable world.
- **Climate & Energy**: Combating climate change and transforming the energy system are core challenges on the path to a sustainable future for business, society and the environment. The Paris Agreement has sent a decisive and global signal that the start of the transition to a thriving, clean economy is inevitable, irreversible and irresistible. The WBCSD Climate & Energy Program facilitates interaction on cutting-edge climate and energy topics between WBCSD members, their peers, and stakeholders as they address critical industry issues and share best practices and solutions.
- **People**: Our current society is characterized by a range of dynamic shifts and evolutions. We are faced with a world that is polarizing, a world that is facing risks and opportunities in the way we work, a world that is on the move, and a world in which people are living beyond their means. The People program provides solutions that support companies by ensuring that they remain in tune with the needs, rights, goals, and aspirations of society against the backdrop of this rapidly evolving landscape.

Solvay also plays an active role in the WBCSD Chemicals Group. Together with leading chemical company members, ACC and Cefic published in 2018 the SDG Roadmap for the Chemical Sector, a methodology that provides clear guidance on how the chemical sector can contribute to change across the spectrum of the SDGs, unlocking their value by acting on key impact opportunities. Notably, Solvay works proactively to accelerate adoption of its Sustainable Portfolio Management system across the chemical industry and other sectors.

2.7.5. European Chemical Industry Council

The European Chemical Industry Council (Cefic) is the forum and the voice of the chemical industry in Europe. Solvay CEO Ilham Kadri is Vice-President, Member of the Board, and the ExCom of Cefic. The association facilitates dialogue that allows the industry to share its technical expertise with both policymakers and various stakeholders. Solvay experts provide input on energy, industrial, environmental, and research policy, as well as product stewardship-related issues. Representatives of the businesses work with the different Cefic sector groups on specific issues related to individual substances or groups of substances.

2.7.6. American Chemistry Council

The American Chemistry Council (ACC) represents a diverse set of companies engaged in the business of chemistry. Solvay sits on the Executive Committee as well as several Board-level committees that contribute to setting the association's strategy. Solvay representatives contribute their expertise to the ACC's work on transportation, energy, environment, sustainability, chemical management, process safety, trade, and product stewardship issues. Solvay's experts also provide their technical input to activities, focusing on product-related issues, which are relevant for Solvay's businesses, e.g. advanced materials and sustainable technologies.

2.7.7. Brazilian Chemical Industry Association

Together with the Brazilian Chemical Industry Association (ABIQUIM) and its members, Solvay helps make Brazil's chemical industry more competitive and sustainable. Solvay participates in the board of directors and all of ABIQUIM's key commissions and supported activities, covering topics such as the Chemical Industry Parliamentary Coalition, Responsible Care Management, energy and climate change, product stewardship (e.g. Industrial Chemicals Regulation, Globally Harmonized System implementation), community dialogue, labor, international trade and trade remedies, logistics & supply chain, and innovation.

2.7.8. Indian Chemical Council

The Indian Chemical Council (ICC) is the leading Industry body representing all segments of the Indian Chemical Industry. Solvay sits on the Executive Council of the ICC. ICC monitors and helps frame industry-specific government legislation, formally interacts with the relevant authorities regarding policies and regulatory matters, and is recognized as the official voice of the Indian Chemical Industry. It also provides a forum for dialogue and debate within the chemical industry to channel and reinforce the endeavors of the chemical industry to boost development in India. The ICC promotes the Responsible Care® initiative and encourages Safety, Research & Development, Energy Conservation, and Quality Consciousness within the industry by organizing workshops/seminars and presenting annual awards recognizing the achievement of excellence and outstanding contributions to the chemical industry.

2.7.9. China Petroleum and Chemical Industry Federation

Solvay sits on the Executive Board of the Committee of Multinationals (MNC) of the China Petroleum and Chemical Industry Federation (CPCIF), which is a national, comprehensive industry organization and a member of the International Chemical Industry Association (ICCA) as the official representative of the Chinese chemical industry. The CPCIF voices the interests of the industry while serving as a bridge between enterprises and the government in China. MNC is a CPCIF sub-committee representing nearly 70 multinational companies in China, and Solvay has been a founding member of this committee since 2013. Key interests include but are not limited to industrial policies, regulatory demands, chemical management, carbon trade, sustainabilities, innovation, etc. Solvay CEO Ilham Kadri gave a virtual keynote speech at its annual grand event, namely "CPCIC", in 2020.

2.7.10. Association of International Chemical Manufacturers

The AICM represents nearly 70 major multinational companies in the chemical industry of China. These companies' businesses cover the manufacture, transportation, distribution, and disposal of chemicals. Together with the leading international chemical players in China, Solvay promotes Responsible Care® and other globally recognized chemical management principles among all stakeholders; advocate cost-effective, science- and risk-based policies to policy makers; and strengthen the contributions that the chemical industry makes to the economy.

3. GOVERNANCE

GRI Disclosures 103-1 103-2 103-3

The work done in 2019 on Solvay's new purpose led us to reconsider the way we look at sustainability, focusing on what Solvay changes in the world (impacts) instead of focusing on transforming Solvay (internal tools and processes).

We have identified three main impact categories, positive and/or negative, through our products or operations:

- **Climate:** Greenhouse gas emissions throughout the value chain, including energy as well as other potential impacts on biodiversity;
- **Resources:** Moving from linear business models to circular economy principles; raw materials, wastes, effluents, emissions throughout the value chain;
- **Better Life:** Improving quality of life, both in our plants and with our products.

Solvay's sustainability ambition, Solvay ONE Planet, requires us to better quantify the positive impacts we can have through our products portfolio, i.e. avoided greenhouse gas emissions, and alignment to circular economy principles. Solvay ONE Planet also requires us to walk the talk and address the impacts of our operations in line with the planet's needs and society's expectations.

Solvay ONE Planet is described in the 2020 Integrated Report.

The materiality analysis, from which Solvay ONE Planet's priorities have been selected, is described in the "Basis of preparation" chapter of the Extra-Financial Statements section, with details on each material aspect: boundaries, prioritization criteria, and level of materiality.

Definitions, management approach, indicators and targets, and main actions specific to each topic are described in the corresponding sections of the Extra-Financial Statements section.

The management approach is adjusted each year based on the following elements:

- Evolution of frameworks and reporting standards, i.e. GRI Standards,
- Auditors report on high materiality aspects,
- Feedback from practitioners,
- Feedback from sustainability rating agencies,
- Feedback received on the annual report, i.e. the World Business Council for Sustainable Development's "Reporting Matters" yearly analysis,
- Evolution of Solvay's strategy.

Adjustments are described in the corresponding sections of the 2020 Annual Report:

- Description of Solvay's sustainability ambition, Solvay ONE Planet,
- Description of Solvay's materiality analysis in the Extra-Financial Statements section,
- Reporting on each material aspect in the Extra-Financial Statements section.

3.1. MANAGEMENT OF THE LEGAL, ETHICS, AND REGULATORY FRAMEWORK

GRI Disclosures **102-16** **102-17** **205-2** **406-1** **412-1** **412-2** **415-1**

High materiality

Management of the legal, ethics, and regulatory framework encompasses business ethics – human rights, anti-corruption, and non-discrimination – and anti-competitive behavior.

3.1.1. Commitments and policies

Solvay’s Code of Business Integrity

Solvay’s Code of Business Integrity and the policies and procedures adopted to enhance good governance apply to all employees wherever they are located. In addition:

- Third parties are expected to act within the framework of the Code of Business Integrity;
- All Core Suppliers must confirm that they adhere to the principles set out in the Solvay Supplier Code of Conduct;
- Majority-owned joint ventures are held to the Solvay Code of Business Integrity or to a separate code adopted based on similar principles.

The Code of Business Integrity is available on Solvay's website.

Gifts, Entertainment, and Anti-Bribery policy

Solvay’s Code of Business Integrity expressly states that the Group prohibits bribery in any form. Solvay and its employees do not use gifts or entertainment to gain competitive advantage. Facilitation payments are not permitted by Solvay. Disguising gifts or entertainment as charitable donations is equally a violation of the Code of Business Integrity. The Code is supported by a more detailed policy on gifts, entertainment, and anti-bribery. Solvay is a member of Transparency International Belgium.

The Group employs an internal tracking system to record gifts and entertainment that exceed the acceptable reasonable value applicable in each region and requires manager approval for accepting or giving them. The use of the Gift and Entertainment Tracking System (“GETS”) is part of Solvay’s Internal Audit review process.

Human rights in business policy

Solvay’s Human Rights in Business Policy, published on Solvay’s website, sets out Solvay’s commitment to respecting human rights and acting with due diligence to avoid any infringement of human rights or any adverse impact on or abuses of such rights. The policy emphasizes Solvay’s commitments to its stakeholders (its employees, its business partners, the communities and environment in which it operates, and children).

Solvay has a Global Human Rights Committee (GHRC) to oversee implementation of the policy, ensure compliance, and monitor the Group’s performance in meeting its commitments. Members of the Global Human Rights Committee include the heads of the following Solvay business service activities and/or their delegates: Legal and Compliance, Human Resources, Procurement, Industrial, Internal Audit and Risk Management, and Sustainable Development. The GHRC is chaired by the Group General Counsel, who is the head of Legal. Members of Solvay’s Global Business Units and other business service activities contribute to the work of the GHRC on an ad hoc basis, as necessary.

The GHRC discusses its activities (including key performance indicator results) before the Group’s annual report is issued, and it also validates any human rights reporting made in conjunction herewith. Upon request, the Chair of the GHRC may be called upon to provide an Annual Report to the Audit Committee.

Solvay’s Human Rights in Business Policy is available on Solvay’s website.

Human rights due diligence and risk assessment

Two parallel processes are used to assess sites' human rights risks, focusing on Solvay Employees (based on internal data) or Business Partners (suppliers/contractors based on country risk). Six dimensions of human rights are considered: child labor, forced labor, trafficking in person, human development, freedom of association, and collective bargaining. The assessment is used by Internal Audit to prioritize its work on the subject.

Solvay sites / entities are assessed based on two available internal data:

- the Solvay Way (SW) Self-Assessment, focusing on the 16 practices linked to the human rights of the policy;
- the Solvay Employee Survey results, considering four questions linked to human rights and particularly the total number of situations "needing improvement" (questions with a 0-50% favorable answer).

26 sites have been identified.

Business Partners (suppliers/contractors) are considered in critical countries:

- Each country is assessed on six dimensions consistent with the human rights of the policy. Each dimension is assessed on a four-level scale according to information provided by international organizations;
- A Criticality index (total score of all six dimensions) is computed for each country.

19 countries are rated critical.

Competition Law policy

Solvay's goal is to conduct business ethically and not to enter into any business arrangements that eliminate or distort competition. Solvay develops and maintains a culture of compliance to keep Solvay and its people on the right side of the law. Solvay has a formal Competition Law policy that stresses the importance of strict adherence to all competition laws. This formal Competition Law policy was approved by Solvay's Executive Committee and is published on the intranet, to which all Solvay's employees have access. Any violation of this policy may result in disciplinary action, subject to and in conformity with applicable laws.

3.1.2. Resources and responsibilities

A Compliance organization under the leadership of the Chief People Officer enhances a Group-wide culture based on ethics and compliance.

Regional Compliance Officers serve in all four zones where the Group operates. Every Solvay Global Business Unit and Function appoints Compliance Liaisons to enhance adherence to compliance objectives and to instill a commitment to compliance throughout Solvay.

As for Competition Law, Solvay has a specific dedicated team within the Legal Function responsible for the implementation of the Competition Law Compliance Program. They are in charge of providing competition law advice and guidance, as well as deploying effective and regular communication and training on competition law-related subjects.

Implementation of the Competition Law policy

Solvay has put in place a Competition Law Compliance Program that propagates a zero-tolerance approach to competition law infringements. As part of its Competition Law Compliance Program, Solvay provides a competition law tool kit on its intranet that includes up-to-date guidelines on specific areas of competition law, including guidance on dealing with competitors, dawn raids, information exchange on Mergers and Acquisitions transactions, swaps, price announcements, vertical relationships, and so on.

To minimize cartel risks, Solvay has put in place a computer-based system that tracks all contacts that relevant employees have with competitors through a managerial approval procedure.

3.1.3. Grievance mechanisms

Employees are encouraged to report suspected violations or concerns through various internal avenues, including management, Human Resources, Legal, Ethics & Compliance, and Internal Audit.

A Group-wide Speak Up program is in place and overseen by the Audit Committee of the Board of Directors. An external third-party helpline active 24 hours a day, 365 days a year allows employees to ask questions, raise concerns, or file reports. The helpline is open to internal and external parties.

The following chart shows the types of claims made from January 2020 until December 2020 through Solvay's Speak Up program:

Solvay's Speak Up program

Number of claims	**2020**	2019	2018
Misconduct or inappropriate behavior	27	48	30
Discrimination including harassment and retaliation	14	34	20
Conflict of interest	4	14	10
Computer, email, internet	2	1	3
Environmental, health, or safety law	14	5	2
Accounting or auditing	0	4	1
Anti-bribery	5	0	0
Confidentiality/misappropriation	1	4	1
International trade compliance	0	0	0
Substance abuse	0	3	1
Theft	2	3	4
Violence or threat	3	0	5
Other	33	24	11
Total	**105**	**140**	**88**

Through the Speak Up program, any concern regarding a breach is investigated by the Ethics and Compliance Function. In keeping with its commitment to transparency, the Speak Up tool is used to report progress on investigations and is used to communicate the results of investigations directly to reporters upon conclusion. Posters and an online brochure are available to employees and advertise the web address and toll-free numbers to access this tool in their regions. The Board's Audit Committee oversees the running of Speak Up.

In 2020:

- 105 total claims closed - includes cases for which there was insufficient information or cases that were misdirected or referred.
- 28 substantiated claims among resolved cases.
- 61 unsubstantiated claims among resolved cases.

Resolved cases

	No Action	**Policy review**	**Training**	**Discipline**	**Termination**	**Resignation**
Substantiated	3.5%	39%	3.5%	18%	36%	0
Unsubstantiated	84%	11%	1.67%	1.67%	1.67%	0

3.1.4. Communication and training

Solvay's Code of Business Integrity

Mandatory Code of Business Integrity training (live training and web-based training) is organized for all employees to ensure understanding and to address behavioral risks such as anti-bribery and corruption, conflict of interest, and harassment. Employees are also trained on the Speak Up Helpline in this mandatory training. Specific anti-corruption training is tailored to management and other personnel in sensitive positions (sales, procurement, industrial development, etc.). Special campaigns to maintain and/or enhance the level of awareness within the Group are identified and adopted annually.

Competition Law and Antitrust

Solvay has a concrete Competition Law Compliance Action Plan designed to mitigate the specific risks the Group has identified in this field of law. It has been in force since 2003 and is updated yearly. In 2020, this action plan covered:

- The continuation of the "General Antitrust Training" sessions for onboarders, which was successfully completed by 572 relevant employees;
- The roll-out of a new movie on the Contacts with Competitors Tracking System (CCTS), by way of which 2,530 targeted individuals were trained;
- Additional tailored, face-to-face training sessions for 512 high-risk individuals; as well as
- A self-assessment exercise facilitated by the Antitrust team for all of the GBUs.

Annual Internal Audits check to make sure the above-mentioned Action Plan is being effectively implemented.

Anti-Corruption

The Anti-Bribery and Anti-Corruption training is now done on a two-year cycle for the pre-identified sensitive population. For the 2020-2021 cycle, over 600 employees in sensitive business populations received the training, either through online, web-based training, or live, in-person training. Additionally, the Code of Business Integrity that is mandatory for all employees to read and receive training on covers the topic of anti-corruption.

3.1.5 Public policy

The Government Affairs and Country Management Function raises the Group's awareness of the general political context, the main challenges faced by public authorities, and more specific policy issues. In line with Solvay's Code of Business Integrity and with the aim of supporting the best possible business environment, the Government Affairs and Country Management team works to foster long-term partnerships with public authorities and other relevant stakeholders by building on a transparent and constructive dialogue.

The typical issues in the scope of activities of the Government Affairs Function are the following:

- Promote climate change solutions for the energy transition: Solvay supports the Paris Climate agreement and contributes to its implementation. In this context, Solvay argues for the development of a clear, predictable, and sustainable legislative framework for Climate Change policy in the European Union and globally, ensuring a balanced transition to a low carbon economy;
- Competitiveness: Solvay advocates for a regulatory system that fosters entrepreneurship and industrial innovation by safeguarding or improving competitiveness, and that creates highly skilled jobs worldwide;
- Environment and Chemical policy: Solvay collaborates with trade associations and public authorities to develop science- and risk-based regulations and standards;
- Promote global trade: As an international company, Solvay recognizes the importance of free trade based upon a multilateral trading system. Reducing trade barriers is essential for economic growth and thus for industrial activity;
- Geopolitical assessment: Solvay assesses the geopolitical situation so as to better understand the potential impact (trade, investments) on its businesses;
- Support the business: Solvay works to develop new markets and new geographies.

The roughly 24-member Solvay global Government Affairs team and the network of country manager's work to establish a permanent dialogue and long-term partnerships with public authorities and other relevant stakeholders.

This includes participation in many trade associations, such as the International Council of Chemistry Associations (ICCA), BusinessEurope, the European Round Table of Industrialists (ERT), the American Chemistry Council (ACC), the European

Chemical Industry Council (CEFIC), the China Petroleum and Chemical Industry Federation (CPCIF), the Indian Chemical Council (ICC), the Japan Chemical Industry Association (JCIA), and CSR Europe.

The Group does not take part in party political activities, nor does it make corporate donations to political parties or candidates. The Group will engage in a constructive debate with public authorities on subjects of legitimate interest to Solvay. Only those employees specifically authorized to do so may carry out these activities.

Solvay respects the freedom of its employees to make their own political decisions. Any personal participation or involvement by an employee in the political process must be on an individual basis, on the employee's own time, and at the employee's personal expense.

3.1.6. Animal testing

Solvay provides innovative products for a wide variety of uses and a large number of users. The Group must have a proper understanding of products' hazards to carry out its activities and to protect users, the general public, Solvay personnel, and the environment. Society expresses a continuing demand for new, better, and safer chemicals and plastics. There is a growing demand for product risk and hazard assessments by regulatory authorities and the public, which, in turn, requires testing, both with and without using animals.

Testing

To comply with new and existing chemical regulations or to further consolidate safety data, Solvay commissioned animal tests in 2020. Solvay avoids animal testing whenever possible, but when it is needed, Solvay commits to conducting studies that treat animals humanely, giving them the best care possible, and using all animals responsibly, with great regard for the animals' welfare. In compliance with European cosmetic regulations, Solvay does not perform specific testing solely to support cosmetic uses.

Substance-based testing for multiple applications

Solvay manages to carry out tests on a given substance one time only, for all regulations and applications. The need for new studies is avoided by advocating actively for the re-use of data from studies conducted in a given framework, e.g. REACH, for other registration systems.

Ethical compliance

Solvay's policy, which is captured in the Solvay Animal Care and Use Procedure, is to apply in each case the "3R principles" (Replacement, Reduction, and Refinement) and to comply with all applicable regulations. All studies comply with international standards (e.g. OECD guidelines). Regulatory studies are performed by laboratories accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC). This worldwide organization sets quality standards for testing laboratories and ensures responsible and humane treatment of laboratory animals. Prior to initiation, all studies commissioned by Solvay are subject to an ethical assessment at the local or national level by the laboratory conducting the study.

Once a study is underway, Solvay staff monitors the execution and quality of the studies and maintains a continuing qualification and evaluation program for the laboratories. A dedicated Solvay corporate committee reviewed the animal testing activities commissioned by Solvay during 2020, verifying conformity with the principles and the mandatory elements of Solvay's Animal Care and Use Procedure.

Vertebrate animal tests commissioned by Solvay in 2020

	Number of studies	Number of vertebrates (*)
Registration obligations (EU, China, Korea)	41	18,171
Additional product safety questions (toxicity, classification)	12	360
Total	**53**	**18,531**

(*) Includes all animals, including control animals not being exposed to test substances and used as reference

Regulatory testing

In 2020, 98% of the vertebrate animals (representing 77% of the animal studies) were used to address mandatory requirements from authorities, while the remaining 2% were used to address additional product safety questions. In total, 18,531 vertebrate animals (64% rats, 22% fish, 14% rabbits, 0.3% guinea pigs, and 0.2% mice) were used. Solvay did not commission any studies on dogs, cats, pigs, or non-human primates. Most vertebrate animals (70%) were used in tests required by the EU REACH Regulation. The number of vertebrates used in 2020 was significantly higher than in previous years (+84% as compared to 2019). The increased number of vertebrate animals used was driven by the number of regulatory, higher-tier studies; these advanced toxicology studies are triggered when more specific or more robust information is required and they typically require higher numbers of animals.

Drivers for the future

While studies are needed for regulatory and scientific purposes, Solvay continues to strengthen its capabilities in and understanding of alternative methodologies without vertebrate animals. Further advances were achieved on quantitative structure-activity relationships (QSARs), a computer-based method predicting the properties of chemicals based on information on similar substances. A collaboration with the University of Strasbourg resulted in a platform containing several models published in peer-reviewed journals that make it possible to estimate substance properties which normally require vertebrate animal tests. These models are fit for regulatory use and will increase our ability to avoid animal testing when assessing our products.

On the other hand, the higher-tier animal studies requested by authorities, which required the largest number of animals in 2020, will continue to be the major driver for animal tests in the near future.

3.2. SOLVAY WAY

GRI Disclosures 102-42

3.2.1. Definition

Solvay Way is Solvay's sustainability reference framework. It translates the Group's corporate social responsibility, ambitions and commitments into concrete actions and clear responsibilities throughout the entire organization. Through Solvay Way, stakeholders' expectations are integrated into day-to-day activities and decision-making processes at every level of the organization.

3.2.2. Management approach

Structured around the three major categories of climate, resources, and a better life, Solvay ONE Planet is our roadmap to a sustainable future that provides shared value for all.

Solvay Way is being adapted to serve as the guideline to the Solvay ONE Planet initiative, embedding all the commitments of the new Solvay Sustainability approach. The work of adapting Solvay's sustainability reference framework has been put on hold in 2020, owing to the need to manage the impacts of the Covid-19 crisis.

Solvay's Corporate Sustainable Development function defines and deploys Solvay ONE Planet, consolidates Solvay Way self-assessments, presents the results to the Board of Directors and the Executive Committee, and trains the Board of Directors on sustainability matters.

The Global Business Unit's Head of Sustainability is a member of the management team and is in charge of integrating sustainability aspects in the Global Business Unit's decision-making processes.

Solvay Way Champions and correspondents ensure the deployment of the process in all Solvay sites, Global Business Units, and Corporate Functions. They motivate their colleagues to meet specific targets, set action plans to improve their processes and practices, assess their own progress, identify areas for improvement, and design improvement plans to enhance integration of sustainability in their entities.

3.3. HEALTH, SAFETY AND ENVIRONMENT MANAGEMENT

Priority

3.3.1. Definition

Solvay's Health Safety Environment (HSE) management system is defined in line with ISO 45001 definitions and aligns with the Responsible Care Policy.

At Solvay, we commit in our Responsible Care Policy to safeguard People and the Environment by continuously improving our environmental, health, and safety performance; the security of facilities, processes, and technologies; and chemical product safety and stewardship throughout the supply chain, in line with Solvay's signature of the ICCA's Responsible Care Global Charter®.

3.3.2. Management approach

Solvay's HSE strategy relies on the following:

- An approved Health, Safety, and Environment (HSE) management system is implemented at every Industrial (Manufacturing and Research & Innovation) site.
- The HSE management system includes a Responsible Care policy and risk-based set of procedures that applies to all aspects: health monitoring, industrial hygiene, occupational safety, process safety, transport safety, environment, impact of climate change, and product safety.
- A Product Safety Management System (PSMS) is applied in every Global Business Unit.
- A Safety Culture approach ensures people's safety, health, and well-being: it relies on a safety leadership style in which managers act as mentors and demonstrate genuine care for all.
- A reporting process is used to evaluate performance, analyze events, and define short- and long-term improvement plans.

Industrial sites

Each industrial site:

- Implements at least one approved Health, Safety, and Environment management system in compliance with Solvay's Responsible Care policy.
- Sets up a dedicated, systematic regulatory watch mechanism.
- Undergoes a compliance audit both on regulatory and internal requirements by a third party (either internal or external) at least once every five years.
- Addresses all identified risks, improvement areas, and compliance gaps.

Environmental rehabilitation

The corporate "Environmental Rehabilitation" (ER) department's responsibility is to manage the environmental liabilities resulting from Group industrial and mining activities. ER helps the sites and GBUs manage their environmental legacy, whether historical or recent, with technical expertise and cash management through environmental provisions. Where the local regulations allow it, a risk-based approach is followed to define the management actions. For operational sites, ER collaborates with the local HSE team. Closed sites are directly managed by the ER team on behalf of the GBU. ER is also responsible and accountable for managing Group environmental provisions.

3.3.3. Indicators

Approved HSE Management systems at sites

80% of sites (113) have a management system and have been audited by a third party in the past five years. The target is to reach 100% by the end of 2022. Sites with fewer than ten persons or sites not under Solvay's operational control are excluded.

57 sites are certified by OHSAS 18001, by ISO 45001, or by the American Chemistry Council's Responsible Care Management System (ACC RCMS).

64 sites are certified by ISO 14001 and / or by ACC RCMS 14001.

39 sites have implemented both systems.

22 Sites have another approved management system in place. In Mexico it is the "Responsible Care Program by Asociación Nacional de la Industria Química" (ANIQ); in Brazil, the "Responsible Care Program by Associação Brasileira da Indústria Química" (ABIQUIM); in China, the "Occupational Safety and Health management system" (GB/T 33000-2016); and in the US, the "Occupational Safety and Health Administration Voluntary Protection Programs" (OSHA VPP management system).

27 have a plan to implement a management system by 2021 / 2022.

Regulatory Compliance

100% of the sites have installed a systematic process for Health, Safety, and Environment regulatory watch.

3.3.4. Key achievements

13 new sites were certified ACC-RCMS-14001 in 2020 in the Global Business Unit "Composite Materials".

3.4. RESEARCH AND INNOVATION

Priority

3.4.1. Definition

Solvay R&I is the Group engine to deliver highly differentiated and valuable innovations addressing some of the major future human challenges associated with resource scarcity, climate change and quality of life. Solvay wants to build a better future by developing profitable and sustainable innovative solutions that turn science and chemistry into business and create value for the Group, its shareholders, its customers, and all other stakeholders.

3.4.2. Management approach

The G.R.O.W. strategy has guided in 2020 a redefinition of R&I priorities, which have been aligned with the ambitions and mandates of Solvay GBUs and Growth Platforms, taking into account their missions and strategic directions. The Group has created a new function reporting to the Executive Committee: the Chief Technology Officer (CTO) is in charge of all Group R&I activities.

The main missions of the CTO are:

- To define the technology and innovation vision and strategy for the Group;
- To drive Group R&I portfolio management and allocation of resources to maximize and accelerate value delivery;
- To manage the talent, efficiency, and implementation of the new organization.

The key guiding principles for the new Group R&I are:

- Mobilization on market megatrends: light weighting, electrification, resource efficiency, healthcare, digitalization and bio-based solutions, and meeting key customers' priorities to accelerate business growth;
- Reinforcement of a Group-wide scouting effort to identify and develop new growth opportunities;
- Deployment of a ONE R&I mindset to encourage changes and agility and nurture a community of talented and passionate people committed to winning through innovation.

The main R&I changes in 2020 are:

- The **budget**: the R&I budgets will be allocated at Group level, prioritizing projects from GBUs listed as "G" from G.R.O.W. in order to optimize value creation.
- The **resources**: GBUs and R&I Function will adapt their R&I resources to align with their G.R.O.W. strategic mandate.
- The R&I Group **portfolio management**: the overall R&D portfolio is assessed at group level in order to optimize the return on the R&I investment across the Group; the portfolios of projects within each entity are managed by the entity. This includes:
  - The R&I "Technology Scouting" effort, which will identify and develop new growth opportunities related to three technology areas: eco-designed materials and chemicals, engineering of surfaces and interfaces, and disruptive chemistries. This entity houses a unique team dedicated to Innovation Value Assessment. It is made up of scientists and marketing specialists who use various tools to assess and qualify early-stage, breakthrough technologies that are developed following an agile approach to rapidly move from an initial "seed" to a minimum viable solution or prototype.
  - An Open Innovation approach encompassing the Venture organization active in funds, which have assembled portfolios totaling 141 startups, along with the Scientific Direction team and its Fellow Scientists network.
- The **operations**: the organization that coordinates laboratory sharing for research operations will provide R&I services (analytical, labs, etc.) that bring operational and scientific excellence, leveraging "Virtual R&I" (modelling, simulation, machine learning) to transform and accelerate the way we do research.
- The **Intellectual Assets Management (IAM)** organization, which protects Solvay Intellectual property (IP): patents, trade secrets, trademarks, domain names, and copyrights. It will adapt resources to GBUs' strategies with simplified and optimized spans of control.

Together with customers and partners, Solvay innovates to develop sustainable solutions by addressing the key drivers that will shape our future and focus on the world's sustainability needs.

3.4.3. Indicators

Research and Innovation

		2020	2019
Expected revenue from sustainable solutions	%	77	75
R&I Efforts	€ million	291	336
R&I Staff	FTE	1950	2100
First patent fillings	Number	135	240
New sales ratio	%	15	18

3.4.4. Key achievements

Solvay cares about working together with its customers, with academia, and with other companies or startups in order to leverage multiple sources of ideas to identify new solutions. Overall, the Group currently manages more than 100 collaborative innovation projects.

Innovations to fight the pandemic

Actizone™, a patented technology, was introduced by Solvay during the pandemic. Actizone is a line of ready-to-use products and ingredients that rapidly kills germs to protect consumers from harmful bacteria and viruses, including the coronavirus. Actizone technology also provides 24-hour surface protection to continuously kill 99.9% of bacteria on a range of surfaces. Since the onset of the Covid-19 pandemic, consumers and businesses alike have been searching for ways to uphold health standards and feel protected in an uncertain world.

Battery & Circular Economy

Solvay and Veolia are partnering on a circular economy consortium to offer new solutions that promise better resource efficiency for critical metals used in lithium-ion electric vehicle (EV) batteries. With the number of electric vehicles on the road expected to grow from 8 million in 2020 to 116 million by 2030, ensuring stable access to raw materials is a strategic challenge. Furthermore, materials used today in EV batteries are not always recovered at their maximum value. Solvay's role in this consortium is to optimize the extraction and purification of critical metals such as cobalt, nickel, and lithium and transform them into high-purity raw materials for new batteries, ready for another fresh start. The project demonstrates that Solvay's technologies are essential in closing the circular economy loop. Solvay is also present in the EV and hybrid battery value chain thanks to its high-performance specialty polymers for binders and separators and specialty additives for electrolytes.

Solvay is fully involved in the Horizon 2020 program, notably in the field of batteries, with: CoFBAT, Spider, and Naima (battery cell materials for non-automotive applications). The Group is also part of the European Battery Alliance and IPCEI (Important Project of Common European Interest), which are working to develop tomorrow's solid-state battery, including the state-of-the-art electrolytes, electrode binders, and separators needed for highly efficient batteries.

Henkel awarded Solvay its prize for Best Innovation Contributor Beauty Care

A key player in the Personal Care market, Henkel recognized Solvay for its Polycare® Split Therapy, a natural, functional active ingredient for shampoos, conditioners, and serum that efficiently repairs damaged hair. The versatile guar derivative offers end-consumers instant perceivable and durable split-end repair properties, as well as a pleasant texture. After the hair has dried, Polycare® Split Therapy remains on the fibers, forming a thin film and bridging across the parts of a split, locking the split in a closed state. This represents another step in the development of bio-based solutions for the consumer market.

Open Innovation, the heritage of a long tradition of collaboration with academia across the globe

Solvay is heavily involved in scientific collaborations with top universities in Europe, China, South Korea, the US, and Brazil, as well as partnerships in Joint Research Units with the CNRS (National Scientific Research Center) in Bordeaux (France) on microfluidics and high throughput screening, and in Shanghai (China) on organic chemistry.

The most extensive form of collaboration is long-term partnerships with carefully chosen institutions such as EPFL in Switzerland, which has a strong emphasis on modeling and machine learning, and AIST in Japan. Solvay signed a contract with AIST in January 2019 and is the first non-Japanese industrial player to partner with AIST following Japanese authorities' decision to open their research to non-Japanese companies. There is a strong complementarity in terms of skills between Solvay and AIST, for instance in the field of specialty chemicals synthesis to reduce CO_2 emissions and improve resource efficiency. We are also launching a collaboration with the University of Chicago on topics related to energy storage.

Venture capital and start-up

Direct Investments: in 2020 Solvay's corporate venturing team closed four investments:

- **Invizius**, the University of Edinburgh spin-out developing potentially lifesaving products that reduce the complications rates suffered by dialysis patients. This activity is connected to our Polysulfone business in hemodialysis.
- **Kumovis**, a German startup developing a cutting-edge 3D printing ecosystem for medical applications to shape the future of medical device production by using 3D printing technologies to enable manufacture right at the point of care. The Kumovis R1 is an open 3D printing system based on Fused Layer Manufacturing that can use a wide range of thermoplastic materials, ranging from PLA to PEEK.
- **Richland Capital** to advance materials and manufacturing innovation with technology start-ups in China. The company is uniquely positioned to identify future national leaders in industries like automotive, aerospace, and electronics.
- **PrinterPrezz** to collaborate on developing 3D printing selective laser sintering solutions (SLS) for implants and other medical devices. PrinterPrezz is a trailblazer in combining polymer and metal 3D printing, nanotechnologies, and surgical expertise to design and manufacture next generation medical devices. Our Solviva® biomaterials provide optimal performance and meet the requirements for prolonged or permanent exposure to bodily fluids and tissue in the human body.

3.5. SUPPLY CHAIN AND PROCUREMENT

GRI Disclosures 102-9 308-1 308-2 407-1 414-1

Moderate materiality

3.5.1. Definition

Our supply chain organization accounts for 2,200 people. Most of them are located in the GBUs, where they are in charge of planning, customer care, logistics operations, and improvement projects. Beside the GBU teams, a small Supply Chain Excellence team is located in the Excellence Center. In late 2019 we kicked off an ambitious project to improve the performance of the end-to-end value chain. The program targets to improve the value chain performance of the GBUs while also improving cash generation, cost, and the customer experience.

The procurement organization consists of 550 persons spread between Corporate Procurement, the GBUs, and Purchasing Service Line support.

The mission of the procurement function is not only to source products and services by leveraging our scale, expertise, and talent in thought leadership, to secure sustainable value creation and supply security; but also to be smart and disruptive in creating top line opportunities that directly support Solvay’s growth and ONE Planet agenda.

3.5.2. Management approach

Solvay integrates its Corporate Social Responsibility (CSR) principles and Solvay ONE Planet ambition into its procurement processes and strategies to create sustainable business value with its suppliers.

Supplier Code of Business Integrity

Our Supplier Code of Conduct is key for the implementation of our Responsible Procurement Policy. It was revised in 2020 into Solvay's Supplier Code of Business Integrity. It is now fully aligned with Solvay’s Code of Business Integrity and the CSR agreements with IndustriALL Global Union. It was inspired by the UN Global Compact principles and Responsible Care® practices.

All written purchase contracts shall make reference to the Supplier Code of Business Integrity or a valid alternative. In addition, and notwithstanding the existence of a written purchase contract, all Core suppliers must subscribe to the principles detailed in the Supplier Code of Business Integrity.

Solvay has set up a CSR committee to analyze and arbitrate any supplier breach based upon the principles in the Supplier Code of Business Integrity. In 2020, no severe infringements were reported.

Together for Sustainability initiative

Solvay is a founding member of the Together for Sustainability (TfS) initiative launched in 2011. TfS is a global, procurement-driven initiative, which delivers a groundbreaking framework with robust tools (TfS Assessments and TfS Audits) to assess and improve the sustainability performance of chemical companies and their suppliers. TfS delivers the global standard for environmental, social, and governance performance of the chemical supply chains. The program is based on the UN Global Compact and Responsible Care® principles.

Together for Sustainability is growing into a global organization with regional representation in Asia and North and South America. Operating as a unique member-driven organization, the TfS member companies shape the future of the chemical industry together.

TfS operates according to the principle of “an assessment or audit for one member company is an assessment or audit for all”. The sharing of supplier evaluations among 29 global chemical companies lessens the administrative burden and leverages synergies among the member companies. TfS assessments are carried out by its key partner EcoVadis, a global service provider specialized in sustainability performance assessments. For its audits, TfS cooperates with a TfS-approved audit company.

Solvay CPO Lynn de Proft is a member of the TfS Steering Committee.

Procurement strategy

Procurement strategies are defined by Domain's category experts jointly with GBUs. These strategies can be executed and deployed at a global, regional, or local level, according to the supplier market structure.

Procurement core competencies are represented by a highly professional network of buyers and supported by a common way of working in the context of the Solvay global procurement process.

The top procurement priorities are centered around two main topics: "Act NOW" to protect and run the business and "Prepare for the FUTURE".

3.5.3. Indicators

Core Suppliers

In order to focus on what matters, Solvay applies a supplier segmentation based on a "Core Supplier" approach. Core Suppliers have been defined to include three categories:

- Strategic Alliances: strategic suppliers at group level that contribute to Solvay growth and market differentiation and innovation;
- Strategic Partners: suppliers that deliver strategic materials or services to Solvay with a possible business impact;
- Bottlenecks: suppliers that represent a high potential risk to Solvay or the Business.

The Core Supplier concept enables Solvay to focus on managing performance, mitigate supply risk, and improve relationships. It also forms a fruitful basis for collaboration and stimulating innovation.

After the Core Supplier concept was introduced in 2019, the approach was further developed in 2020 by appointing Key Account Managers and defining default actions that should be performed for each type of Core Supplier, such as drafting a Key Account Plan, performing a Supplier evaluation survey, and requesting a mandatory third party sustainability assessment.

473 suppliers have been identified as Core Suppliers.

Core supplier assessment

The distribution of our Core Suppliers is as follows:

	Raw Materials	Technical Goods and Services	Logistics and Packaging	Energy	General Expenses IT and Telecom	Total
Asia Pacific	82	6	5	0	6	99
Europe, Middle East, Africa	78	44	26	9	50	207
Latin America	12	9	2	1	9	33
North America	82	12	21	1	18	134
Total	**254**	**71**	**54**	**11**	**83**	

Ecovadis assessment

Within Solvay's portfolio, 1,730 suppliers have been assessed through EcoVadis in 2020, which makes Solvay the fourth best performer in terms of suppliers assessed amongst the Together for Sustainability members.

Raw materials

As a large chemical manufacturer, Solvay uses raw materials from a range of suppliers and sources: the overall volume purchased is over 4.45 million tons in 2020. The Solvay group transforms large quantities of petrochemicals and uses large amounts of water.

Solvay is concerned that the trade in tantalum, tin, tungsten, and gold and the metals refined from such minerals (referred to as 3TGs) mined in certain conflict-affected and high-risk regions, including but not limited to the Democratic Republic of the Congo and its adjoining countries, may be contributing to human rights abuses. Solvay's product portfolio does not contain 3TG products necessary to the functionality or production of those products that directly or indirectly finance or benefit armed groups in the aforesaid regions. Solvay continues working to verify the integrity of our sourcing, and to support the actions of governments, our customers, and suppliers towards this end on a global basis. If our suppliers fail to meet our expectations in this regard, we will take these factors into consideration in future business and sourcing decisions.

Non-biosourced and biosourced raw materials – material purchased

		2020	2019	2018
Mineral products	1,000 tons	2,370	2,970	2,840
Biosourced products	1,000 tons	230	260	270
Natural gas	1,000 tons	900	980	1,000
Petrochemical	1,000 tons	830	980	910
Other raw materials	1,000 tons	120	390	500
Total	**1,000 tons**	**4,450**	**5,580**	**5,520**

4. CLIMATE

4.1 GREENHOUSE GAS EMISSIONS

4.1.1. Definition

GRI Disclosures 305-1 305-2 305-3 305-4 305-5

Priority

SDG 3 12 13 14 15

The greenhouse gas emissions reported by Solvay correspond to the scope of the Kyoto Protocol and comprise the following compounds or compound families: CO_2, N_2O, CH_4, SF_6, HFCs, PFCs, and NF_3. To calculate their impact on climate change, greenhouse gas emissions are converted from metric tons to the CO2 equivalent using the Global Warming Potential of each gas based on a 100-year timeframe, as published by the Intergovernmental Panel on Climate Change in its fifth assessment report.

The indicator takes into account:

- Direct emissions for each greenhouse gas released from Solvay's industrial activities (Scope 1 of Kyoto Protocol). For CO_2, the reporting of direct emissions includes emissions from the combustion of all fossil fuels as well as process emissions (e.g. thermal decomposition of carbonated products and chemical reduction of metal ores);
- Indirect CO_2 emissions related to the steam and electricity purchased from third parties and consumed internally (Scope 2 of Kyoto Protocol). For electricity that is purchased, indirect emissions are calculated by applying market-based methods. In 2019, electricity supply contracts were analyzed in order to determine the most appropriate CO_2 emissions factor of each site.

4.1.2. Management Approach

Solvay is committed to reducing greenhouse gas emissions by 26% by 2030, compared to 2018 at constant scope, and aligns its trajectory with the "well below 2°C temperature increase" goal outlined in the 2015 Paris Agreement.

The Group acts on all levers: transforming its energy mix and investing in clean technologies. To this end, the Group is developing a growing pipeline of energy-climate transition opportunities through collaborations between a dedicated team of experts in energy transition and operational teams at the industrial sites. For greenhouse gas emissions not related to energy, specific task forces have been set up with strong technical inputs in order to develop the required clean technologies.

Since 2019 Solvay has applied an internal carbon price of €50 per metric ton CO_2 to all greenhouse gas emissions in its capital investment decisions worldwide.

An externally verified greenhouse gas emission reporting system and responses to rating agencies such as the Carbon Disclosure Project help the Group align its efforts with the magnitude of its greenhouse gas challenges.

4.1.3. Indicators

Solvay's target is to reduce greenhouse gas emissions by 26% by 2030, compared to 2018 at constant scope (reference 2018: 12.3 Mt CO_2eq).

Solvay also committed to the Science Based Targets initiative (SBTi) in 2020 and is preparing to submit targets for validation.

Greenhouse gas emissions – Target achievement

	Units	
Total greenhouse gas emissions (scopes 1 and 2) in 2020	Mt CO_2eq	10.1
Total greenhouse gas emissions (scopes 1 and 2) in 2019	Mt CO_2eq	12.0
Variation due to changes in reporting scope (structural changes)	Mt CO_2eq	-0.02
Variation due to changes in methodology or improvements in data accuracy	Mt CO_2eq	+0.03
Emissions increase or reduction at constant scope year on year	Mt CO_2eq	-1.89
Cumulative emissions increase or reduction since 2018 at constant scope	Mt CO_2eq	-2.51
Percentage increase or reduction since 2018 at constant scope (reference 2018: 12.3 Mt CO_2 eq)	**%**	-20

Cumulative emissions reduction since 2017 at constant scope is -2.47 Mt CO_2eq, in line with the previous objective: "- 1 million tons of greenhouse gas emissions (Scope 1 and 2) in comparison with 2017 no later than 2025 at constant scope".

The improvement in 2020 is mainly linked to lower activity (-1.1 Mt CO_2eq) because of the Covid-19 crisis as well as to structural improvement in GHG emissions coming from climate-energy transition projects (-0.68 Mt CO_2eq).

Greenhouse gas emissions (scopes 1 & 2)

	Units	**2020**	2019	2018
Direct and indirect CO_2 emissions (scopes 1 and 2)	Mt CO_2	8.8	10.0	9.8
Other greenhouse gas emissions according to Kyoto Protocol (scope 1)	Mt CO_2eq	1.3	2.0	2.4
Total greenhouse gases emissions according to Kyoto Protocol	**Mt CO_2eq**	**10.1**	**12.0**	**12.3**
Other greenhouse gas / CO_2 emissions not according to Kyoto Protocol (scope 1)	Mt CO_2eq	0	0.1	0.1

Scope: consistent with financial reporting scope, including the manufacturing activities of the companies that are currently consolidated (fully or proportionately). The greenhouse gas emissions of the companies in the financial scope represent 81% of the total greenhouse gas emissions of all companies in the operational scope.

Direct greenhouse gas emissions (scope 1) - Kyoto protocol

		2020	2019	2018
Methane – CH4	Mt CO_2eq.	0.80	1.02	0.88
Nitrous oxide – N2O	Mt CO_2eq.	0.02	0.03	0.10
Sulfur hexafluoride – SF6	Mt CO_2eq.	0.05	0.07	0.04
Hydro fluoro carbons – HFCs	Mt CO_2eq.	0.03	0.11	0.06
Perfluorocarbons – PFCs	Mt CO_2eq.	0.38	0.78	1.36
Nitrogen trifluoride – NF3	Mt CO_2eq.	0.0	0.0	0.0
Total other greenhouse gas emissions	**Mt CO_2eq.**	**1.28**	**2.01**	**2.44**
Carbon dioxide - CO_2	Mt CO_2	7.6	8.58	7.96
Total direct emissions	**Mt CO_2eq.**	**8.89**	**10.59**	**10.4**

In 2020, direct emissions are 1.7 Mt CO_2eq lower than 2019. Besides lower activity induced by the Covid-19 crisis, the main improvements come from CF4 emission reduction in Spinetta, Italy (-0.46 Mt CO_2eq) and CH4 emission reduction in Green River, US (-0.22 Mt CO_2eq).

Indirect CO_2 emissions (scope 2)

	Units	**2020**	2019	2018
Gross market based				
Electricity purchased for consumption	Mt CO_2	0.7	0.9	1.0
Steam purchased for consumption	Mt CO_2	0.5	0.5	0.9
Total indirect CO_2 – Gross market-based	**Mt CO_2**	**1.2**	**1.4**	**1.9**
Gross location based				
Electricity purchased for consumption	Mt CO_2	0.9	1.0	1.1
Steam purchased for consumption	Mt CO_2	0.5	0.5	0.9
Total indirect CO_2 – Gross location based	**Mt CO_2**	**1.4**	**1.5**	**2.0**

Since the implementation of the market-based method, a detailed review of emissions factors for purchased electricity covering all sites is done every year.

Besides lower activity induced by the Covid-19 crisis, the decrease of 0.2 million tons of CO_2 for indirect CO_2 emissions related to purchased electricity is partly due to additional purchases of green electricity (US, UK and India) and partly to lower-carbon electricity thanks to the integration of the Rosen cogeneration unit (Rosignano, Italy) into the Solvay scope.

Other indirect greenhouse gas emissions (scope 3)

		2020	2019	2018
Purchased goods and services	Mt CO_2 eq.	5.6	4.9	5.8
Capital goods	Mt CO_2 eq.	1.5	1.8	1.8
Fuel- and energy-related activities	Mt CO_2 eq.	1.0	1.0	0.7
Upstream transportation and distribution	Mt CO_2 eq.	Included in Purchased Goods and Services		
Waste generated in operations	Mt CO_2 eq.	Included in Purchased Goods and Services		
Business travel	Mt CO_2 eq.	0.002	0.01	0.02
Employee commuting	Mt CO_2 eq.	0.03	0.05	0.05
Upstream leased assets	Mt CO_2 eq.	0	-	-
Downstream transportation and distribution	Mt CO_2 eq.	0.5	0.6	0.7
Processing of sold products	Mt CO_2 eq.	4.3	5.6	5.5
Use of sold products	Mt CO_2 eq.	8.1	10.1	10.9
End-of-life treatment of sold products	Mt CO_2 eq.	6.9	7.4	7.6
Downstream leased assets	Mt CO_2 eq.	0	0	0
Franchises	Mt CO_2 eq.	0	0	0
Investments	Mt CO_2 eq.	0.9	1.1	1.1
Total scope 3 emissions	**Mt CO_2 eq.**	**28.8**	**32.6**	**34.2**

Investment scope was recalculated for 2017 and 2018 to comply with GHG protocol guidance.

4.1.4. Key achievements

Solvay continued to intensify its involvement in the production of renewable electricity: in 2020, twenty sites derived part of their electricity supply such as solar or wind sources, which represents a total of 0.11 Mt CO_2 eq avoided.

4.2. ENERGY

GRI Disclosures 302-1 302-2 302-3 302-4

Priority

SDG 7 12 13

4.2.1. Definition

Solvay's energy consumption is made up of four components:

1. Non-renewable primary fuels (coal, petcoke, natural gas, fuel oil, etc.), which are used for internal production of steam, electricity, and mechanical energy, and in manufacturing processes (gas in dryers, etc.);
2. Renewable primary fuels (biomass / biogas);
3. Purchased steam;
4. Purchased electricity.

Steam and electricity generated from fuels and sold to a third party are deducted from the total energy that is purchased and sold afterwards to a third party without any transformation accounted for.

Low Heating Values are used to convert quantities into primary energy consumption.

4.2.2. Management approach

Solvay has both industrial activities such as synthetic Soda Ash plants and Peroxides, which consume large amounts of energy, and a range of industrial activities whose energy content is relatively low as a percentage of the sales price, e.g. in the fluorinated polymers business.

The Group considers it particularly important to swiftly transition its energy consumption towards zero- or low-carbon sources without compromising competitiveness or supply security. To this end, the Group has taken the following strategic initiatives:

- Creation of Sustainable Environment & Climate (SEC) Department within Solvay's Industrial Direction to support the development of energy transition projects worldwide, taking into account the specifics of each site's local energy market;
- Technological leadership in processes and high-performance industrial operations to minimize energy consumption;
- Diversification and flexible use of the different types and sources of primary energy;
- Periodic review of the condition of industrial sites' energy assets and connections;
- A strategy of supply coverage with long-term partnerships and medium- to long-term contracts, with price-hedging protection mechanisms when needed;
- In-house market intelligence and direct access to energy markets when possible (gas hubs, electrical grids, financial spot and future exchanges);
- Dedicated services in order to optimize energy purchasing and help Global Business Units manage energy and greenhouse gas emissions.

The Group has reduced its overall energy intensity by 7% since 2012. Key factors in this progress have been the SOLWATT® energy efficiency program rolled out at most plants worldwide and the dissemination of technological breakthroughs to improve the overall energy efficiency of its operations.

4.2.3. Indicators

In 2012, Solvay announced plans to reduce its energy consumption by 10% by 2020 (1.3% per year on average) at constant activity scope. Its energy intensity indicator covers both primary energy from fuels (coal, petcoke, fuel-oil, natural gas, biomass, etc.) and purchased steam and electricity. Due to lower activity because of the Covid-19 crisis this objective was not reached. (During a period of lower activity, part of the energy consumed remains the same: the fixed part. Only the proportional part decreases.)

Energy efficiency index – Baseline 100% in 2012

	Units	**2020**	2019	2018
Energy efficiency index	%	93	92	93

Scope: energy index at constant activity scope reflects the change in energy consumption on a comparable basis after adjusting the historical scope to take into account scope changes and making adjustments for changes in production volumes from one year to the next.

Energy consumption

	Units	**2020**	2019	2018
Fuel consumption	PJ	99	107	93
Secondary energy purchased for consumption	PJ	34	38	45
Energy sold	PJ	31	32	23
Primary energy consumption	**PJ**	**103**	**113**	**115**

Scope: this indicator shows the primary energy consumption over a given year related to the manufacturing activities of the companies that are currently consolidated (fully or proportionately). The primary energy consumption of the companies in the financial perimeter represents 82% of the total primary energy consumption of all companies in the operational sphere.

In 2020, primary energy consumption was 10% lower than in 2019. This variation is mainly linked to the lower level of activity because of the Covid-19 crisis.

Fuel consumption from non-renewable and renewable sources

	Units	2020	2019	2018
Solid fuels	PJ	27	32	33
Liquid fuels	PJ	0.3	0.4	0.5
Gaseous fuels	PJ	66	69	55
Total non-renewable energy sources	**PJ**	**93**	**102**	**89**
Renewable energy sources	**PJ**	**6**	**5**	**4**
Total fuel consumption	**PJ**	**99**	**107**	**93**

Note: accounting methodology has been adapted in 2020. Coke and anthracite used as raw materials in chemical reactions have been removed from classification as solid fuels. Historical figures have been restated retroactively.

Fuel consumption from non-renewable sources decreased in 2020. This variation is mainly linked to the lower level of activity because of the Covid-19 crisis. The coal used to produce energy decreased by 15%, in line with Solvay's objective of phasing out coal by 2030. Over the same period, renewable fuel consumption increased by 0.6 PJ.

Secondary energy purchased for consumption

	Units	2020	2019	2018
Electricity	PJ	22	26	28
Heating	PJ	0	0	0
Cooling	PJ	0	0	0
Steam	PJ	12	12	18
Total	**PJ**	**34**	**38**	**45**

In 2020, secondary energy purchased for consumption was 5 PJ lower than in 2019.

Energy sold

	Units	2020	2019	2018
Electricity	PJ	17	19	11
Heating	PJ	0	0	0
Cooling	PJ	0	0	0
Steam	PJ	14	13	12
Total	**PJ**	**31**	**32**	**23**

In 2020, the sale of self-generated secondary energy to third parties decreased by 1 PJ.

Total renewable energy

	Units	2020	2019	2018
Energy produced from renewable energy sources	PJ	6	5	4
Renewable electricity purchased	PJ	1.02	0.58	-
Renewable electricity sold	PJ	0	-	-
Total renewable energy	**PJ**	**7.0**	**5.6**	-

Energy consumption outside of the organization

The life cycle assessment performed for the Sustainable Portfolio Management analysis makes it possible to estimate cradle-to-gate energy consumption:

	Units	2020	2019	2018
Cradle to gate energy consumption	PJ	246	265	288

4.2.4. Key achievements

Solvay continued to get more involved in the production of renewable energy sources: in 2020, eight sites derived part of their heat production from biomass, which represents a total of 6 PJ.

4.3. BIODIVERSITY

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Priority

4.3.1. Definition

The calculation of the Solvay Group's pressure on biodiversity combines three factors:

1. The first factor, Components / Indicators of the environmental footprint of each Solvay product, is data extracted from the Eco-profile database we use for Sustainable Portfolio Management (SPM) assessments. This product environmental footprint is calculated using the Life Cycle Assessment methodology and metrics, and it covers the "cradle-to-gate" scope for each product.
2. The second factor, "biodiversity loss", which stems from the release of components, molecules, etc. into the air, water, and soil, is given by the ReCiPe methodology based on scientific studies made in 2000-2010. In summary, this method determines the pressure each component released into the air, water, and soil puts on the ecosystem, and then converts those pressures into "biodiversity loss" or "Ecosystem Quality".
3. The third factor is the product sales volume during the year in question, which is used to assess the annual impact on biodiversity.

ReCiPe is a method for impact assessment in a Life Cycle Assessment. Life cycle impact assessment converts emissions and resource extractions into a limited number of environmental impact scores, with harmonized characterization factors at the midpoint and endpoint level. The ReCiPe method was first developed in 2008 and updated in 2016.

4.3.2. Management approach

Local biodiversity

We conducted a screening of all our sites and their potential impact on protected areas according to the International Union for the Conservation of Nature (IUCN) management categories. We prioritized sites for risk assessment according to their proximity with protected areas and the IUCN management category.

This led to working with local administrations in charge of the protected areas to track and analyze the actions needed to alleviate those impacts, depending on the type of biodiversity being protected. This is work in progress.

Global biodiversity

Pressure on biodiversity means all the different ways in which humanity alters the environment that in turn harm the organisms living in it. There are about 15 different pressures, each one individually quantifiable. Using the increasingly precise environmental profiles of our products, and looking at their entire life cycle from raw material to distribution, we were able to identify the pressures to which our portfolio are the greatest contributors.

Greenhouse gas emissions, freshwater eutrophication, marine ecotoxicity, and soil acidification represent 90% of our emissions and effluents potentially affecting biodiversity. As part of Solvay ONE Planet, we have committed to reducing our pressure on biodiversity by 30% by 2030 compared to 2018.

Solvay joined the Caisse des Dépôts et Consignations' B4B+ (Business for Biodiversity+) interest group, working on an international Global Biodiversity Score (GBS) as part of a European initiative.

Solvay also joined CSR Europe's collaborative platform, Biodiversity and Industry, to develop a holistic approach to environmental issues in the business strategy.

4.3.3. Indicators

Local biodiversity

55% of Solvay sites are within a 5 km radius of a protected area.

Four sites have been prioritized for risk assessment according to the site distance from the closest protected area and the IUCN management category:

Country	Site name	Distance (meters)	Name of protected area	Category	IUCN Management category
Australia	BUNDOORA	500 - 2000	Gresswell Forest (part a) N.C.R.	Natural Features Reserve	Ia
Germany	EPE	0	LSG-Eilermark, Eper Venn, Graeser Venn	Landscape Protection Area	IV
India	THANE WEST	0 – 500	Sanjay Gandhi	National Park	II
Italy	ROSIGNANO	500 – 2000	Pelagos Sanctuary For The Conservation Of Marine Mammals	Specially Protected Areas of Mediterranean Importance (Barcelona Convention)	Not Assigned

IUCN Red List species and national conservation list species with habitats in areas affected by operations have not yet been identified for all sites. Solvay has prioritized the work on global pressure on diversity, which has allowed it to identify actionable levers of action.

Global biodiversity

Global pressure on biodiversity

	Units	**2020**	2019	2018
Species potentially affected	Number	107	116.2	121.9
Of which:				
Global Warming Potential	%	43	43	43
Acidification	%	14	14	14
Eutrophisation	%	16	16	16
Marine Ecotox	%	16	17	17
Land use	%	3	3	3
Water	%	8	8	7

4.3.4. Key achievements

Solvay's commitment on biodiversity has been endorsed by the Act4Nature International coalition, an initiative that encourages corporate action for the protection, enhancement, and restoration of biodiversity. Act4Nature International recognized Solvay due to its pioneering Solvay ONE Planet goals to reduce pressures on biodiversity by 30% by 2030 compared to 2018 in areas such as climate, terrestrial acidification, water eutrophication, and marine ecotoxicity. Solvay was one of 30 companies out of 65 that passed the test to receive the recognition.

5. RESOURCES

5.1. PRODUCT DESIGN AND LIFE CYCLE MANAGEMENT

GRI Disclosures 416-1

Priority

5.1.1. Definition

Solvay's Sustainable Portfolio Management (SPM) focuses on sustainable business solutions. The SPM methodology is designed to boost Solvay's business performance and deliver higher growth by letting decision-makers know how Solvay's products contribute to sustainability, considering two factors:

- The environmental footprint related to their production and associated risks and opportunities, based on cradle-to-gate Life Cycle Assessments,
- How their applications create benefits or challenges from a market perspective, based on a qualitative assessment on a cradle-to-cradle scope.

The Life Cycle Assessment (LCA) is a tool for compiling inputs and outputs, along with an evaluation of the potential environmental impacts of a product system throughout its life cycle. LCA methodologies meet international standards - ISO 14040, ISO 14044, and ISO 14046 norms.

A sustainable solution is defined by Solvay's Sustainable Portfolio Management tool as a product in a given application, which makes a greater social and environmental contribution to the customer's performance and at the same time demonstrates a lower environmental impact in its production phase.

5.1.2. Management approach

SPM assessments are performed every year in order to capture the most recent signals from the market in a dynamic perspective covering more than 80% group revenue. Since its implementation in 2009, the Sustainable Portfolio Management tool has been widely adopted by Solvay Global Business Units and Functions to integrate sustainability into their key processes:

- The Sustainable Portfolio Management profile is an integral part of strategic discussions between Global Business Units and the Executive Committee;
- Solvay uses the Sustainable Portfolio Management tool to evaluate mergers and acquisition projects to see if the investment is feasible in the light of Sustainable Portfolio targets;
- Investment decisions (capital expenditure above €10 million and acquisitions) made by the Executive Committee or the Board of Directors include a sustainability aspect that involves an exhaustive Sustainable Portfolio Management analysis of the potential investment;
- All Research and Innovation projects are evaluated using Sustainable Portfolio Management;
- In Marketing and Sales, Sustainable Portfolio Management allows Solvay to engage customers on fact-based sustainability topics – such as climate change action, renewable energy, recycling, and air quality – with the goal of differentiating and creating value for Solvay and the customer.

Solvay Life Cycle Assessments are managed by a dedicated corporate team with direct links to all business units and services. Having a dedicated LCA team makes it possible to maintain a high level of staff competencies and coordinate updates of main methodologies based on best practices. The core LCA activity is based on recognized tools, software, and databases, and Solvay also develops its own database in relation with its business and innovation segments, for instance in material science or battery development.

The LCA team is also called upon to support the business activity when it comes to customer relations by sharing environmental and LCA data on products in order to enhance understanding and environmental impact assessments along the value chain, from "cradle to grave or recycling". Examples include the automotive sector, the construction sector, and Product Carbon Footprint declarations for our customers.

Taking part in world class Life Cycle Assessment platforms

To maintain a high level of expertise, Solvay participates in collaborative platforms:

- CIRAIG - for high level research on Life Cycle Assessment methodologies, in 2012, Solvay joined the International Reference Centre for the Life Cycle of Products, Processes and Services (CIRAIG) as an industrial partner. It is now in its second mandate, ending in 2021, for developing expertise in various aspects of Life Cycle Assessments;
- "Association Chimie du Végétal" in France for bio-sourced materials;
- SCORE Life Cycle Assessment platform - created in March 2012 to promote collaboration between industrial, institutional, and scientific actors and to foster positive developments in overall environmental quantification methods, particularly in Life Cycle Assessments, to be shared and recognized at the European and international levels;
- World Business Council for Sustainable Development (WBCSD) - Life Cycle Assessment projects and Product Carbon Footprint working groups;
- Roundtable for Product Social Metrics - an association of industry representatives and consultants for establishing guidelines for assessing the social impacts of industrial product life cycles.

5.1.3. Indicators

Extensive cradle-to-gate Life Cycle Assessments were performed for 96% of products (by turnover share) placed on the market, compared with 94% last year.

The Solvay LCA team manages its own product database representing more than 1,300 different chemicals and materials. This database is continuously updated to include the most recent industrial or innovation data.

Solvay ONE Planet target: Solvay will continue to shift its portfolio toward opportunities that grow its sustainable solutions, with a target of increasing sustainable solutions to 65% of total Group sales by 2030.

Revenue breakdown by SPM heat map categories

	Units	**2020**	2019	2018
Solutions	%	52	53	50
Neutral	%	27	27	30
Challenges	%	8	7	7
Not evaluated	%	13	13	13

By the end of 2020, 52% of sales in the assessed portfolio of Product-Application Combinations qualified as "solutions", stable compared to the previous year.

SPM Solutions: sales by main impact category

	Units	**2020**	2019	2018
Climate	€ billion	1.6	2.2	2.2
Resources	€ billion	3.2	3.5	3.1
Better Life	€ billion	3.1	3.3	3.1
Total Solutions net sales	€ billion	4.7	5.4	5.1

Note: the total Solutions net sales figure is inferior to the sum of impact categories because products may have multiple impacts. For example: composite materials used in planes make the plane lighter, allowing lower greenhouse gas emissions (climate impact), but they also increase the plane's lifespan (resources impact).

5.2. CIRCULAR ECONOMY

5.2.1. Definition

The circular economy refers to an economic model whose objective is to produce goods and services in a sustainable manner, limiting the consumption and wastage of resources (raw materials, water, energy), and the production of waste. The aim is to break with the linear economy model (extract, manufacture, consume, throw away), replacing it with a "circular" economic model. The linear economic model currently in place in our societies has reached its limits, as it strongly contributes to climate change and to the destruction of our environment. Immediate action and efforts are required in order to preserve the planet and its limited resources. Industries have a big role to play, and one way to do so is by incorporating circular economy principles into their activity on a global scale.

To limit the consumption and wastage of resources as well as the production of waste, innovation is required in order to optimize resource use. Recycling, reusing, reducing, renewing, recovering: these are all ways to create a circular economy and get rid of waste for good. Circular loops can keep the resources recirculating for as long as possible - ideally, forever, with no need to extract more of them.

According to the Energy Transitions Commission, a more circular economy could reduce CO_2 emissions from the plastics, steel, aluminum, and cement industries by 40% globally, and by 56% in developed economies like Europe by 2050.

Underpinned by a transition to renewables, the circular economy builds economic, natural, and social capital. It is based on three principles that Solvay will follow:

1. Design out waste and pollution;
2. Keep products and materials in use;
3. Regenerate natural systems.

5.2.2. Management approach

Responsibility for the Circular Economy is assigned to the Head of Circular Economy in the Sustainable Development (SD) Corporate function.

The mission of the Head of Circular Economy is to define the strategy and lead the transition of Solvay's activity, by creating partnerships with customers and entering new systemic ecosystems led by the major brand owners in the industries where Solvay is present. By meticulously analyzing the internal and external opportunities to make better use of products at every stage of their lifespan (and trying to find a new life for them through recycling or reuse), the Head of Circular Economy and the SD function are constantly developing new projects for Solvay and other partners to reduce waste, thus improving the environmental impact of the industry and contributing to a global circular economy.

Chemistry, as a science and an industry, is a tremendously relevant and powerful enabler in material transformation and re-use. Using the large and diversified technology portfolio of the Group, from specialty chemicals to advanced materials, we can act as an enabler and co-construct new solutions to close loops.

Resource-efficient circular economy solutions

The transformation of Solvay into a circular economy driver is embedded in the Group's G.R.O.W. strategy. Solvay is taking steps and working with customers, suppliers, and partners to identify opportunities where the Group can leverage its capabilities, in particular by doing the following:

1. Redesign products and processes by reducing the use of critical resources, resulting in recyclable products;
2. Develop new market value propositions to improve customers' circularity;
3. Help extend the lifetime of customers' products;
4. Help customers reuse scarce resources;
5. Develop renewable energy solutions for customers.

Partnership with the Ellen MacArthur Foundation

In January 2018, Solvay and the Ellen MacArthur Foundation (EMF) signed a three-year Global Partner agreement that gives the Group an opportunity to make a difference in accelerating the transition to a circular economy in the chemical sector.

The Foundation was launched in 2010 and aims at helping businesses reach a circular approach in their business models. We share the EMF's belief that innovation is at the heart of any transition to the circular economy. Solvay has been chosen as the only chemical company and will work with 15 other Strategic Partners (including BlackRock, Danone, Google, H&M, Intesa San Paolo, DS Smith, Philips, Renault, SC Johnson, and Unilever) in innovating toward more sustainable and circular products.

Solvay is developing projects alongside other major actors and enabling a vital transition to better ways of producing, using, recycling, and reusing products in the industry and beyond. We are determined to build a sustainable future, and we believe that working with the Ellen MacArthur Foundation helps us accelerate our transition to resource economies.

Our commitments

As a strategic partner of the Ellen MacArthur Foundation, we rethink and develop circular business with customers and brand owners to preserve the resources of the planet. We can contribute value to the circularity in three priority areas:

- Bring new functionalities: transform waste from Solvay's strategic markets into added-value raw materials;
- Enhanced technology: create value by increasing the quality of recycled materials through improved processes;
- Eco-design: develop new products to be circular by design.

Solvay is engaged in cross-industry organizations:

- The WEF platform for developing low-carbon-emitting technologies (mixed plastics recycling, biomass utilization for low CO_2 emission, and new chemistries and processes using CO_2 as feedstock);
- WBCSD Factor 10;
- The Circular Plastics Alliance as part of the European Chemical Industry Council (CEFIC).

5.2.3. Indicators

To monitor the deployment of Circular Economy throughout its businesses, Solvay has defined a KPI that is part of the ONE Planet program indicators. It is defined as the "percentage of sales of products based on a circular sourcing", i.e. bio-based raw materials, recycled-based raw materials, and renewable energy. Solvay's objective is to reach 15% of its sales being circular according to this indicator.

Apart from this KPI, Solvay is using the Circulytics® approach, co-developed with the Ellen MacArthur Foundation. Circulytics® aims at:

- Measuring the entire company's circularity, not just products and material flows;
- Supporting decision-making and strategy development for circular economy adoption;
- Demonstrating strengths and highlighting areas for improvement.

As an early adopter of the indicator and in order to actively help make it more relevant for the chemical industry, Solvay has been participating in pilot assessments.

5.3. AIR QUALITY

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5.3.1. Definitions

Nitrogen oxide (NOx) emissions, conventionally expressed as nitrogen dioxide (NO_2), comprise the emissions of nitrogen monoxide (NO) and nitrogen dioxide (NO_2). NOx emissions from Solvay's operations result mainly from the combustion of fossil fuels. Emissions of nitrous oxide (N2O) are excluded from the above definition, as they have no impact on acidification. For our contribution to climate change, its impact is taken into account.

Sulfur oxide (SOx) emissions, conventionally expressed as sulfur dioxide (SO_2), comprise the emissions of sulfur dioxide (SO_2) and sulfur trioxide (SO_3). SOx emissions arise mainly from the combustion of coal or anthracite.

Volatile Organic Compounds (VOCs) are compounds with a standard boiling point below or equal to 250°C (EU Solvent Directive 1999/13/EC). NMVOCs are VOCs other than methane. Methane emissions from Solvay's mining activity at Green River (Wyoming, US) are thus not included. Their impact is taken into account when calculating our contribution to climate change.

5.3.2. Management approach

Air quality is managed through the Health, Safety, and Environment management systems deployed by sites in line with their regulatory requirements and those from the Group. Solvay improves air quality at local and regional levels, in close cooperation with local stakeholders. In the framework of its expiring environmental plan (2015-2020), Solvay focuses on the following pollutants: nitrogen oxides (NOx), sulfur oxides (SOx), and non-methane volatile organic compounds (NMVOC).

5.3.3. Indicators

The Group's 2015-2020 emission intensity targets for NOx, SOx, and NMVOC were -50%, -50%, and -40%, respectively.

Air emissions intensity

	Units	**2020**	2019	2018
Nitrogen oxides – NOx	kg per € EBITDA	0.0029	0.0027	0.0035
Sulfur oxides – SOx	kg per € EBITDA	0.0014	0.0012	0.0017
Non-methane volatile organic compounds – NMVOC	kg per € EBITDA	0.0017	0.0018	0.0019

Absolute air emissions

	Units	**2020**	2019	2018
Nitrogen oxides – NOx	metric tons	5,587	6,197	7,704
Sulfur oxides – SOx	metric tons	2,808	2,888	3,750
Non-methane volatile organic compounds – NMVOC	metric tons	3,286	4,109	4,252

For all indicators related to air quality (SOx, NOx and NMVOC emissions), the 2020 absolute targets have already been met in 2019. For NOx and SOx, this was mainly due to the retrofitting of many of our existing boilers with desulfurization and denitrification technologies, to the start-up of cleaner boilers and to the replacement of coal by natural gas for the heating of calciners. For NMVOC, this achievement comes predominantly from the recuperation of the methane at our Green River site (USA).

5.4. WATER AND WASTEWATER

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Priority

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5.4.1. Definition

Water management encompasses the management of water flows and water quality, from abstraction from the natural environment to water flow restitution to the same or another environmental compartment.

Freshwater withdrawal (in millions of m^3 per year) is the amount of incoming water from the public network (drinking water) and freshwater systems (rivers, lakes, etc.) as well as from groundwater sources (aquifers). Freshwater consumption (in millions of m^3 per year) was calculated as the sum of water lost through evaporation, leakages, and exportation of products and wastes.

As an example, water, which is taken from a river for cooling and restituted to it after use counts for freshwater withdrawal but not for water consumption.

Chemical Oxygen Demand (COD) is the amount of oxygen-reducing substances (mainly dissolved organic matter) discharged to aqueous receivers. COD is expressed as metric tons of oxygen. In addition to nitrogen and phosphorus species, COD also contributes to aquatic eutrophication.

The estimation of the water consumption for our production, including the supply of raw materials (cradle to gate), represents the effective consumption for a product, i.e. withdrawal "minus" release of water with the same quality in the same watershed. Thus the water used in turbines for hydro-power and the cooling of water in open-loop systems (once through) are not included in this indicator. The main water consumption relates to production needs (industrial water) and also to irrigation for bio-based raw materials.

5.4.2. Management approach

The Group has a company-wide water approach that includes a commitment to limit freshwater withdrawal and consumption, in particular in locations subject to hydric stress, and to ensure that the quality status of the water bodies where effluents are discharged remains good so that the impact on downstream users and natural biota is minimized. Solvay focuses on reducing two impacts: freshwater withdrawal and Chemical Oxygen Demand releases. The reduction targets (expressed as an intensity) the Group has set for freshwater withdrawal and Chemical Oxygen Demand releases are -30% (2015-2020).

The water balance of the Group for 2020 is shown in the table below.

WATER INPUT (Mm^3)		**WATER USE (Mm^3)**		**WATER OUTPUT (Mm^3)**	
Surface water (freshwater)	215.2	Process	111.3	Surface water (freshwater)	237.5
Surface water (other water)	0	Once-through cooling	332.0	Surface water (other water)	3.9
Groundwater (freshwater)	82.0	Recycled cooling water	980.5	Groundwater (freshwater)	0
Groundwater (other water)	0.68	Domestic	2.2	Groundwater (other water)	0
Sea water	86.6	Other	1.3	Sea water	88.1
Raw materials	11.1				
Third party water	108.2			Third party	144.8
Rainwater	3.5			*Evaporative losses*	18.5
				Non-evaporative losses	4.3
				Losses through end-products	12.1
				Losses through shipped wastes	0.5
TOTAL	**507.4***	**TOTAL**	**1427.3**	**TOTAL**	**509.8***

5.4.3. Indicators

Freshwater withdrawal

	Units	**2020**	2019	2018
Intensity	m^3 per € EBITDA	0.161	0.142	0.148
Absolute	Million cubic meter	314	330	330

The table below shows the number and percentage of sites located in areas subject to hydric stress and gives the freshwater withdrawal and freshwater consumption for each of these groups in 2020.

2020	**Areas subject to water stress**	**Areas not subject to water stress**	**All areas**
Number of sites	31	107	138
Percentage of industrial sites under operational control	22.5	77.5	100.0
Freshwater withdrawal (Million cubic meter)	29.0	255	314
Freshwater consumption (Million cubic meter)	10.8	24.6	35.4

The Group's 2020 freshwater intake is 224 Million cubic meter lower than in 2015. The 2020 intensity target (0.191) was already achieved back in 2018. This is mainly due to the divestment of Solvay's former polyamides business to BASF and DOMO (- 201 Million cubic meter). This divestment was not foreseen at the time the 2020 targets have been established.

Chemical oxygen releases

	Units	**2020**	2019	2018
Intensity	kg per € EBITDA	0.0027	0.0023	0.0027
Absolute	metric tons O_2	5,265	5,344	6,248

The Group's 2020 release of reducing substances (expressed as "Chemical Oxygen Demand") is 2912 mt O_2 lower than in 2015. Our 2020 intensity target (0.0034) has already been met in 2018, and is also due to the divestment of Solvay's former Polyamide business (- 3179 mt).

Water consumption in the value chain

Cradle-to-gate Life Cycle Assessments allow us to estimate water consumption including the upstream value chain:

	Units	**2020**	2019	2018
Water consumption including the upstream value chain	Millions cubic meters	501	541	583

5.4.4. Key achievements

Water scarcity becomes a challenge in some of the areas where we operate. Due to insufficient rainfall in the Varna region over recent years, the water content of the Tsonevo artificial lake feeding our Devnya site dropped by around 30 % compared to normal levels.

In 2020, the plant has launched two brainstorming sessions and more than 30 project ideas have been identified in order to decrease our dependence on freshwater. Two low-cost projects have already been implemented as from November 2020: use of a greater amount of water from the cooling cycle instead of fresh water and; use of a smaller amount of freshwater for dilution of the sludge transported to Padina settling pound.

Both projects have already resulted in a net freshwater intake reduction (impact of covid excluded) of 1.5 Million cubic meter compared to 2019. Other more CAPEX-intensive projects are being studied and will be implemented in the years ahead.

5.5. WASTE

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Priority

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5.5.1. Definition

Industrial waste is defined as the waste resulting from our regular manufacturing and research activities, excluding domestic wastes and waste from demolition or construction projects.

Mining waste, resulting from the prospecting and extraction of minerals, is considered separately from industrial waste.

All our waste volumes are expressed as dry matter.

For EU sites, Hazardous Industrial Waste (HIW) is defined according to Appendix III of the Waste Framework Directive (2008/98/EC). For non-EU countries, the classification follows their local legislations.

Non-sustainably treated waste comprises wastes, which are being incinerated without energy recovery or landfilled.

5.5.2. Management approach

For industrial waste and particularly hazardous industrial waste, the focus is on switching to more sustainable pathways that avoid landfilling or incineration without energy recovery, thus promoting material or thermal recovery.

For non-hazardous (mostly mineral) waste, Solvay is launching material recovery initiatives aligned with its ambition to contribute to the circular economy.

5.5.3. Indicators

Waste production in absolute

	Units	**2020**	2019	2018
Non-hazardous industrial waste	1,000 tons*	1,457	1,596	1,602
Hazardous industrial waste	1,000 tons*	71.6	86.6	93.1
Total industrial waste	1,000 tons*	1,529	1,682	1,696
Industrial hazardous waste not treated in a sustainable way	1,000 tons*	18.2	27.2	29.0
Industrial non-hazardous waste not treated in a sustainable way	1,000 tons*	51.4	69.2	67.3
Mining waste	1,000 tons*	637	799	834

* Metric tons of dry waste

The waste reduction target (expressed as an intensity) the Group set for non-sustainably treated hazardous industrial waste in its expiring environmental plan (2015-2020) is -30%.

Hazardous industrial waste not treated in a sustainable way (intensity)

	Units	**2020**	2019	2018
Industrial hazardous waste not treated in a sustainable way	kg per € EBITDA	0.0094	0.0117	0.0137

Scope: consistent with financial reporting.

The Group’s 2020 amount of hazardous industrial waste not treated in a sustainable way is 28.3 kt lower than in 2015. This global achievement is the consequence of considerable improvements on some GBUs (Specialty Polymers – 5.3 kt, Aroma Performance – 4.1 kt), divestments (- 10.4 kt from our former Performance Polyamides business, - 2.3 kt from our former Acetow business) and the integration of the Cytec legacy (+ 3.6 kt). Our 2020 intensity target (0.0163) has already been met in 2018.

In its new sustainability program, Solvay ONE Planet, Solvay has defined a similar reduction target (-30%) for the period 2018-2030, but the new target covers all industrial waste (sum of hazardous and non-hazardous) not yet treated in a sustainable way, excluding non-hazardous wastes from the Soda-Ash & Derivatives and Special Chem Global Business Units that is stored in protected and controlled internal landfills.

Industrial waste not treated in a sustainable way

	Units	**2020**	2019	2018
Industrial waste not treated in a sustainable way (sum of hazardous and non-hazardous)	kt	69.7	96.4	96.3

5.5.4. Key achievements

In 2020, Solvay launched a global waste tender with the ambition to reduce waste spending. Partnerships will be built with key suppliers, which will focus not just on cost, but also on innovative ways to treat our wastes in a sustainable manner and promote material valorization where possible.

Since 2016, the rotary kiln of our Massa site (Italy) has been equipped with the SolvAir® process in order to limit its emissions of sulfur oxides. The residues from this flue gas cleaning equipment (called "PSR" and representing an annual volume of around 750 t) were typically landfilled. Since October 2020, they are being valorized as materials, which enter the cement production. Since the implementation of this recovery, the avoided amount of landfilled PSR residues was 170 t. This project will reach its full potential in 2021.

6. BETTER LIFE

6.1. EMPLOYEE HEALTH AND SAFETY

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403-6 403-7 403-8 403-9 403-10

Priority

SDG 3

6.1.1. Definitions

Employee health and safety management encompasses occupational safety, industrial hygiene, and occupational health management.

Occupational health includes all the preventive actions undertaken in order to protect and promote physical and psychological health at work, both collectively and for each individual Solvay employee.

Industrial hygiene management encompasses the assessment, monitoring, and management of workers' potential exposures to ergonomic, chemical, and physical hazards.

Occupational safety is about preventing work-related injuries. Accidents were mostly linked to falls at the same level, human energy (pushing/pulling/striking an object), and exposure while opening a line or system.

- **Occupational accident:** accident which occurred during the execution of a work contract with Solvay. Accidents on the way to/from home are not considered as work related unless the worker was travelling for Solvay at the time of the accident.
- **MTA (Medical Treatment accident):** occupational accident of medium or high severity level, as determined by an internal classification of severity of injuries (cf. Group Procedure IND-HSE-01.01-PRO v2.1 Reporting of HSE Events).
- **H-MTA (High Severity Medical Treatment Accident):** occupational accident of high severity level, as determined by an internal classification of severity of injuries. This severity is comparable to the definition of High Injury & Illness of US OSHA 29 CFR 1904.
- **MTAR (Medical Treatment Accident Rate):** number of Medical Treatment accidents per million work hours.
- **LTA (Lost Time Accident):** Accident resulting in the inability for the worker to work from the first day after the accident in his normal work schedule.
- **LTAR (Lost Time Accident Rate):** number of lost time accidents per million work hours.
- **RII (Reportable Injury & Illness):** work related injury or illness resulting from an accident with severity above first aid, according to US OSHA 29 CFR 1904.
- **RIIR (Reportable Injury & Illness rate):** number of work related injury or illness per 200,000 work hours.

6.1.2. Management approach

Solvay requirements for implementing Management Systems in sites are covered under section 3.3. Health, safety and environment management.

The occupational health and safety management systems cover all Solvay employees. Conversely, external visitors, parcel delivery people, and transport drivers circulating on site are outside the scope, except when they are also loading/unloading. In addition, the safety management system also applies to contractors.

Hazard identification and risk assessments are performed according to Group procedures, which define minimum requirements in terms of methods and hierarchy of controls. They cover the following topics or activities: chemical hazard communication, chemical risk assessment and management, hearing conservation (noise exposure management), legionellosis prevention, managing asbestos in building and facilities, respiratory protection equipment, Group requirements in occupational health, lifts minimum safety requirements, work at height, work on powered systems, line breaking, work in confined spaces, work in explosive atmosphere, lifting, excavation, traffic, personal protective equipment (PPE), work permit, management of change (MOC), and contractor management.

All procedures contain training requirements, guidelines, and on-boarding presentations for implementation in sites. Quality, evaluations, and process improvements are ensured through the sites' management systems. Sites' reporting processes identify unsafe situations, near-misses, and incidents/accidents, and also set guidelines for investigating incidents and taking corrective actions.

Industrial hygiene ensures hazards are identified and eliminated. Risk assessments are performed in collaboration with occupational health experts. Occupational physicians perform risk-based medical surveillance, provide advice on improving and adapting working conditions, and promote physical and mental health. All these processes contribute to managing and minimizing risks at work.

On the shop floor, workers collaborate with the industrial hygienists on risk assessment using SOCRATES (Solvay OCcupational Risk Assessment Tool to Employees). This tool gives widespread, easy access to IH methods, tools, and databases, consistently performs and documents IH risk assessments, and enhances traceability of an individual's potential exposures throughout their working life. Workers are informed of their work-related risks by supervisors, industrial hygienists, and occupational physicians/nurses.

Formal joint management–worker health and safety committees are established in sites according to their country legislation. Solvay contributes to complementary health insurance; the terms vary according to the country.

Initiatives for health promotion are taken at the site level in collaboration with local physicians/nurses: Examples of such initiatives include nutritional advice, cardiovascular prevention programs (blood pressure, lipids), general check-ups, and fitness sessions led by trainers. During 2020, multilingual communication campaigns strongly promoted flu vaccination at the Group level.

6.1.3. Indicators

The improvements of the occupational health and safety indicators result from the safety culture approach implemented to protect everyone working at Solvay. This approach is explained in the risk chapter of this report under 3.3 (operations safety).

Solvay started recording reportable injuries and illnesses on July 1, 2020.

Number of accidents

	Units	**2020**	2019	2018
Fatal accidents - Employees	Number	0	0	0
Fatal accidents - Contractors	Number	0	0	0
H-MTA - Employees	Number	6	11	9
H-MTA - Contractors	Number	3	1	3
H-MTA - Employees and contractors	Number	9	12	12
MTA - Employees	Number	16	23	30
MTA - Contractors	Number	9	11	12
MTA - Employees and contractors	Number	25	34	42
LTA - Employees	Number	26	38	37
LTA - Contractors	Number	16	13	13
LTA - Employees and contractors	Number	42	51	50
RII (as from July 2020) - Employees and contractors	Number	56	-	-

Scope: all sites under Solvay's operational control for which the Group manages and monitors safety performance. This represents sites including manufacturing, research and innovation, administrative, and a series of closed sites with limited activities, and covers Solvay employees and contractors working on sites.

Hours worked

	Units	**2020**	2019	2018
Work hours - Employees	1,000 hours	45,359	52,266	51,945
Work hours - Contractors	1,000 hours	16,577	25,491	25,217
Work hours - Employees and contractors	1,000 hours	61,936	77,758	77,162

Scope: all sites under Solvay's operational control for which the Group manages and monitors safety performance. This represents sites including manufacturing, research and innovation, administrative, and a series of closed sites with limited activities, and covers Solvay employees and contractors working on sites.

Employees' work hours are based on full time equivalent multiplied by an average of work hours per employee per year in each country. Contractors' work hours are reported monthly by all sites.

Accident frequency rates

	Units	**2020**	2019	2018
H-MTAR - Employees	Accidents per million hours worked	0.13	0.21	0.17
H-MTAR - Contractors	Accidents per million hours worked	0.18	0.04	0.12
H-MTAR - Employees and contractors	Accidents per million hours worked	0.15	0.15	0.16
MTAR - Employees	Accidents per million hours worked	0.35	0.44	0.58
MTAR - Contractors	Accidents per million hours worked	0.54	0.43	0.48
MTAR - Employees and contractors	Accidents per million hours worked	0.40	0.44	0.54
LTAR - Employees	Accidents per million hours worked	0.57	0.73	0.71
LTAR - Contractors	Accidents per million hours worked	0.97	0.51	0.52
LTAR - Employees and contractors	Accidents per million hours worked	0.68	0.66	0.65
RIIR - Employees and contractors	Accidents per 200,000 hour worked	0.37	-	-

* Number of accidents per million hours worked

Scope: all sites under Solvay's operational control for which the Group manages and monitors safety performance. This represents sites including manufacturing, research and innovation, administrative, and a series of closed sites with limited activities, and covers Solvay employees and contractors working on sites.

All indicator rates show an improvement for both worker populations and especially for the employee population, demonstrating the continuous improvements resulting from HSE's Creating Safety approach.

The Group objective of MTAR below or equal to 0.4 for 2020 was achieved with a value of 0.4 at the end of 2020. New targets are set every year, seeking continuous improvement from year to year, and the ultimate ambition of Solvay ONE Planet is zero accidents.

Work hours were down significantly in 2020. The reduction in employees' work hours is due to the sale of the Performance Polyamides GBU and furloughs at production and administrative sites because of Covid-19. The reduction in contractors' work hours is due to reduced production and maintenance activities in response to Covid-19 and lower investments.

For employees, 75% of the injuries resulting from MTAs involved the arms, hands, and fingers, and consisted mostly of fractures (56%).

For contractors, 55% of the injuries resulting from MTAs involved the hands and fingers and 44% involved the head and face. They consisted mostly of fractures (67%).

Hand safety has been a matter of concern for several years. As the accident rate has improved over time, especially with respect to dangerous activities such as work at height and work on powered systems, hand safety has not kept pace. In 2019, 50% of MTAs involved hand and finger injuries. As a consequence, at the beginning of 2020 Solvay launched a Worldwide Hand Safety campaign in all sites. Because of Covid-19, which mobilized many resources in the sites to protect worker health, this campaign continues in 2021.

Industrial hygiene

The systematic assessment and management of workers' potential exposures to ergonomic, chemical, and physical hazards are key to Solvay's approach to protecting health. Global industrial hygiene (IH) procedures define minimum requirements for Solvay's IH risk assessments and management strategies, including hierarchy of controls. The IH program encompasses:

- Comprehensive chemicals inventories established and reviewed at site level, with screening and priority ranking of substances with potential health impacts;
- SAELs (Solvay Acceptable Exposure Limits) developed internally for insufficient or outdated established OELs (Occupational Exposure Limits);
- Occupational Exposure Banding (OEB) when no established Occupational Exposure Limit (OEL) exists or there is limited toxicological data. Solvay's OEB approach provides a simple, quick, and easy-to-understand hazard ranking;
- Implementation of SOCRATES, a new global tool, at identified sites, with completion expected by the end of 2022, to
  - give widespread, easy access to IH methods, tools, and databases;
  - consistently perform and document IH risk assessments;
  - enhance the traceability of an individual's potential exposures throughout their working life;
- Established KPIs (Key Performance Indicators) to identify and track completion of site chemical and noise risk assessments.

Occupational Health

The occupational health key indicators are:

1. Occupational diseases (incidence rate and causes of disease): to define preventive and corrective actions;
2. Advanced risk-based medical surveillance rate: to assess that the medical surveillance is effective;
3. Human biomonitoring indicators: to assess chemical exposures (where applicable) and suggest preventive actions;
4. Stress prevention / Well-being at work (developed in chapter 6.2.2): to identify main causal factors and launch action plans at the site and Group levels;
5. Health promotion (seasonal flu vaccination).

Recognized occupational illnesses

	Units	**2020**	2019	2018
Occupational illness frequency rate (OIFR)	per million hour worked	0.49	0.54	0.33

OIFR is the total number of recognized occupational illnesses per million hours worked. This incidence rate covers Solvay workers (active, retired or having left the company) and takes into account all the recognized occupational diseases (not only the short/mid latency ones which were reported in the previous years). The relevant reporting scope is the group of sites, which is material for the relevant HSE domain and indicator, including manufacturing, research and innovation, administrative, and closed sites.

Recordable occupational illnesses by type

	Units	**2020**	2019	2018
Hearing disorders	Number	3	3	3
Musculoskeletal diseases	Number	5	10	5
Other non-carcinogenic diseases	Number	9	9	4
Asbestos-related diseases & cancers	Number	25	39	25
Other cancers	Number	5	4	8
Not specified/Unknown	Number	0	1	1
Total	**Number**	47	**66**	**46**

Scope: Recordable work-related illnesses in Solvay employees (active, retired, or having left the company). The relevant reporting scope includes manufacturing, research and innovation, administrative, and closed sites.

The types and numbers of recordable occupational illnesses are comparable to those reported for 2018, with the exception of an increase of the non-carcinogenic diseases due to six work-related Covid-19 cases. In 2019, two thirds of the recordable non-carcinogenic diseases were skin disorders whereas in 2020, there was only one.

Information on fatalities resulting from occupational illnesses is rarely available or complete.

Advanced Risk-Based Medical Surveillance

A site is considered as performing Advanced Risk-Based Medical Surveillance if all the following criteria are fulfilled:

- The Chemical Risk Assessment completion rate(*) is at least 30%;
- The site regularly communicates identified potential occupational risks to the Medical Service provider;
- At least 70% of the employees scheduled for Risk-Based Medical Surveillance during the year have completed their medical visit.

(*) Ratio of the total number of Chemical Risk Assessments (inhalation and dermal) completed by the site within the last five years, to the total number of Chemical Risk Assessments to be conducted based on the established Chemical Risk Assessment List established by the site.

In 2020, 44% of Manufacturing and Research & Innovation sites fulfilled all these criteria (vs 50% in 2019). Although Chemical Risk Assessments improved in 2020, the lower overall result is explained by a decrease in the number of employees who benefited from Risk-Based Medical Surveillance in the workplace, owing to the extended telework or temporary furlough measures taken in the context of the Covid-19 pandemic.

Human biomonitoring of exposure

Human biomonitoring of exposure involves measuring the concentration of a substance or its metabolites in human fluids (such as urine or blood), taking into account all the exposure pathways. It can be used to assess exposure to specific chemicals and helps to verify whether protective measures are effective.

In 2020, 25 sites performed human biomonitoring of exposure (HBM), for 32 different chemicals (substances/group of substances).

Human biomonitoring of exposures (HBM)

	Units	**2020**	2019	2018
Sites performing HBM of exposure	Number of sites	25	35	35
Sites with at least one result above the Biological Limit Value (BLV)	Number of sites	1	3	4

The relevant reporting scope is the group of sites which is material for the HSE domain and indicator in question. The relevant reporting scope includes manufacturing, research, and innovation.

For sites, which had results above the biological limit values, action plans were put in place to reduce the exposure levels.

Flu vaccination campaign

An intensive awareness campaign was held in order to sensitize employees within the specific context of Covid-19. 32% of the employees were vaccinated. The figure could actually be higher as it does not include vaccinations that may have been done by private physicians.

6.2. EMPLOYEE ENGAGEMENT AND WELL-BEING

GRI Disclosures 102-41 401-2 402-1 403-1 403-4

High materiality

SDG 3 8

6.2.1. Definition

Employee engagement is the level of commitment, passion, and loyalty a worker has toward his/her work and the company. The Group believes that engagement increases performance through higher productivity and employee retention. Solvay also considers that engagement is fostered by fair labor practices and well-being at work.

A trusting, constructive relationship with employees and their representatives is considered the basis of fair labor practices at Solvay. This relationship is built on the Group's commitment to respect employees' fundamental human rights and guarantee their social rights.

Well-being at work is a holistic concept which relates to all aspects of the quality of working life that ensure workers are safe, physically and mentally healthy, satisfied, engaged and efficient. It addresses recognition and support, work-life balance, employees' growth and development, and good communication and collaboration (based on International Labor Organization and World Health Organization definitions).

6.2.2. Management approach

ONE Pulse

Employee engagement is measured through anonymous surveys open to all employees. Results of these surveys enable the Group to identify strengths and areas where the working environment and employee experience can be improved.

In 2020, the Group has launched a series of short recurring surveys (ONE Pulse) taking place every six weeks to collect employees' feedback about their safety, well-being, and experience at work. The objective of this initiative was to equip crisis teams and leaders with timely insights about the Solvay workforce so they can take prompt actions and better navigate the Covid-19 pandemic. The Group ambition is to carry on with this listening exercise, allowing managers to take the pulse of their teams throughout the year and stay ahead of concerns.

Better Life at Work

Since October 2016 a multidisciplinary Committee on Better Life at Work (BLAW) has been in place to define and promote a well-being at work (WBAW) program. It includes occupational physicians and psychologists; Human Resources; Health, Safety, and Environment experts; GBU representatives; and sustainable development experts, representing all regions.

The 2017-2020 program has five pillars:

- Executive Committee sponsorship: WBAW is a key priority for Solvay;
- Burn-out observatory;
- Toolboxes and WBAW support networks: on-site "Local support for WBAW" teams have been appointed (site HR, HSE, and medical professionals);
- Training and awareness on WBAW;
- Support for our sites to define and implement action plans.

Regarding labor relations, discussions and activities are held at four levels: site, country, Europe, and Group.

Solvay Global Forum

In 2015, Solvay created a global employee representative body, the Solvay Global Forum, composed of nine employee representatives from the main areas where Solvay operates (Europe, the US, China, Brazil, India, and South Korea). Videoconferences are held quarterly, bringing together the Solvay Global Forum and the Group's top management to comment on and discuss the quarterly results of the Group, and to keep everyone informed of the main new projects. Three agreements have been signed with the Solvay Global Forum: Global Performance Sharing 2020, Digital Transformation, and Solvay Cares, which extended maternity and co-parent leave to 16 weeks.

European Works Council

Solvay and its European Works Council (EWC) have been in permanent dialogue for more than 20 years. In 2020, the EWC met virtually on two occasions, whereas the EWC Secretariat met virtually ten times with senior Group management to take part in steering Solvay's evolution. The main topics discussed were reorganizations, actions taken by the Group to navigate the Covid-19 pandemic, digitization, the evolution of working conditions with the extension of mobile working, the Group Sustainable Development strategy, and Solvay's financial results.

Solvay Cares

In February 2017 Solvay signed a Global agreement on a minimum level of welfare and healthcare protection for all Solvay Group employees worldwide.

Solvay Cares was fully deployed in 2019 and aims to provide four major benefits:

- Full income protection during parental leave, with 16 weeks for both parents;
- A minimum coverage of 75% of medical fees in the event of hospitalization or severe illness;
- Disability insurance in the event of lasting incapacity;
- Life insurance with coverage for the family or partner.

The IndustriALL Global Union Framework Agreement

On December 17, 2013, Solvay signed a Corporate Social and Environmental Agreement for the whole Group with IndustriALL Global Union. This Agreement is based on International Labor Organization standards and the principles of the United Nations Global Compact. It is a tangible expression of Solvay's determination to ensure that basic labor rights and the Group's social standards in the areas of Health, Safety, and Environmental protection are respected at all of its sites.

In February 2017, Solvay renewed its Global Framework Agreement with IndustriALL Global Union, reinforcing its commitment by adding new social projects, such as societal actions and the protection of mental safety in the workplace.

Every year, IndustriALL Global Union representatives meet Solvay employees to check on compliance in the field, with two assessment missions taking place at two different sites. One mission measures the results of the Group's safety policy. The second examines the application of the agreement, which, in particular, formally covers the following health and safety aspects:

- Ensuring good working conditions;
- Managing risk as a daily concern;
- Defining demanding internal policies and their strict application;
- Improving safety performance and regular monitoring of both Solvay's and contractors' employees;
- Ensuring healthy working conditions for all, regardless of the job they perform and its associated risks.

6.2.3. Indicators

With regards to engagement and well-being at work, between May and December 2020, four recurring surveys were launched worldwide, collecting on average 8,000 responses (60% of respondents work in industrial sites).

Each survey is made up of ten questions measuring well-being, safety and other dimensions related to employee experience (relationship with managers, remote working, Solvay behaviors, workload, etc.).

Across the four surveys, employees have been asked how they were feeling. The percentage of respondents feeling "OK or better" increased sharply after the first wave and has remained relatively stable since then. The percentage of respondents feeling "less than OK" decreased sharply after the first wave and has remained relatively stable since then. To provide support to employees who reported not feeling well, Solvay has put together a guide for managers to help them better support their teams, as well as a flyer for all employees (provided in multiple languages) to provide guidance and suggestions for where to turn for help and encouragement.

During the last four weeks, in general, how have you been feeling?

	Units	Nov. 4	Sept. 3	July 2	May 1
OK or better	%	73	76	75	61
Less than OK	%	27	24	25	39

In addition to that, employees have been asked how they were feeling about working at Solvay. Results have been stable in terms of optimism, motivation and low distraction. The one exception is stress, which shows a slow but steady increase across time among respondents.

How do you feel these days about working at Solvay?

	Units	Nov. 4	Sept. 3	July 2	May 1
Optimistic about the future	%	43	40	42	37
Motivated	%	52	51	54	51
Stressed	%	31	29	27	26
Distracted	%	13	12	11	12

Employee Representation Indicator

100% of employees are covered by a collective agreement: the Solvay Care collective Agreement with the global employee representative body, the Solvay Global Forum, covers all employees.

Trade unions are present at a majority of Solvay sites around the world. Union membership is estimated at 20% in Europe, 25% in South America, 30% in North America, and 70% in Asia.

6.2.4. Key achievements

Due to the Covid-19 pandemic, more than 7,000 employees have been working from home since March 2020. 67% of them had never worked from home before. In this context, leaders had to adapt their management practices in order to navigate their team remotely.

To support managers, 50 virtual peer sharing sessions have been organized to bring together 438 leaders across Solvay to share their experiences and learn, unlearn, and relearn from each other. The topics of discussion were remote collaboration, navigating uncertainty, and stress management.

The first 25 sessions were launched in July and an additional 25 sessions were organized after many requests were received and participants gave the sessions an average NPS score of 9.0.

During this period, we have been able to maintain a remote social dialogue with the representation bodies, thanks to the flexibility they have shown.

6.3. DIVERSITY AND INCLUSION

GRI Disclosures 405-1

Priority

6.3.1. Definition

Solvay defines diversity as all the ways in which individuals may be different, whether visible or not. Diversity includes more than gender, nationality, age, disability, ethnic origin, and sexual orientation. It includes thought and belief, culture, education, and background. In a business environment, it also includes corporate culture.

Inclusion means valuing and respecting difference, recognizing the unique contributions that many different types of individuals can make, and creating a working environment that maximizes every employee's potential. This approach will ultimately improve the workforce's overall performance and has therefore made diversity and inclusion a performance lever and a growth enabler.

6.3.2. Management approach

Solvay values and respects all of its employees for their diversity, differences, thoughts and beliefs, experiences and backgrounds, and unique ability to contribute to a growing, sustainable, and winning enterprise. All employees should respect each other and fulfill the Group's objectives collectively and collaboratively without regard to race, ethnicity, religion, national origin, color, gender, gender identity, sexual orientation, disability, age, political opinion, family status, or any other basis. Discrimination, which is the unfair treatment of employees based on prejudices, will not be tolerated.

Diversity and inclusion are championed at the highest level in the organization by the Board of Directors, the Executive Committee, and the Leadership Council. Each Global Business Unit and Function entity management team is responsible for putting this commitment into practice. To reflect business objectives and cultural context, business, regional, and local leaders set specific and relevant objectives within the Group diversity and inclusion framework. Strategies and action plans have to be locally owned and driven by entity, region, and country to take into consideration local laws, customs, and priorities.

6.3.3. Indicators

At the Group level, four areas of focus in terms of diversity receive specific attention and monitoring to ensure consistent improvement across the organization:

1. Improving the gender mix at all levels of the organization;
2. Leveraging the generational mix to optimize learning, knowledge, and experience;
3. Developing national and cultural talent that mirrors growth opportunities;
4. Enriching the team mix by leveraging experiences and backgrounds.

Country- and site-specific actions are also crafted in response to the local context, thanks to Solvay Way network and best practices.

Women in senior + middle management

	Unit	2020	2019	2018
Senior and Middle management	%	**24,7**	**24,3**	**23,7**

Gender diversity by employee category

	Units	2020	2019	2018
Women in senior management	%	15	14	15
Women in middle management	%	26	26	25
Women in junior management	%	34	33	33
Women in non-managerial positions	%	20	20	20
Total women in Solvay	**%**	**24**	**23**	**23**

Age group by employee category

	Units	2020	2019	2018
Senior management	**headcount**	**364**	**369**	**401**
Percentage under 30 years old	%	0	0	0
Percentage between 30–49 years old	%	27	29	28
Percentage 50 years old and older	%	73	71	72
Middle management	**headcount**	**2,819**	**2,895**	**2,915**
Percentage under 30 years old	%	0	0	0
Percentage between 30–49 years old	%	47	49	49
Percentage 50 years old and older	%	53	51	51
Junior management	**headcount**	**4,993**	**5,246**	**5,213**
Percentage under 30 years old	%	8	10	10
Percentage between 30–49 years old	%	65	64	64
Percentage 50 years old and older	%	27	26	26
Non-managerial	**headcount**	**15,487**	**15,645**	**15,972**
Percentage under 30 years old	%	16	14	14
Percentage between 30–49 years old	%	50	55	55
Percentage 50 years old and older	%	34	32	31

Solvay's workforce by age

	Units	2020	2019	2018
Under 30 years old	Number	2,928	2,649	2,800
Between 30–49 years old	Number	12,425	13,422	13,605
50 years old and older	Number	8,310	8,084	8,096
Total headcount	**Number**	**23,663**	**24,155**	**24,501**

According to the above table, the age structure is currently:

35% older than 50;

53% between the ages of 30 and 49;

12% younger than 30.

6.3.4. Key achievements

The Group actively promotes women entering the fields of science, technology, engineering, and mathematics (STEM). For example, in early March 2020 the second edition of "Girls Leading in Science" was organized in Belgium. This initiative consists of a contest in which 50 high school students with a passion for science compete to solve a scientific challenge. Girls lead the teams, and the winning team is sponsored by Solvay for the first year of a scientific degree.

Solvay's new maternity, paternity, and co-parent leave policy has been signed by the Solvay Global Forum and will go into effect on January 1, 2021. The new policy increases parental leave from 14 to 16 weeks. It is available to any co-parent regardless of gender and it also includes parents who adopt. The parent employed by Solvay will receive 100% of his or her salary during this leave period. This is a significant enhancement compared to our previous policy, which provided 14 weeks of maternity leave, 1 week for paternity and co-parent leave, and 1 week for an adoption.

6.4. RECRUITMENT, DEVELOPMENT, AND RETENTION

GRI Disclosures 102-8 401-1 401-2 404-1 404-2 404-3

Moderate materiality

6.4.1. Definition

Recruitment, development, and retention provide data linked to talent management. Information is given on how Solvay is attracting, retaining, and developing talent. We provide details on career management, access to training, coaching, and mentoring so that each employee can take the lead in developing their career and reaching their full potential.

Solvay is adapting its policy and practices to attract, develop, and retain Top Talent. The selection process now includes an assessment for optimal development and accelerated career path.

6.4.2. Management approach

Recruitment and Retention

Of the 1,700 positions, 959 were filled by employees below 30 years old.

The group has also welcomed 372 Apprentices and 94 Trainees.

Onboarding newcomers

94.2% of newcomers are satisfied with the hiring process.

98.0% of newcomers are satisfied with their decision to join the Group.

Learning and Development

Average hours of training per employee

By management level	Units	**2020**
Senior manager	hours	7,02
Middle manager	hours	5,29
Junior manager	hours	8,75
Non managerial	hours	14,27

Average training Hours

By gender	Units	**2020**
Women	hours	11,87
Men	hours	11,92

Performance and development cycle

The Performance and development cycle applies to the entire managerial population. Beyond its initial scope, it is also used by about 4,270 non-managerial employees representing 27% of the non-managerial population.

Local performance and development tools and processes are available for the population not covered by the Performance and development cycle online tool.

6.4.3 Indicators

Solvay's workforce by region

	Units	2020	2019	2018
Europe	**Number**	**11,428**	**11,264**	**11,444**
Women	%	26	25	25
Permanent staff	%	89	97	98
Asia-Pacific and rest of the world	**Number**	**4,336**	**4,411**	**4,415**
Women	%	25	25	25
Permanent staff	%	77	73	71
North America	**Number**	**5,553**	**6,175**	**6,592**
Women	%	21	20	20
Permanent staff	%	100	100	98
Latin America	**Number**	**2,346**	**2,305**	**2,050**
Women	%	20	20	21
Permanent staff	%	93	98	98
Total headcount	**Number**	**23,663**	**24,155**	**24,501**
Women	%	24	23	23
Permanent staff	%	90	93	93

Scope: consistent with financial reporting.

Solvay's workforce

	Units	2020	2019	2018
By contract and by gender				
Permanent contract	Number	22,925	22,534	22,776
of which women	%	24	23	23
Temporary contract	Number	738	1,621	1,725
of which women	%	22	28	28
By employment type				
Full-time contract	Number	22,621	23,575	23,893
of which women	%	23	22	22
Part-time contract	Number	524	580	608
of which women	%	70	71	69
By employment category				
Senior manager	Number	364	369	401
Middle managers	Number	2,819	2,895	2,915
Junior manager	Number	4,993	5,246	5,212
Non managerial	Number	15,487	15,645	15,973
Total headcount	**Number**	**23,663**	**24,155**	**24,501**

Hirings

	Units	2020	2019	2018
By region				
Asia and rest of the world	Number	238	258	350
Europe	Number	847	727	769
North America	Number	273	520	823
Latin America	Number	342	175	138
By gender				
Male	Number	1,081	1,185	1,479
Female	Number	532	495	601
By age				
<30	Number	959	759	899
30–49	Number	597	791	1,010
>49	Number	129	130	171
Total hirings	**Number**	**1,700**	**1,680**	**2,080**

All leaves

	Units	2020	2019	2018
By region				
Asia and rest of the world	Number	365	325	407
Europe	Number	1,571	948	926
North America	Number	989	632	613
Latin America	Number	652	336	264
By gender				
Male	Number	2,450	1,636	1,596
Female	Number	1,123	605	614
By age				
<30	Number	1,253	458	441
30–49	Number	1,070	1026	978
>49	Number	1,253	757	821A
Total leaves	**Number**	**3,577**	**2,241**	**2,210**

Voluntary leaves

	Units	2020	2019	2018
By region				
Asia and rest of the world	Number	207	208	239
Europe	Number	591	396	378
North America	Number	205	286	238
Latin America	Number	322	88	58
By gender				
Male	Number	828	1636	1,596
Female	Number	497	605	614
By age				
<30	Number	594	274	294
30–49	Number	455	526	505
>49	Number	275	178	174
Total voluntary leaves	**Number**	**1,325**	**978**	**973**

6.4.4. Key achievements

The Foundations for the Future (FFF) program - a rotational development program for university graduates launched over 20 years ago - remains one Solvay's flagship initiatives to bring high quality talent into the company early in their career. It fosters accelerated development and growth through multiple rotations across businesses and geographies. The 2020 FFF selection process was adapted to be done fully remotely due to the pandemic: Solvay blue-collar workers participated in the virtual interviews, site visits for industrial scope were replaced by virtual visits, and situational interview questions were devised to assess the candidates' safety culture.

Covid-19 crisis focus

To support our employees through the crisis, we increased the focus on virtual delivery and virtual content, in particular with workshops to help employees and managers with topics specific to the crisis. Employees have access to a pool of internal coaches and mentors, and can also develop by contributing to a project.

Examples:

- Upskill our Front line:
  - ExCom approved a significant investment in the continued development of our customer-facing teams. The launch of the Sales Academy will help our commercial teams continue to develop long-term, mutually beneficial relationships.
- Face the Crisis:
  - The internal coach community has been mobilized to support more than 60 individuals through coaching, including "flash coaching" (three targeted sessions) to boost remote management abilities, deal more efficiently with uncertainty, as well as re-engage more than 30 teams.
  - Specific support has been provided to top leaders through Reverse Mentoring to upskill on using remote collaboration tools to reconnect.
  - Coaching tips are deployed in senior managers' communications on topics such as performance dialogues and crisis management.
- Focus on Remote Learning:
  - Instructor-led classes represented 50% of total training hours in 2020 (vs 76% in 2019), and web-based and Virtual Classroom hours increased 23% compared to last year.

6.5. CUSTOMER WELFARE

High materiality

6.5.1. Definition

The Net Promoter Score is the indicator used to measure customer loyalty for each Global Business Unit. The metric was developed by (and is a registered trademark of) Fred Reichfeld, Bain & Company and Satmetrix. GBU scores are consolidated at the Group level through a revenue-based weighted average.

The Net Promoter Score is calculated based on customer responses to a single question: "How likely is it that you would recommend our company to a friend or colleague?" Answers can range from 0 to 10. Those who respond 9 or 10 are called Promoters and considered likely to exhibit value-creating behaviors, making positive referrals to other potential customers. Those who respond with a score from 0 to 6 are labeled Detractors and are not supportive. Responses of 7 or 8 are labeled Passives. The Net Promoter Score is calculated by subtracting the percentage Detractors from the percentage of Promoters.

The Net Promoter System is the methodology Solvay uses to boost customer loyalty by promoting a culture of customer feedback and by developing active listening skills at every single touchpoint along the customer journey. The objective is to go far beyond "just a score" towards a deep transformation of the Group by fostering a more customer-centric culture.

The Net Promoter System is structured around two pillars in order to systematically gather insights at both the strategic and operational levels. The objective of the first and more strategic stage is to identify and further reinforce the areas where the Group truly stands out against the competition in order to raise customer loyalty and accelerate growth.

The second and more operational stage captures how the customers perceive our offer from a day-to-day perspective. Those key insights trigger tangible action plans – both account-specific and at the business unit level – to bring Solvay closer to its customers and better serve them by delivering more suitable and efficient services.

6.5.2. Management approach

Since 2014, each Global Business Unit has run a customer satisfaction survey at least once every two years to check their strategic alignment with the trends in their business environment. The aim is to identify and select the right areas for the Global Business Unit to focus on, as well as to foster differentiation and accelerate growth.

The Net Promoter Score has been selected as the key indicator of customer loyalty for the Group. It is measured at the Global Business Unit level, consolidated at the Group level, and published annually.

In 2018, Solvay decided to take this "voice of the customer" approach to the next level by launching a new initiative (the "Net Promoter System") to transform the work practices of the entire frontline population across all business units and geographies, embedding customer feedback culture in our DNA.

The insights gathered from our customers systematically trigger action plans so that we continuously adapt our value proposition to better serve them and increase our share of wallet.

6.5.3. Indicator

Due to the Covid-19 crisis, it was decided that no survey would be conducted in 2020 to measure customer recommendation and loyalty.

Though Solvay was particularly active in bonding with customers in 2020, the NPS score will remain unchanged in 2020 vs 2019.

	Units	**2020**	2019	2018
Solvay's Net Promoter Score (NPS)	%	NA	33	42

Legend: Net Promoter Score is a customer loyalty metric developed by (and registered trademark of) Fred Reichheld, Bain & Company, and Satmetrix.

ECOVADIS assessment

About 110 customers, representing about 15% of Solvay's sales, use EcoVadis to assess Solvay's performance as a supplier. The EcoVadis sustainability assessment methodology is an evaluation of how well a company has integrated the principles of Sustainability/Corporate Social Responsibility into their business and management system.

Solvay is in the top 1% of companies rated by EcoVadis in the Manufacture of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms industry.

Solvay's EcoVadis Score

	Units	**2020**	2019	2018
Environment	%	70	70	80
Labor and Human Rights	%	80	80	80
Ethics	%	70	70	80
Sustainable Procurement	%	80	80	80
Overall score	%	**75**	**75**	**80**

6.6. CORPORATE CITIZENSHIP

GRI Disclosures 203-1 413-1

High materiality

SDG 9 17

Today, value creation is a collaborative effort both within the company and between the company and its stakeholders. The Group strengthens its commitment by facilitating employee involvement in projects that serve society and by offering Solvay's expertise to regions where the Group operates. Disclosure of Solvay's indirect economic impact is provided in this section.

6.6.1. Definition

We live out our corporate citizenship through societal actions, which consist of volunteer activities developed by a site or business unit, or at the corporate level. These actions have a positive societal impact on at least one of the United Nations Sustainable Development Goals and are aligned with the three following pillars: science & innovation, education, and sustainability.

6.6.2. Management approach

The Corporate Citizenship steering committee is composed of five members and chaired by the Chief Executive Officer. The committee gathers three times a year, approves budgets and decides on projects of €50,000 and above. The latter are all presented to the committee by an internal sponsor, who is also the person who will follow up the project.

In 1923, Solvay created the Ernest Solvay Fund to honor the founder of the Company, who died the year before. Today, the majority of Solvay's corporate philanthropy goes through the Ernest Solvay Fund, managed by the independent King Baudouin Foundation. Examples are the Solvay Prize and the Solvay Institutes, the partnership with the Ellen MacArthur Foundation, and the Bertrand Piccard Alliance.

Business Programs for Social Needs are programs that generate business value through addressing social needs. These programs fall under the Global Business Units' governance. Examples include the Sustainable Guar Initiative (Novecare) and the Sustainable Vanilla Initiative (Aroma).

The site director is accountable for developing and implementing the societal actions plan. He must assemble a dedicated working group that includes the site director, HR manager, communication manager, the Solvay Way correspondent, and employee's representatives. Employee initiatives are encouraged and supported. Examples include Citizen Day actions, as Citizen Day is a special event created by Ilham Kadri in 2019. The event is steered by the Corporate Citizenship committee and implemented by sites.

6.6.3. Indicators

	Units	**2020**	2019	2018
Solvay Group donations, sponsorships, and own projects	M€	1.9	3.6	3.9

Citizen Day 2020

Citizen Day gives Solvay employees around the world the opportunity to engage in actions with local communities. The event was created in 2019 to reinforce our purpose - we bond people, ideas, and elements to reinvent progress - and to act as ONE team for ONE planet.

For Citizen Day 2020, Solvay employees around the world reached out to schools and universities to inspire, influence, and impact local communities. In the unprecedented context of the Covid-19 pandemic, when so many educational institutions have been forced to shut down, it's more crucial than ever to support education. Solvay is proud to live its purpose of bonding people and ideas in these challenging times by doing its part for global education initiatives and involving its most valuable resource: its people.

Employees involved in the Citizen Day 2020 actions reported the following outcomes:

- 4,691 participants
- 521 actions
- 109 sites participating
- 188,726 beneficiaries

6.6.4 Major projects

Covid-19 actions and contributions

Solvay's various businesses around the globe contributed to local communities and to healthcare workers. Solvay partnered with customers to provide much-needed face shields, ventilators and other emergency supplies to help heroic health care and other workers at the front lines of combating the virus. Solvay’s donations of hydrogen peroxide and hand sanitizers to hospitals and pharmacies, and its support to local nonprofits and community organizations caring for the most vulnerable populations impacted by the pandemic are examples of Solvay’s determination to play its full role in society.

The Chemistry for the Future Solvay Prize

The Chemistry for the Future Solvay Prize recognizes major scientific discoveries with the potential to shape tomorrow’s chemistry and help human progress. Created in 2013, this prize perpetuates Ernest Solvay's lifelong support of and passion for scientific research. Our objective is to endorse basic research and highlight the essential role of chemistry, both as a science and an industry, in helping solve some of the world’s most pressing issues.

Every two years, the most promising project is awarded a €300,000 prize. This Solvay Prize was first awarded to Professor Peter G. Schultz. In 2015 it went to Professor Ben Feringa (the 2016 Nobel Prize in Chemistry) and in 2017, to Professor Susumu Kitagawa.

In 2020, the Chemistry for the Future Solvay Prize was awarded to Carolyn Bertozzi, Professor of Chemistry at Stanford University (US), for her invention of bioorthogonal chemical reactions that can be performed in living cells and organisms. These reactions can be used to label specific molecules in cells for imaging, identify drug targets, and create next-generation biotherapeutics – ultimately helping to diagnose and treat diseases in the long term, particularly in cancer and infectious diseases.

The XperiLAB.be project

The XperiLAB.be project exists to make young people aware of science. To achieve that, nothing beats a personal, hands-on approach. Doing is understanding! XperiLAB.be is also an opportunity to give pupils and teaching staff the tools that they often lack in class. It is designed for children in the last two years of primary school and the first two years of secondary school. Every year about 10,000 pupils attend sessions in the XperiLab.

Ellen MacArthur Foundation

In January 2018, Solvay and the Ellen MacArthur Foundation signed a three-year Global Partner agreement that gives the Group an opportunity to make a difference in accelerating the transition to a circular economy in the chemicals sector.

Solar Impulse Alliance for efficient technologies

Solvay joined the Solar Impulse Alliance for Efficient Solutions, created by Solar Impulse founder Bertrand Piccard, to promote efficient technologies, processes, and systems that help improve the quality of life on earth and fight against climate change.

The solutions submitted by Alliance members are evaluated by independent technical and financial experts in order to reach 1,000 solutions in 2021. They will be labelled as Efficient Solutions and presented to governments, businesses, and institutions to encourage them to adopt more ambitious environmental targets and energy policies.

In 2020, Solvay had its tenth product labeled as a Solution by the Alliance. Those products are: AgRHO® S-Boost™ (improves yields in agriculture), SOLVAir® (cleans industrial exhaust gases), Solef® PVDF (increases the shelf-life of Li-ion batteries), Paramove® (eliminates sea lice in salmon farming while respecting the environment), Capterall® (a mineral formulation used to treat polluted water), Alve-One® (a 100% safe foaming solution for the plastic industry that enhances circular economy), MAX® HT (a metal treatment used to reduce energy consumption and maintenance costs), Solvalite® (a polymer with rapid cure capabilities for composites), Optalys® (a catalytic solution used to clean automotive exhaust gases), and Amni Soul Eco™ (the first biodegradable polyamide 6.6 yarn used for clothes that will quickly decompose in landfills).

Sustainable Guar Initiative

Solvay is the world’s leading producer of guar derivatives. Guar is a drought-resistant legume grown in semi-arid areas, predominantly in India. Rajasthan accounts for approximately 70% of the country’s production.

Since 2015, Solvay has been spearheading a large-scale development initiative to make guar cultivation more sustainable while boosting the incomes of the farmers who produce it. In collaboration with L’Oreal and Henkel, two strategic customers active in personal care, and with the support of the NGO TechnoServe, more than 7,000 farmers in Bikaner were trained over four years, and more than 971 kitchen gardens were developed in 36 villages.

The initiative’s primary objective is to encourage sustainable and climate-smart agriculture, thereby increasing farmers’ revenues through good guar cultivation practices for seed selection, seed treatment, sowing, and pest management.

The initiative also empowers women through specific training on hygiene, health, and nutrition, thereby:

- Fostering better nutritional practices by growing vegetables in kitchen gardens in a region where the traditional diet is very limited;
- Improving health and hygiene practices for themselves and their children.

Lastly, the initiative focuses on agroforestry, with more than 66,000 trees planted to fight sand movement and soil erosion in the fields. These trees are also planted in communities to make available 12 different types of fruit along with technical advisory.

Water is a rare resource in Rajasthan that needs to be preserved: a village pond was created (15.89 millions liters), helping 150 households to have increased access to drinking water; and rooftop rainwater harvesting systems were also installed, collecting 8,000 liters of water used for the kitchen gardens.

The Solvay Solidarity Fund has also dedicated €100,000 to help address Indian guar farmers’ urgent economic and sanitary needs due to the Covid-19 crisis. Guar farmers have seen a drop in their income because of severe restrictions on movement. They have also been affected by poor monsoon conditions, which have reduced guar yields. The donation will help the farmers meet their urgent needs (through distribution of sanitary kits and agricultural inputs) while also helping them to become more resilient in the future (by building lake ponds, for instance).

The outcome means guar farmers can earn a better living, global buyers can obtain higher quality guar, and the market can benefit from improved supply security.

6.7. HAZARDOUS MATERIALS

GRI Disclosures 102-11 403-7 416-1

High materiality

SDG 3 6 12 13 14

6.7.1. Definition

Product stewardship means managing risks throughout the product's entire life cycle, from the design stage to the end of life. Risks include the possibility of injury or health impact to third parties or damage to their property arising from Solvay products being used inappropriately in a customer's plant or used in an application for which the products are not designed. Risk management is particularly key for products used in healthcare, food, and feed applications.

6.7.2. Management approach

Solvay's Responsible Care policy requires the Group to:

- Maintain a comprehensive understanding of each product's hazards, risks, and impacts related to all life-cycle steps and intended applications;
- Manage product knowledge so as to comply with local requirements on product information while ensuring worldwide consistency;
- Keep records of all necessary and required product safety information to ensure availability throughout the full life cycle, beyond the commercialization period;
- Send standardized product safety data sheets to customers along with the first delivery and when required by local regulations. This key information is consistently maintained and distributed worldwide for all products to all customers in compliance with local regulations and in the local languages.

As for materials handled in operations and those put on the market, Solvay focuses on substances of concern and maintains a policy of generating and maintaining safety dossiers on all substances. This extensive approach is reflected in the registration of the REACH dossiers, and by the large portfolio of the safety data sheets. The extensive knowledge this represents allows Solvay to characterize and manage risks related to product handling and to prioritize mitigation actions related to potential inappropriate use.

In terms of marketed products, Solvay is constantly improving its knowledge of how its products are used and associated risks. The preparation of Safety Data Sheets (SDS) for all products and REACH registrations reflects Solvay's commitment to ensuring the information on hazards associated with our products is readily available. For Substances of Very High Concern (SVHC), Solvay has a strategy to decrease their use throughout the entire value chain. Risk studies for red and black SVHCs placed on the market are underway, and substances are replaced with safer alternatives where possible.

Materials placed on the market

Solvay focuses on Substances of Very High Concern (SVHC). The Solvay reference list for SVHCs (S-SVHC and SRA Reference list) was established in 2015 with three categories (black, red, and yellow lists):

- Black list S-SVHCs: already undergoing a regulatory process of phasing out with a known deadline in at least one country or zone, or a restriction for Solvay relevant uses;
- Red list S-SVHCs: currently included in regulatory lists of substances that could enter into a process of special authorization or restriction in the medium term;
- Yellow list SRAs: substances requiring specific attention, i.e. substances under scrutiny by authorities, NGOs, scientists, and industries due to their current hazardous properties or potential effects.

6.7.3. Indicators

Safety data sheets

Solvay currently places over 17,000 products on the market and produces safety data sheets (SDS) in 39 languages and specific SDS for 60 countries. Stewardship programs give adequate information and technical assistance to customers, ensuring a good understanding of products and how to safely use and handle them. Global Business Units ensure that SDS are revised at least every three years or every time they undergo significant modifications. Solvay manages product information centrally. As legislation continues to evolve, the Group learns more about the conditions under which products are used so as to record and assess any associated risks.

To make sure that customers are receiving new and updated Safety Data Sheets, and to limit the quantity of paper printed, Solvay uses an automatic system to send SDS by email. In 2020, this automated shipping function was activated for 93% of Solvay sales, and the roll-out will continue in 2021. This automatic delivery of the SDS was successful for 79% of shipments (SDS available for the delivery country and customer’s email address available). When errors occurred, SDS were emailed manually.

REACH dossiers

REACH is an advanced European framework regulation requiring companies to have detailed knowledge of substances, their hazards, and risks during use. This knowledge must be collected and organized into reliable and systematic safety information that includes all uses and risks incurred along the value chain. Solvay fully complies with the extensive REACH requirements for product registrations. Solvay registered 878 dossiers and is the lead or sole registrant for 277 substances. In addition, Solvay is fully committed to the CEFIC Action Plan program to improve the quality of REACH dossiers.

Regular updates of dossiers are performed according to REACH obligations, either as new information becomes available or at the request of European Chemical Agency (ECHA). 385 REACH dossiers have been updated since June 1, 2018. 91 dossiers from June 1, 2018, to end 2018; 152 dossiers in 2019; and 142 in 2020 (figures on December 24, 2020).

Based on the knowledge it has gathered on products and associated risks in the context of REACH, Solvay has updated the classification of all products based on the new Global Harmonized System.

In addition, Solvay continues to adapt to emerging new product regulations in many countries, notably to cope with emerging (REACH-like) regulations in non-European countries. In particular, Solvay registered 13 dossiers in 2019 and made 609 pre-registrations in 2019 in the framework of Korean REACH, pre-registered 492 dossiers and reported 237 substances/polymers in the framework of KKDIK Reach Turkey so far, reported 5,216 substances in the framework of “existing chemicals” in the Eurasian inventory, and reported 247 substances in the framework of the National Chemical Inventory (NCI) of Vietnam.

Safer alternatives for marketed products

Solvay Substances of Very High Concern (SVHC) found in products sold

	Units	**2020**	2019	2018
All SVHCs(1)	Number	40	29	31
Percentage of completion of analysis of safer alternatives program for marketed products(2)	%	51% (66 out of 130 required assessments)	54% (63 out of 117 required assessments)	39% (50 out of 128 required assessments)
Of which effective replacement	%	31% (21/67)	30% (19/63)	32% (16/50)

(1) According to the EU REACH Authorization list (annex XIV) and EU REACH Candidate list. SVHCs manufactured by or forming part of the composition of products sold by Solvay worldwide. REACH is a regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals.

(2) Analysis of Safer Alternatives for potential substitution for an SVHC. A substance may be present in more than one product.

Analysis of safer alternatives (ASA) are required and planned for a total of 130 combinations of products/applications. Of the 66 ASA completed as of December 31, 2020, since the start of the program:

- 21 have led to effective replacement (SVHC substitution or reduction below required threshold, or production stopped);
- 21 are ongoing (alternative identified and discussed with customers to be implemented);
- 25 have resulted in no available alternatives (no substitute available or regulatory obligations to use SVHC for some applications or not requested due to the application in the final product).

All current Analysis of Safer Alternatives (ASA) are reviewed every three years. New ASA covering newly identified listed SVHC are performed within five years.

6.8. CRITICAL INCIDENT RISK MANAGEMENT

GRI Disclosures 307-1

High materiality

SDG 3 12 13

6.8.1. Definition

Process Safety Management is a management system for designing and operating industrial processes that handle large quantities of hazardous chemicals. The reporting of Process Safety Incidents is aligned with the globally harmonized metrics from ICCA (International Council of Chemical Associations) and CEFIC (European Chemical Industry Council). The Process Safety Incident rate (PSI rate) corresponds to the number of Process Safety Incidents per 100 Full Time Equivalent (employees and contractors, assuming 2,000 working hours per worker and per year). This rate is monitored and enables benchmarking with peers.

Transport Safety Incidents are incidents occurring during the movement of a chemical product such as:

- Loading / unloading at a Solvay Site;
- Circulating inside a Solvay Site (moving a chemical product with a vehicle) on the way in or out of the site;
- Circulating on public roads / rail / air / inland waterways / sea;
- Loading / Unloading at an off-site location if Solvay or a logistics provider contracted by Solvay was performing the loading or unloading.

6.8.2. Management approach

Process safety

Solvay's approach for preventing and controlling incidents in industrial processes is based on the Process Safety Management Principles applied in all industrial sites regardless of whether or not the site is covered by regulatory requirements.

Key elements are:

- Completion of Process Hazard Analyses, which make it possible to identify high-risk situations. They are performed on each unit with a standardized risk matrix to quantify the risk level of every potential accidental scenario, combining severity and probability factors.
- Activation of an Emergency Response Plan in case of severe incidents on site. Solvay's crisis management procedure is then applied to inform relevant internal and external parties about the crisis. If needed, the Corporate Crisis Cell (Crisis alert duty 24/7) is also activated.
- Systematic analysis of each incident as soon as possible, in order to identify its root causes and implement the best possible preventive actions to avoid similar incidents in the future.
- Timeless and central reporting of Process Safety Incidents. The incident severity (medium, high, or catastrophic) is assessed by applying internal criteria including consequences on-site or off-site consequences, damage to the immediate vicinity, and quantity of spilled material (procedure IND-HSE-01.01-PRO).
- Publication of Process Safety bulletins for the most significant incidents, distributed to all sites.

6.8.3. Indicators

Process safety

Solvay's target is to avoid any high or catastrophic severity incidents and to reduce the Process safety incident rate.

	Units	**2020**	2019	2018
Process Safety Incident rate	Number	0.9	0.9	1
Process Safety Incidents with high or catastrophic severity	Number	0	1	1

Legend: Number of process Incidents per 100 full time employees (employees and contractors, assuming 2,000 hours of work/worker/year): Solvay's process incident rate (PSI rate) is consistent with the method proposed by ICCA and CEFIC.

	Units	**2020**	2019	2018
Process Safety Incidents with environmental consequences	Number	26	34	47
… with operating permit exceedance	Number	14	16	12
… without permit exceedance	Number	12	18	35

Scope: the consolidation of data covers all operational sites, including research and innovation centers with significant chemical process risks but excluding mines, quarries, and laboratories with lower risks.

No incidents with significant off-site environmental impact were reported for 2020. In 2020, 26 process incidents with environmental consequences were reported and, among those, 14 generated reportable exceedances of an operating permit limit.

Transport safety

All medium, high, and catastrophic transport safety incidents must be reported in the corporate reporting tool, with a detailed description and classification. Root cause analysis, including actions to prevent recurrence, and lessons learned bulletins are mandatory for all high severity and catastrophic incidents and medium severity incidents resulting in a fire or an explosion.

Transport safety incidents:

	Units	**2020**
Medium severity	Number	15
High severity	Number	2
Catastrophic	Number	1

The main incidents in 2020 were:

- Catastrophic: collision of a phenol truck with a car in Brazil. The truck overturned and the engine caught fire. Both truck and car drivers perished.
- High severity: derailment of 17 loaded rail cars in Arizona, US. Release of 30,304 kg of 50% hydrogen peroxide.
- High severity: a driver lost control of a tanker-truck transporting acetone, left the main road, falling into a return area. The product leaked and there was a fire, burning the product and the vehicle.

GRI content index

GRI Disclosures 102-54 102-55

As a member of the GRI Community, Solvay contributes to the GRI's mission and is committed to advancing sustainability reporting. For the GRI Content Index Service, GRI Services reviewed that the GRI content index is clearly presented and the references for all disclosures included align with the appropriate sections in the body of the report.

This report has been prepared in accordance with the GRI Standards: Core option. The GRI content index service was performed on the English version of the report.

GRI CONTENT INDEX SERVICE 2021

UN GLOBAL COMPACT COMMUNICATION ON PROGRESS

1. GRI 101: FOUNDATION 2016

2. GRI 102: GENERAL DISCLOSURES 2016

ORGANIZATIONAL PROFILE

Disclosure	2020 Annual Report	Disclosure Reported
102-1 Name of the organization	Financial statements: Summary financial statements of Solvay SA, page 272	Fully
102-2 Activities, brands, products, and services	https://reports.solvay.com/integrated-report/2020/2020-at-a-glance/key-figures.html	Fully
102-3 Location of headquarters	Financial statements: Summary financial statements of Solvay SA, page 272	Fully
102-4 Location of operations	Financial statements: Note F43 List of companies included in the consolidation scope, page 266	Fully
102-5 Ownership and legal form	Financial statements: Summary financial statements of Solvay SA, page 272	Fully
102-6 Markets served	https://reports.solvay.com/integrated-report/2020/essential-for-all/markets.html https://reports.solvay.com/integrated-report/2020/ready-for-the-rebound/in-step-with-global-business-trends.html	Fully
102-7 Scale of the organization	https://reports.solvay.com/integrated-report/2020/2020-at-a-glance/key-figures.html Financial statements: Balance sheet of Solvay SA, page 272 Business review: Description of the operational segments, page 68 https://reports.solvay.com/integrated-report/2020/essential-for-all/markets.html	Fully
102-8 Information on employees and other workers	Extra-financial statements: Reporting practices, page 88 Extra-financial statements: Recruitment, development and retention, page 144	Fully
102-9 Supply chain	Extra-financial statements: Supply chain and procurement, page 115	Fully
102-10 Significant changes to the organization and its supply chain	Financial statements: Consolidated financial statements Financial statements: Note F43 List of companies included in the consolidation scope, page 266	Fully
102-11 Precautionary Principle or approach	Extra-financial statements: Hazardous materials, page 152	Fully
102-12 External initiatives	https://reports.solvay.com/integrated-report/2020/2020-at-a-glance/about-this-report.html	Fully
102-13 Membership of associations	Extra-financial statements: Membership of associations, page 101	Fully

STRATEGY

Disclosure	2020 Annual Report	Disclosure Reported
102-14 Statement from senior decision-maker	https://reports.solvay.com/integrated-report/2020/2020-at-a-glance/presidents-messages/chairman-of-the-board-of-directors.html	Fully
102-15 Key impacts, risks, and opportunities	https://reports.solvay.com/integrated-report/2020/ready-for-the-rebound/sustainable-value-creation-model.html	Fully

ETHICS AND INTEGRITY

Disclosure	2020 Annual Report	Disclosure Reported
102-16 Values, principles, standards, and norms of behavior	Extra-financial statements: Management of the legal, ethics and regulatory framework, page 105	Fully
102-17 Mechanisms for advice and concerns about ethics	Extra-financial statements: Management of the legal, ethics and regulatory framework, page 105	Fully

GOVERNANCE

Disclosure	2020 Annual Report	Disclosure Reported
102-18 Governance structure	Corporate Governance Statement: Board of Directors and Board Committees, page 17	Fully
102-19 Delegating authority	https://reports.solvay.com/integrated-report/2020/governance/sustainability-from-board-to-shop-floor.html	Fully
102-20 Executive-level responsibility for economic, environmental, and social topics	https://reports.solvay.com/integrated-report/2020/governance/sustainability-from-board-to-shop-floor.html	Fully
102-21 Consulting stakeholders on economic, environmental, and social topics	https://reports.solvay.com/integrated-report/2020/essential-for-all/progressing-with-our-stakeholders.html	Fully
102-22 Composition of the highest governance body and its committees	https://reports.solvay.com/integrated-report/2020/governance/strong-governance-bodies.html Corporate Governance Statement: Board of directors and board committees, page 17	Fully
102-23 Chair of the highest governance body	Corporate Governance Statement: Board of directors and board committees, page 17	Fully
102-24 Nominating and selecting the highest governance body	Corporate Governance Statement: Board of directors and board committees, page 17 Charter of Corporate Governance	Fully
102-25 Conflicts of interest	Corporate Governance Statement: Functioning of the Board of Directors, page 22 Corporate Governance Statement: Introduction, page 12	Fully
102-26 Role of highest governance body in setting purpose, values, and strategy	Corporate Governance Statement: Functioning of the Board of Directors, page 22 Corporate Governance Statement: Induction and continuous Board training, page 23	Fully
102-27 Collective knowledge of highest governance body	Corporate Governance Statement: Induction and continuous Board training, page 23	Fully
102-28 Evaluating the highest governance body's performance	Corporate Governance Statement: Evaluation, page 23	Fully
102-29 Identifying and managing economic, environmental, and social impacts	Corporate Governance Statement: Main characteristics of risk management and internal control systems, page 41	Fully
102-30 Effectiveness of risk management processes	Risk management: Risk management process, page 47	Fully
102-31 Review of economic, environmental, and social topics	Corporate Governance Statement: Induction and continuous Board training, page 23	Fully
102-32 Highest governance body's role in sustainability reporting	https://reports.solvay.com/integrated-report/2020/2020-at-a-glance/about-this-report.html	Fully
102-33 Communicating critical concerns	Corporate Governance Statement: Functioning of the Board of Directors, page 22	Fully
102-34 Nature and total number of critical concerns	Corporate Governance Statement: Functioning of the Board of Directors, page 22	Fully
102-35 Remuneration policies	Corporate Governance Statement: Compensation report, page 28	Fully

102-36 Process for determining remuneration	Corporate Governance Statement: Compensation report, page 28	Fully
102-37 Stakeholders involvement in remuneration	Corporate Governance Statement: Compensation report, page 28	Fully

STAKEHOLDER ENGAGEMENT

Disclosure	2020 Annual Report	Disclosure Reported
102-40 List of stakeholder groups	https://reports.solvay.com/integrated-report/2020/essential-for-all/progressing-with-our-stakeholders.html	Fully
102-41 Collective bargaining agreements	Extra-financial statements: Employee engagement and well-being, page 139	Fully
102-42 Identifying and selecting stakeholders	Extra-financial statements: Solvay Way, page 110 https://reports.solvay.com/integrated-report/2020/essential-for-all/progressing-with-our-stakeholders.html	Fully
102-43 Approach to stakeholder engagement	https://reports.solvay.com/integrated-report/2020/essential-for-all/progressing-with-our-stakeholders.html	Fully
102-44 Key topics and concerns raised	https://reports.solvay.com/integrated-report/2020/essential-for-all/progressing-with-our-stakeholders.html	Fully

REPORTING PRACTICE

Disclosure	2020 Annual Report	Disclosure Reported
102-45 Entities included in the consolidated financial statements	Financial statements: Note F43 List of companies included in the consolidation scope, page 266	Fully
102-46 Defining report content and topic Boundaries	Extra-financial statements: Basis of preparation, page 88	Fully
102-47 List of material topics	Extra-financial statements: Materiality analysis, page 90	Fully
102-48 Restatements of information	Extra-financial statements: Reporting practices, page 88	Fully
102-49 Changes in reporting	Financial statements: Note F43 List of companies included in the consolidation scope, page 266 Extra-financial statements: Materiality analysis, page 90	Fully
102-50 Reporting period	2020	Fully
102-51 Date of most recent report	2019	Fully
102-52 Reporting cycle	Annual	Fully
102-53 Contact point for questions regarding the report	investor.relations@solvay.com	Fully
102-54 Claims of reporting in accordance with the GRI Standards	GRI Content index, page 156	Fully
102-55 GRI content index	GRI Content index, page 156	Fully
102-56 External assurance	Auditor’s report for the extra-financial statements, page 275	Fully

3. GRI 103: MANAGEMENT APPROACH 2016

MANAGEMENT APPROACH

Disclosure	2020 Annual Report	Disclosure Reported
103-1 Explanation of the material topic and its Boundary	Extra-financial statements: Governance, page 104	Fully
103-2 The management approach and its components	Extra-financial statements: Governance, page 104	Fully
103-3 Evaluation of the management approach	Extra-financial statements: Governance, page 104	Fully

4. TOPIC SPECIFIC STANDARDS

ECONOMIC

GRI STANDARD	Disclosure	2020 Annual Report	Reason (s) of omission (s)	Disclosure reported
GRI 201: Economic performance 2016	201-1 Direct economic value generated and distributed	Extra-financial statements: Overview of the consolidated results, page 85		Fully
	201-3 Defined benefit plan obligations and other retirement plans	Financial statements: Note F34 Provisions, page 230		Fully
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	Extra-financial statements: Corporate citizenship, page 149		Fully
GRI 205: Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	Risk management: Compliance and Business Integrity, page 51		Fully
	205-2 Communication and training about anti-corruption policies and procedures	Extra-financial statements: Management of the legal, ethics and regulatory framework, page 105		Fully
	205-3 Confirmed incidents of corruption and actions taken	Risk management: Litigation, page 61		Fully
GRI 206: Anti-competitive behavior 2016	206-1 Legal actions for anti-competitive behavior, antitrust, and monopoly practices	Risk management: Litigation, page 61		Fully

ENVIRONMENTAL

GRI STANDARD	Disclosure	2020 Annual Report	Reason (s) of omission (s)	Disclosure reported
GRI 302: Energy 2016	302-1 Energy consumption within the organization	Extra-financial statements: Energy, page 120		Fully
	302-2 Energy consumption outside of the organization	Extra-financial statements: Energy, page 120		Fully
	302-3 Energy intensity	Extra-financial statements: Energy, page 120		Fully
	302-4 Reduction of energy consumption	Extra-financial statements: Energy, page 120		Fully
GRI 303: Water and effluents 2018	303-1 Interactions with water as a shared resource	Extra-financial statements: Water and wastewater, page 130		Fully
	303-2 Management of water discharge-related impacts	Extra-financial statements: Water and wastewater, page 130		Fully
	303-3 Water withdrawal	Extra-financial statements: Water and wastewater, page 130		Fully
	303-4 Water discharge	Extra-financial statements: Water and wastewater, page 130		Fully
	303-5 Water consumption	Extra-financial statements: Water and wastewater, page 130		Fully
GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Extra-financial statements: Biodiversity, page 123		Fully
	304-2 Significant impacts of activities, products, and services on biodiversity	Extra-financial statements: Biodiversity, page 123		Fully
	304-3 Habitats protected or restored	Extra-financial statements: Biodiversity, page 123		Fully
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	Extra-financial statements: Biodiversity, page 123		Fully

GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	Extra-financial statements: Greenhouse gas emissions, page 118	Fully
	305-2 Energy indirect (Scope 2) GHG emissions	Extra-financial statements: Greenhouse gas emissions, page 118	Fully
	305-3 Other indirect (Scope 3) GHG emissions	Extra-financial statements: Greenhouse gas emissions, page 118	Fully
	305-4 GHG emissions intensity	Extra-financial statements: Greenhouse gas emissions, page 118	Fully
	305-5 Reduction of GHG emissions	Extra-financial statements: Greenhouse gas emissions, page 118	Fully
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	Extra-financial statements: Waste, page 132	Fully
	306-2 Management of significant waste-related impacts	Extra-financial statements: Waste, page 132	Fully
	306-3 Waste generated	Extra-financial statements: Waste, page 132	Fully
	306-4 Waste diverted from disposal	Extra-financial statements: Waste, page 132	Fully
	306-5 Waste directed to disposal	Extra-financial statements: Waste, page 132	Fully
GRI 307: Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	Extra-financial statements: Critical Incident Risk Management, page 154	Fully
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	Extra-financial statements: Supply chain and procurement, page 115	Fully
	308-2 Negative environmental impacts in the supply chain and actions taken	Extra-financial statements: Supply chain and procurement, page 115	Fully

SOCIAL

GRI STANDARD	Disclosure	2020 Annual Report	Reason (s) of omission (s)	Disclosure reported
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	Extra-financial statements: Recruitment, development and retention, page 144		Fully
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	Extra-financial statements: Employee engagement and well-being, page 139 Extra-financial statements: Recruitment, development and retention, page 144		Fully
GRI 402: Labor/Management Relations 2016	402-1 Minimum notice periods regarding operational changes	Extra-financial statements: Employee engagement and well-being, page 139	Not applicable. The minimum notice periods are based on local legislations and local Collective Agreements.	
GRI 403: Occupational health and safety 2018	403-1 Occupational health and safety management system	Extra-financial statements: Employee health and safety, page 134		Fully
	403-2 Hazard identification, risk assessment, and incident investigation	Extra-financial statements: Employee health and safety, page 134		Fully
	403-3 Occupational health services	Extra-financial statements: Employee health and safety, page 134		Fully
	403-4 Worker participation, consultation, and communication on occupational health and safety	Extra-financial statements: Employee health and safety, page 134 Extra-financial statements: Employee engagement and well-being, page 139		Fully
	403-5 Worker training on occupational health and safety	Extra-financial statements: Employee health and safety, page 134		
	403-6 Promotion of worker health	Extra-financial statements: Employee health and safety, page 134		Fully
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Extra-financial statements: Employee health and safety, page 134		Fully
	403-8 Workers covered by an occupational health and safety management system	Extra-financial statements: Employee health and safety, page 134		Fully
	403-9 Work-related injuries	Extra-financial statements: Employee health and safety, page 134		Fully
	403-10 Work-related ill health	Extra-financial statements: Employee health and safety, page 134		Fully
GRI 404: Training and education 2016	404-1 Average hours of training per year per employee	Extra-financial statements: Recruitment, development and retention, page 144		Fully
	404-2 Programs for upgrading employee skills and transition assistance programs	Extra-financial statements: Recruitment, development and retention, page 144		Fully
	404-3 Percentage of employees receiving regular performance and career development reviews	Extra-financial statements: Recruitment, development and retention, page 144		Fully
GRI 405: Diversity and equal opportunity 2016	405-1 Diversity of governance bodies and employees	Extra-financial statements: Diversity and inclusion, page 142		Fully

GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	Extra-financial statements: Management of the legal, ethics and regulatory framework, page 105	Fully
GRI 407: Freedom of association and collective bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Extra-financial statements: Supply chain and procurement, page 115	Fully
GRI 412: Human rights assessment 2016	412-1 Operations that have been subject to human rights reviews or impact assessments	Extra-financial statements: Management of the legal, ethics and regulatory framework, page 105	Fully
	412-2 Employee training on human rights policies or procedures	Extra-financial statements: Management of the legal, ethics and regulatory framework, page 105	Fully
GRI 413: Local communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	Extra-financial statements: Corporate citizenship, page 149	Fully
	413-2 Operations with significant actual and potential negative impacts on local communities	Risk management: Environmental impacts and controversies, page 52	Fully
GRI 414: Supplier social assessment 2016	414-1 New suppliers that were screened using social criteria	Extra-financial statements: Supply chain and procurement, page 115	Fully
GRI 415: Public policy 2016	415-1 Political contributions	Extra-financial statements: Management of the legal, ethics and regulatory framework, page 105	Fully
GRI 416: Customer health and safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	Extra-financial statements: Product Design and Life Cycle Management, page 125 Extra-financial statements: Waste, page 132 Extra-financial statements: Hazardous materials, page 152	Fully
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	Risk management: Environmental impacts and controversies, page 52	Fully
GRI 419: Socioeconomic Compliance 2016	419-1 Non-compliance with laws and regulations in the social and economic area	Risk management: Litigation, page 51	Fully

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Financial statements

Financial statements

1. CONSOLIDATED FINANCIAL STATEMENTS

Solvay (the "Company") is a public limited liability company governed by Belgian law and quoted on Euronext Brussels and Euronext Paris. The principal activities of the Company, its subsidiaries, joint operations, joint ventures and associates (jointly the "Group") are described in note F1 on *revenue and segment information*.

On February 23, 2021, the Board of Directors authorized the consolidated financial statements for issuance. They have been prepared in accordance with IFRS accounting policies as endorsed by the European Union, as disclosed hereafter.

MAIN EVENTS AND CHANGES IN CONSOLIDATION SCOPE DURING THE YEAR

On January 31, 2020, Solvay announced it had formally completed the divestment of its Performance Polyamides activities to BASF and Domo Chemicals. The transaction is based on an enterprise value of € 1.6 billion and the selling proceeds net of costs of disposals on the combined transaction were € 1.3 billion (selling proceeds of € 1.5 billion received on January 31, 2020). The capital gain after taxes was € 140 million after the agreement on the final purchase price with DOMO Chemicals, finalized in Q4 2020 while the final agreement with BASF is pending and is expected to be finalized in Q1 2021 without significant changes.

Solvay has used a portion of the Performance Polyamides sale proceeds to prefund a part of the pension liabilities in France. This additional voluntary contribution amounts to approximately € 380 million. Solvay also voluntarily contributed approximately € 80 million to the US pension plans in Q1 2020 and € 95 million to the German pension plans in Q4 2020.

Solvay has launched since the beginning of the year restructuring plans, hence accelerating the alignment of its worldwide organization with its G.R.O.W. strategy and responding to the challenging economic environment. The plans are leading to approximately 1,300 net redundancies, including 620 for the Composite Materials launched in Q2 2020. A provision has been accrued for € 123 million during 2020.

On August 25, 2020, Solvay announced it successfully issued a perpetual hybrid bond for an aggregate nominal amount of € 500 million, to be used for general corporate purposes, including the possible repayment of other indebtedness. The new € 500 million hybrid bond has a perpetual maturity with a first call date on December 2, 2025 and will pay a fixed coupon of 2.5% (with corresponding yield of 2.625%) until March 2, 2026 (first reset date) with a reset every five years thereafter. The notes will rank junior to all senior debt and will be recorded as equity (and coupons will be recorded as dividends) in accordance with IFRS requirements.

On August 25, 2020, Solvay Finance SA (subsidiary of Solvay) announced it had launched a cash tender offer to holders of its outstanding € 500 million 5.118% deeply subordinated fixed to reset rate perp-NC5.5 bonds which are irrevocably guaranteed on a subordinated basis (ISIN: XS1323897485).

On September 2, 2020, Solvay published the final results of the repurchase operation related to the € 500 million 5.118% deeply subordinated perpetual hybrid bonds (ISIN: XS1323897485) which led to the full reimbursement.

On November 5, 2020, Solvay and Composites One LLC, entered into an exclusive negotiation period for the acquisition of Solvay's Process Materials (PM) business by Composites One. The PM business provides a broad array of vacuum bagging materials including bagging films, breather fabrics, release films and fabrics, peel plies, sealant tapes plus valves and hoses. Additionally, the business is a leader in the manufacture of tailored consumable kits and hard and soft tooling. An agreement (subject to applicable legal and social consultation in the respective countries) has been signed for the sale of the process materials product line (part of Composites). This business line has sales of approximately € 80 million in 2020 and operates 6 production sites in the US, France, Italy and the United Kingdom. The transaction is expected to be completed in Q1 2021.

On November 23, 2020, Solvay reached an agreement with Latour Capital to sell its technical-grade barium and strontium business in Germany, Spain and Mexico as well as its sodium percarbonate business in Germany. Solvay's barium and strontium business includes a joint venture with Chemical Products Corporation (CPC), which is part of the transaction. The agreement is a key step towards streamlining Solvay's portfolio while reducing the Group's footprint by exiting its position in niche technical-grade chemicals markets. The divestment also aligns with Solvay's G.R.O.W. strategy, announced last year. The transaction is expected to be completed in Q1 2021.

On December 22, 2020, Solvay signed an agreement to sell its North American and European amphoteric surfactant business to OpenGate Capital, a private equity firm with headquarters in Los Angeles, California (USA). The sale includes three production sites supporting the amphoteric product lines located in University Park, Illinois (USA), Genthin (Germany), Halifax (United Kingdom), and a tolling business in Turkey. The agreement also includes tolling and service agreements between Solvay and OpenGate to ensure a seamless transition and minimal customer disruption. Solvay expects to close the sale by the end of March 2021 pending completion of all required social dialogues and regulatory approvals.

Asset held for sale

At the end of December 2020, the assets and liabilities related to the following businesses have been reclassified as “held for sale” (assets for a total amount of € 229 million and liabilities for a total amount of € 110 million) (see note *F30 Assets held for sale*):

- the Peroxides sodium chlorate business line and related assets in Povoa (Portugal),
- the various fluorine chemicals assets in Onsan, South Korea, part of Special Chem,
- the commodity amphoterics surfactants activities in Novecare,
- the Peroxides sodium percarbonate business line and related assets in Bad Hönningen (Germany),
- the Barium Strontium business and the joint venture with Chemical Products Corporation (CPC) and
- the Process Materials business (part of Composites)

COVID-19 impact

The total net impact of COVID-19 on full year 2020 underlying EBITDA is estimated at € (434) million, after short term mitigation actions related to labor costs (including furloughs) and indirect spend. COVID-19 has triggered some impacts and actions that have been described in the Business review and in the Note *F27 Impairment.*

MAIN EVENTS AND CHANGES IN CONSOLIDATION SCOPE IN PRIOR YEAR

On January 18, 2019, the European Commission cleared the divestment of Solvay's Polyamides activities to BASF, a key milestone in the completion of Solvay's transformation into an advanced materials and specialty chemicals company. One of the remaining closing conditions included the divestment of a remedy package to a third-party buyer to address the European Commission's competition concerns. BASF has offered remedies involving part of the assets originally in the scope of the acquisition. These entail among others the manufacturing assets of Solvay's polyamide intermediates, technical fibers, and engineering plastics business as well as its innovation capabilities in Europe. On August 14, 2019 Solvay and BASF have reached an agreement with Domo Chemicals whereby Domo Chemicals is to acquire the Solvay Polyamide assets that needed to be divested to a third party as part of the European Commission's merger control clearance process. Domo is a fully integrated nylon 6 specialist, providing specialized engineering materials solutions to its customers in the automotive, electrical, construction, industrial applications and consumer goods industries. The assets acquired by Domo involve Solvay's Performance Polyamides facilities at Belle-Etoile and Valence, as well as a stake in a newly created joint venture between BASF and Domo in Chalampé (France). They also involve sites in Gorzow (Poland), Blanes (Spain) and commercial activities in Germany and Italy. BASF acquired all the activities that were not included in the remedy package and that were part of the original agreement between Solvay and BASF signed at the end of 2017. The entire transaction, which is based on an aggregate purchase price of € 1.6 billion on a debt free and cash free basis, was completed on January 31, 2020.

On May 12, 2019, Solvay Finance SA (subsidiary of Solvay) exercised its first call option on its € 700 million hybrid bond (ISIN XS0992293570 / Common Code 099229357). This perpetual deeply subordinated bond, bearing an annual interest rate of 4.199%, was treated as equity under IFRS rules. Its repayment was due on May 12, 2019 at the end of the first 5.5 years. As a result, the overall quantum of hybrid bonds in Solvay's balance sheet decreased from € 2.5 billion at the end of 2018 to € 1.8 billion at the end of 2019.

On August 30, 2019, Solvay announced that Solvay SA placed senior fixed rate bonds for an aggregate nominal amount of € 600 million paying a coupon of 0.5% and having its maturity date on September 6, 2029. The notes are listed and admitted to trading on the regulated market of the Luxembourg Stock Exchange with ISIN BE6315847804. Meanwhile, Solvay Finance (America), LLC redeemed its outstanding US$ 800 million 3.400% notes due 2020 (CUSIP No. US8344PAA7 (Regulation S Notes) and 834423AA3 (Rule 144A Notes) / ISIN USU8344PAA76 (Regulation S Notes) and US834423AA33 (Rule 144A Notes)) on September 30, 2019.

On September 30, 2019 Solvay and Aquatiq concluded a joint-venture agreement regarding Aqua Pharma company, under which Solvay acquired 50% of the shares for an amount of € 21 million. This strengthens their long-term collaboration to serve aquaculture customers. With this alliance, Solvay and Aqua Pharma aim to become a key aquaculture player by offering a wide range of sustainable and efficient solutions for sea lice and Amoebic Gill Disease (AGD) to the salmon industry.

After a strategic review performed in Q3 in the context of deteriorating profitability of the Oil & Gas business, the synergies between this business and the rest of Novecare appear to be too small and future growth opportunities too modest to support the Oil & Gas business being considered as part of one Novecare Cash Generating Unit. As a result, an impairment test was performed at the Oil & Gas business level rather than at Novecare level, which was carried out on September 30, 2019. Taking into account the carrying amount of the assets of the Oil & Gas business as of September 30, 2019 and the present value of future cash flows, an impairment of € 825 million pre-tax and € 658 million post-tax has been recognized.

On October 3, 2019 management decided to adapt the projects unveiled in June and September 2018, which focused on the footprint of its Research and Innovation sites in Lyon and Aubervilliers, the future of its Paris office and the transformation of its headquarters in Brussels. The initial objectives of these projects remain unchanged, namely:

- Accelerate growth through innovation for its customers;
- Strengthen collaboration between employees, customers, and partners;
- Simplify the footprint of Solvay's administrative and Research & Innovation activities.

Adaption was needed because of the sharp increase in the projects' cost and the evolution of the economic context. Moreover, the number of employees willing to move to Brussels or Lyon has been considered too low. This could have hampered the continuity of activities at the service of our customers. As a consequence, the planned transfers of the teams based in Paris to Lyon and Brussels have been discontinued and the provision for indemnities resulting from expected refusals to relocate has been reversed (€ 48 million).

CONSOLIDATED INCOME STATEMENT

In € million	Notes	2020	2019
Sales	*(F1)*	**9,714**	**11,227**
of which revenue from non-core activities	*(F3)*	749	983
of which net sales		8,965	10,244
Cost of goods sold		-7,207	-8,244
Gross margin		**2,507**	**2,983**
Commercial costs		-312	-381
Administrative costs		-900	-950
Research and development costs		-300	-323
Other operating gains and (losses)	*(F4)*	-149	-131
Earnings from associates and joint ventures	*(F25)*	58	95
Results from portfolio management and major restructuring	*(F5)*	-1,549	-914
Results from legacy remediation and major litigations	*(F5)*	-20	-61
EBIT		**-665**	**316**
Cost of borrowings	*(F6)*	-114	-140
Interest on loans and short term deposits	*(F6)*	8	15
Other gains and (losses) on net indebtedness	*(F6)*	-8	-16
Cost of discounting provisions	*(F6)*	-68	-105
Income from equity instruments measured at fair value through other comprehensive income		3	4
Profit/(loss) for the year before taxes		**-844**	**74**
Income taxes	*(F7)*	-248	-153
Profit/(loss) for the year from continuing operations		**-1,092**	**-79**
Profit for the year from discontinued operations	*(F8)*	163	236
Profit/(loss) for the year	*(F9)*	**-929**	**157**
attributable to:			
- Solvay share		-962	118
- non-controlling interests		33	38
Basic earnings per share from continuing operations (€)		-10.90	-1.14
Basic earnings per share from discontinued operations (€)		1.58	2,29
Basic earnings per share (€)	*(F10)*	-9.32	1.15
Diluted earnings per share from continuing operations (€)		-10.90	-1.14
Diluted earnings per share from discontinued operations (€)		1.58	2,28
Diluted earnings per share (€)	*(F10)*	-9.32	1.15

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

In € million	Notes	**2020**	2019
Profit/(loss) for the year		**-929**	**157**
Other comprehensive income			
Gains and losses on hedging instruments in a cash flow hedge	*(F11)*	44	5
Currency translation differences - Subsidiaries and joint operations	*(F11)*	-605	140
Share of other comprehensive income of associates and joint ventures accounted for using equity method that will be reclassified to profit or loss	*(F11)*	-99	24
Recyclable components		**-660**	**169**
Gains and losses on equity instruments measured at fair value through other comprehensive income	*(F11)*	2	3
Remeasurements of the net defined benefit liability	*(F11)*	-174	-163
Share of comprehensive income of associates and joint ventures accounted for using equity method that will not be reclassified to profit or loss	*(F11)*	-1	-2
Non recyclable components		**-174**	**-162**
Income tax relating to recyclable and non recyclable components	*(F11)*	-3	48
Other comprehensive income/(loss), net of related tax effects	***(F11)***	**-837**	**55**
Comprehensive income/(loss) for the year		**-1,766**	**211**
attributable to:			
- Solvay share		-1,793	174
- non-controlling interests		27	37

CONSOLIDATED STATEMENT OF CASH FLOWS

The amounts below include both continuing and discontinued operations.

In € million	Notes	**2020**	2019
Profit/(loss) for the year		**-929**	**157**
Adjustments to profit / (loss) for the year			
- Depreciation, amortization and impairments	*(F12)*	2,416	1,906
- Earnings from associates and joint ventures	*(F25)*	-58	-95
- Other non operating and non cash items	*(F13)*	-294	24
- Additions and reversals of provisions	*(F16)*	186	154
- Net financial charges		182	245
- Income tax expense/income	*(F14)*	444	262
Changes in working capital	*(F15)*	249	-86
Use of provisions	*(F16)*	-331	-399
Use of provisions for additional voluntary contributions (pension plans)	*(F16)*	-552	-114
Dividends received from associates and joint ventures	*(F25)*	25	25
Income taxes paid (excluding income taxes paid on sale of investments)	*(F14)*	-97	-263
Cash flow from operating activities		**1,242**	**1,815**
Acquisition (-) of subsidiaries	*(F17)*	-12	-6
Acquisition (-) of investments - Other	*(F17)*	-46	-16
Loans to associates and non-consolidated companies		-6	10
Sale (+) of subsidiaries and investments	*(F17)*	1,297	-31
Acquisition (-) of property, plant and equipment	*(F17)*	-454	-751
of which capital expenditures required by share sale agreement and excluded from Free Cash Flow		-14	-59
Acquisition (-) of intangible assets	*(F17)*	-81	-106
Sale (+) of property, plant and equipment and intangible assets	*(F17)*	8	18
Dividends from equity instruments measured at fair value through other comprehensive income		4	4
Changes in non-current financial assets		2	-1
Cash flow from investing activities		**711**	**-880**
Proceeds from perpetual hybrid bonds issuance	*(F31)*	493	
Redemption of perpetual hybrid bonds	*(F31)*	-499	-701
Acquisition (-) / sale (+) of treasury shares	*(F33)*	-19	23
Increase in borrowings	*(F36)*	557	3,044
Repayment of borrowings	*(F36)*	-1,368	-2,776
Changes in other current financial assets	*(F36)*	-5	-32
Payment of lease liabilities	*(F36)*	-108	-110
Net interests paid		-103	-118
Coupons paid on perpetual hybrid bonds	*(F31)*	-119	-115
Dividends paid		-419	-426
Other	*(F18)*	-101	-19
Cash flow from financing activities		**-1,692**	**-1,230**
of which increase/decrease of borrowings related to environmental remediation		6	8
Net change in cash and cash equivalents		**261**	**-295**
Currency translation differences		-61	1
Opening cash balance		809	1,103
Closing cash balance	*(F36)*	1,009	809
of which cash in assets held for sale		7	

CONSOLIDATED CASH FLOWS FROM DISCONTINUED OPERATIONS

In € million	Notes	2020	2019
Cash flow from operating activities		10	276
Cash flow from investing activities		-34	-130
Cash flow from financing activities		6	-5
Net change in cash and cash equivalents	*(F19)*	**-17**	**141**

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

In € million	Notes	2020	2019
ASSETS			
Intangible assets	*(F20)*	2,141	2,642
Goodwill	*(F21, F27)*	3,265	4,468
Property, plant and equipment	*(F22)*	4,717	5,472
Right-of-use assets	*(F23)*	405	447
Equity instruments measured at fair value through other comprehensive income	*(F35)*	66	56
Investments in associates and joint ventures	*(F25)*	495	555
Other investments	*(F26)*	42	38
Deferred tax assets	*(F7)*	788	1,069
Loans and other assets	*(F35)*	390	289
Non-current assets		**12,308**	**15,035**
Inventories	*(F28)*	1,241	1,587
Trade receivables	*(F35)*	1,264	1,414
Income tax receivables		109	129
Other financial instruments	*(F35)*	119	119
Other receivables	*(F29)*	519	628
Cash and cash equivalents	*(F36)*	1,002	809
Assets held for sale	*(F30)*	229	1,586
Current assets		**4,484**	**6,272**
Total assets		**16,792**	**21,307**
EQUITY & LIABILITIES			
Share capital	*(F31)*	1,588	1,588
Issue premiums		1,170	1,170
Other reserves		4,439	6,757
Non-controlling interests	*(F32)*	106	110
Total equity		**7,304**	**9,625**
Provisions for employee benefits	*(F34)*	2,209	2,694
Other provisions	*(F34)*	689	825
Deferred tax liabilities	*(F7)*	487	531
Financial debt	*(F36)*	3,233	3,382
Other liabilities		95	159
Non-current liabilities		**6,713**	**7,592**
Other provisions	*(F34)*	190	190
Financial debt	*(F36)*	287	1,132
Trade payables	*(F35)*	1,197	1,277
Income tax payables		113	102
Dividends payables		159	161
Other liabilities	*(F37)*	720	792
Liabilities associated with assets held for sale	*(F30)*	110	437
Current liabilities		**2,775**	**4,091**
Total equity and liabilities		**16,792**	**21,307**

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

		Equity attributable to equity holders of the parent											
								Revaluation reserve (fair value)					
In € million	*Notes*	**Share capital**	**Share premiums**	Treasury shares	Perpetual hybrid bonds	Retained earnings	Currency translation differences	Equity instruments measured at fair value through other comprehensive income	Cash flow hedges	Defined benefit pension plan	**Total other reserves**	Non-controlling interests	**Total equity**
Balance at December 31, 2018		**1,588**	**1,170**	**-299**	**2,487**	**6,834**	**-618**	**9**	**-26**	**-636**	**7,750**	**117**	**10,624**
IFRS 16 adoption						**8**					**8**		**8**
Balance at January 1, 2019		**1,588**	**1,170**	**-299**	**2,487**	**6,842**	**-618**	**9**	**-26**	**-636**	**7,758**	**117**	**10,632**
Profit for the year						118					**118**	38	**157**
Items of other comprehensive income	*(F11)*					0	164	1	5	-114	**56**	-1	**55**
Comprehensive income						***118***	***164***	***1***	***5***	***-114***	***174***	***37***	***211***
Redemption of perpetual hybrid bonds	*(F31)*				-697	-3					**-701**		**-701**
Cost of stock options						11					**11**		**11**
Dividends						-394					**-394**	-39	**-432**
Coupons of perpetual hybrid bonds						-115					**-115**		**-115**
Acquisition (-) / sale (+) of treasury shares				25		-2					**23**		**23**
Other						5		0	1	-6	**0**	-5	**-5**
Balance at December 31, 2019		**1,588**	**1,170**	**-274**	**1,789**	**6,462**	**-454**	**10**	**-21**	**-756**	**6,757**	**111**	**9,625**
Profit/(loss) for the year						-962					**-962**	33	**-929**
Items of other comprehensive income	*(F11)*					0	-699	1	35	-169	**-831**	-6	**-837**
Comprehensive income						**-962**	**-699**	**1**	**35**	**-169**	**-1,793**	**27**	**-1,766**
Proceed from perpetual hybrid bonds	***(F31)***				**494**						**494**		**494**
Redemption of perpetual hybrid bonds	*(F31)*				-497	-3					**-501**		**-501**
Cost of stock options						7					**7**		**7**
Dividends						-387					**-387**	-31	**-417**
Coupons of perpetual hybrid bonds						-119					**-119**		**-119**
Acquisition (-) / sale (+) of treasury shares				-12		-7					**-19**		**-19**
Other						-6				5	**-1**	0	**-1**
Balance at December 31, 2020		**1,588**	**1,170**	**-286**	**1,786**	**4,985**	**-1,153**	**12**	**14**	**-919**	**4,439**	**106**	**7,303**

2. NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

IFRS GENERAL ACCOUNTING POLICIES

1. Basis of preparation

This information was prepared in accordance with European Regulation (EC) 1606/2002 on the application of international accounting standards dated July 19, 2002. The Group's consolidated financial statements for the year ended December 31, 2020 were prepared in accordance with IFRS (International Financial Reporting Standards) as published by the International Accounting Standards Board (IASB), and endorsed by the European Union.

The accounting standards applied in the consolidated financial statements for the year ended December 31, 2020 are consistent with those used to prepare the consolidated financial statements for the year ended December 31, 2019. The Group has not early adopted any other Standard, interpretation or amendment that have been issued but is not yet effective.

Standards, interpretations and amendments applicable for the first time in 2020

The following pronouncements, issued by the IASB, were effective for periods commencing on or after January 1, 2020 and have been endorsed by the EU. The Group's financial reporting will be presented in accordance with these new standards, which are not expected to have a material impact on the consolidated income statement, consolidated statement of financial position or consolidated cash flow statement from January 1, 2020.

- Amendments to IFRS 3 *Definition of a Business*; and
- Amendments to IAS 1 and IAS 8 *Definition of Material*;

In May 2020 the IASB issued amendment to IFRS 16 Leases COVID-19 Related Rent Concessions which was endorsed by the EU in October 2020 and was effective for annual periods starting on or after June 1, 2020. Solvay early adopted the amendment and it did not have more than insignificant impact on the Group's consolidated financial statements.

Standards, interpretations and amendments applicable for the first time in 2021

The IASB issued Interest Rate Benchmark Reform- Phase 2 (IBOR Reform) which amends IFRS 9 Financial Instruments, IAS 39 Financial Instruments: Recognition & Measurement, IFRS 7 Financial Instruments: Disclosure, IFRS 4 Insurance Contracts, and IFRS 16 Leases which is effective for periods commencing on or after January 1, 2021 and has been endorsed by the EU. The amendments enable entities to reflect the effects of transitioning from benchmark interest rates, such as interbank offer rates (IBORs) to alternative benchmark interest rates without giving rise to accounting impacts that would not provide useful information to users of financial statements.

During 2020 Solvay identified the main areas where the reform may have an impact and during 2021 will continue to monitor the market evolution resulting from the decisions taken by each of the relevant authorities of such benchmarks. The identification covers all financial instruments where a benchmark is referenced including loan and lease contracts for the purpose of calculating interest applicable to such financial instruments. As displayed in note F35.D, Financial Risk Management, the majority of the underlying debts are at fixed rates which indicates the impact of IBOR Reform under the current understanding is not expected to have more than an insignificant impact on the Group's consolidated financial statements

In addition to the IBOR Reform assessment, no other standards, interpretations, or amendments applicable for the first time in 2021 are expected to have more than an insignificant impact on the Group's consolidated financial statements.

Standards, interpretations and amendments applicable for the first time after 2021

Standards, interpretations and amendments applicable for the first time after 2021 are not expected to have a more than insignificant impact on the Group's consolidated financial statements.

2. Basis of measurement and presentation

The consolidated financial statements are presented in millions of euros, which is also the functional currency of the parent company.

The preparation of the financial statements requires the use of estimates and assumptions that have an impact on the application of accounting policies and the measurement of amounts recognized in the financial statements. The areas for which the estimates and assumptions are material with respect to the consolidated financial statements are presented in the section *Critical accounting judgments and key sources of estimation uncertainty*.

3. Principles of consolidation

3.1. Consolidation scope

3.1.1. General

The consolidated financial statements incorporate the financial statements of the Company, and:

- entities controlled by the Company (including through its subsidiaries) and that hence qualify as subsidiaries (see 3.1.2. below);
- arrangements over which the Company (including through its subsidiaries) exercises joint control, and that qualify as joint operations (see 3.1.3. below);
- arrangements over which the Company (including through its subsidiaries) exercises joint control, and that qualify as joint ventures (see 3.1.4. below);
- entities over which the Company (including through its subsidiaries) has significant influence and that hence qualify as associates (see 3.1.4. below).

Where necessary, adjustments are made to the financial statements of the investees so as to align their accounting policies with those of the Group.

In accordance with the principle of materiality, certain companies which are not of a significant size have not been included in the consolidation scope. Companies are deemed not to be significant when, during two consecutive years, they do not exceed any of the three following thresholds in terms of their contribution to the Group's accounts:

- sales of € 30 million;
- total assets of € 15 million;
- headcount of 150 persons.

Companies that do not meet these criteria are, nevertheless, consolidated where the Group believes that they have a potential for rapid development, or where they hold shares in other companies that are consolidated based on the above criteria.

In the aggregate, the non-consolidated companies have an immaterial impact on the consolidated financial statements of the Group.

The full list of companies can be obtained at the Company's head office.

3.1.2. Investments in subsidiaries

A subsidiary is an entity over which the Group has control. Control is achieved when the Group has (a) power over an investee, (b) exposure, or rights, to variable returns from its involvement with the investee, and (c) the ability to use its power over the investee to affect the amount of the investor's returns. To assess whether the Group has control, potential voting rights are taken into account. Subsidiaries are fully consolidated. The results of subsidiaries acquired or disposed of during the year are included in the consolidated income statement from the effective date of acquisition and up to the effective date of disposal.

Intra-group transactions, balances, income and expenses are eliminated on consolidation.

Non-controlling interests in subsidiaries are presented separately from the Group's equity. Non-controlling interests are initially measured, either at fair value (full goodwill method), or at the non-controlling interests' proportionate share in the recognized amounts of the acquiree's identifiable net assets (proportionate goodwill method). The choice of measurement is made on an acquisition-by-acquisition basis. Subsequent to the acquisition, the carrying amount of non-controlling interests is the amount of those interests at initial recognition plus the non-controlling interests' share of subsequent changes in equity. Total comprehensive income is attributed to non-controlling interests even if this results in the non-controlling interests having a deficit balance.

Changes in the Group's equity interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions. The carrying amounts of the Group's interests and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiary. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognized directly in equity.

When the Group loses control of a subsidiary, the profit or loss on disposal is calculated as the difference between (i) the aggregate of the fair value of the consideration received and the fair value of any retained interest, and (ii) the previous carrying amount of the assets (including goodwill) and liabilities of the subsidiary and any non-controlling interests. Amounts previously recognized in other comprehensive income in relation to the subsidiary are accounted for (*i.e.* Reclassified to profit or loss or transferred directly to retained earnings) in the same manner as would be required if the relevant assets or liabilities were disposed of. The fair value of any investment retained in the former subsidiary at the date when control is lost is considered to be the fair value on initial recognition for subsequent accounting in accordance with IFRS 9 *Financial Instruments* or, when applicable, the cost on initial recognition of an investment in an associate or joint venture in accordance with IAS 28 *Investments in Associates and Joint Ventures*.

3.1.3. Investments in joint operations

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about relevant activities require the unanimous consent of the parties sharing control. In its consolidated financial statements, the Group recognizes its share of the joint operations' assets, liabilities, revenue and expenses, based on its ownership interest in the joint operations.

3.1.4. Investments in associates and joint ventures

An associate is an entity over which the Group has significant influence and that is neither a subsidiary, nor an interest in a joint arrangement. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control over those policies.

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about relevant activities require the unanimous consent of the parties sharing control.

The results, assets and liabilities of associates and joint ventures are incorporated in the consolidated financial statements using the equity method of accounting, except when the investment is classified as held for sale, in which case it is accounted for in accordance with IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*. Under the equity method, on initial recognition, investments in associates and joint ventures are recognized in the consolidated statement of financial position at cost, and the carrying amount is adjusted for post-acquisition changes in the Group's share of the net assets of the associate or joint venture, less any impairment of the value of individual investments. Losses of an associate or joint venture in excess of the Group's interest in that associate or joint venture (which includes any long-term interests that, in substance, form part of the Group's net investment in the associate or joint venture) are recognized only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associate or joint venture.

Any excess of the cost of acquisition over the Group's share of the net fair value of the identifiable assets and (contingent) liabilities of the associate or joint venture recognized at the date of acquisition is goodwill. The goodwill is included within the carrying amount of the investment and is assessed for impairment as part of that investment.

Where a Group entity transacts with an associate or joint venture of the Group, profits and losses are eliminated to the extent of the Group's interest in the relevant associate or joint venture.

4. Foreign currencies

The individual financial statements of each Group entity are prepared in the currency of the primary economic environment in which the entity operates (its functional currency). For the purpose of the consolidated financial statements, the results and financial position of each Group entity are expressed in euros (EUR), which is the presentation currency of the Group's consolidated financial statements.

In preparing the financial statements of the individual entities, transactions in currencies other than the entities' functional currency are recognized at the exchange rates prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are translated at the closing rate. Non-monetary items carried at fair value that are denominated in foreign currencies are translated at the rate when the fair value was measured. Non-monetary items that are measured in terms of historical cost in a foreign currency are not translated at the closing rate.

Exchange differences are recognized in profit or loss in the period in which they arise except for:

- exchange differences on monetary items receivable from or payable to a foreign operation for which settlement is neither planned nor likely to occur in the foreseeable future (therefore forming part of the net investment in the foreign operation), which are recognized initially in other comprehensive income under "currency translation differences"; and
- exchange differences on transactions entered into in order to hedge certain foreign currency risks (see note F35 *Financial instruments and financial risk management* for hedge accounting policies).

The main exchange rates used are:

		Year-end rate		Average rate	
		2020	2019	**2020**	2019
1 Euro =					
Brazilian Real	BRL	6.3731	4.5177	5.8950	4.4132
Yuan Renminbi	CNY	8.0240	7.8229	7.8749	7.7341
Pound Sterling	GBP	0.8981	0.8513	0.8896	0.8777
Indian Rupee	INR	89.6502	80.1612	84.6303	78.8293
Japanese Yen	JPY	126.4617	121.8678	121.8240	122.0180
Korean Won	KRW	1,332.8358	1,298.7512	1,345.7603	1,305.3086
Mexican Peso	MXN	24.4329	21.2226	24.5300	21.5572
Russian Ruble	RUB	91.4630	69.9450	82.7249	72.4580
US Dollar	USD	1.2269	1.1231	1.1420	1.1195

5. Government grants

Government grants are not recognized until there is reasonable assurance that the Group will comply with the conditions attaching to them and that the grants will be received.

Government grants relating to the purchase of property, plant and equipment are deducted from the cost of those assets. They are recognized in the consolidated statement of financial position at their expected value at the moment of initial recognition. The grant is recognized in profit or loss over the depreciation period of the underlying assets as a reduction of depreciation expense.

Other government grants are recognized as income on a systematic basis over the periods in which the related costs, which they are intended to compensate, are recognized. Government grants that are receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the Group with no future related costs are recognized in profit or loss in the period in which they become receivable.

CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY

1. Critical accounting judgments

No critical accounting judgments have been identified for the year ended December 31, 2020.

2. Key sources of estimation uncertainty

Impairment

The Group performs annual impairment tests on (groups of) CGUs to which goodwill has been allocated, and each time there are indicators that their carrying amount might be higher than their recoverable amount. This analysis requires management to estimate the future cash flows expected to be generated by the CGUs and a suitable discount rate in order to calculate present value. The recoverable amount is highly sensitive to discount and growth rates.

Further details are provided in note F21 *Goodwill* and F27 *Impairment*.

Income taxes

Deferred tax assets

The carrying amount of the deferred tax assets is reviewed at each reporting date. The carrying amount of a deferred tax asset is reduced to the extent that it is no longer probable that the Group will earn sufficient taxable profits against which the deductions can be utilized. Any such reduction is reversed to the extent that it becomes probable that sufficient taxable profits will be available.

Deferred tax assets other than tax loss carryforwards are analyzed on a case by case basis, taking into account all relevant facts and circumstances. For example, a zero taxable profit, after deducting the amounts paid to retirees under a defined benefit plan and for which a deductible temporary difference existed, can justify the recognition of the underlying deferred tax assets.

Recognition of deferred tax assets for tax loss carryforwards requires a positive taxable profit during the year that enables the utilization of tax losses that originated in the past. Because of uncertainties inherent to predicting such positive taxable profit, recognition of deferred tax assets from tax loss carryforwards is based on a case by case analysis, which is usually based on five-year profit forecasts, except with respect to any financial company for which ten-year financial profit forecasts are considered highly predictable and are consequently used.

The corporate tax reporting team, which monitors the Group's deferred tax positions, is involved in assessing deferred tax assets.

Further details are provided in note F7 *Deferred taxes* in the consolidation statement of financial position.

Provisions

Restructuring provision for the Group's simplification and transformation program

Solvay has launched since the beginning of the year 2020 restructuring plans, hence accelerating the alignment of its worldwide organization with its G.R.O.W. strategy and responding to the challenging economic environment. The plans are leading to approximately 1,300 net redundancies, including 620 for the Composite Materials launched in Q2 2020. A provision has been accrued for € 123 million during 2020. The estimate of the provision is based on the number and the cost of redundancy and relocation packages that the Group expects to pay. It is inherently subject to uncertainty and is monitored by the Human Resources department, in close cooperation with the Finance department.

Defined benefit obligations - General

The actuarial assumptions used in determining the defined benefit obligations at December 31 as well as the annual cost can be found in note F34 *Provisions*. All main employee benefits plans are assessed annually by independent actuaries. Discount rates and inflation rates are defined centrally by management. The other assumptions (such as future salary increases and expected rates of medical care cost increases) are defined at a local level. All plans are supervised by the Group's central Human Resources department with the help of a central actuary to check the reasonableness of the results and ensure consistency in reporting.

Further details are provided in note F34.A. *Provisions for employee benefits.*

Environmental provisions

Environmental provisions are managed and coordinated jointly by the Environmental Rehabilitation department and the Finance department. In case of environmental impacts stemming from historical production activities, generally, no provision is recognized for remediation works beyond the 20 years due to the inherent high level of uncertainty as to whether there will be any obligation after the lapse of this period.

The forecasts of expenses are discounted to their present value. The discount rates fixed by geographical area correspond to the average risk-free rate on 10-year government bonds or the inflation rate if higher. These rates are set annually by the Finance Department and can be revised based on the evolution of economic parameters of the country involved. To reflect the passage of time, the provisions are increased each year at the discount rates described above.

Further details are provided in note F34.B. *Provisions other than for employee benefits*.

Provisions for litigations

Any significant litigations (post M&A and other, including threat of litigation) are reviewed by Solvay's in-house lawyers with the support, when appropriate, of external counsels at least every quarter. This review includes an assessment of the need to recognize provisions and/or remeasure existing provisions together with the Finance Department and the Insurance Department.

Further details are provided in note F34.B. *Provisions other than for employee benefits*.

Leases – Assessment of lease term

Determining the lease term requires judgment. Elements that are considered include assessing the probability that early termination options or extension options will be exercised. All facts and circumstances relevant to the assessment are considered, and the main ones have been described in note F23 *Right-of-use assets and lease obligations*. Lease terms are determined with the support of the departments that have the relevant knowledge, and that mainly include Purchasing department, and Facility department.

NON-IFRS (UNDERLYING) METRICS

Besides IFRS accounts, the Group also presents underlying income statement performance indicators. The objective is to generate a measure that avoids distortion and facilitates the appreciation of performance and comparability of results over time.

See Glossary for definitions of adjustments (IFRS vs Underlying metrics) and Business Review for more information and reconciliation with IFRS figures.

NOTES TO THE CONSOLIDATED INCOME STATEMENT

Preliminary comment: consistent with the presentation in the consolidated income statement, the notes to the consolidated income statement as presented hereafter do not include the consolidated income statement impacts from discontinued operations that are presented on a separate line. Those are disclosed in note F8 *Discontinued operations*.

NOTE F1
REVENUE AND SEGMENT INFORMATION

Accounting policy

IFRS 15 establishes a five-step model to account for revenue arising from contracts with customers:

- Identify the contract,
- Identify the performance obligations,
- Determine the transaction price,
- Allocate the transaction price to the performance obligations in the contract, and
- Recognize revenue when or as the Group satisfies a performance obligation.

Under IFRS 15, revenue is recognized at an amount that reflects the consideration to which the Group expects to be entitled in exchange for transferring goods or services to a customer.

Sale of goods: Contracts can be short term (including based only on a purchase order) or long term, some have minimum off-take requirements. As the Group is in the business of selling chemicals, contracts with customers generally concern the sale of goods. As a result, revenue recognition generally occurs at a point in time when control of the chemicals is transferred to the customer, generally on delivery of the goods.

Distinct elements: a good or service that is promised to a customer is distinct if both of the following criteria are met: (a) the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer (i.e. The good or service is capable of being distinct); and (b) the Group's promise to transfer the good or service to the customer is separately identifiable from other promises in the contract (i.e. The promise to transfer the good or service is distinct within the context of the contract).

The revenue of the Group consists mainly of sales of chemicals, which qualify as separate performance obligations. Value-added services – mainly customer assistance services – corresponding to Solvay's know-how are rendered predominantly over the period that the corresponding goods are sold to the customer.

Variable consideration: some contracts with customers provide trade discounts or volume rebates. Trade discounts and volume rebates give rise to variable consideration under IFRS 15, and are required to be estimated at contract inception and subsequently at each reporting date. IFRS 15 requires the estimated variable consideration to be constrained to prevent overstatement of revenue.

Moment of recognition of revenue: revenue is recognized when (or as) the Group satisfies a performance obligation by transferring a promised good or service (i.e. an asset) to a customer. An asset is transferred when (or as) the customer obtains control of that asset. Substantially all revenue stems from performance obligations satisfied at a point in time, i.e. The sale of goods. Revenue recognition for those takes into account the following:

- The Group has a present right to payment for the asset;
- The customer has legal title to the asset;
- The Group has transferred physical possession of the asset;
- The customer has the significant risks and rewards of ownership of the asset (in this respect, incoterms are considered); and
- The customer has accepted the asset.

The Group sells its chemicals to its customers, (a) directly, (b) through distributors, and (c) with the assistance of agents. When the Group delivers a product to distributors for sale to end customers, the Group evaluates whether that distributor has obtained control of the product at that point in time. No revenue is recognized upon delivery of a product to a customer or distributor if the delivered product is held on consignment. Indicators of consignment inventory include:

- The product is controlled by the Group until a specified event occurs, such as the sale of the product to a customer of the distributor or until a specified period expires;
- The Group is able to require the return of the product or transfer the product to a third party (such as another distributor); and
- The distributor does not have an unconditional obligation to pay for the product (although he might be required to pay a deposit).
- Agents facilitate sales and do not purchase and resell the goods to the end customer.

- Products sold to customers generally cannot be returned, other than for performance deficiencies. Customer acceptance clauses are in many cases a formality that would not affect the Group's determination of when the customer has obtained control of the goods.
- Revenue from services is recognized in the period those services have been rendered.

Warranties: warranties provide a customer with assurance that the related product will function as the parties intended because it complies with agreed-upon specifications. Substantially all warranties do not provide the customer with a service in addition to the assurance that the product complies with agreed-upon specifications, and are hence accounted for in accordance with IAS 37 *Provisions, Contingent Liabilities and Contingent Assets.*

An **Operating Segment** is a component of the Group that engages in business activities from which it may earn revenues and incur expenses, whose operating results are regularly reviewed by the entity's chief operating decision maker and for which discrete financial information is available. The Solvay Group's chief operating decision maker is the Chief Executive Officer.

General

Based on the strategy review announced on November 7, 2019 the Group's new segmentation became applicable from 2020 onward. Prior year results have been restated to be comparative to the new 2020 segmentation. The new segmentation also triggered the reallocation of some corporate costs to the businesses in the different segments affecting the Corporate & Business Services cost line of 2019 which has been restated accordingly.

Solvay is organized into four Operating Segments:

- **Materials** offer a unique portfolio of high-performance polymers and composite technologies used primarily in sustainable mobility applications. Its solutions enable weight reduction and enhance performance while improving CO_2 and energy efficiency. Major markets served include next-generation mobility in automotive and aerospace, healthcare and electronics.
- **Chemicals** host chemical intermediate businesses focused on mature and resilient markets. Solvay is a world leader in soda ash and peroxides and major markets served include building and construction, consumer goods and food. Its Silica, Coatis and Rusvinyl businesses are also high quality assets with strong positions in their markets. This segment provides resilient cash flows and the company selectively invests in these businesses to become the #1 cash conversion chemical player.
- **Solutions** offer a unique formulation & application expertise through customized specialty formulations for surface chemistry & liquid behavior, maximizing yield and efficiency of the processes they are used in while minimizing the eco-impact. Novecare, Technology Solutions, Aroma and Special Chem focus on specific areas such as resources (improving the extraction yield of metals, minerals and oil), industrial applications (such as coatings) or consumer goods and healthcare (including vanillin and guar for home and personal care).
- **Corporate & Business Services** includes corporate and other business services, such as Group research & innovation or energy services, whose mission is to optimize energy consumption and reduce CO_2 emissions.

External net sales by cluster

In € million	**2020**	2019
Materials	**2,695**	3,199
Specialty Polymers	1,820	1,927
Composite Materials	875	1,272
Chemicals	**2,948**	3,328
Soda Ash & Derivatives	1,450	1,661
Peroxides	642	683
Silica	386	449
Coatis	470	535
Solutions	**3,316**	3,710
Novecare	1,566	1,789
Special Chem	761	864
Technology Solutions	555	632
Aroma Performance	435	425
Corporate & Business Services	**6**	**6**
CBS and NBD	6	6
Total	**8,965**	**10,244**

Note: Since 2019 Coatis incorporates the Fibras activities and related Net sales.

Sales by market

Sales by market are presented in the Business Review, see note B1.

Net sales by country and region

The sales disclosed below are allocated based on the customers' location.

In € million	**2020**	%	2019	%
Belgium	146	2%	138	1%
Germany	647	7%	711	7%
Italy	403	4%	438	4%
France	337	4%	397	4%
Netherlands	87	1%	99	1%
United Kingdom	235	3%	287	3%
Spain	148	2%	177	2%
European Union - Other	488	5%	519	5%
European Union	**2,492**	**28%**	**2,765**	**27%**
Europe - Other	**95**	**1%**	**94**	**1%**
United States	2,355	26%	2,896	28%
Canada	127	1%	165	2%
North America	**2,482**	**28%**	**3,061**	**30%**
Brazil	596	7%	693	7%
Mexico	186	2%	222	2%
Latin America - Other	194	2%	254	2%
Latin America	**975**	**11%**	**1,169**	**11%**
Australia	98	1%	100	1%
China	975	11%	962	9%
Hong Kong	37	0%	50	0%
India	191	2%	198	2%
Indonesia	87	1%	97	1%
Japan	310	3%	360	4%
Russia	55	1%	55	1%
Saudi Arabia	116	1%	122	1%
South Korea	273	3%	297	3%
Thailand	155	2%	188	2%
Turkey	74	1%	74	1%
Other	551	6%	650	6%
Asia and rest of the world	**2,922**	**33%**	**3,154**	**31%**
Total	**8,965**	**100%**	**10,244**	**100%**

Information per segment

2020 - In € million	Materials	Chemicals	Solutions	Corporate & Business Services	**Group Total**
Income statement items					
Net sales (including inter-segment sales)	2,702	2,982	3,318	6	9,009
- Inter-segment sales	-7	-34	-3	0	-44
Net sales	2,695	2,948	3,316	6	8,965
Revenue from non-core activities	19	218	42	470	749
Gross margin	913	741	832	21	2,507
Depreciation and amortization	1,126	277	895	119	2,416
Earnings from associates and joint ventures	0	44	13	1	58
Underlying EBITDA(1)	*712*	*816*	*566*	*-149*	*1,945*
EBIT	**-465**	**504**	**-366**	**-338**	**-665**
Net financial charges					-179
Income taxes					-248
Profit for the year from discontinued operations					163
Profit/(loss) for the year					**-929**

2020 - In € million	Materials	Chemicals	Solutions	Corporate & Business Services	**Group Total**
Statement of financial position and other items					
Capital expenditures (continuing operations)	191	183	142	95	611
Capital expenditures (discontinued operations)		33			33
Investments (continuing operations)	38	8	9	3	58
Working capital					
Inventories	483	303	432	23	1,241
Trade receivables	282	438	421	123	1,264
Trade payables	219	401	356	221	1,197

(1) Underlying EBITDA is a key performance indicator followed by management and includes other elements than those presented above (see Business Review section for reconciliation of Underlying with IFRS figures).

2019 - In € million	Materials	Chemicals	Solutions	Corporate & Business Services	**Group Total**
Income statement items					
Net sales (including inter-segment sales)	3,199	3,354	3,713	6	10,273
- Inter-segment sales	0	-27	-3	0	-30
Net sales	3,199	3,328	3,710	6	10,244
Revenue from non-core activities	23	281	37	643	983
Gross margin	1,120	892	951	21	2,983
Depreciation and amortization	363	275	1,159	109	1,906
Earnings from associates and joint ventures	0	77	17	1	95
Underlying EBITDA(1)	*884*	*945*	*663*	*-169*	*2,322*
EBIT					**316**
Net financial charges					-242
Income taxes					-153
Profit for the year from discontinued operations					236
Profit for the year					**157**

2019 - In € million	Materials	Chemicals	Solutions	Corporate & Business Services	**Group Total**
Statement of financial position and other items					
Capital expenditures (continuing operations)	300	204	203	119	826
Capital expenditures (discontinued operations)		141			141
Investments (continuing operations)	4	11	2	6	23
Working capital					
Inventories	655	403	519	9	1,587
Trade receivables	387	508	461	58	1,414
Trade payables	273	407	367	229	1,277

(1) Underlying EBITDA is a key performance indicator followed by management and includes other elements than those presented above (see Business Review section for reconciliation of Underlying with IFRS figures).

Non-current assets, capital expenditures and investments by country and region (continuing operations)

	Non-current assets				Capital expenditures and investments			
In € million	**2020**	%	2019	%	**2020**	%	2019	%
Belgium	272	2%	253	2%	-7	1%	-96	11%
Germany	321	3%	438	3%	-39	6%	-45	5%
Italy	616	6%	635	5%	-79	12%	-85	10%
France	2,755	25%	2,883	21%	-146	22%	-116	14%
United Kingdom	161	1%	221	2%	-12	2%	-19	2%
Spain	140	1%	144	1%	-14	2%	-19	2%
European Union - Other	335	3%	327	2%	-26	4%	-25	3%
European Union	**4,600**	**41%**	**4,900**	**36%**	**-322**	**48%**	**-405**	**48%**
Europe - Other	**0**	**0%**	**0**	**0%**	**-8**	**1%**	**-18**	**2%**
United States	4,752	43%	6,710	49%	-233	35%	-290	34%
Canada	170	2%	185	1%	-9	1%	-11	1%
North America	**4,922**	**44%**	**6,896**	**50%**	**-242**	**36%**	**-301**	**35%**
Brazil	204	2%	266	2%	-17	3%	-26	3%
Latin America - Other	29	0%	40	0%	-3	0%	-3	0%
Latin America	**234**	**2%**	**306**	**2%**	**-20**	**3%**	**-29**	**3%**
Russia	197	2%	245	2%	0	0%	0	0%
Thailand	114	1%	135	1%	-3	0%	-5	1%
China	527	5%	563	4%	-49	7%	-47	6%
South Korea	84	1%	123	1%	-3	1%	-11	1%
India	234	2%	264	2%	-13	2%	-23	3%
Singapore	40	0%	50	0%	-3	0%	-3	0%
Japan	20	0%	22	0%	-2	0%	-3	0%
Other	160	1%	175	1%	-4	1%	-2	0%
Asia and rest of the world	**1,376**	**12%**	**1,576**	**12%**	**-77**	**11%**	**-95**	**11%**
Total	**11,131**	**100%**	**13,677**	**100%**	**-669**	**100%**	**-848**	**100%**

Non-current assets are those other than deferred tax assets, loans and other assets. Capital expenditures and investments include acquisitions of property, plant and equipment, right-of-use assets, intangible assets and investments in subsidiaries and other investments (joint operations, joint ventures and associates). Both exclude discontinued operations. The decrease of non-current assets in the United States is mainly due to the impairment of goodwill related to the acquisition of Composites and Technology Solutions – see note F27 *Impairment*

NOTE F2
CONSOLIDATED INCOME STATEMENT BY NATURE

In € million	Notes	**2020**	2019
Net sales	*(F1)*	8,965	10,244
Revenue from non-core activities	*(F3)*	749	983
Raw materials, utilities and consumables used		-4,050	-4,825
Changes in inventories		-103	-151
Personnel expenses		-1,999	-2,308
Wages and direct social benefits		*-1,466*	*-1,672*
Employer's contribution for social insurance		*-262*	*-304*
Pensions and insurance benefits		*-95*	*-155*
Other personnel expenses		*-175*	*-175*
Amortization, depreciation and impairment	*(F12)*	-2,416	-1,906
Other variable logistics expenses		-634	-716
Other fixed expenses		-1,061	-1,037
Addition and reversal of provisions (excluding employee benefit provisions)	*(F31)*	-148	-50
M&A costs and gains and losses on disposals	*(F5)*	-25	-13
Earnings from associates and joint ventures	*(F25)*	58	95
EBIT		**-665**	**316**
Cost of borrowings	*(F6)*	-114	-140
Interest on loans and short term deposits	*(F6)*	8	15
Other gains and losses on net indebtedness	*(F6)*	-8	-16
Cost of discounting provisions	*(F6)*	-68	-105
Income from equity instruments measured at fair value through other comprehensive income		3	4
Profit/(loss) for the year before taxes		**-844**	**74**
Income taxes	*(F7)*	-248	-153
Profit/(loss) for the year from continuing operations		**-1,092**	**-79**
Profit for the year from discontinued operations	*(F8)*	163	236
Profit/(loss) for the year	*(F9)*	**-929**	**157**
attributable to:			
- Solvay share		-962	118
- non-controlling interests		33	38

NOTE F3
REVENUE FROM NON-CORE ACTIVITIES

This revenue primarily comprises commodity and utility trading transactions and other revenue, considered to not correspond to Solvay's know-how and core business. The decrease compared to 2019 is mainly related to lower gas market price and to lower volumes due to the reduced activity of our customers.

NOTE F4
OTHER OPERATING GAINS AND LOSSES

In € million	**2020**	2019
Start-up and preliminary study costs	-13	-15
Capital gains/losses on sales of property, plant and equipment and intangible assets	3	11
Net foreign exchange gains and losses	-1	0
Amortization of intangible assets resulting from PPA	-166	-182
Other	28	55
Other operating gains and losses	**-149**	**-131**

"Other" gains reduced in 2020 when compared to 2019 due to a one-time gain of € 12 million which was recorded in the second quarter of 2019 on the settlement of an energy contract in the soda ash business. In 2020 they also include lower results on the hedge of PSU.

NOTE F5
RESULTS FROM PORTFOLIO MANAGEMENT AND MAJOR RESTRUCTURINGS, LEGACY REMEDIATION AND MAJOR LITIGATIONS

Accounting policy

Results from portfolio management and major restructurings include:

- gains and losses on the sale of subsidiaries, joint operations, joint ventures, and associates that do not qualify as discontinued operations;
- acquisition costs of new businesses;
- gains and losses on the sale of real estate not directly linked to an operating activity;
- restructuring charges driven by portfolio management and by major reorganizations of business activities, including impairment losses resulting from the shutdown of an activity or a plant;
- impairment losses resulting from testing of CGUs and

Results from legacy remediation and major litigations include:

- the remediation costs not generated by on-going production facilities (shut-down of sites, discontinued productions, previous years' pollution); and
- the impact of significant litigations.

Results from portfolio management and major restructuring

In € million	**2020**	2019
Restructuring costs and impairment	-1,523	-901
Impairment	*-1,401*	*-879*
Restructuring costs	*-122*	*-23*
M&A costs and gains and losses on disposals	-25	-13
Results from portfolio management and major restructuring	**-1,548**	**-914**

Results from legacy remediation and major litigations

In € million	**2020**	2019
Major litigations	-20	0
Remediation costs and other costs related to non-ongoing activities	0	-62
Results from legacy remediation and major litigations	**-20**	**-61**

In 2020:

- Restructuring and impairments primarily relate to:
  - Impairment related to Composite Materials (€ (798) million);
  - Impairment related to Technology Solution (€ (280) million);
  - Impairment related to Novecare Oil & Gas (€ (155) million);
  - Impairment related to other assets, mainly in the Solutions Segment (€ (168) million);
  - Costs mainly related to the restructuring initiatives following the launching of the G.R.O.W strategy for € (122) million.

In 2019:

- Restructuring costs and impairment primarily relate to:
  - Impairment related to Novecare Oil & Gas business (€ (825) million);
  - Impairment on other non-performing assets (€ (26) million), mainly due to the impairment of previously capitalized items related to the adaptation of the Group's simplification and transformation program;
- M&A costs and gains and losses on disposals concern mainly the impairment of the receivable related to the earn-out for the disposal in 2017 of the Formulated Resins business (€ (8) million).

See note *F27 Impairment* for more information

NOTE F6
NET FINANCIAL CHARGES

Accounting policy

Interest on borrowings is recognized in costs of borrowings as incurred, with the exception of borrowing costs directly attributable to the acquisition, construction and production of qualifying assets (see note F22 *Property, Plant and Equipment*).

Net foreign exchange gains or losses on financial items and changes in fair value of derivative financial instruments related to net indebtedness are presented in "Other gains and losses on net indebtedness", with the exception of changes in fair value of derivative financial instruments that are hedging instruments in a cash flow hedge relationship, and which are recognized on the same line as the hedged item, when the latter affects profit or loss.

In € million	**2020**	2019
Cost of borrowings	-93	-117
Interest expense on lease liabilities	-21	-23
Interest on loans and short term deposits	8	15
Other gains and losses on net indebtedness	-8	-16
Net cost of borrowings	**-113**	**-141**
Cost of discounting provisions	-64	-85
Impact of change of discount rate on provisions	-5	-20
Dividends from equity instruments measured at fair value through other comprehensive income	3	4
Net financial charges	**-179**	**-242**

Details are included in note F36 *Net indebtedness*.

The decrease of the net cost of borrowings is mainly explained by:

- the decrease in the cost of borrowings is largely attributable to the early repayment in September 2019 of the US$ 800 million Senior US$ bonds of Solvay Finance (America) LLC, initially maturing in 2020 with a 3.4% yearly coupon together with the issuance of a 10-year Senior bond (€ 600 million) with a 0.5% yearly coupon;
- the decrease of interest income on loans and short term deposits relates to the impact of the worldwide economic situation that lowered interest yields in 2020;
- the decrease in other gains and losses on net indebtedness from € (16) million for 2019 to € (8) million for 2020, is largely attributable to one-off costs for € (12) million in 2019 related to the early repayment of the US$ 800 million Senior bonds of Solvay Finance (America) LLC;

The decrease of cost of discounting provisions relates to post-employment benefits (€ 28 million) and to environmental provisions (€ 8 million) and is largely attributable to the evolution of the applicable discount rates (see also note F34 *Provisions*).

NOTE F7
INCOME TAXES

Accounting policy

Current taxes

The current tax payable is based on taxable profit of the year. Taxable profit differs from profit as reported in the consolidated income statement because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

Deferred taxes

Deferred taxes are recognized for temporary differences between the carrying amounts of assets and liabilities in the consolidated financial statements and their corresponding tax bases used in the computation of taxable profit.

Deferred tax assets are generally recognized for all deductible temporary differences to the extent that it is probable that taxable profits will be available against which those deductible temporary differences can be utilized.

Deferred tax liabilities are generally recognized for all taxable temporary differences.

No deferred tax liabilities are recognized following the initial recognition of goodwill. In addition, no deferred tax assets or liabilities are recognized with respect to the initial recognition of an asset or liability in a transaction which is not a business combination and affects neither accounting profit nor taxable profit.

Deferred tax liabilities are recognized for taxable temporary differences associated with investments in subsidiaries, joint operations, joint ventures, and associates, except where the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

The carrying amount of the deferred tax assets is reviewed at each reporting date. The carrying amount of a deferred tax asset is reduced to the extent that it is no longer probable that the Group will earn sufficient taxable profits against which the deductions can be utilized. Any such reduction is reversed to the extent that it becomes probable that sufficient taxable profits will be available.

Deferred tax assets other than tax loss carryforwards are analyzed on a case by case basis, taking into account all relevant facts and circumstances. For example, a zero taxable profit, after deducting the amounts paid to retirees under a defined benefit plan and for which a deductible temporary difference existed, can justify the recognition of the underlying deferred tax assets. Recognition of deferred tax assets for tax loss carryforwards requires a positive taxable profit during the year that enables the utilization of tax losses that originated in the past. Because of uncertainties inherent to predicting such positive taxable profit, recognition of deferred tax assets from tax loss carryforwards is based on a case by case analysis, which is usually based on five-year profit forecasts, except with respect to any financial company for which ten-year financial profit forecasts are considered highly predictable and are consequently used.

The corporate tax reporting team, which monitors the Group deferred tax positions, is involved in assessing deferred tax assets.

Further details are provided in note F7.B.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset is realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Current tax assets and liabilities are offset when there is a legally enforceable right to set off the recognized amounts and when the Group intends to settle its current tax assets and liabilities on a net basis.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when they relate to income taxes levied by the same taxation authority and the Group intends to settle its current tax assets and liabilities on a net basis.

Current and deferred taxes for the period

Current and deferred taxes for the period are recognized as an expense or income in profit or loss, except when they relate to items that are recognized outside profit or loss (whether in other comprehensive income or directly in equity), in which case the tax is also recognized outside profit or loss, or when they arise from the initial accounting for a business combination. In the case of a business combination, the tax effect is taken into account in the accounting for the business combination.

Exception to the above, as from January 1, 2019, the Group applies the amendments to IAS 12, that apply to the income tax consequences of dividends recognized on or after the beginning of the earliest comparative period, i.e. January 1, 2018. In 2018, the income tax consequences of the coupons on perpetual hybrid bonds classified as equity were recognized in equity. As a result of the adoption of the amendment, those income tax consequences are now recognized in profit or loss.

F7.A. Income taxes

The income taxes (net expense) recognized in the consolidated income statement increased by € (95) million in 2020 compared to 2019.

The income taxes (net income) recognized in other comprehensive income decreased by € (51) million in 2020 compared to 2019, mainly due to the decrease of discount rates on post-retirement benefits.

In € million	**2020**	2019	
Current taxes related to current year (1)	-114	-147	a)
Provisions for tax litigations (*)	1	1	
Other current taxes related to prior years (*)	-3	3	
Current taxes	**-116**	**-143**	
Changes in unrecognized deferred tax assets (*)	-27	-110	b)
Deferred tax income on amortization of PPA step-ups (*)	44	45	
Deferred tax impact of changes in the nominal tax rates (*)	-5	15	c)
Deferred taxes related to prior years (*)	-10	7	
Write-down deferred tax assets O&G US (*)	-110		d)
Deferred taxes on impairments (*)	45	167	e)
Other deferred taxes (2)	-68	-134	f)
Deferred taxes	**-132**	**-11**	
Income taxes recognized in the consolidated income statement	**-248**	**-153**	
Income taxes on items recognized in other comprehensive income	**-3**	**48**	

(1) Of which € 80 million in Adjustments in 2020
(2) Of which € (66) million in Adjustments in 2020
(*) Adjustments

Note: the Underlying tax expense in the Business Review includes the IFRS income taxes excluding the Adjustments.

Main comments regarding the current taxes

a) The current taxes (net expense) related to current year decreased by € 34 million due to different mix of taxable profits in the context of COVID-19 crisis.

Main comments regarding the deferred taxes

(see column "Recognized in income statement" in the table in section *F7.C. - Deferred taxes in the consolidated statement of financial position* for changes in deferred taxes by nature)

b) Changes in unrecognized deferred tax assets:
   - In 2020, this change amounts to € (27) million resulting mainly from the reversal of deferred taxes in the United Kingdom (€ (23) million) (mainly on capital allowances deemed not to be utilized within the next five years);
   - In 2019, this change amounts to € (110) million resulting mainly from a revision of the forecasts of utilization of tax losses carried forward in the holding companies (€ (58) million) and from the reversal of deferred taxes (mainly on capital allowances deemed not to be utilized within the next five years) in the United Kingdom (€ (56) million)

c) The deferred tax impact of changes in the nominal rates:
   - The income of € 15 million in 2019 and the expense € (5) million in 2020 resulted mainly from the update in the expected rate applicable related to the timing of the reversal of temporary differences in France.

d) The deferred tax assets on the goodwill and other tangible and intangible assets for Oil & Gas in the United States were written-down in the US tax unit in 2020 for € (110) million based on Management's current assessment of the recoverability of these deferred tax assets.

e) The deferred tax impact related to impairment:
   - In 2020 total impairment related to Composite, Technology Solutions, Oil & Gas (O&G) and other assets in the Segment Solutions (Spec Chem) were recorded for a total amount of € (1,400) million of which €(1,050) million on non-deductible goodwill). On the impairment excluding non-deductible goodwill (€ (350) million) deferred taxes of € 45 million were recognized;

- In 2019, the impairment of Oil & Gas assets (see note F5 for pre-tax net expense) has generated a deferred tax income of € 167 million in the United States resulting mainly from the impairment of the deductible goodwill for Oil & Gas in the US tax unit;

f) Other deferred taxes:

- In 2020, the other deferred income taxes (€ (68) million) included:
  - The net impact of additional pension contribution (€ (60) million);
  - The recognition of deferred tax assets on temporary disallowed interests in the United States for € 37 million;
  - The outside basis differences for overseas investment held by the United States which would be realizable upon disposal with a tax effect for € (58) million;
  - Other net increase and reversal of other temporary differences for € 12 million.

- In 2019, the other deferred income taxes (€ (134) million) included:
  - The main utilization of tax losses carried forward for € (92) million, mainly in the United States and in holding companies;
  - The recognition of deferred tax assets on temporary disallowed interests in the United States for € 17 million;
  - Other net increase and reversal of other temporary differences for € (59) million.

F7.B. Reconciliation of the income tax expense

The effective income tax expense has been reconciled with the theoretical tax expense obtained by applying to the pre-tax profit of each Group entity the nominal tax rate prevailing in the country in which it operates.

In € million	**2020**	2019
Profit/(Loss) for the year before taxes	-844	74
Earnings from associates and joint ventures	58	95
Profit/(Loss) for the year before taxes excluding earnings from associates and joint ventures	**-902**	**-21**
Reconciliation of the tax income/(charge)		
Total tax income/(charge) of the Group entities computed on the basis of the respective local nominal rates and IFRS EBT including impairment of the goodwills	143	-77
Weighted average nominal rate	16%	n.a.
Tax effect of changes in nominal tax rates	-5	15
Changes in unrecognized deferred tax assets	-27	-110
Tax effect of permanent differences	28	37
Gain and losses with no tax expense and income	-9	-3
US taxes disconnected from profit for the year before taxes	0	-17
Non deductible impairment of the goodwills	-248	
Write-down deferred tax assets O&G US	-110	
Provisions for tax litigations	1	1
Other tax effect of current and deferred tax adjustments related to prior years	-13	12
Tax effect on distribution of dividends	-5	-11
Effective tax income/(charge)	**-248**	**-153**
Effective tax rate	**-29%**	**207%**

The weighted average nominal rate of 2019 was not relevant as the profit before taxes and equity earnings is negative after the impairment of Oil & Gas assets amounting to € (825) million. After excluding this impairment, the weighted average nominal rate of 2019 was 30%.
The weighted average nominal rate of 2020 is 16%. This rate results from the mix between:

- impairment losses in the United States at 23.5% and other losses in the United Kingdom at 19%;
- and other results with a higher tax rate (including withholding taxes).

This weighted average nominal rate is not representative of the Underlying tax rate of the Group

F7.C. Deferred taxes in the consolidated statement of financial position

2020 - In € million	**Opening balance**	Recognized in income statement	Recognized in other comprehen-sive income	Exchange rate effect	Other acquisition / disposal	Transfer to assets held for sale	Other	**Closing balance**
Temporary differences								
Employee benefits obligations	**563**	-153	3	-14	9	-5	0	**403**
Provisions other than employee benefits	**243**	-11		-21	-5	-2	0	**204**
Property, plant and equipment	**-229**	-67		24	5	5	0	**-262**
Intangible assets	**-432**	85		30	5	0	0	**-311**
Right-of-use assets & Lease liabilities	**-1**	2		0	0	1	0	**2**
Goodwill	**91**	-87						**3**
Other temporary differences	**55**	5	-6	-5	-24	0	0	**26**
Tax losses	**214**	100		-9	-93	-3		**209**
Tax credits	**34**	-5		-2			0	**27**
Total (net amount)	**538**	**-132**	**-3**	**2**	**-103**	**-3**	**0**	**301**

The net deferred tax assets at year-end 2020 amount to € 301 million.

2019 - In € million	**Opening balance**	Recognized in income statement	Recognized in other comprehensive income	Exchange rate effect	Transfer to assets held for sale	Other	**Closing balance**
Temporary differences							
Employee benefits obligations	**549**	-35	48	3	-2	0	**563**
Provisions other than employee benefits	**252**	-8		1	-1	0	**243**
Property, plant and equipment	**-249**	0		-5	28	0	**-229**
Intangible assets	**-499**	78		-11	0	1	**-432**
Right-of-use assets & Lease liabilities	**0**	0		0	0		**-1**
Goodwill	**-38**	128					**91**
Other temporary differences	**101**	-60	0	1	12	-1	**55**
Tax losses	**359**	-146		1			**214**
Tax credits	**32**	2		0			**34**
Assets held for sale		30				-30	
Total (net amount)	**505**	**-11**	**48**	**-10**	**36**	**-30**	**538**

The significant components of the deferred tax assets and deferred tax liabilities at the end of 2020 and 2019 are as follows:

2020 - In € million	Deferred tax assets	Deferred tax liabilities	Net deferred taxes before impairment	Impairment	**Net deferred taxes**
Employee benefits obligations	491	-9	482	-79	**403**
Provisions other than employee benefits	249	-21	228	-24	**204**
Property, plant and equipment	73	-300	-228	-34	**-262**
Intangible assets	93	-402	-309	-2	**-311**
Right-of-use assets & Lease liabilities	75	-73	2	0	**2**
Goodwill	3	0	3	0	**3**
Other	89	-51	38	-13	**26**
Temporary differences	**1,073**	**-856**	**217**	**-151**	**66**
Operational losses	1,567	0	1,567	-1,429	**138**
Non-operational losses	335	0	335	-264	**71**
Tax losses	**1,902**	**0**	**1,902**	**-1,694**	**209**
Tax credits carried forward	**73**	**0**	**73**	**-46**	**27**
Netting deferred taxes	-620	620	0	0	**0**
Deferred taxes	**2,428**	**-236**	**2,192**	**-1,891**	**301**

2019 - In € million	Deferred tax assets	Deferred tax liabilities	Net deferred taxes before impairment	Impairment	**Net deferred taxes**
Employee benefits obligations	609	-10	599	-35	**563**
Provisions other than employee benefits	272	-4	267	-24	**243**
Property, plant and equipment	-1	-198	-198	-31	**-229**
Intangible assets	66	-498	-432	0	**-432**
Right-of-use assets & Lease liabilities	80	-81	-1	0	**-1**
Goodwill	91	0	91	0	**91**
Other	114	-49	65	-10	**55**
Temporary differences	**1,230**	**-840**	**391**	**-100**	**290**
Operational losses	1,590	0	1,590	-1,419	**171**
Non-operational losses	339	0	339	-297	**42**
Tax losses	**1,929**	**0**	**1,929**	**-1,716**	**214**
Tax credits carried forward	**78**	**0**	**77**	**-43**	**34**
Netting deferred taxes	-658	658	0	0	**0**
Deferred taxes	**2,579**	**-182**	**2,397**	**-1,859**	**538**

The total net deferred tax assets at € 301 million at year-end 2020 are € 237 million lower than in 2019. The main changes in 2020 are related to the following items:

- deferred tax assets on employee benefits obligations: € 403 million at year-end 2020, € 160 million lower than in 2019, explained by the significant decrease in pension obligations in 2020;
- deferred tax liabilities on intangible assets for € (311) million at year-end 2020, € 121 million lower than in 2019. The decrease in these liabilities in 2020 mainly reflects exchange rate impacts of € 30 million and the tax impact of € 44 million of amortization in the consolidated income statement of the step-up of intangible assets resulting from Purchase Price allocation;
- deferred taxes on goodwill: € 3 million at year-end 2020, € 87 million lower than in 2019 mainly due to the € (110) million write-down of deferred tax assets for Oil & Gas in the United States including € (87) million on the goodwill in the US tax unit;
- deferred taxes on operational and non-operational tax losses: € 209 million at year-end 2020, € 5 million lower than in 2019 mainly due to the utilization and change in unrecognized deferred tax assets on losses for € (18) million offset against newly generated deferred tax on tax losses in the United States for € 41 million. In France, the taxable capital gain on the Polyamide disposal (impact on deferred taxes for losses of € (92) million in discontinued operations) was higher than the operating tax losses for continuing operations, including the voluntary contribution for pensions (impact of € 63 million on deferred taxes in continuing operations). The deferred taxes on losses in the opening balance for continuing operations (€ 29 million) were transferred to discontinued operations before their utilization for the Polyamide capital gain;
- deferred tax assets on other temporary differences: € 26 million at year-end 2020, € 29 million lower than in 2019. This decrease is related to:
  - additional temporary disallowed interests in the United States for € 37 million;
  - outside basis differences for overseas investment held by the United States which would be realizable upon disposal with a tax effect for € (58) million;
  - additional deferred tax liabilities on unremitted earnings for € (4) million;
  - other various impacts for € (4) million.

At year-end 2020, € (48) million for deferred tax liabilities on unremitted earnings were recognized in the Other Temporary differences. An amount of € 23 million was not recognized because the Group controls the timing of the reversal of the temporary differences and it is probable that they will not reverse in the foreseeable future.

Recognized deferred tax assets for which utilization depends on future taxable profits in excess of the profit arising from the reversal of existing taxable temporary differences within entities that have suffered a tax loss in either current or preceding year in the related tax jurisdiction, amount to € 339 million. This recognition is justified by favorable expectations of future taxable profits.

F7.D. Other information

For the majority of the Group's tax loss carryforwards, no deferred tax assets have been recognized. The unrecognized tax losses are mainly located in countries where they can be carried forward indefinitely.

The tax losses carried forward generating deferred tax assets are given below by expiration date.

In € million	**2020**	2019
Within 1 year	0	19
Within 2 years	0	12
Within 3 years	20	15
Within 4 years	2	24
Within 5 or more years	44	38
No time limit	767	713
Total of losses carried forward which have generated recognized deferred tax assets	**833**	**822**
Tax losses carried forward for which no deferred tax assets were recognized	6,448	6,803
Total of tax losses carried forward	**7,281**	**7,625**

The tax losses carried forward (€ 833 million) have generated deferred tax assets for € 209 million. In 2019, the tax loss carried forward (€ 822 million) had generated deferred tax assets for € 214 million. The decrease of tax losses carried forward which have generated recognized deferred tax assets is largely due to the utilization of tax losses in the United States.

NOTE F8
DISCONTINUED OPERATIONS

Accounting policy

A discontinued operation is a component of the Group which the Group has disposed of or which is classified as held for sale (see note F30 Assets held for sale), and which:

- represents a separate major line of business or geographical area of operations;
- is part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations; or
- is a subsidiary acquired exclusively with a view to resale.

A component of the Group consists of operations and cash flows, which can be clearly distinguished operationally and for financial reporting purposes, from the rest of the Group.

In the consolidated statement of comprehensive income, the consolidated statement of cash flows, and disclosures, discontinued operations are re-presented for prior periods presented.

	2020			2019		
In € million	Polyamides	Other	Total	Polyamides	Other	Total
Net sales	126	0	126	1,463	0	1,463
EBIT	359	3	362	332	14	347
Financial result	0	-3	-3	-3	1	-2
Tax	-196	0	-196	-109	0	-109
Profit from discontinued operations	**162**	**0**	**163**	**221**	**15**	**236**
attributable to Solvay share	162	0	163	221	15	236

In 2020, the Profit from discontinued operations for Polyamides includes the capital gain on disposal after tax of € 140 million and the results of the Polyamides business for the month of January 2020 (€ 21 million). The capital gain after taxes reflects the final agreement with DOMO, which took place in Q4 2020 and is subject to the final agreement with BASF, expected in Q1 2021.

In 2020 the “Other” column concerns post-closing warranties related to the disposal of the Pharma business.

In 2019 Polyamides EBIT included the operational results of the Polyamides business and costs related to its divestment for € (16) million.

The € 15 million in the “Other” column in 2019 mainly results from post-closing warranties related to the disposal of the Pharma business and an adjustment for the Indupa purchase price.

NOTE F9
PROFIT/(LOSS) FOR THE YEAR

Profit/(Loss) for the year amounts to € (929) million compared to € 157 million in prior year. See previous notes for explanations on the main variations.

NOTE F10
EARNINGS PER SHARE

Accounting policy

The basic earnings per share are obtained by dividing profit for the year by the weighted average number of ordinary shares outstanding during the reporting period. The weighted average number of ordinary shares excludes the treasury shares held by the Group over the reporting period.

The diluted earnings per share are obtained by dividing profit for the year, adjusted for the effects of dilutive potential ordinary shares, by the weighted average number of ordinary shares, also adjusted by the number of dilutive potential ordinary shares attached to the issuance of share options.

The number of dilutive potential ordinary shares is calculated for the weighted average number of share options outstanding during the reporting period as the difference between the average market price of ordinary shares during the reporting period and the exercise price of the share option. Share options have a dilutive effect only when the average market price is above the exercise price (share options are "in the money").

For the purpose of calculating diluted earnings per share, there were no adjusting elements to the profit for the year (Solvay share).

Basic and diluted amounts per share for discontinued operations are presented in the consolidated income statement.

Number of shares (in thousands)	**2020**	2019
Weighted average number of ordinary shares (basic)	103,140	103,177
Dilution effect	30	227
Weighted average number of ordinary shares (diluted)	103,170	103,403

	2020		2019	
	Basic	Diluted	Basic	Diluted
Profit/(loss) for the year (Solvay share) including discontinued operations (in € thousands)	-961,627	-961,627	118,415	118,415
Profit/(loss) for the year (Solvay share) excluding discontinued operations (in € thousands)	-1,124,336	-1,124,336	-117,582	-117,582
Earnings per share (including discontinued operations) (in €)	-9.32	-9.32	1.15	1.15
Earnings per share (excluding discontinued operations) (in €)	-10.90	-10.90	-1.14	-1.14

Full data per share, including dividend per share, can be found in the Business Review section.

The average market price during 2020 was € 79.29 per share (2019: € 96.74 per share). The following share options were out of the money, and therefore antidilutive for the period presented, but could potentially dilute basic earnings per share in the future (see note F33 *Share-based payments*):

Antidilutive share options	Date granted	Exercise price (in €)	Number of share options granted	Number of share options outstanding
Share option plan 2013	25/03/2013	104.33	427,943	367,171
Share option plan 2014	01/01/2014	101.14	380,151	351,482
Share option plan 2015	25/2/2015	114.51	346,617	346,617
Share option plan 2017	23/2/2017	111.27	316,935	316,935
Share option plan 2018 - 1	27/2/2018	113.11	400,704	400,704
Share option plan 2018 - 2	30/7/2018	108.38	72,078	72,078
Share option plan 2019	27/02/2019	97.05	438,107	438,107
Share option plan 2020	26/02/2020	95.80	405,670	405,670
Total			**2,788,205**	**2,698,764**

NOTES TO THE CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

NOTE F11
CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

Accounting policy

In accordance with IAS 1 *Presentation of Financial Statements*, the Group elected to present two statements, i.e. A consolidated income statement immediately followed by a consolidated statement of comprehensive income.

The components of other comprehensive income (OCI) are presented before related tax effects with one amount shown for the aggregate amount of income tax relating to those components. Tax impacts are further disclosed in this note.

Presentation of the tax effect relating to each item of other comprehensive income

Note: the below table presents the total other comprehensive income items for the aggregate of the shares of Solvay and the non-controlling interests.

	2020		
In € million	Before-tax amount	Tax expense(-)/ income (+)	Net-of-tax amount
Effective portion of gains and losses on hedging instruments in a cash flow hedge	*-24*	*-9*	*-33*
Recycling to the income statement	*68*		*68*
Gains and losses on hedging instruments in a cash flow hedge (see note F35)	44	-9	35
Currency translation differences arising during the year	*-579*		*-579*
Recycling of currency translations differences relating to foreign operations disposed of in the year	*-21*		*-21*
Other movement of currency translation differences (NCI) relating to foreign operations disposed of in the year	-5		-5
Currency translation differences - Subsidiaries and joint operations	-600		-605
Share of other comprehensive income of associates and joint ventures accounted for using equity method that will be reclassified to profit or loss	-99		-99
Recyclable components	***-661***	***-9***	***-670***
Gains and losses on equity instruments measured at fair value through other comprehensive income	2	0	2
Remeasurements of the net defined benefit liability (see note F34)	-174	7	-167
Share of comprehensive income of associates and joint ventures accounted for using equity method that will not be reclassified to profit or loss	-1		-1
Non recyclable components	***-174***	***7***	***-167***
Other comprehensive income/(loss)	**-834**	**-3**	**-837**

	2019		
In € million	Before-tax amount	Tax expense(-)/ income (+)	Net-of-tax amount
Effective portion of gains and losses on hedging instruments in a cash flow hedge	*-53*	*1*	*-52*
Recycling to the income statement	*58*		*58*
Gains and losses on hedging instruments in a cash flow hedge (see note F35)	5	1	6
Currency translation differences arising during the year	*141*		*141*
Recycling of currency translations differences relating to foreign operations disposed of in the year	*-1*		*-1*
Other movement of currency translation differences (NCI) relating to foreign operations disposed of in the year	0		0
Currency translation differences - Subsidiaries and joint operations	140		140
Share of other comprehensive income of associates and joint ventures accounted for using equity method that will be reclassified to profit or loss	24		24
Recyclable components	***169***	***1***	***170***
Gains and losses on equity instruments measured at fair value through other comprehensive income	3	-2	1
Remeasurements of the net defined benefit liability (see note F34)	-163	49	-113
Share of comprehensive income of associates and joint ventures accounted for using equity method that will not be reclassified to profit or loss	-2		-2
Non recyclable components	***-162***	***47***	***-115***
Other comprehensive income/(loss)	**7**	**48**	**55**

The low tax credit (€ 7 million) on remeasurements of the net defined liabilities is due to the non recognition of deferred taxes on the remeasurements in the UK

Currency translation differences

Accounting policy

For the purpose of presenting consolidated financial statements at the end of each reporting period, the assets and liabilities of the Group's foreign operations are expressed in euros using closing rates. Income and expense items are translated at the average exchange rates for the period except when the impact of applying the average rate is materially different from applying the spot rate at the respective transactions' dates, in which case the latter is applied. Exchange differences arising, if any, are recognized in other comprehensive income as "currency translation differences".

Currency translation differences are reclassified from equity to profit or loss, on:

- a disposal of the Group's entire interest in a foreign operation, or a partial disposal involving loss of control over a subsidiary that includes a foreign operation. In this case, all of the accumulated exchange differences in respect of that operation attributable to the Group are reclassified to profit or loss. Any exchange differences that have previously been attributed to non-controlling interests are derecognized, but they are not reclassified to profit or loss;
- a partial disposal of an interest in a joint arrangement or an associate that includes a foreign operation, when the retained interest is a financial asset. In this case, all of the accumulated exchange differences in respect of that operation attributable to the Group are reclassified to profit or loss;
- a partial disposal of an interest in a joint venture or an associate that includes a foreign operation and that continues to be accounted for as a joint venture or an associate. In this case, a proportionate share of the accumulated exchange differences is reclassified to profit or loss.

In case of a partial disposal of a subsidiary (i.e. No loss of control) that includes a foreign operation, the proportionate share of accumulated exchange differences is reattributed to non-controlling interests and is not recognized in profit or loss.

In case of (a) a capital decrease of a subsidiary without loss of control, or (b) a capital decrease of an equity method investee or a joint operation without modification of the share of equity interest held in that investee, then no accumulated exchange differences are reclassified from equity to profit or loss.

Goodwill and fair value adjustments arising on the acquisition of a foreign operation are treated as assets and liabilities of the foreign operation and translated into the Group's presentation currency at the closing rate.

The total currency translation losses amount to € (699) million in 2020, and only relate to the Group's share. They are linked to the devaluation of the US dollar (€ (449) million), the Brazilian Real (€ (99) million), the Russian ruble (€ (59) million) and to the revaluation of the British pound (€ 16 million), compared to the Euro.

The total currency translation gains amount to € 164 million in 2019, and only relate to the Group's share. They are linked to the revaluation of the US dollar (€ 115 million), the Russian ruble (€ 26 million), the Mexican peso (€ 12 million), and to the devaluation of the British pound (€ (15) million), compared to the Euro.

NOTES TO THE CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUING AND DISCONTINUED OPERATIONS)

NOTE F12 DEPRECIATION, AMORTIZATION AND IMPAIRMENTS

In 2020 total depreciation, amortization and impairment losses amount to € 2,416 million, of which:

- straight-line depreciation and amortization of € 1,016 million for continuing operations including:
  - Cost of goods sold (€ 649 million),
  - Administrative costs (€ 97 million),
  - Research and development costs (€ 89 million),
  - Other (€ 181 million), including € 166 million for PPA amortization (see note F4 *Other operating gains and losses*);
- net impairment loss of € 1,400 million for continuing operations, due to the impairment on Composite Materials, Technology Solutions and Novecare Oil & Gas business (€ 1,232 million) and on other small groups of assets, mainly in Segment Solutions (€ 168 million); see note *F27 Impairment*

In 2019 total depreciation, amortization and impairment losses amount to € 1,906 million, of which:

- straight-line depreciation and amortization of € 1,032 million for continuing operations including:
  - cost of goods sold (€ 641 million),
  - administrative costs (€ 110 million),
  - research and development costs (€ 83 million),
  - other (€ 198 million), including € 182 million for PPA amortization (see note F4 *Other operating gains and losses*);
- net impairment loss of € 873 million for continuing operations, due to the impairment on Novecare Oil & Gas business (€ 825 million) and on other non-performing assets (€ 26 million), mainly due to the impairment of previously capitalized items related to the Group's simplification and transformation program (see note F5 Results from portfolio management and reassessments, legacy remediation and major litigations).

NOTE F13 OTHER NON OPERATING AND NON CASH ITEMS

The other non operating and non cash items for 2020 (€ (294) million) mainly related to the Polyamide capital gain before taxes.

The other non operating and non cash items for 2019 (€ 24 million) mainly include M&A expenses related to the disposal of the Polyamides business (€ 16 million).

NOTE F14 INCOME TAXES

In 2020

Income tax expense amounts to € 444 million, of which € 248 million for continuing operations.

Income tax paid amounts to € 97 million, of which € 96 million for continuing operations as the Polyamide business was operated by Solvay for one month only in 2020. On top of the COVID-19 crisis, the Income tax paid has been further reduced compared to previous years in the USA, severely impacted by the aerospace crisis and in European Countries due to higher pension contributions.

In 2019

Income tax expense amounts to € 262 million, of which € 153 million for continuing operations. Income tax paid amounts to € 263 million, of which € 240 million for continuing operations.

Income taxes are discussed in note F7 *Income taxes.*

NOTE F15
CHANGES IN WORKING CAPITAL

In € million	**2020**	2019
Inventories	100	164
Trade receivables	87	21
Trade payables	3	-217
Other receivables/payables	59	-54
Changes in working capital	**249**	**-86**
Of which discontinued operations	-11	-64

See comments in the Business Review section.

NOTE F16
ADDITIONS, REVERSALS AND USE OF PROVISIONS

In 2020:

- additions and reversals on provisions amount to € 186 million and concern mainly employee benefits (€ 58 million) and restructuring (€ 118 million);
- use of provisions amounts to € (331) million, of which € (2) million for discontinued operations, and concerns mainly employee benefits € (125) million, environment € (67) million and restructuring € (92) million;
- use of provisions for additional voluntary contributions in pension plans in France (€ (379) million), USA and Germany accounts to € (552) million.

In 2019:

- additions and reversals on provisions amount to € 154 million and concern mainly employee benefits (€ 93 million) and environment (€ 49 million);
- use of provisions amounts to € (399) million, of which € (10) million for discontinued operations, and concerns mainly employee benefits € (223) million, environment € (78) million and restructuring € (61) million.
- use of provisions for additional voluntary contributions in pensions plans in the United Kingdom amounts to € (114) million.

See note F34 *Provisions* for more information.

NOTE F17
CASH FLOWS FROM INVESTING ACTIVITIES – ACQUISITION/DISPOSAL OF ASSETS AND INVESTMENTS

2020 - In € million	Acquisitions	Disposals	**Total**
Subsidiaries	-12	1,297	1,285
Other	-46		-46
Total investments	-58	1,297	1,239
Property, plant and equipment/Intangible assets	-535	8	-527
Total	**-593**	**1,305**	**712**

2019 - In € million	Acquisitions	Disposals	**Total**
Subsidiaries	-6	-31	-37
Other	-16		-16
Total investments	-23	-31	-53
Property, plant and equipment/Intangible assets	-857	18	-839
Total	**-880**	**-13**	**-892**

In 2020

The acquisition of subsidiaries (€ (12) million) mainly relates to post-acquisition payments of Cytec and Aqua Pharma.

Other acquisitions mainly relate to the investment in the Strata Solvay Advanced Materials Joint Venture.

The disposal of subsidiaries (€ 1,297 million) mainly relates to the proceeds after taxes from the Polyamides divestment

The acquisition of property, plant and equipment and intangible assets (€ (535) million) relates to various projects:

- Specialty Polymers: Tecnoflon capacity expansion in Spinetta
- Specialty Polymers: Polyvinylidene Fluoride (PVDF) capacity increase in Changshu (PRC)
- Composite Materials: new production unit dedicated to thermoplastic composites in Piedmont (USA)
- Soda Ash &Derivatives: new production unit dedicated to Bicarbonate in Devnya (Bulgaria)
- Specialty Polymers: Polyvinylidene Fluoride (PVDF) capacity increase in Tavaux (France).

In 2019

The acquisition of subsidiaries (€ (6) million) mainly relates to post-acquisition payments of Cytec.

Other acquisitions mainly relate to the investment in Aqua Pharma Group.

The disposal of subsidiaries (€ (31) million) mainly relates to M&A costs for Polyamides divestment for € (16) million, amounts paid for Pharma and Indupa disposals without impact on the 2019 consolidated income statement (€ (19) million), net of the reimbursement of loans related to the disposal of the Cross Linkable Compounds business for € 7 million.

The acquisition of property, plant and equipment and intangible assets (€ (857) million) relates to various projects:

- Composite Materials: new manufacturing line of high performance particles for pre-impregnated carbon fiber in Willow Island (United States);
- Corporate: investment in Material Science Application Center in Brussels (Belgium);
- Specialty Polymers: new production unit dedicated to Polyethersulfone (PESU) in Panoli (India);
- Specialty Polymers: Polyvinylidene Fluoride (PVDF) capacity increase in Tavaux (France);
- Specialty Polymers: Diofan PVDC latex capacity increase in Tavaux (France);
- Technology Solutions: doubling of production capacity of hindered amine light stabilizers (HALS) in Willow Island (United States).

NOTE F18
OTHER CASH FLOWS FROM FINANCING ACTIVITIES

The other cash flows from financing activities (€ (101) million in 2020, (€ (19) million in 2019) mainly relate to margin calls on hedging instruments as part of Energy Services' activities.

For trading in futures of different commodities (CO_2, power, gas, coal), Energy Services uses brokers. These deals are subject to margin calls. To cover the credit risk of the counterparty, brokers pay a margin call to Solvay in case the instrument is in the money for Solvay. Vice-versa if the instrument is out of the money for Solvay, Solvay pays a margin call to the brokers. The margin calls are presented as part of financial debt (see note F36 *Net indebtedness*). Cash flows from margin calls are recognized as financing cash flows that fluctuate with the fair value of the instrument. The actual settlement of these commodity derivatives is net of margin calls and the gross amount (including margin calls that are reclassified from financing cash flows) is recognized in operating cash flows.

NOTE F19
CASH FLOW FROM DISCONTINUED OPERATIONS

The 2020 cash flow from discontinued operations amounts to € (17) million (€ 141 million in 2019) and relates to Polyamides.

The portion of cash flow from investing activities of discontinued operations excludes the proceeds received from the divestment of Polyamide. The sale of Polyamide was completed on January 31, 2020.

NOTES TO THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION

NOTE F20
INTANGIBLE ASSETS

Accounting policy

An intangible asset is an identifiable non-monetary asset without physical substance. It is identifiable when it is separable, i.e. Is capable of being separated or divided from the Group, or when it arises from contractual or other legal rights. An intangible asset shall be recognized if, and only if:

(a) it is probable that the expected future economic benefits that are attributable to the asset will flow to the Group; and

(b) the cost of the asset can be measured reliably.

Intangible assets acquired or developed internally are initially measured at cost. The cost of an acquired intangible asset comprises its purchase price, import duties and non-refundable purchase taxes, after deducting trade discounts and rebates, and any directly attributable cost of preparing the asset for its intended use. Subsequent expenditure on intangible assets is capitalized only if it is probable that it will increase the future economic benefits associated with the specific asset. Other expenditure is expensed as incurred.

After initial recognition, intangible assets are measured at cost less accumulated amortization and impairment losses, if any.

Intangible assets are amortized on a straight-line basis over their estimated useful lives, which do not exceed the contractual period, if any. The estimated useful lives, residual values and amortization methods are reviewed at each year-end, and any changes in estimates are accounted for prospectively

Patents and trademarks	2-20	years
Software	3-5	years
Development expenditures	2-5	years
Customer relationships	5-29	years
Other intangible assets - Technologies	5-20	years

Amortization expense is included in the consolidated income statement within cost of goods sold, administrative costs, research and development costs and other operating gains and losses.

The asset is tested for impairment if (a) there is a trigger for impairment, and (b) annually for projects under development (see note F27 Impairment).

Intangible assets are derecognized from the consolidated statement of financial position on disposal or when no future economic benefits are expected from their use or disposal. The gain or loss arising from the derecognition of an intangible asset is recognized in profit or loss at the moment of derecognition.

Research and development costs

Research costs are expensed in the period in which they are incurred.

Development costs are capitalized if, and only if, all the following conditions are fulfilled:

- the cost of the asset can be reliably measured;
- the technical feasibility of the product has been demonstrated;
- the product or process will be placed on the market or used internally;
- the assets will generate future economic benefits (a potential market exists for the product or, where it is to be used internally, its future utility has been demonstrated);
- the technical, financial and other resources required to complete the project are available.

Development costs comprise employee expenses, the cost of materials and services directly attributable to the projects, and an appropriate share of directly attributable fixed costs including, and where applicable, borrowing costs. The intangible assets are amortized as from the moment they are available for use, i.e. When they are in the location and condition necessary for them to be capable of operating in the manner intended by management. Development costs which do not satisfy the above conditions are expensed as incurred.

Patents, trademarks and customer relationships

Those intangible assets have mainly been acquired through business combinations. Customer relationships consist of customer lists.

Other intangible assets

Other intangible assets mainly include technology acquired separately or in a business combination.

In € million	Development costs	Patents and trademarks	Customer relationships	Other intangible assets	**Total**
Gross carrying amount					
At December 31, 2018	**372**	**1,661**	**1,956**	**743**	**4,731**
Additions	77	5		24	106
Disposals and closures	-9	-39		-2	-50
Increase through business combinations	0	2		0	2
Currency translation differences	2	18	30	12	62
Other	-6	24		-17	1
Transfer to assets held for sale	-3	2		1	-1
At December 31, 2019	**432**	**1,672**	**1,986**	**760**	**4,851**
Additions	57	8		16	81
Disposals and closures	-17	-12		-2	-31
Increase through business combinations	0	0		0	0
Currency translation differences	-13	-99	-62	-115	-288
Other	6	57		-49	14
Transfer to assets held for sale	-1	-6		-19	-26
At December 31, 2020	**464**	**1,620**	**1,924**	**592**	**4,601**
Accumulated amortization					
At December 31, 2018	**-105**	**-790**	**-640**	**-335**	**-1,871**
Amortization	-48	-105	-116	-55	-323
Impairment	0	0		-53	-53
Disposals and closures	9	39		2	50
Currency translation differences	0	-4	-5	-5	-14
Other	0	-1	3	0	0
Transfer to assets held for sale	3	-4		3	2
At December 31, 2019	**-141**	**-865**	**-758**	**-443**	**-2,209**
Amortization	-50	-109	-83	-49	-291
Impairment	-3	-17	-13	-106	-139
Disposals and closures	17	12		2	31
Currency translation differences	4	44	16	55	119
Other	0	-1	8	-3	4
Transfer to assets held for sale	0	7		18	26
At December 31, 2020	**-173**	**-930**	**-830**	**-526**	**-2,460**
Net carrying amount					
At December 31, 2018	266	872	1,315	408	**2,861**
At December 31, 2019	291	807	1,228	318	**2,642**
At December 31, 2020	**291**	**690**	**1,095**	**66**	**2,141**

Intangibles mainly relate to the intangibles acquired through the acquisitions of Rhodia and Cytec. The average remaining useful life of Rhodia's assets is 2 years, and the one of Cytec's assets is 12 years. The impairments recognized in 2020 and 2019 mainly relate to the Novecare Oil & Gas business.

NOTE F21
GOODWILL AND BUSINESS COMBINATIONS

Accounting policy

General

Acquisitions of subsidiaries are accounted for using the acquisition method. The consideration for each acquisition is measured at the aggregate of the fair values (at the date of acquisition) of assets transferred and liabilities incurred or assumed, and equity instruments issued by the Group in exchange for control of the acquiree. Acquisition-related costs are recognized in profit or loss as incurred.

Where applicable, the consideration for the acquisition includes any asset or liability resulting from a contingent consideration arrangement, measured at its acquisition-date fair value. Subsequent changes in such fair values are adjusted against the cost of acquisition where they qualify as measurement period adjustments (see below). All other subsequent changes in the fair value of contingent consideration classified as an asset or liability are accounted for in accordance with relevant IFRSs, generally through profit or loss.

Where a business combination is achieved in stages, the Group's previously held interests in the acquired entity are remeasured to fair value at the acquisition date (i.e. The date the Group obtains control) and the resulting gain or loss, if any, is recognized in profit or loss. Amounts arising from interests in the acquiree prior to the acquisition date that have previously been recognized in other comprehensive income are reclassified to profit or loss, where such treatment would be appropriate if that interest were disposed of.

The acquiree's identifiable assets, liabilities and contingent liabilities that meet the conditions for recognition under IFRS 3 *Business Combinations* are recognized and measured at their fair value at the acquisition date, except that:

- deferred tax assets or liabilities, and liabilities or assets related to employee benefit arrangements are recognized and measured in accordance with IAS 12 *Income Taxes*, and IAS 19 *Employee Benefits*, respectively;
- liabilities or equity instruments related to the replacement by the Group of an acquiree's share-based payment awards are measured in accordance with IFRS 2 *Share-based Payment*; and
- assets (or disposal groups) that are classified as held for sale in accordance with IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations* are measured in accordance with that Standard.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period (see paragraph below), or additional assets or liabilities are recognized, to reflect new information obtained about facts and circumstances that existed as of the acquisition date that, if known, would have affected the amounts recognized as of that date.

The measurement period is the period from the date of acquisition to the date the Group obtains complete information about facts and circumstances that existed as of the acquisition date, and does not exceed twelve months.

Goodwill

Goodwill arising in a business combination is recognized as an asset at the date that control is obtained (the acquisition date). Goodwill is measured as the excess of the sum of:

(a) the consideration transferred;

(b) the amount of any non-controlling interests in the acquiree; and

(c) in a business combination achieved in stages, the acquisition date fair value of the previously held equity interest in the acquiree,

over the share acquired by the Group in the fair value of the entity's identifiable net assets at the acquisition date.

Goodwill is not amortized but is tested for impairment on an annual basis, and more frequently if there are any impairment triggers identified.

For the purpose of impairment testing, goodwill is allocated to each of the Group's cash-generating units (or groups of cash-generating units) in accordance with IAS 36 Impairment of Assets.

A cash-generating unit (CGU) is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other group(s) of assets.

These tests consist of comparing the carrying amount of the assets or (groups of) CGUs with their recoverable amount. The recoverable amount of an asset or a (group of) CGU(s) is the higher of its fair value less costs to sell and its value in use. If the recoverable amount of the CGU is less than its carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit pro-rata on the basis of the carrying amount of each asset in the unit. An impairment loss recognized on goodwill shall not be reversed in a subsequent period.

Assets held for sale include their related goodwill.

On disposal of an operation within a CGU to which goodwill has been allocated, the goodwill associated with the operation disposed of is included in the determination of the profit or loss on disposal. It is measured on the basis of the relative values of the operation disposed of and the portion of the CGU retained, unless another method better reflects the goodwill associated with the operation disposed of.

Goodwill – overview

In € million	Total
Net carrying amount	
At December 31, 2018	**5,173**
Currency translation differences	66
Impairment	-771
At December 31, 2019	**4,468**
Currency translation differences	-153
Impairment	-1,050
At December 31, 2020	**3,265**

In 2020 the impairment mainly relates to Composite Materials (€ (761) million) and Technology Solutions (€ (265) million). In 2019 the impairment mainly relates to the Novecare Oil & Gas business. In 2020 and 2019 the currency translation differences mainly related to goodwill expressed in US dollars.

Goodwill by (groups of) CGU(s)

Goodwill acquired in a business combination is allocated to the CGUs or groups of CGUs that are expected to benefit from that business combination.

	2020				
In € million	**At beginning of the period**	Transfer	Impairment	Currency translation differences	**At the end of the period**
Operating segments - Groups of CGUs					
Materials		341			**341**
Chemicals		121			**121**
Solutions		266	-2		**264**
Advanced Materials	**493**	-493			
Advanced Formulations	**148**	-148			
Performance Chemicals	**86**	-86			
(Groups of) CGUs					
Composite Materials	**1,334**		-761	-64	**509**
Novecare	**569**		-7	-20	**542**
Technology Solutions	**966**		-265	-65	**636**
Special Chem	**226**		-15	-1	**210**
Specialty Polymers	**180**			-3	**177**
Soda Ash and Derivatives	**162**				**162**
Coatis	**82**				**82**
Silica	**72**				**72**
Aroma Performance	**49**				**49**
Energy Services	**50**				**50**
Hydrogen Peroxide Europe	**21**				**21**
Hydrogen Peroxide Mercosul	**14**				**14**
Hydrogen Peroxide Nafta	**7**				**7**
Hydrogen Peroxide Asia	**11**			-1	**11**
Total goodwill	**4,468**	**0**	**-1,050**	**-153**	**3,265**

In € million	At beginning of the period	Transfer	Impairment	Currency translation differences	At the end of the period
	2019				
Operating segments - Groups of CGUs					
Advanced Materials	**493**				**493**
Advanced Formulations	**194**	-46			**148**
Performance Chemicals	**86**				**86**
(Groups of) CGUs					
Composite Materials	**1,319**		-13	27	**1,334**
Novecare	**1,264**	-698		3	**569**
Novecare Oil & Gas		744	-758	15	
Technology Solutions	**946**			19	**966**
Special Chem	**225**			0	**226**
Specialty Polymers	**179**			1	**180**
Soda Ash and Derivatives	**162**				**162**
Coatis	**82**				**82**
Silica	**72**				**72**
Aroma Performance	**49**				**49**
Energy Services	**50**				**50**
Hydrogen Peroxide Europe	**21**				**21**
Hydrogen Peroxide Mercosul	**14**				**14**
Hydrogen Peroxide Nafta	**7**				**7**
Hydrogen Peroxide Asia	**11**			1	**11**
Total goodwill	**5,173**	**0**	**-771**	**66**	**4,468**

See note *F27 Impairment*

NOTE F22
PROPERTY, PLANT AND EQUIPMENT

Accounting policy

General

Property, plant and equipment are tangible items that:

- are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
- are expected to be used during more than one period.

The items of property, plant and equipment owned by the Group are recognized as property, plant and equipment when the following conditions are satisfied:

- it is probable that the future economic benefits associated with the asset will flow to the Group;
- the cost of the asset can be measured reliably.

Items of property, plant and equipment are initially measured at cost. The cost of an item of property, plant and equipment comprises its purchase price and any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. If applicable, the cost comprises borrowing costs during the construction period.

After initial recognition, items of property, plant and equipment are measured at cost less accumulated depreciation and impairment losses, if any.

Items of property, plant and equipment are depreciated on a straight-line basis over their estimated useful lives. The components of an item of property, plant and equipment with different useful lives are depreciated separately. Land is not depreciated. The estimated useful lives, residual values and depreciation methods are reviewed at each year-end, and any changes in estimates are accounted for prospectively.

Buildings	30-40	years
IT equipment	3-5	years
Machinery and equipment	10-20	years
Transportation equipment	5-20	years

Depreciation expense is included in the consolidated income statement within cost of goods sold, administrative costs, and R&D costs.

The asset is tested for impairment if there is trigger for impairment (see note F27 Impairment).

Items of property, plant and equipment are derecognized from the consolidated statement of financial position on disposal or when no future economic benefits are expected from their use or disposal. The gain or loss arising from the derecognition of an item of property, plant and equipment is recognized in profit or loss at the moment of derecognition.

Subsequent expenditure

Subsequent expenditure related to items of property, plant and equipment is capitalized only if it is probable that it will increase the future economic benefits associated with the specific asset. Other expenditure is expensed as incurred. Subsequent expenditure incurred for the replacement of a component of an item of property, plant and equipment is only recognized as an asset when it satisfies the recognition criteria mentioned above. The carrying amount of replaced items is derecognized.

Repair and maintenance costs are recognized in the consolidated income statement as incurred.

Regarding its industrial activity, Solvay incurs expenditure for major repairs over several years for most of its sites. The purpose of this expenditure is to maintain the proper working order of certain installations without altering their useful life. This expenditure is considered as a specific component of the item of property, plant and equipment and is depreciated over the period during which the economic benefits are expected to be obtained, i.e. The major repairs' intervals.

Dismantling and restoration costs

Dismantling and restoration costs are included in the cost of an item of property, plant and equipment if the Group has a legal or constructive obligation to dismantle or restore. They are depreciated over the useful life of the items to which they pertain.

Generally, Solvay's obligation to dismantle and/or restore its operating sites is only likely to arise upon the discontinuation of a site's activities. A provision for dismantling of discontinued sites or installations is recognized when there is a legal obligation (due to a request or injunction from the relevant authorities), or when there is no technical alternative than to dismantle, so to ensure the safety compliance of the discontinued sites or installations.

Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization.

All other borrowing costs are recognized in profit or loss in the period in which they are incurred.

In € million	Land and buildings	Fixtures and equipment	Other tangible assets	Property, plant and equipment under construction	**Total**
Gross carrying amount					
At December 31, 2018	**2,889**	**9,571**	**405**	**654**	**13,519**
Additions	36	124	10	615	**784**
Disposals and closures	-30	-200	-15	0	**-245**
Increase through business combinations	1	0	0	0	**2**
Currency translation differences	27	93	3	6	**129**
Other	96	359	24	-506	**-27**
Transfer to assets held for sale	-6	-8	-1	-91	**-106**
At December 31, 2019	**3,013**	**9,939**	**425**	**678**	**14,056**
Additions	24	144	13	215	**395**
Disposals and closures	-17	-92	-10	0	**-119**
Increase through business combinations	0	0	0	0	**0**
Currency translation differences	-126	-490	-20	-29	**-665**
Other	47	397	14	-455	**2**
Transfer to assets held for sale	-122	-199	-8	-3	**-331**
At December 31, 2020	**2,819**	**9,699**	**414**	**405**	**13,337**
Accumulated depreciation					
At December 31, 2018	**-1,404**	**-6,361**	**-301**		**-8,065**
Depreciation	-93	-464	-39		**-596**
Impairment	-20	-30	-1		**-51**
Reversal of impairment	1	0	0		**1**
Disposals and closures	29	199	15		**243**
Currency translation differences	-8	-49	-1		**-58**
Other	3	-12	0		**-9**
Transfer to assets held for sale	5	-53	0		**-49**
At December 31, 2019	**-1,487**	**-6,770**	**-327**		**-8,584**
Depreciation	-82	-501	-31		**-614**
Impairment	-67	-132	-8		**-207**
Reversal of impairment	0	0	0		**0**
Disposals and closures	16	91	9		**116**
Currency translation differences	59	330	15		**405**
Other	11	-1	6		**16**
Transfer to assets held for sale	71	170	7		**248**
At December 31, 2020	**-1,478**	**-6,813**	**-329**		**-8,620**
Net carrying amount					
At December 31, 2018	1,486	3,210	104	654	**5,454**
At December 31, 2019	1,527	3,169	98	678	**5,472**
At December 31, 2020	**1,342**	**2,886**	**85**	**405**	**4,717**

Impairment in 2020 mainly relates to the assets of the GBU Special Chem (Fluor Gas – Segment Solutions), which were impacted by the COVID-19 crisis.

The line "Other" mainly includes changes following portfolio transactions and reclassification of property, plant and equipment under construction to the appropriate categories when they are ready for intended use.
Cash flows related to major investments are disclosed in note *F17 Cash flows from investing activities – acquisition/disposal of assets and investments.*

NOTE F23
RIGHT-OF-USE ASSETS AND LEASE OBLIGATIONS

Accounting policy

The Group adopted IFRS 16 *Leases* for its annual period beginning January 1, 2019. IFRS 16 sets out the principles for the recognition, measurement, presentation, and disclosure of leases and requires lessees to account for all leases under a single on-balance sheet model, similar to the accounting for finance leases under IAS 17. At the commencement date of a lease, lessees recognize a lease liability (i.e. a liability to make lease payments), and a right-of-use asset (i.e. an asset representing the right to use the underlying asset over the lease term).

The Group’s leased assets relate mainly to buildings, transportation equipment, and industrial equipment.

The right-of-use assets are presented separately in the consolidated statement of financial position, and the lease liabilities are presented as part of financial debt.

The impact of adopting IFRS 16 is available in the Group’s 2019 Annual Report.

Definition of a lease

At inception of a contract, which generally coincides with the date the contract is signed, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

An asset is typically identified by being explicitly specified in a contract. However, an asset can also be identified by being implicitly specified at the time that the asset is made available for use by the customer. If the supplier has a substantive substitution right, then the asset is not identified. A substantive substitution right means that (a) the supplier has the practical ability to substitute the asset throughout the period of use, and (b) would economically benefit from doing so.

To assess whether a contract conveys the right to control the use of an identified asset, the Group assesses whether, throughout the period of use, it has:

- the right to obtain substantially all of the economic benefits from use of the identified asset; and
- the right to direct the use of the identified asset. This is generally the case when the Group has the decision-making rights regarding how and for what purpose the asset is used.

Lease term

The Group determines the lease term as the non-cancellable period of a lease, together with both:

- periods covered by an option to extend the lease if the Group is reasonably certain to exercise that option; and
- periods covered by an option to terminate the lease if the Group is reasonably certain not to exercise that option.

In its assessment, the Group considers the impact of the following factors (non-exhaustive):

- contractual terms and conditions for the optional periods, compared with market rates;
- significant leasehold improvements undertaken (or expected to be undertaken) over the term of the contract;
- costs relating to the termination of the lease, including relocation costs, costs of identifying another underlying asset suitable for the Group’s needs, costs of integrating a new asset into the Group’s operations, and termination penalties;
- the importance of that underlying asset to the Group’s operations, including the availability of suitable alternatives;
- conditionality associated with exercising the option (i.e. When the option can be exercised only if one or more conditions are met), and the likelihood that those conditions will exist; and
- past practice.

Right-of-use asset and lease liability

The Group recognizes a right-of-use asset and a lease liability at the lease commencement date, which is the date that the lessor makes the asset available for use by the Group.

Right-of-use asset

The right-of-use asset is initially measured at cost, which comprises:

- the amount of the initial measurement of the lease liability;
- any lease payments made at or before the commencement date, less any lease incentive received; and
- any initial direct costs incurred by the Group.

After the commencement date, the right-of-use asset is measured at cost less any accumulated depreciation and any accumulated impairment losses. Right-of-use assets are depreciated using the straight-line depreciation method, from the commencement date to (a) the end of the useful life of the underlying asset, in case the lease transfers ownership of the underlying asset to the Group by the end of the lease term, or the lease contains a purchase option that the Group is reasonably certain to exercise, or (b) the earlier of the end of the useful life and the end of the lease term, in all other cases.

Lease liability

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the respective Group entity's incremental borrowing rate. Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments, less any lease incentives receivable;
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- amounts expected to be payable by the Group under residual value guarantees;
- the exercise price of a purchase option if the Group is reasonably certain to exercise that option; and
- payments of penalties for early terminating the lease, if the Group is reasonably certain to exercise an option to early terminate the lease.

Service components (e.g. Utilities, maintenance, insurance, …) are excluded from the measurement of the lease liability.

After the commencement date, the lease liability is measured by:

- increasing the carrying amount to reflect interest on the lease liability;
- reducing the carrying amount to reflect the lease payments made; and
- remeasuring the carrying amount to reflect any reassessment or lease modifications, or to reflect the impact from a revised index or rate.

In € million	Land	Buildings	Transportation equipment	Industrial equipment	Other tangible assets	**Total**
Gross carrying amount						
At December 31, 2018	**0**	**0**	**0**	**0**	**0**	**0**
Adoption IFRS 16	18	170	140	93	8	**428**
Transfer from property, plant and equipment (finance leases under IAS 17)	0	6	0	44	-4	**46**
Additions	1	45	54	16	2	**118**
Disposals and closures	0	0	0	0	0	**0**
Increase through business combinations	0	0	0	0	0	**0**
Currency translation differences	1	2	2	0	0	**5**
Other	-2	-8	-6	0	1	**-15**
Transfer to assets held for sale	0	-5	-6	-1	0	**-11**
At December 31, 2019	**18**	**209**	**185**	**153**	**7**	**571**
Additions	0	39	28	12	2	**82**
Disposals and closures	0	0	0	0	0	**0**
Increase through business combinations	0	0	0	0	0	**0**
Currency translation differences	-1	-12	-11	-8	0	**-32**
Other	1	7	11	2	1	**23**
Transfer to assets held for sale	0	-10	-1	0	0	**-12**
At December 31, 2020	**17**	**221**	**200**	**159**	**10**	**631**
Accumulated depreciation						
At December 31, 2018	**0**	**0**	**0**	**0**	**0**	**0**
Transfer from property, plant and equipment (finance leases under IAS 17)	0	-4	0	-8	0	**-12**
Depreciation	-1	-49	-50	-9	-3	**-113**
Impairment	0	0	0	0	0	**0**
Reversal of impairment	0	0	0	0	0	**0**
Disposals and closures	0	0	0	0	0	**0**
Currency translation differences	0	0	0	0	0	**0**
Other	0	0	0	0	0	**0**
Transfer to assets held for sale	0	6	5	-11	0	**0**
At December 31, 2019	**-1**	**-47**	**-45**	**-28**	**-3**	**-124**
Depreciation	-1	-43	-45	-22	-3	**-114**
Impairment	0	-1	0	0	0	**-1**
Reversal of impairment	0	0	0	0	0	**0**
Disposals and closures	0	0	0	0	0	**0**
Currency translation differences	0	4	4	2	0	**10**
Other	0	-3	-1	0	0	**-4**
Transfer to assets held for sale	0	7	1	0	0	**8**
At December 31, 2020	**-2**	**-78**	**-83**	**-58**	**-5**	**-227**
Net carrying amount						
At December 31, 2018	0	0	0	0	0	0
At December 31, 2019	16	162	139	125	4	447
At December 31, 2020	**14**	**143**	**117**	**100**	**4**	**405**

The Group primarily leases buildings that include office buildings, and warehouses. Those leases are generally long-term leases and may include extension options.

Next, the Group leases transportation equipment, that mainly consists of railcars and containers to transport the Group's products.

Industrial equipment mainly relates to utility assets.

Lease contracts generally are negotiated by the local teams, and contain a wide range of different terms and conditions. Many lease contracts contain extension options and/or early termination options to provide the Group with operational flexibility. Such options are taken into account when determining the lease term and the lease liability when it is reasonably certain that they will be exercised.

If the Group exercised its extension options not currently included in the lease liability, the present value of additional payments would amount to € 165 million at December 31, 2020.

Lease contracts signed not yet commenced amount to € 139 million at December 31, 2020 (€ 123 million for 2019) and mainly relate to a cogeneration asset in Germany, a building in Lyon and industrial equipment in the United States.

Total cash outflows for leases amount to € 129 million for 2020, of which € 108 million related to payment of lease liabilities and € 21 million of interest expenses. Information on the corresponding lease liabilities (€ 433 million) can be found in the note F36 *Net indebtedness*. Information on the finance expense related to lease liabilities can be found in note F6 *Net financial charges*.

NOTE F24
JOINT OPERATIONS

The list of joint operations is available in the note F43 *List of companies included in the consolidation scope*.

- Soda Ash & Derivatives operations/interests in Devnya (Bulgaria), 75% held by Solvay and comprising the following legal entities:
  - Solvay Sodi AD;
  - Solvay Sisecam Holding AG.
- Hydrogen Peroxide Propylene Oxide (HPPO) operations/interests in Zandvliet (Belgium), Map Ta Phut (Thailand) and the HPPO plant in the Kingdom of Saudi Arabia, all 50% held by Solvay and comprising the following legal entities:
  - BASF Interox H_2O_2 Production NV;
  - MTP HP JV C.V.;
  - MTP HP JV Management B.V.;
  - MTP HP JV (Thailand) Ltd.;
  - Saudi Hydrogen Peroxide Co.

NOTE F25
INVESTMENTS IN ASSOCIATES AND JOINT VENTURES

The list of associates and joint ventures is available in the note F43 *List of companies included in the consolidation scope*.

The associates and joint ventures not classified as held for sale/discontinued operations are accounted for under the equity method of accounting.

	2020			2019		
In € million	Associates	Joint ventures	**Total**	Associates	Joint ventures	**Total**
Investments in associates and joint ventures	16	479	**495**	17	538	**555**
Earnings from associates and joint ventures	2	56	**58**	2	93	**95**

Investments in associates

In € million	**2020**	2019
Carrying amount at January 1	**17**	**15**
Profit for the year	2	2
Dividends received	-2	-1
Currency translation differences	-1	
Carrying amount at December 31	**16**	**17**

The tables below present the summary of the statement of financial position and income statement of the associates as if they were proportionately consolidated.

In € million	**2020**	2019
Statement of financial position		
Non-current assets	**14**	**12**
Current assets	**13**	**13**
Cash and cash equivalents	3	2
Non-current liabilities	**1**	**1**
Non-current financial debt	1	1
Current liabilities	**9**	**8**
Current financial debt	2	2
Investments in associates	**16**	**17**
Income statement		
Sales	31	32
Depreciation and amortization	-1	-1
Interest on loans and short term deposits	0	1
Profit for the year from continuing operations	**2**	**2**
Profit for the year	**2**	**2**
Total comprehensive income	**2**	**2**
Dividends received	**1**	**1**

Investments in joint ventures

In € million	**2020**	2019
Carrying amount at January 1	**538**	**426**
Additions	0	11
Capital increase	28	10
Profit for the year	56	93
Dividends received	-23	-25
Currency translation differences	-100	24
Transfer to assets held for sale	-22	
Other	2	-1
Carrying amount at December 31	**479**	**538**

In 2020 the capital increase related to the investment in the Strata Solvay Advanced Materials Joint Venture.

The Transfer to assets held for sale refer to the investment in the Solvay-CPC Barium Strontium Joint Venture.

In 2020 and 2019, the currency translation differences mainly relate to the evolution of the Russian ruble, of the Brazilian real and of the Indian rupee compared to the euro.

The tables below present the summary of the statement of financial position and income statement of the material joint ventures as if they were proportionately consolidated.

2020	Rusvinyl OOO	Peroxidos do Brasil Ltda	Solvay Advanced Material JV	Shandong Huatai Interox Chemical Co. Ltd	Hindustan Gum & Chemicals Ltd	Aqua Pharma Group	EECO Holding and sub-sidiaries	Cogene-ration Rosignano
In € million								
Ownership interest	50%	69.40%	50%	50%	50%	50%	33.3%	25.4%
Operating Segment	Chemicals	Chemicals	Materials	Chemicals	Solutions	Chemicals	Corporate & Business Services	Corporate & Business Services
Statement of financial position								
Non-current assets	**264**	**56**	**28**	**5**	**6**	**18**	**11**	**8**
Current assets	**73**	**48**		**7**	**142**	**10**	**17**	**2**
Cash and cash equivalents	49	21		5	130	4	3	1
Non-current liabilities	**84**	**7**		**-**	**4**	**2**	**12**	**5**
Non-current financial debt	64	4		0	0	1	12	4
Current liabilities	**56**	**21**		**3**	**8**	**3**	**11**	**1**
Current financial debt	39	2		0	0	0	10	1
Investments in joint ventures	**196**	**76**	**28**	**9**	**137**	**23**	**6**	**4**
Income statement								
Sales	168	77		17	17	20	0	0
Depreciation and amortization	-22	-4		-1	0	-3	-1	-1
Cost of borrowings	-11	0		0	0	0	-1	0
Interest on loans and short-term deposits	1	1		0	11	0	1	0
Income taxes	-4	-10		0	-2	-1	0	0
Profit for the year from continuing operations	**16**	**23**		**2**	**5**	**2**	**1**	**0**
Profit for the year	**16**	**23**		**2**	**5**	**2**	**1**	**0**
Other comprehensive income	-58	-23		0	-15	1	0	
Total comprehensive income	**-41**	**0**		**1**	**-11**	**3**	**0**	**0**
Dividends received	**6**	**9**		**2**	**1**	**0**	**0**	**0**

Other comprehensive income mainly comprises the currency translation differences.

2019	Rusvinyl OOO	Peroxidos do Brasil Ltda	Solvay & CPC Barium Strontium	Shandong Huatai Interox Chemical Co. Ltd	Hindustan Gum & Chemicals Ltd	Aqua Pharma Group	EECO Holding and sub-sidiaries	Cogene-ration Rosignano
In € million								
Ownership interest	50%	69.40%	75%	50%	50%	50%	33.3%	25.4%
Operating Segment	Chemicals	Chemicals	Solutions	Chemicals	Solutions	Chemicals	Corporate & Business Services	Corporate & Business Services
Statement of financial position								
Non-current assets	**371**	**54**	**11**	**6**	**5**	**19**	**16**	**9**
Current assets	**66**	**56**	**46**	**7**	**155**	**11**	**23**	**1**
Cash and cash equivalents	33	23	9	5	133	6	2	0
Non-current liabilities	**135**	**4**	**14**	**-**	**3**	**3**	**16**	**5**
Non-current financial debt	104	1	0	0	0	2	16	5
Current liabilities	**59**	**25**	**19**	**4**	**8**	**5**	**18**	**1**
Current financial debt	39	5	7	0	0	0	17	1
Investments in joint ventures	**243**	**82**	**24**	**9**	**149**	**21**	**5**	**3**
Income statement								
Sales	202	82	73	18	28	0	3	0
Depreciation and amortization	-25	-5	-2	-1	-1	0	-2	-1
Cost of borrowings	-15	0	0	0	0	0	-1	0
Interest on loans and short-term deposits	1	1	0	0	12	0	1	0
Income taxes	-13	-10	-3	-1	-2	0	0	0
Profit for the year from continuing operations	**51**	**23**	**8**	**2**	**8**	**0**	**1**	**0**
Profit for the year	**51**	**23**	**8**	**2**	**8**	**0**	**1**	**0**
Other comprehensive income	25	-1	-1	0	-1	0	0	
Total comprehensive income	**77**	**21**	**7**	**2**	**7**	**0**	**0**	**0**
Dividends received	**0**	**7**	**13**	**2**	**3**	**0**	**0**	**0**

Other comprehensive income mainly comprises the currency translation differences.

NOTE F26
OTHER INVESTMENTS

Accounting policy

In accordance with the concept of materiality, certain companies which are insignificant have not been included in the consolidation scope. They are measured at cost and tested for impairment on an annual basis, which is considered a good proxy of their fair value. For more information, refer to *Principles of consolidation*.

No major change in Other investments occurred in 2020

NOTE F27
IMPAIRMENT

Accounting policy

General

At the end of each reporting period, the Group reviews whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). Where it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the CGU to which the asset belongs. Where a reasonable and consistent basis of allocation can be identified, corporate assets are allocated to individual CGUs, or otherwise they are allocated to the smallest group of CGUs for which a reasonable and consistent allocation basis can be identified.

The recoverable amount is the higher of fair value less costs of disposal and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate. Future cash flows are adjusted for risks not incorporated into the discount rate.

If the recoverable amount of an asset (or CGU) is estimated to be less than its carrying amount, the carrying amount of the asset (or CGU) is reduced to its recoverable amount. An impairment loss is recognized immediately in profit or loss.

When an impairment loss subsequently reverses, the carrying amount of the asset (or CGU) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined (net of amortization or depreciation) had no impairment loss been recognized for the asset (or CGU) in prior years. A reversal of an impairment loss is recognized immediately in profit or loss. An impairment loss recognized for goodwill shall not be reversed in a subsequent period.

Assets other than non-current assets held for sale

In accordance with IAS 36 *Impairment of Assets*, the recoverable amount of property, plant and equipment, intangible assets, right-of-use assets, CGUs or groups of CGUs, including goodwill, and equity method investees corresponds to the higher of their fair value less costs of disposal, and their value in use. The latter equals the present value of the future cash flows expected to be derived from each asset, CGU or group of CGUs, and equity method investees and is determined using the following inputs:

- business plan approved by management based on growth and profitability assumptions, taking into account past performances, forecast changes in the economic environment and expected market developments, including opportunity and risks resulting from climate change and environmental regulations such as products phasing out. For further details, refer to the Risk Management Section. Such business plan generally covers five years, unless management is confident that projections over a longer period are reliable;
- consideration of a terminal value determined based on the cash flows obtained by extrapolating the cash flows of the last years of the business plan referred to above, affected by a long-term growth rate deemed appropriate for the activity and the location of the assets;
- discounting of expected cash flows at a rate determined using the weighted average cost of capital formula.

Discount rate

Weighted average cost of capital (WACC) was estimated based on an extensive benchmarking with peers based on which management concluded the following:

- A WACC of 6.4% was utilized for the initial five years, computed consistently with previous years based on prevailing discount rates;

- A WACC of 7.2% was utilized for the Terminal Value, based on historical observations over the last years. This refinement increases this discount rate by 0.5% as compared to the discount rate used in the Terminal Value during 2019 (6.7%).

Long-term growth rates

In 2020 following the impairment tests performed for Composite Materials and Technology Solutions, and considering that the long term growth potential of these businesses still remains very strong the long-term growth rates were set at 3% and at 1.5% respectively for these two CGUs. The long term growth rates for the other CGUs were not changed compared to 2019.

In 2019 a comprehensive review of the entire business portfolio was performed resulting in the definition of the G.R.O.W Strategy and each CGU was assigned to one of three agile business segments that become effective as from 2020: Materials, Chemicals and Solutions, with different growth opportunities, consistent with the long term growth rates of the market they serve and the Group competitive position in those markets. The long-term growth rate was set at 2% for the CGUs in the Segment Materials, 0% in the Segment Chemicals, except for Soda Ash and Peroxides, for which a 1% rate was set, and 1% in the Segment Solutions (excluding Oil & Gas).

Other key assumptions are specific to each CGU (utility price, volumes, margin, etc.).

Impairment tests Q2 2020

A review was undertaken during Q2, 2020, to assess whether the consequences of COVID-19 indicate that some assets could be impaired. The review confirmed that there was an indication of impairment for CGUs with the lowest impairment headroom at December 31, 2019 (see Note F27 in 2019 Annual report).

The methodology utilized for the review is described below:

- In view of the uncertainties related to the timing and magnitude of any recovery, Management prepared a range of different scenarios for the next five years and reviewed the long term growth potential in each key market (e.g. Civil Aero or Military Aero for Composites, Mining or Alumina for Technology Solutions). Probabilities were assigned to each scenario and weighted average discounted projected cash flows were derived for each CGU (“value in use”).
- Apart from the CGUs that were impaired in Q2 2020, all other Groups of CGUs for the testing of Goodwill had sufficient headroom at the end of 2019 to absorb the impact of COVID-19, which led to the conclusion that there was no indication of an impairment loss for these groups of CGUs at the end of Q2 2020, despite COVID-19.

A review was undertaken during 2020, to assess whether climate related matters give rise to indications of impairments. The review confirmed that there were no indications of impairment for CGUs during 2020. For additional information refer to the “Risk Management” section of the Management report.

Composite Materials (Materials)

Trigger for impairment in Q2 2020

Goodwill of €1.37 billion was allocated in 2015 to Composites as a result of the Cytec acquisition. The impairment test performed during Q4 2019, indicated headroom (being the difference between the value in use based on discounted cash flows and the carrying amount) of around €0.8 billion, which was one of the lowest headroom in percentage of the carrying amount.

Developments in the first half of 2020 indicated that expectations that prevailed at the end 2019 can no longer be achieved in the near to mid-term due to an expected significant reduction in civil aircraft build rates and despite the expected resilience and growth in defense related business. The long term growth potential of the business still remains very strong.

Impairment loss in Q2 2020

An impairment loss of € (0.8) billion reflects an anticipated significant EBITDA decline in 2020 relative to record 2019 levels and a gradual recovery thereafter.

Mid-term EBITDA growth forecasts of approximately 20% from the low point of 2020/2021 is consistent with:

- An expectation that narrow-body aircraft will recover sooner than wide-body aircraft as passenger traffic recovers at local and regional levels before international travel. The forecast also integrates Boeing’s indication of resuming 737MAX production in 2021, albeit at reduced rates.
- Annual cost savings of € 60 million from a recently announced restructuring plan with the closure of two industrial sites and 570 job suppressions, equivalent to € 0.6 billion in value.

Long term growth of 3% reflects the reduced short-term demand yet unchanged fundamental attractiveness of the sector in the long term (compared to 2% in the 2019 impairment test that was based on a higher EBITDA at the end of the five-years plan):

- An increase in the discount rate in the Terminal Value from 6.7% to 7.2% also contributed to a reduction in the value by € (0.4) billion relative to December 2019.
- The impairment loss has been fully allocated to Goodwill, except for the tangible assets related to the two shutdown plants. The amount corresponds to approximately 25% of the carrying amount tested.

Technology Solutions (Solutions)

Trigger for impairment in Q2 2020

Goodwill of € 0.95 billion was allocated in 2015 as a result of the Cytec acquisition. The impairment test performed during Q4 of 2019, indicated headroom of around € 0.4 billion, which was one of the Group of CGUs with the lowest headroom in terms of percentage of the carrying amount.

Developments in the first half of 2020 indicated that the expectations that prevailed at the end 2019 can no longer be achieved in the near term due to an expected reduction in new mine openings, and reduced demand in other markets most notably Oil & Gas and automotive in the next two years. The long term growth potential of the business still remains strong.

Impairment loss Technology Solutions in Q2 2020

An impairment loss of € (0.3) billion reflects revised forecasts after COVID-19:

- A significant EBITDA decline in 2020 relative to 2019 is consistent with a steep decline in non-mining applications such as Oil & Gas, biocides, and automotive related activities, compounded by the expected reduction in global copper and aluminum production levels ranging between 10% and 20%.
- A mid-term EBITDA growth rate of approximately 10% on average from the low point of 2020/2021,
- A long term growth rate of 1.5% that is consistent with the expected need for technologies that support the extraction of metal and minerals (compared to 1% in the 2019 impairment test that was based on a higher EBITDA at the end of the five-year plan).
- Furthermore, an increase in the discount rate in the Terminal Value from 6.7% to 7.2% also contributed to a reduction in the value by € (0.2) billion relative to December 2019.

The impairment loss has been fully allocated to Goodwill, with the exception of € (15) million which was allocated to tangible assets, which corresponds to approximately 16% of the carrying amount tested.

Oil & Gas (Solutions)

Trigger for impairment in Q2 2020

An impairment loss of € (825) million was recorded in Q3 2019.

Developments in Oil & Gas have worsened substantially since December 2019, and while a turnaround plan has been implemented, the plan will not be sufficient to mitigate the effects of the current and expected future deterioration of the market's dynamics.

Impairment loss Oil & Gas in Q2 2020

The Oil & Gas market has deteriorated significantly since March 2020, and the value pool for fracking chemicals has further decreased with reduced volumes and prices in a market that continues to be commoditized. As a consequence, and despite the strong turnaround plans that have already been implemented, cash flows for the next five years are below those previously expected, leading to an additional impairment loss of € (155) million. Of that amount € (61) million was allocated to tangible assets and € (94) million was allocated to intangible assets related to customer relationships.

Other small groups of assets (Solutions)

Several production sites, mainly in the GBU Special Chem (Fluor Gas), with independent cash inflows are impacted by the COVID-19 crisis. The impact resulted in an impairment loss of € (169) million, of which € (24) million is related to the Goodwill, € (41) million is related to Intangible assets, and € (104) million for tangible assets.

Q4 2020 update

An impairment test for Goodwill was performed at year-end based on the budget 2021 and the Mid Term Plan 2022-2024, and did not lead to any additional impairment. The methodology utilized for the review is the same as the one used in Q2. Main assumptions include the following:

- Expected future cash flows were calculated taking into account the budgeted allocation of shared costs;
- Tax rate applied (27%) is higher than 2020 Underlying tax rate, which benefits of very low taxable results and it is consistent with Mid Term Plan assumptions
- One of the main changes in methodology is the use of a long-term weighted average cost of capital in 2020 (in Q2 and at year-end) compared to short-term used in 2019. The new Mid Term Plan assumptions used for the testing of

goodwill, do not have a significant negative impact on the expected values of Composite Materials and Technology Solutions during June. The latter are the two CGUs showing the lowest current headroom in relation to their book values, standing at 8% and 6% respectively while remaining Groups of CGUs have sufficient headroom.

The impairment tests performed at the CGU level at December 31, 2020 did not lead to any additional impairment of assets, as the recoverable amounts of the (groups of) CGUs were higher than their carrying amounts

Sensitivities

After the impairment, Composite Materials has limited headroom at end of Q4 2020 and is sensitive to changes in assumptions related to the discount rate and the long term growth rate.

	2020		2019	
	Assumptions: Discount rate = 7.2% Long term growth rate = 3%		Assumptions: Discount rate = 6.7% Long term growth rate = 2%	
In € billion	Impact on recoverable amount	Revised headroom	Impact on recoverable amount	Revised headroom
Sensitivity to discount rate - 0,5%	0.3	0.5	0.5	1.3
Sensitivity to discount rate + 0,5%	-0.3	-0.1	-0.4	0.4
Sensitivity to long term growth rate - 1%	-0.4	-0.2	-0.7	0.1
Sensitivity to long term growth rate +1%	0.6	0.8	1.0	1.8

The table below shows the break-even analysis for the headroom of Composite Materials:

	Discount rate		Long term growth rate	
	Base rate	Break-even rate	Base rate	Break-even rate
2020	7.2%	7.5%	3.0%	2.6%
2019	6.7%	7.8%	2.0%	0.8%

After the impairment, Technology Solutions has limited headroom at the end of Q4 2020 and is sensitive to changes in assumptions related to the discount rate and the long term growth rate.

	2020		2019	
	Assumptions: Discount rate = 7.2% Long term growth rate = 1.5%		Assumptions: Discount rate = 6.7% Long term growth rate = 1%	
In € billion	Impact on recoverable amount	Revised headroom	Impact on recoverable amount	Revised headroom
Sensitivity to discount rate - 0,5%	0.2	0.2	0.2	0.6
Sensitivity to discount rate + 0,5%	-0.1	0.0	-0.2	0.2
Sensitivity to long term growth rate - 1%	-0.2	-0.1	-0.3	0.1
Sensitivity to long term growth rate +1%	0.3	0.3	0.5	0.8

The table below shows the break-even analysis for the headroom of Technology Solutions:

	Discount rate		Long term growth rate	
	Base rate	Break-even rate	Base rate	Break-even rate
2020	7.2%	7.5%	1.5%	1.1%
2019	6.7%	7.8%	1.0%	-0.2%

Impairment tests 2019

Impact of IFRS 16 *Leases* adoption

The adoption of IFRS 16 *Leases* had a limited impact on the assets to which IAS 36 *Impairment of Assets* applies. As of January 1, 2019, those assets increased from € 15.2 billion to € 15.6 billion or by 3% adding the right-of-use assets. In light of the limited impacts of the adoption of IFRS 16, its consequences for the impairment testing were insignificant.

Novecare Oil & Gas business

Most of Novecare Oil & Gas business is linked to the unconventional oil & gas in North America, and in particular the "fracking" stage of the process. Novecare serves other oil & gas applications and other process stages, such as cementing and production, but they represent only a small portion of the total sales.

In the context of difficult and uncertain global oil & gas markets, the fracking chemicals business has proved to be highly volatile and over the last two years the value pool for fracking chemicals has significantly decreased and both volumes and prices have come under pressure, as changes in the competitive environment are commoditizing the market. Solvay's oil & gas position, which comprise the Chemlogics and the Rhodia Oil & Gas businesses, have also been impacted by two further developments that have accelerated and became particularly impactful in 2019:

- The first is a marked decline in more sustainable & efficient, but also more expensive, natural guar-based formulations as customers have continued to opt for lower cost friction reducers rather than Solvay's solutions, and recent innovations have thus far failed to reverse that trend.
- The second is increased pricing pressure and loss of market share as competitors entered the important "last-mile" delivery and service space, which was previously a source of differentiation, as well as the more general pressure on the whole value chain caused by lower oil and natural gas prices.

As a result of these developments, in 2019 the profitability of the Oil & Gas business has deteriorated significantly. Action has been taken in terms of changing management, adapting cost structures as well as developing plans that are expected to help recover to a level of profitability that better reflects the competitive landscape.

Further, the strategic review that was undertaken also evidenced that the former Chemlogics business has been relatively more resilient than the former Rhodia guar based business.

As a result, the synergies between the Oil & Gas business and the rest of Novecare are now too small and future growth opportunities too modest to support the Oil & Gas business being considered as part of Novecare, which was previously the position. This conclusion required, in compliance with IAS 36 *Impairment of assets*, for the Oil & Gas activities to be isolated in a separate CGU and the impairment test to be conducted at an Oil & Gas business level rather than at Novecare level.

Taking into account the carrying amount of the assets related to the Oil & Gas business and the present value of future cash flows based on the recovery plan, an impairment of € 825 million pre-tax and € 658 million post-tax has been recognized. The magnitude of the impairment is exacerbated both by the evolution of foreign currency exchange rates since the acquisition of Chemlogics in 2013, and by an expectation of persistently low oil prices. The latter dampens demand for premium solutions and thereby the recoverable amount of the asset (cash-generating unit), which is its value in use, calculated with a WACC of 6.7%.

The impairment loss of € 825 million has been recognized by class of assets in the Segment Advanced Formulations as follows: € 758 million for goodwill, € 53 million for intangible assets, € 9 million for property, plant and equipment, and € 5 million for inventories.

NOTE F28 INVENTORIES

Accounting policy

Cost of inventories includes the purchase, conversion and other costs incurred in bringing the inventories to their present location and condition. The cost of inventories is determined by using the weighted average cost or first-in, first-out (FIFO) method. Inventories having a similar nature and use are measured using the same cost formula.

Inventories are measured at the lower of purchasing cost (raw materials and merchandise) or production cost (work in progress and finished goods) and net realizable value. Net realizable value represents the estimated selling price, less all estimated costs of completion and the estimated costs necessary to make the sale.

CO_2 emission rights

With respect to the mechanism set up by the European Union to encourage manufacturers to reduce their greenhouse gas emissions, carbon dioxide (CO_2) emission rights are granted to the Group for free. The Group is also involved in Clean Development Mechanism (CDM) under the Kyoto protocol. Under these projects, the Group has deployed facilities in order to reduce greenhouse gas emissions at the relevant sites in return for Certified Emission Reductions (CER).

In the absence of any IFRS regulating the accounting treatment of CO_2 emission rights, the Group applies the Trade/Production model, according to which CO_2 emission rights are presented as inventories if they will be consumed in the production process within the next 12 months, or as derivatives if they are held for trading. Energy Services is involved in CO_2 emission rights' trading, arbitrage and hedging activities. The net income or expense from these activities is recognized in "other operating gains and losses" (a) for the industrial component, where Energy Services sells the excess CO_2 emission rights generated by Solvay or where a Group deficit is recognized, as well as (b) for the trading component, where Energy Services acts as a trader/broker with respect to those CO_2 emission rights. In some cases, Energy Services rolls forward CO_2 credits, with continued own use exception, to match credits delivery and consumption in the production process.

In light of its centralized CO_2 emission rights' portfolio management, for emission rights that are substitutable between subsidiaries, the Group's financial statements reflect the Group's net position. If this net position is negative, a provision is recognized, measured based on the market price of the CO_2 emission rights at reporting date.

Energy savings certificates (ESCs)

Energy savings certificates are presented as inventory items. They are measured at weighted average cost. As their cost is not separately identifiable, and as they are a by-product, they are measured at their net realizable value upon initial recognition.

In € million	**2020**	2019
Finished goods	834	973
Raw materials and supplies	468	672
Work in progress	21	22
Total	**1,323**	**1,667**
Write-downs	-82	-80
Net total	**1,241**	**1,587**

In previous years the Group forward purchased EUA certificates (own use) to cover deficits after 2021. They matured in December 2020 and the acquired quotas were reported for €79 million under Other non current assets.

NOTE F29
OTHER RECEIVABLES (CURRENT)

In € million	**2020**	2019
VAT and other taxes	196	271
Advances to suppliers	69	66
Financial instruments - operational	131	167
Insurance premiums	28	30
Loan receivables	36	24
Other	58	69
Other current receivables	**519**	**628**

Financial instruments – operational include held for trading and cash flow hedge derivatives (see note F35.A. *Overview of financial instruments*).

NOTE F30
ASSETS HELD FOR SALE

Accounting policy

A disposal group is a group of assets to be disposed of, by sale or otherwise, together as a group in a single transaction, and liabilities directly associated with those assets that will be transferred in the transaction. The group includes goodwill acquired in a business combination if the group is a cash-generating unit to which goodwill has been allocated, or if it is an operation within such a cash-generating unit.

Non-current assets and disposal groups are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. This condition is regarded as met only when the sale is highly probable and the asset (or disposal group) is available for immediate sale in its present condition. For a sale to be highly probable, management should be committed to a plan to sell the asset (or disposal group), an active program to locate a buyer and complete the plan should be initiated, the asset (or disposal group) should be actively marketed at a price which is reasonable in relation to its current fair value, the sale should be expected to be completed within one year from the date of classification, and actions required to complete the plan should indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

When the Group is committed to a sale plan involving loss of control of a subsidiary, all of the assets and liabilities of that subsidiary are classified as held for sale when the criteria described above are met, regardless of whether the Group will retain a non-controlling interest in its former subsidiary after the sale.

Non-current assets (and disposal groups) classified as held for sale are measured at the lower of their previous carrying amount and fair value less costs to sell. Any excess of the carrying amount over the fair value less costs to sell is recognized as an impairment loss. Depreciation of such assets is discontinued as from their classification as held for sale. Prior period consolidated statements of financial position are not restated to reflect the new classification of a non-current asset (or disposal group) as held for sale.

	2020						2019
In € million	**Technical-grade barium and strontium**	**Sodium per-carbonate**	**Fluorine fine chemicals**	**Commodity amphoterics**	**Process materials**	**Sodium chlorate**	**Polyamides**
Operating Segment	Solutions	Solutions	Solutions	Solutions	Materials	Chemicals	Chemicals
Property, plant and equipment	7	5	27	37	0	7	817
Goodwill	0	0	0	0	0	0	173
Intangible assets	0	0	0	1	0	0	69
Right-of-use assets	0	0	-1	1	4	0	
Investments	22	0	0	0	0	0	1
Deferred tax assets	5	1	3	2	3	1	34
Inventories	2	5	5	13	13	1	236
Trade receivables	1	17	5	15	14	0	186
Other assets	4	0	1	0	3	7	69
Assets held for sale	***41***	***28***	***39***	***69***	***36***	***16***	***1,586***
Provisions	28	8	1	4	3	8	81
Deferred tax liabilities	1	0	3	1	5	1	110
Other non-current liabilities	0	0	0	0	3	0	2
Trade payables	1	1	1	12	7	2	149
Income tax payables	0	4	0	0	0	0	14
Other liabilities	1	0	5	2	6	1	81
Liabilities associated with assets held for sale	***31***	***13***	***10***	***19***	***24***	***12***	***437***
Net carrying amount of the disposal group	**10**	**15**	**29**	**50**	**12**	**4**	**1,149**
Included in other comprehensive income							
Currency translation differences	-15	0	1	0	-4	-24	19
Defined benefit plans	-11	-3	0	-1	0	4	-5
Other comprehensive income	**-26**	**-3**	**1**	**-1**	**-4**	**-19**	**14**

On January 31, 2020, Solvay formally completed the divestment of its Performance Polyamides activities to BASF and Domo Chemicals. Since the classification of Polyamides as held for sale (2017), no depreciation has been recognized.

NOTE F31
EQUITY

Accounting policy

Share capital

Ordinary shares are classified as equity.

Incremental costs directly attributable to the issuance of new share capital are directly recognized in equity as a deduction, net of tax, from the equity issuance proceeds.

Reserves

The reserves include:

- treasury shares;
- perpetual hybrid bonds that qualify as equity absent any unavoidable contractual obligation to repay the principal and interest of the perpetual hybrid bonds (no maturity, interest is payable annually but can be deferred indefinitely at the issuer's discretion);
- retained earnings;
- currency translation differences from the consolidation process relating to the translation of the financial statements of foreign operations prepared in a non-euro functional currency to the euro presentation currency;
- the impacts of the fair value remeasurement of equity instruments measured at fair value through other comprehensive income;
- the impacts of the fair value remeasurement of financial instruments documented as hedging instruments in cash flow hedges;
- actuarial gains and losses related to defined benefit plans.

Non-controlling interests

Those represent the share of non-controlling interests in the net assets and comprehensive income of subsidiaries of the Group, and corresponds to the interests in subsidiaries that are not held by the Company or its subsidiaries.

Perpetual hybrid bonds

To strengthen its capital structure, Solvay issued undated deeply subordinated perpetual bonds ("perpetual hybrid bonds") of € 1.8 billion as per the following table:

In € million	**Issuance date**	**Nominal value**	**%**	**Annual coupon**	**First call date**
Hybrid bond NC10	12 November 2013	500	5.425%	27	12 November 2023
Hybrid bond NC8.5	2 December 2015	500	5.869%	29	3 June 2024
Hybrid bond NC5.25*	4 December 2018	300	4.250%	13	4 March 2024
Hybrid bond NC5.5*	2 September 2020	500	2.500%	13	2 March 2026

** with 3 months call option at par*

In September 2020, Solvay issued a new perpetual hybrid bond for an aggregate principal amount of € 500 million (NC5.5 @ 2.5 %). The first coupon will be paid in March 2021 (€ 6.2 million, then it will be paid annually (€ 12.5 million) until the first call date in 2026).

This new issue was aimed at refinancing in advance the existing perpetual hybrid (NC5.5 @ 5.118%) with an initial first call in June 2021. The transaction took place as follows:

- the initial purchase of 91.58% of the € 500 million (€ 457 million net of issuance costs) through a cash tender offer at 103.75%; and
- the redemption of the remaining 8.42% of the € 500 million (the remaining € 43 million net of issuance costs) as per Solvay's right under the terms and conditions of this hybrid bond.

In addition to the € 500 million principal amount repaid, the transaction has generated a cash outflow of € 23.6 million (including the premium for the cash tender and the accrued coupon on the € 500 million until the relevant repurchase dates).

All perpetual hybrid bonds are classified as equity absent any unavoidable contractual obligation to repay the principal and interest of the perpetual hybrid bonds, specifically:

- No maturity, yet the issuer has a call option at every reset date to redeem the instrument;
- At the option of the issuer, interest payments can be deferred indefinitely.

The coupons related to the perpetual hybrid bonds are recognized as equity transactions and are deducted from equity upon declaration (see consolidated statement of changes in equity) amounting to € 119 million in 2020 (including the € 23.6 million above-mentioned) compared to € 115 million in 2019.

Should Solvay have elected not to pay any interests to the perpetual hybrid bond holders, then any payment of dividends to the ordinary shareholders or repayment of ordinary shares would trigger a contractual obligation to pay previously unpaid interests to the perpetual hybrid bond holders.

Tax impacts related to the perpetual hybrid bonds are recognized in profit or loss.

Number of shares (in thousands)

	2020	2019
Shares issued and fully paid at January 1	105,876	105,876
Shares issued and fully paid at December 31	105,876	105,876
Treasury shares held at December 31	2,718	2,466

NOTE F32
NON-CONTROLLING INTERESTS

The amounts disclosed below are fully consolidated amounts and do not reflect the impacts from elimination of intragroup transactions.

At the end of 2020 the following three subsidiaries have non-controlling interests totaling € 83 million (out of a total of € 106 million).

In € million	**Zhejiang Lansol**	**Solvay Special Chem Japan**	**Solvay Soda Ash**
Non-controlling ownership interest	45%	33%	20%
Statement of financial position			
Non-current assets	25	18	267
Current assets	33	20	26
Non-current liabilities	2	1	16
Current liabilities	11	3	21
Income statement			
Sales	63	53	296
Profit for the year	3	4	116
Other comprehensive income	0	-1	18
Total comprehensive income	**2**	**3**	**134**
Dividends paid to non-controlling interests	0	1	25
Share of non-controlling interest in the profit for the year	1	1	23
Accumulated non-controlling interests	20	11	52

At the end of 2019 the following three subsidiaries have non-controlling interests totaling € 89 million (out of a total of € 111 million).

In € million	Zhejiang Lansol	Solvay Special Chem Japan	Solvay Soda Ash
Non-controlling ownership interest	45%	33%	20%
Statement of financial position			
Non-current assets	27	19	300
Current assets	32	22	27
Non-current liabilities	1	1	18
Current liabilities	15	4	24
Income statement			
Sales	63	65	346
Profit for the year	5	3	148
Other comprehensive income	0	1	-13
Total comprehensive income	**5**	**4**	**135**
Dividends paid to non-controlling interests	0	1	31
Share of non-controlling interest in the profit for the year	2	1	30
Accumulated non-controlling interests	19	12	58

NOTE F33
SHARE-BASED PAYMENTS

Accounting policy

Solvay has set up compensation plans, including equity-settled and cash-settled share-based compensation plans.

In its equity-settled plans, the Group receives services as consideration for its own equity instruments (namely through the issuance of share options). The fair value of services rendered by employees in consideration for the granting of equity-instruments represents an expense. This expense is recognized on a straight-line basis in the consolidated income statement over the vesting periods relating to these equity-instruments with the recognition of a corresponding adjustment in equity. The fair value of services rendered is measured based on the fair value of the equity-instruments on the grant date. It is not subsequently remeasured. At each reporting date, the Group re-estimates the number of share options likely to vest. The impact of the revised estimates is recognized in profit or loss against a corresponding adjustment in equity.

In its cash-settled plans, the Group acquires services by incurring a liability to transfer to its employees rendering those services amounts that are based on the price (or value) of equity instruments (including shares or share options) of the Group (namely through the issuance of performance share units). The fair value of services rendered by employees in consideration for the granting of share-based payments represents an expense. This expense is recognized on a straight-line basis in the consolidated income statement over the vesting periods relating to these share-based payments with the recognition of a corresponding adjustment in liabilities. At each reporting date, the Group re-estimates the number of options likely to vest, with the impact of the revised estimates recognized in profit or loss. The Group measures the services acquired and the liability incurred at the fair value of the liability. Until the liability is settled, the Group remeasures the fair value of the liability at the end of each reporting period and at the date of settlement, with any changes in fair value recognized in profit or loss for the period.

Stock Option Plan

As every year since 1999, in 2020, the Board of Directors renewed the share option plan offered to executive staff (43 beneficiaries) with a view to involving them more closely in the long-term development of the Group. The plan is an equity-settled share-based plan. The majority of the managers involved subscribed to the options offered to them in 2020 with an exercise price of € 95.80 representing the average stock market price of the share for the 30 days prior to the offer.

At the end of December 2020, the Group held 2,718,122 treasury shares, which have been deducted from consolidated shareholders' equity.

Share options	**2020**	**2019**	**2018 - 2**	**2018 - 1**	**2017**	**2016**
Number of share options granted and still outstanding at December 31, 2019		438,107	72,078	400,704	316,935	759,023
Granted share options	405,670					
Forfeitures of rights and expiries						
Share options exercised						-62,879
Number of share options at December 31, 2020	405,670	438,107	72,078	400,704	316,935	696,144
Share options exercisable at December 31, 2020						696,144
Exercise price (in €)	95.80	97.05	108.38	113.11	111.27	75.98
Fair value of options at measurement date (in €)	15.23	17.77	20.81	19.10	23.57	17.07

	2015	**2014**	**2013**	**2012**	**2007**
Number of share options granted and still outstanding at December 31, 2019	346,617	351,482	367,171	206,144	52,488
Granted share options					
Forfeitures of rights and expiries				-145,456	-4,000
Share options exercised				-60,688	-48,488
Number of share options at December 31, 2020	346,617	351,482	367,171	0	0
Share options exercisable at December 31, 2020	346,617	351,482	367,171	0	0
Exercise price (in €)	114.51	101.14	104.33	83.37	90.97
Fair value of options at measurement date (in €)	24.52	22.79	20.04	21.17	17.56

	2020		2019	
	Number of share options	Weighted average exercise price	Number of share options	Weighted average exercise price
At January 1	**3,310,749**	**102.60**	**3,223,101**	**101.32**
Granted during the year	405,670	95.80	438,107	97.05
Forfeitures of rights and expiries during the year	-149,456	83.57	-21,139	96.25
Exercised during the year	-172,055	82.81	-329,320	83.05
At December 31	**3,394,908**	**103.63**	**3,310,749**	**102.60**
Exercisable at December 31	**1,761,414**		**1,323,902**	

In 2020, the share options resulted in an expense of € 7 million, which was calculated by third parties according to the Black-Scholes model, and recognized in the consolidated income statement as part of administrative costs.

The valuation of the stock option plan of 2020 is based on:

- the price of the underlying asset (Solvay share): € 90.20 at February 26, 2020;
- the time outstanding until the option maturity: exercisable from January 1, 2024, until February 25, 2028, taking into account the fact that some of them will be exercised before the option maturity;
- the option exercise price: € 95.80;
- the risk-free return: (0.24)% (on average);
- the volatility of the underlying yield, estimated based on the option price: 20.32%;
- a dividend yield of 3.86%.

Weighted average remaining contractual life:

In years	**2020**	2019
Share option plan 2007	0.0	1.0
Share option plan 2012	0.0	0.1
Share option plan 2013	0.2	1.2
Share option plan 2014	1.2	2.2
Share option plan 2015	2.2	3.2
Share option plan 2016	3.2	4.2
Share option plan 2017	4.2	5.2
Share option plan 2018 - 1	5.2	6.2
Share option plan 2018 - 2	5.6	6.6
Share option plan 2019	6.2	7.2
Share option plan 2020	7.2	-

Performance Share Units Plan (PSU)

Since 2013, the Board of Directors renewed a yearly Performance Share Unit Plan, offered to executive staff with the objective of involving them more closely in the development of the Group, making this part of the long term incentive policy. All the managers involved subscribed the PSU offered to them in 2020 with a grant price of € 95.80. The Performance Share Units is a cash-settled share-based plan through which beneficiaries will obtain a cash benefit based on the Solvay share price, as well as performance conditions and accrued dividends.

Each plan has a 3-year vesting period, after which a cash settlement will take place, if vesting conditions will have been met.

Performance share units	**Plan 2020**	Plan 2019
Number of PSUs	236,802	227,326
Grant date	25/02/2020	26/02/2019
Acquisition date	01/01/2023	01/01/2022
Vesting period	31/03/2020 to 31/12/2022	31/03/2019 to 31/12/2021
Performance conditions	40% of the initial granted PSUs are subject to the achievement of Year over Year Underlying EBITDA growth target for each of the 3 (2020, 2021, 2022) performance years ending on December 31, 2022	40% of the initial granted PSUs are subject to the Underlying EBITDA YoY growth % over 3 years (2019, 2020, 2021)
	40% of the initial granted PSUs are subject to the sustained and /or improved ROCE % of the Company for each of the 3 (2020, 2021, 2022) performance years	40% of the initial granted PSUs are subject to the CFROI YoY % variation over 3 years (2019, 2020, 2021)
	20% of the initial granted PSUs are subject to the reduction of GHG absolute emissions during the same 3 years (2020, 2021, 2022)	20% of the initial granted PSUs are subject to the GHG Intensity reduction target at the end of the accounting period ending December 31, 2021
	Achievement of the plan is measured for each separate performance year. The score achieved for each individual year is acquired definitively, whatever the achievement of the other years	
Validation of performance conditions	By the Board of Directors	By the Board of Directors

In 2020 the impact on the consolidated income statement regarding PSU (net of hedging) amounts to a net income of € 8 million, compared to a cost of € 17 million in 2019. The carrying amount of the PSU liability at the end of 2020 amounts to € 17 million, compared to € 40 million at the end of 2019.

NOTE F34 PROVISIONS

GRI Disclosures 201-3

In € million	Employee benefits	Restructuring	Environment	Litigation	Other	Total
At December 31, 2019	**2,694**	**99**	**703**	**80**	**135**	**3,710**
Additions	81	136	33	17	22	**289**
Reversals of unused amounts	-23	-18	-18	-7	-38	**-104**
Uses	-125	-92	-68	-27	-19	**-331**
Use of provisions for additional voluntary contributions (pension plans)	-552					**-552**
Increase through discounting (1)	39	0	30	1	0	**69**
Remeasurements (2)	191	0	0	0	0	**191**
Currency translation differences	-57	-2	-41	-9	-2	**-110**
Acquisitions and changes in consolidation scope	0	0	0	0	0	**0**
Disposals	0	0	-6	0	0	**-6**
Transfer to liabilities associated with assets held for sale	-32	-2	-18	0	0	**-52**
Other	-6	0	0	5	-15	**-15**
At December 31, 2020	**2,209**	**120**	**615**	**61**	**84**	**3,088**
Of which current provisions	0	62	69	11	47	**190**

(1) increase of employee benefits through discounting include the unwinding of the discount rate on the gross liability (€ 112 million) partially offset by asset return up to the discount rate for € (73) million.

(2) Remeasurements include change in assumptions for gross debt (€ 386 million) partially offset by assets return (€ (195) million), which excludes the impact of remeasurements on the plan assets surplus (€ 15 million)

The provisions decreased by € (623) million in 2020, of which € (485) million for Employee benefits and € (88) million for Environmental.

New provisions for restructuring exceeded the payments by € 26 million.

For employee benefits, the decrease of € (485) million is explained below:

- payments (use) for € (677) million, of which voluntary contributions of € (552) million to pensions funds to deleverage and de-risk;
- net new liabilities (additions and reversals) for € 58 million;
- increase of the liability due to remeasurements resulting from the change in assumptions related to gross liability for € 386 million (mainly change in discount rate);
- return on plan assets reducing the liability by € (268) million, of which € (73) million in deduction of "Increase through discounting") and € (195) million in deduction of "Remeasurements" for the assets return exceeding the discount rate;
- increase through discounting for € 112 million for the unwinding of the discount rate on the gross liability;
- other decreases in net debt for € (95) million mainly for exchange rate and transfer to liabilities associated with assets held for sale.

For Environment, payments (use) for € (68) million, the depreciation of the USD and the Brazilian Real (€ (41) million), the transfer to liabilities associated with assets held for sale (€ (18) million) exceed significantly the new net liabilities (€ 15 million) and the unwinding of the discount rate (€ 30 million).

Management expects provisions (other than employee benefits) to be used (cash outlays) as follows:

In € million	up to 5 years	between 5 and 10 years	beyond 10 years	Total
Total provisions for environment	269	96	249	**614**
Total provisions for litigation	57	5		**61**
Total provisions for restructuring and other	186	10	7	**203**
At December 31, 2020	**512**	**111**	**256**	**878**

F34.A. Provisions for employee benefits

Accounting policy

General

The Group's employees are offered various post-employment benefits, other long-term employee benefits, and termination benefits as a result of legislation applicable in certain countries, and contractual agreements entered into by the Group with its employees or constructive obligations.

The post-employment benefits are classified as defined contribution or defined benefit plans.

Defined contribution plans

Defined contribution plans involve the payment of fixed contributions to a separate entity, and release the employer from any subsequent obligation, as this separate entity is solely responsible for paying the amounts due to the employee. The expense is recognized when an employee has rendered services to the Group during the period.

Defined benefit plans

Defined benefit plans concern all plans other than defined contribution plans, and include:

- post-employment benefits: pension plans, other post-employment obligations and supplemental benefits such as post-employment medical plans;
- other long-term employee benefits: long-service benefits granted to employees according to their seniority in the Group;
- termination benefits such as early pension plans.

Taking into account projected final salaries on an individual basis, post-employment benefits are measured by applying a method (projected unit credit method) using assumptions involving discount rate, life expectancy, turnover, wages, annuity revaluation and medical cost inflation. The assumptions specific to each plan take into account the local economic and demographic contexts.

The discount rates are interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating the terms of the related pension obligation.

The amount recognized under post-employment obligations corresponds to the difference between the present value of future obligations and the fair value of the plan assets funding the plan, if any. If this calculation gives rise to a deficit, an obligation is recognized in liabilities. Otherwise, a net asset limited to the lower of the surplus in the defined benefit plan and the present value of any future plan refunds or any reduction in future contributions to the plan is recognized.

The defined benefit cost consists of service cost and net interest expense (based on discount rate) on the net liability or asset, both recognized in profit or loss, and remeasurements of the net liability or asset, recognized in other comprehensive income.

Service cost consists of current service cost, past service cost resulting from plan amendments or curtailments and settlement gains or losses.

The interest expenses arising from the reverse discounting of the benefit obligations, the financial income on plan assets (determined by multiplying the fair value of the plan assets by the discount rate) as well as interest on the effect of the asset ceiling are recognized on a net basis in the net financial charges (cost of discounting of provisions).

Remeasurements of the net liability or asset consist of:

- actuarial gains and losses on the benefit obligations arising from experience adjustments and/or changes in actuarial assumptions (including the effect of changes in the discount rate) recognized in other comprehensive income;
- Changes as a consequence of plan amendments, recognized in profit or loss;
- the return on plan assets (excluding amounts in net interest) and changes in the limitation of the net asset recognized.

Other long-term and termination benefits are accounted for in the same way as post-employment benefits but remeasurements are fully recognized in the net financial charges during the period in which they occur.

The actuarial calculations of the main post-employment obligations and other long-term benefits are performed by independent actuaries.

Overview

In € million	**2020**	2019
Post-employment benefits	2,006	2,498
Other long-term benefits	148	145
Termination benefits	54	52
Total employee benefits	**2,209**	**2,694**

Post-employment benefits

A. Defined contribution plans

For defined contribution plans, Solvay pays contributions to publicly or privately administered pension funds or insurance companies. For 2020, the expense amounts to € 57 million compared to € 62 million for 2019

B. Defined benefit plans

Defined benefit plans can be either funded via outside pension funds or insurance companies ("funded plans") or financed within the Group ("unfunded plans"). Unfunded plans have no plan assets dedicated to them.

The net liability results from the net of the provisions and the asset plan surplus.

In € million	**2020**	2019
Provisions	2,006	2,498
Asset plan surplus	-31	-23
Net liability	1,975	2,475
Operational expense	**38**	**56**
Finance expense	**26**	**57**

The operating expense includes current service cost for € 44 million (€ 44 million in 2019).

B.1. Management of risks

Over recent years, the Group has reduced its exposure to defined benefit plan obligations stemming from future services by converting existing plans into pension plans with a lower risk profile (hybrid plans, cash balance plans and defined contribution plans) or by closing them to new entrants.

Solvay continuously monitors its risk exposure, focusing on the following risks:

Asset volatility

Equity instruments, even though expected to outperform corporate bonds in the long-term, create volatility and risk in the short-term. To mitigate this risk, the allocation to equity instruments is monitored using Assets and Liabilities Management techniques, to ensure it remains appropriate given the respective schemes' and Group's long term objectives.

Changes in bond yields

A decrease in corporate bond yields will increase the carrying amount of the plans' liabilities. For funded schemes this impact will be partially offset by an increase in the fair value of the plan assets.

Inflation risk

The defined benefit obligations are linked to inflation, and higher inflation will lead to higher liabilities (although, in most cases, caps on the level of inflationary increases are in place to protect against extreme inflation). A limited part of the assets is either unaffected by or only partially correlated with inflation, meaning that an increase in inflation will also increase the plans' net liabilities.

Life expectancy

The majority of the schemes' obligations are to provide benefits for the life of the member. Increases in life expectancy will therefore increase the plans' liabilities.

Regulatory risk

Especially with respect to funded plans, the Group is exposed to the risk of external funding following regulatory constraints. This should not impact the defined benefit obligation but could expose the Group to a potential significant cash outlay.

For more information about Solvay Group risk management, please refer to the "Management of risks" section of the present document.

B.2 Description of obligations

The provisions have been set up to cover post-employment benefits granted by most Group companies in line, either with local rules and /or with established practices which generate constructive obligations.

The largest post-employment plans in 2020 are in the United Kingdom, the United States, France, Germany and Belgium. These five countries represent 95% of the total defined benefit obligations.

2020

In € million	Defined benefit obligations	In %	Recognized plan assets	Net liability	In %	Ratio plan assets on defined benefit obligations
United Kingdom	1,731	32%	1,394	337	17%	81%
United States	1,327	24%	1,175	152	8%	89%
France	1,101	20%	349	753	38%	32%
Germany	583	11%	95	488	25%	16%
Belgium	422	8%	294	128	6%	70%
Other countries	273	5%	155	118	6%	57%
Total	**5,436**	**100%**	**3,461**	**1,975**	**100%**	**64%**

The total defined benefit obligations, for which there are no legal requirements to maintain a plan and are partially pre-funded (up to 75%) amount to € 2,125 million.

2019

In € million	Defined benefit obligations	In %	Recognized plan assets	Net liability	In %	Ratio plan assets on defined benefit obligations
United Kingdom	1,680	30%	1,423	256	10%	85%
United States	1,406	26%	1,134	272	11%	81%
France	1,113	20%	0	1,113	45%	0%
Germany	576	11%	0	576	23%	0%
Belgium	400	7%	274	126	5%	68%
Other countries	336	6%	204	132	6%	59%
Total	**5,511**	**100%**	**3,035**	**2,475**	**100%**	**55%**

United Kingdom

Solvay sponsors a few defined benefit plans in the United Kingdom; the largest one is the Rhodia Pension Fund. This is a final salary funded pension plan, with entitlement to accrue a percentage of salary per year of service. It was closed to new entrants in 2003 and replaced by a defined contribution plan.

Broadly, about 8% of the liabilities are attributable to current employees, 27% to former employees and 65% to current pensioners.

The Fund functions and complies with UK legislation under a large regulatory framework. The Pensions Regulator has a risk based approach to regulation and a code of practice which provides practical guidance to trustees and employers of defined benefit schemes on how to comply with the scheme funding requirements. In accordance with UK legislation, the Fund is subject to Scheme Specific Funding which requires that pension plans are funded prudently.

The UK Rhodia Pension Fund is governed by a Board of Trustees. They manage the Fund with prudent and fair judgment. The Trustees determine the liabilities used for Statutory Funding Objectives based on prudent actuarial and economic assumptions. Any shortfall or deficit once these liabilities have been deducted from the Fund's assets must be reduced by additional contributions and in a time frame determined in accordance with the employer's ability to pay and the strength of covenant or contingent security being offered by the employer.

The Rhodia Pension Fund is subject to a triennial valuation cycle for funding purposes. This valuation is performed by the scheme actuary in line with UK regulations and is discussed between the Trustees and the sponsoring employer to agree the valuation assumptions and a funding plan. The last completed valuation was as at January 1, 2018 which established a fixed contribution rate of pensionable pay for active members plus a deficit recovery plan which aims to fund the scheme's technical provisions over a period of time. Recovery contributions have been increased so that the plan is expected to be fully funded by the end of 2027 in accordance with local regulations. At the end of 2019 a voluntary contribution has been paid (€ 114 million), which corresponds to the expected annual contributions for the next four years.

The guarantee provided by Solvay (£ 550 million) is based on local regulations and exceeds the recognized liability (€ 297 million) – See note F39 *Contingent liabilities and financial guarantees* for more information.

France

Solvay sponsors different defined benefit plans in France. The largest plans are the French compulsory retirement indemnity plan and three closed top hat plans. Indeed, as required by the "Loi Pacte", the open top hat plan (so called "ARS") has been closed at the end of 2019 and replaced by a defined contribution plan.

The main plan is for all former Rhodia current and retired employees who contributed to the plan prior to its closure in the 1970s. It offers a full benefit guarantee based on the end-of-career salary; more than 99% of the liabilities are attributable to current pensioners. This plan is partially funded; a voluntary contribution of € 379 million has been paid in February 2020.

In accordance with French legislation, adequate guarantees have been provided.

United States

As of year-end 2020 Solvay sponsored five different defined benefit pension plans in the United States (two qualified plans and three non-qualified plans). A qualified plan is an employer-sponsored retirement plan that qualifies for special tax treatment under Section 401(a) of the Internal Revenue Code. At this moment all defined benefit plans are closed to new entrants where newly hired employees are eligible to participate in a defined contribution plan. Note that both qualified defined benefit pension plans are funded while the three non-qualified defined benefit pension plans are unfunded. The qualified plans make up the vast majority of the pension liabilities as of December 31, 2020.

Solvay's plans are in compliance with local laws regarding audited financial statements, governmental filings, and Pension Benefit Guaranty Corporation insurance premiums where applicable. The plans are reviewed and monitored locally by fiduciary committees for purposes of plan investments and administrative matters.

For the US qualified plans, Solvay's contributions take into account minimum (tax-deductible) funding requirements as well as maximum tax deductible contributions, both regulated by the tax authorities.

Certain eligible participants may elect to receive their pension in a single lump sum payment instead of a monthly payment.

Broadly, about 26% of the liabilities are attributable to current employees, 10% to former employees for whom benefit payments have not yet commenced and 64% to current pensioners.

In 2020, in the United States Solvay contributed to two multiemployer pension plans under collective bargaining agreements that cover certain of its union-represented employees. Each of the multiemployer plans is a defined benefit pension plan. None of the multiemployer plans provide an allocation of its assets, liabilities, or costs among contributing employers. None of the multiemployer plans provides sufficient information to permit Solvay, or other contributing employers, to account for the multiemployer plan as a defined benefit plan. Accordingly, the company accounts for its participation in each of the multiemployer plans as if they were a defined contribution plan. For multiemployer plans, during 2020 and 2019, the annual contributions paid are less than € 1 million.

Germany

Solvay sponsors various defined benefit plans in Germany. The largest plans are a closed final-pay plan and an open cash balance plan. Broadly, about 63% of the liabilities are attributable to current pensioners. These plans are partially funded; a voluntary contribution of € 95 million to a new Contractual Trust Agreement has been paid in December 2020.

Belgium

Solvay sponsors two defined benefit plans in Belgium. These are funded pension plans. The plan for executives has been closed since end of 2006, and the plan for the White and Blue collars has been closed since 2004. The past service benefits provided under these plans continues to be adapted each year considering annual salary increase and inflation ("Dynamic management"). In accordance with market practice in Belgium, because of favorable retirement lump sum taxation, most benefits are paid as lump sum.

Furthermore, Solvay sponsors two open defined contribution plans, classified as defined benefit plans for accounting purposes due to the minimum guarantees explained hereafter. These are funded pension plans which are open since the beginning of 2007 for the one in favor of the executives and since beginning of 2005 for the one in favor of the White and Blue collars. Participants may choose to invest their contributions amongst four different investment funds (from "Prudent" to "Dynamic"). However, regardless of their choices, the Belgian law foresees that the employer must guarantee a return on employer contribution and on personal contribution, creating that way a potential liability for the Group. Since 2016 the return has been fixed at 1.75% for both types of contributions, at the minimum of the range provided by law since January 1, 2016 (1.75% to 3.75%). At the end of 2020 net liability recognized in the consolidated statement of financial position concerning these plans is not material.

Solvay's plans are administered through the Solvay Pension Fund that operates in compliance with local laws regarding minimum funding, investments principles, audited financial statements, governmental filings, and governance principles. The Pension Fund is managed through a General Assembly and a Board of Directors delegating day-to-day activities to an operational Committee.

Solvay sponsors a few other smaller pension plans. All these plans are insured.

Other Plans

The majority of the obligations relate to pension plans. In some countries (mainly the United States), there are also post-employment medical plans, which represent 4% of the total defined benefit obligation

B.3 Financial impacts

Changes in net liability

In € million	**2020**	2019
Net amount recognized at beginning of period	2,475	2,485
Net expense recognized in P&L - Defined benefit plans	64	113
Actual employer contributions / direct actual benefits paid	-654	-308
Acquisitions and disposals	-1	0
Remeasurements before impact of asset ceiling	176	167
Change in the effect of the asset ceiling limit on remeasurements	-3	-1
Reclassifications	-1	1
Currency translation differences	-49	22
Transfer to (liabilities associated with) assets held for sale	-32	-4
Net amount recognized at end of period	**1,975**	**2,475**

Remeasurements including the impact of asset ceiling (€ 174 million) comprise:

- the favorable investment return on plan assets (excluding interests reported in the consolidated income statement) for € (210) million;
- decrease in discount rates (€ 408 million) mainly in the United States, United Kingdom and Eurozone;
- decrease in inflation rate (€ (77) million) for United Kingdom;
- other remeasurements due to changes in the other financial assumptions, demographic and experience effects (€ 54 million).

Net expense

In € million	**2020**	2019
Current service costs	44	44
Past service costs (including curtailments and settlements)	-11	8
Service costs	**33**	**52**
Interest cost	99	144
Interest income	-73	-87
Net interest	**26**	**57**
Administrative expenses paid	**4**	**4**
Net expense recognized in income statement - Defined benefit plans	**64**	**113**
Remeasurements recognized in other comprehensive income	**174**	**166**

The service costs and administrative expenses of these benefit plans are recognized within cost of sales, administrative costs, research & development costs or operating gains and losses and results from legacy remediation, and the net interest is recognized as a finance expense.

In 2020 the Group's current service costs amount to € 44 million, of which € 33 million related to funded plans and € 11 million related to unfunded plans.

In 2019 the Group's current service costs amount to € 44 million, of which € 29 million related to funded plans and € 15 million related to unfunded plans.

Net liability

In € million	**2020**	2019
Defined benefit obligations – Funded plans	4,823	3,500
Fair value of plan assets at end of period	-3,461	-3,040
Deficit for funded plans	**1,363**	**460**
Defined benefit obligations – Unfunded plans	612	2,011
Deficit / surplus (-)	**1,975**	**2,471**
Amounts not recognized as asset due to asset ceiling (recognized in other comprehensive income)	0	4
Net liability (asset)	**1,975**	**2,475**
Provision recognized	2,006	2,498
Asset recognized	-31	-23

Changes in defined benefit obligations

In € million	**2020**	2019
Defined benefit obligation at beginning of period	**5,511**	**5,022**
Current service costs	44	44
Past service costs (including curtailments)	-15	8
Interest cost	99	144
Employee contributions	4	5
Settlements	-3	0
Acquisitions and disposals (-)	0	0
Remeasurements in other comprehensive income	386	494
Actuarial gains and losses due to changes in demographic assumptions	*-2*	*-20*
Actuarial gains and losses due to changes in financial assumptions	*348*	*511*
Actuarial gains and losses due to experience	*39*	*2*
Actual benefits paid	-286	-308
Currency translation differences	-270	105
Reclassification and other movements	-1	3
Transfer from/to (liabilities associated with) assets held for sale	-34	-5
Defined benefit obligation at end of period	**5,436**	**5,511**
Defined benefit obligations – Funded plans	4,824	3,500
Defined benefit obligations – Unfunded plans	612	2,011

Changes in the fair value of plan assets

In € million	**2020**	2019
Fair value of plan assets at beginning of period	**3,040**	**2,542**
Interest income	73	87
Remeasurements in other comprehensive income	210	327
Return on plan assets (excluding amounts in net interests including on asset surplus)	*210*	*327*
Employer contributions	654	308
Employee contributions	4	5
Acquisitions/disposals (-)	0	0
Administrative expenses paid	-4	-4
Settlements	-7	0
Actual benefits paid	-286	-308
Currency translation differences	-220	83
Reclassification and other movements	0	2
Transfer from/to (liabilities associated with) assets held for sale	-3	-1
Fair value of plan assets at end of period	**3,461**	**3,040**
Actual return on plan assets (including on asset surplus)	283	414

In 2020 the total return on plan assets, i.e. Including interest income, amounts to € 283 million against € 414 million in 2019.

In 2020, the Group's cash contributions amount to € 654 million, of which € 48 million of mandatory contributions to funds, € 552 million of voluntary cash contributions, and € 54 million of direct benefits payments. The voluntary cash contributions were made to improve the funding level of the US pension plans (€ 78 million) and partially fund French (€ 379 million) and German (€ 95 million) unfunded pension plans and increase de-risking with plans asset.

In 2019, the Group's cash contributions amount to € 308 million, of which € 107 million of mandatory contributions to funds, € 114 million of voluntary cash contributions, and € 87 million of direct benefits payments. The voluntary cash contributions were made to improve the funding levels of the Rhodia Pension Fund in the United Kingdom.

Except for any significant change in the regulatory environment (see "regulatory risk" above), the Group's mandatory cash contributions in 2021 are expected to decrease to approximate € 58 million, and a voluntary cash contribution of ca €100m was made in January 2021 for Belgium. The decrease of the mandatory contributions expected in 2021 is due to the action plans undertaken by the Group on the management of pension funding.

Categories of plan assets

	2020	2019
Equities	30%	37%
Bonds	53%	49%
Properties and infrastructures	4%	0%
Cash and cash equivalents	7%	4%
Derivatives	2%	6%
Structured debt (LDI)	0%	0%
Others	4%	4%
Total	**100%**	**100%**

With respect to the invested assets, it should be noted that these assets do not contain any direct investment in Solvay Group shares or in property or other assets occupied or used by Solvay. This does not exclude Solvay shares being included in mutual investment fund type investments.

Changes in asset ceiling

In € million	**2020**	2019
Effect of the asset ceiling limit at beginning of period	**4**	**5**
Change in the effect of the asset ceiling limit on remeasurements	-4	-1
Effect of the asset ceiling limit at end of period	**0**	**4**

Actuarial assumptions used in determining the liability

Some of the retirement plans that Solvay has in place provide annuity payments that are adjusted on a regular basis to mitigate the effects for cost of living increases.

The salary growth assumption is used to determine what will be the salary at the end of the career of the individuals, as the defined benefit plans take into account the last salary of the individuals. This assumption includes impacts of both inflation and merit increases.

The pension growth assumption defines the expected future adjustments for these annuity payments. The plan defines how these annuity payments will be adjusted, and might be linked to inflation. Pension growth assumptions mainly apply for the defined benefit retirement plans in the United Kingdom, France and Germany.

Inflation assumption is presented separately as salary growth and pension growth assumptions encompass more variables than inflation.

	Eurozone		**UK**		**USA**	
	2020	2019	**2020**	2019	**2020**	2019
Discount rates	0.25%	0.75%	1.25%	2.00%	2.25%	3.00%
Expected rates of future salary increases	1,75% - 3,75%	1,75% - 3,75%	2,00% - 2,75%	1,90% - 3,00%	3,00% - 3,75%	3,00% - 3,75%
Inflation	1,50% - 1,75%	1.75%	2.75%	3.00%	2.00%	2.25%
Expected rates of pension growth	0,00% - 1.75%	0,00% - 1.75%	2.60%	2.85%	NA	NA

Actuarial assumptions used in determining the annual cost

	Eurozone		UK		USA	
	2020	2019	**2020**	2019	**2020**	2019
Discount rates	0.75%	1.75%	2.00%	2.75%	3.00%	4.00%
Expected rates of future salary increases	1,75% - 3,75%	1,75% - 4,00%	1,90% - 3,00%	2,15% - 3,25%	3,00% - 3,75%	3,00% - 3,75%
Inflation	1.75%	1,75% - 2,00%	3.00%	3.25%	2.25%	2.25%
Expected rates of pension growth	0,00% - 1.75%	0,00% - 2,00%	2.85%	3.10%	NA	NA

Actuarial assumptions regarding future mortality are based on recent country specific mortality tables. These assumptions translate at January 1, 2020 into an average remaining life expectancy in years for a pensioner retiring at age 65:

In years	Belgium	France	Germany	United Kingdom	United States
Retiring at the end of the reporting period					
Male	19	25	20	20	20
Female	22	28	24	23	22
Retiring 20 years after the end of the reporting period					
Male	20	27	23	21	21
Female	24	31	26	24	23

For most countries the mortality assumptions reflect actual scheme experience and/or Solvay's expectations in terms of future mortality improvements.

The actuarial assumptions used in determining the employee benefits obligation at December 31 are based on the following employee benefits liabilities durations:

	Eurozone	United Kingdom	United States
Duration in years	12	15	10

Sensitivities on the defined benefits obligation for the post-employment benefits

Each sensitivity amount is calculated assuming that all other assumptions are held constant. It should be noted that economic factors and conditions often affect multiple assumptions simultaneously.

Sensitivity to a change of percentage in the discount rates:

In € million	0.25% increase	0.25% decrease
Eurozone	-65	67
United Kingdom	-64	67
United States	-31	32
Others	-5	6
Total	**-165**	**172**

Sensitivity to a change of percentage in the inflation rates:

In € million	0.25% increase	0.25% decrease
Eurozone	57	-56
United Kingdom	44	-43
United States	0	0
Others	4	-4
Total	**105**	**-103**

Sensitivity to a change of percentage in salary growth rates:

In € million	0.25% increase	0.25% decrease
Eurozone	12	-10
United Kingdom	2	-2
United States	1	-1
Others	1	-1
Total	**16**	**-14**

Sensitivity to a change of one year on mortality tables – The table shows impacts when the age of all beneficiaries increases or decreases by one year:

In € million	Age correction +1 year	Age correction -1 year
Eurozone	-92	95
United Kingdom	-72	72
United States	-33	34
Others	-7	7
Total	**-204**	**208**

F34.B. Provisions other than for employee benefits

Accounting policy

General

Provisions are recognized when (a) the Group has a present obligation (legal or constructive) as a result of a past event, (b) it is probable that the Group will be required to settle the obligation, and (c) a reliable estimate can be made of the amount of the obligation.

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. Where the effect of the time value of money is material, the amount is the present value of expenditures required to settle the obligation. Impacts of changes in discount rates are generally recognized in the financial result.

When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party, a receivable is recognized as an asset if it is virtually certain that reimbursement will be received when the Group settles the obligation.

Onerous contracts

An onerous contract is a contract in which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received under it. Present obligations arising from onerous contracts are recognized and measured as provisions.

Restructurings

A restructuring provision is recognized when the Group has developed a detailed formal plan for the restructuring and has raised a valid expectation in those affected that it will carry out the restructuring by starting to implement the plan or announcing its main features to those affected by it. The measurement of a restructuring provision includes only the direct expenditures arising from the restructuring, which are those amounts that are both necessarily entailed by the restructuring and not associated with the ongoing activities of the entity.

Environmental remediation costs

Environmental liabilities are mainly related to non ongoing activities (shut-down sites, discontinued activities or divested activities for which Solvay keeps commitments) and, to a lower extent, to ongoing activities (see comments below).

An environmental provision is recognized, in accordance to IAS 37, when there is a current legal or constructive obligation resulting from past events which will result in a probable outflow of resources (expenses / cash outs) to settle it and for which a reliable estimate of such outflows and timing can be made.

The environmental expenses encompass, but are not limited, to the following key matters

- Sampling and analytical costs for soil and ground water monitoring
- Cost related to dismantling when required to meet a remediation or permit obligation
- Asbestos removal when obligated by regulation
- Environmental investigations and studies (Risk Assessments, Phase I and II soil and groundwater)

The closing amount of the environmental provisions is based on the net present value of the cash flows forecasts needed, for current and future years, to settle remediation obligations. Forecast expenditures are based on external consultant estimates, where appropriate and possible. Future expenditures are forecast and revised formally biannually and validated quarterly by Solvay financial and suitably qualified industrial experts led by the Group Environmental Rehabilitation Director and benefit from inputs of legal department staff for the evolution of Environmental Regulations.

In the absence of probable obligations, a contingent liability may be disclosed to represent the future possible liability. In some cases, contingent liabilities cannot be quantified. See Note F39

Restructuring provisions

In 2020 these provisions amount to € 120 million, compared with € 99 million at the end of 2019.

The provisions at the end of 2020 mainly relate to the restructuring charges for the efficiency measures (€ 78 million) announced on February 26, 2020 and the Composites restructuring plan announced on May 15, 2020, and the Group's simplification and transformation program (€ 38 million).

Environmental provisions

These provisions amount to € 615 million at the end of 2020, compared with € 703 million at the end of 2019, and pertain to:

- mines and drilling operations to the extent that legislation and/or operating permits in relation to quarries, mines and drilling operations contain requirements to pay compensation to third parties. Most of these provisions, based on local expert advice, can be expected to be used over a 1-20 years horizon and amount to € 135 million;
- the dismantling of the last mercury electrolysis activities was completed in 2019. The remaining provisions related to those activities will be used for the management of contamination of soils and groundwater, mostly over the next 20 years.
- lime dikes (settling ponds related mainly to soda ash plant), dump at sites and third party dump sites (linked to several industrial activities). These provisions have a horizon of 1 to 20 years;
- various types of pollution (organic, inorganic) coming from miscellaneous chemical productions; these provisions mainly cover discontinued activities or closed plants. Most of these provisions have a horizon of 1 to 20 years.
- The estimated amounts are discounted based on the probable date of settlement, and are periodically adjusted to reflect the passage of time.

The breakdown of the environmental provisions and related uses for the main Countries/Regions is reported here below:

	2020				2019			
In € million	Provisions	In %	Provisions ongoing activities	Use of provisions	Provisions	In %	Provisions ongoing activities	Use of provisions
France	136	22%	0	-12	133	19%	0	-15
Germany	119	19%	7	-5	128	18%	7	-4
Rest of Europe	155	25%	5	-13	178	25%	5	-15
North America	121	20%	0	-29	154	22%	0	-31
Rest of the world	83	14%	1	-10	110	16%	1	-15
Total	**614**	**100%**	**14**	**-68**	**703**	**100%**	**14**	**-81**

Provisions for litigation

Provisions for litigation refer to indirect tax and legal exposures. They amount to € 61 million at the end of 2020 compared with € 80 million at the end of 2019. The balance at the end of 2020 relates to indirect tax risks (€ 16 million) and legal claims (€ 45 million).

Other provisions

Other provisions relate to the shutdown or disposal of activities and amount to € 84 million, compared with € 135 million at the end of 2019.

NOTE F35
FINANCIAL INSTRUMENTS AND FINANCIAL RISK MANAGEMENT

Accounting policy

General

Financial assets and liabilities are recognized when, and only when Solvay becomes a party to the contractual provisions of the instrument.

Amortized cost is the amount at which the financial asset or financial liability is measured at initial recognition minus the principal repayments, plus or minus the cumulative amortization using the effective interest method of any difference between that initial amount and the maturity amount and, for financial assets, adjusted for any loss allowance. The effective interest rate is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial asset or financial liability to the gross carrying amount of a financial asset or to the amortized cost of a financial liability. When calculating the effective interest rate, the Group estimates the expected cash flows by considering all the contractual terms of the financial instrument (for example, prepayment, extension, call and similar options) but does not consider the expected credit losses. The calculation includes all fees and points paid or received between parties to the contract that are an integral part of the effective interest rate, transaction costs, and all other premiums or discounts.

Financial assets

Trade receivables are initially measured at their transaction price, if they do not contain a significant financing component, which is the case for substantially all trade receivables. Other financial assets are initially measured at fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset.

A financial asset is classified as current when the cash flows expected to flow from the instrument mature within one year.

All recognized financial assets will subsequently be measured at either amortized cost or fair value under IFRS 9 Financial Instruments. Specifically:

- a debt instrument that (i) is held within a business model whose objective is to collect the contractual cash flows and (ii) has contractual cash flows that are solely payments of principal and interest on the principal amount outstanding is measured at amortized cost (net of any write down for impairment), unless the asset is designated at fair value through profit or loss (FVTPL) under the fair value option;
- a debt instrument that (i) is held within a business model whose objective is achieved both by collecting contractual cash flows and selling financial assets and (ii) has contractual terms that give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding, is measured at fair value through other comprehensive income (FVTOCI), unless the asset is designated at FVTPL under the fair value option. Upon derecognition, the cumulative gains and losses previously recognized in other comprehensive income are reclassified to profit or loss;
- all other debt instruments are measured at FVTPL;
- all equity investments are measured in the consolidated statement of financial position at fair value, with gains and losses recognized in profit or loss except that if an equity investment is not held for trading, nor contingent consideration recognized by an acquirer in a business combination, an irrevocable election can be made at initial recognition to measure the investment at FVTOCI, with dividend income recognized in profit or loss. This classification is determined on an instrument-by-instrument basis. Upon derecognition, the cumulative gains or losses previously recognized in other comprehensive income are reclassified to retained earnings.

For instruments quoted in an active market, the fair value corresponds to a market price (level 1). For instruments that are not quoted in an active market, the fair value is determined using valuation techniques including reference to recent arm's length market transactions or transactions involving instruments which are substantially the same (level 2), or discounted cash flow analysis including, to the greatest possible extent, assumptions consistent with observable market data (level 3). However, in limited circumstances, cost of equity instruments may be an appropriate estimate of their fair value. That may be the case if insufficient more recent information is available to measure fair value, or if there is a wide range of possible fair value measurements and cost represents the best estimate of fair value within that range.

Impairment of financial assets

The impairment loss of a financial asset measured at amortized cost is calculated based on the expected loss model, representing the weighted average of credit losses with the respective risks of a default occurring as the weights. Expected credit losses are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate.

For trade receivables that do not contain a significant financing component (i.e. Substantially all trade receivables), the loss allowance is measured at an amount equal to lifetime expected credit losses. Those are the expected credit losses that result from all possible default events over the expected life of those trade receivables, using a provision matrix that takes into account historical information on defaults adjusted for the forward looking information per customer. The Group considers a financial asset in default when contractual payments are 60 days past due. However, in certain cases, the Group may also consider a financial asset to be in default when internal or external information indicates that the Group is unlikely to receive the outstanding contractual amounts in full before taking into account any credit enhancements held by the Group. A financial asset is fully impaired when there is no reasonable expectation of recovering the contractual cash flows.

Impairment losses are recognized in the consolidated income statement, except for debt instruments measured at fair value through other comprehensive income. In this case, the allowance is recognized in other comprehensive income.

Financial liabilities

Financial liabilities are initially measured at fair value minus, in the case of a financial liability not at fair value through profit or loss, transaction costs that are directly attributable to the issue of the financial liability. Subsequently, they are measured at amortized cost, except for:

- financial liabilities at fair value through profit or loss. Such liabilities, including derivatives that are liabilities, are subsequently measured at fair value;
- financial guarantee contracts. After initial recognition, guarantees are subsequently measured at the higher of the expected losses and the amount initially recognized.

Derivative financial instruments

A derivative financial instrument is a financial instrument or other contract within the scope of IFRS 9 Financial Instruments with all three of the following characteristics:

- its value changes in response to the change in a specified interest rate, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index, or other variable, provided in the case of a non-financial variable that the variable is not specific to a party to the contract (sometimes called the 'underlying');
- it requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors;
- it is settled at a future date.

The Group enters into a variety of derivative financial instruments (forward, future, option, collars and swap contracts) to manage its exposure to interest rate risk, foreign exchange rate risk, and commodity risk (mainly utility and CO_2 emission rights price risks).

As explained above, derivatives are initially recognized at fair value at the date a derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is recognized in income or expense, unless the derivative is designated and effective as a hedging instrument. The Group designates certain derivatives as hedging instruments of the exposure to variability in cash flows with respect to a recognized asset or liability or a highly probable forecast transaction that could affect profit or loss (cash flow hedges).

A derivative with a positive fair value is recognized as a financial asset whereas a derivative with a negative fair value is recognized as a financial liability. Derivative instruments (or portions of them) are presented as non-current assets or non-current liabilities if the remaining maturity of the underlying settlements is more than twelve months after the reporting period. Other derivative instruments (or portions of them) are presented as current assets or current liabilities.

Hedge accounting

The Group designates certain derivatives and embedded derivatives, in respect of interest rate risk, foreign exchange rate risk, Solvay share price risk, and commodity risk (mainly utility and CO_2 emission rights price risks), as hedging instruments in a cash flow hedge relationship.

At the inception of the hedge relationship, there is a formal designation and documentation of the hedging relationship and the Group's risk management objective and strategy for undertaking the hedge. So to apply hedge accounting: (a) there is an economic relationship between the hedged item and the hedging instrument, (b) the effect of credit risk does not dominate the value changes that result from that economic relationship, and (c) the hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the Group actually hedges and the quantity of the hedging instrument that the Group actually uses to hedge that quantity of hedged item.

The requirement under (a) above that an economic relationship exists means that there is an expectation that the value of the hedging instrument and the value of the hedged item will systematically change in the opposite direction in response to movements in either the same underlying (or underlyings that are economically related in such a way that they respond in a similar way to the risk that is being hedged).

Cash flow hedges

The effective portion of changes in the fair value of hedging instruments that are designated in a cash flow hedge is recognized in other comprehensive income.

The gain or loss relating to the ineffective portion is recognized immediately in profit or loss.

As long as cash flow hedge qualifies, the hedging relationship is accounted for as follows:

a) the separate component of equity associated with the hedged item (cash flow hedge reserve) is adjusted to the lower of the following (in absolute amounts):

   i. the cumulative gain or loss on the hedging instrument from inception of the hedge; and

   ii. the cumulative change in fair value (present value) of the hedged item (i.e. The present value of the cumulative change in the hedged expected future cash flows) from inception of the hedge.

b) the portion of the gain or loss on the hedging instrument that is determined to be an effective hedge (i.e. The portion that is offset by the change in the cash flow hedge reserve calculated in accordance with (a)) is recognized in other comprehensive income.

c) any remaining gain or loss on the hedging instrument (or any gain or loss required to balance the change in the cash flow hedge reserve calculated in accordance with (a)) is hedge ineffectiveness that is recognized in profit or loss.

d) the amount that has been accumulated in the cash flow hedge reserve in accordance with (a) is accounted for as follows:

   i. if a hedged forecast transaction subsequently results in the recognition of a non-financial asset or a non-financial liability, the Group removes that amount from the cash flow hedge reserve and includes it directly in the initial cost or other carrying amount of the asset or the liability. This is not a reclassification adjustment and hence it does not affect other comprehensive income.

   ii. for cash flow hedges other than those covered by i), that amount is reclassified from the cash flow hedge reserve to profit or loss as a reclassification adjustment in the same period or periods during which the hedged expected future cash flows affect profit or loss (for example, in the periods that interest income or interest expense is recognized or when a forecast sale occurs).

   iii. however, if that amount is a loss and the Group expects that all or a portion of that loss will not be recovered in one or more future periods, it immediately reclassifies the amount that is not expected to be recovered into profit or loss as a reclassification adjustment.

Most hedged items are transaction related. The time value of options, forward elements of forward contracts, and foreign currency basis spreads of financial instruments that are hedging the items affect profit or loss at the same time as those hedged items.

Hedge accounting is discontinued prospectively when the hedging relationship (or a part of a hedging relationship) ceases to meet the qualifying criteria (after taking into account any rebalancing of the hedging relationship, if applicable). This includes instances when the hedging instrument expires or is sold, terminated or exercised.

When the Group discontinues hedge accounting for a cash flow hedge it accounts for the amount that has been accumulated in the cash flow hedge reserve as follows:

- if the hedged future cash flows are still expected to occur, that amount remains in the cash flow hedge reserve until the future cash flows occur. However, if that amount is a loss and the Group expects that all or a portion of that loss will not be recovered in one or more future periods, it immediately reclassifies the amount that is not expected to be recovered into profit or loss as a reclassification adjustment.
- if the hedged future cash flows are no longer expected to occur, that amount is immediately reclassified from the cash flow hedge reserve to profit or loss as a reclassification adjustment. A hedged future cash flow that is no longer highly probable to occur may still be expected to occur.

The following table presents the financial instruments by category, split by current and non-current assets and liabilities.

In € million	Classification	**2020** Carrying amount	2019 Carrying amount
Non-current assets – Financial instruments		**346**	**322**
Equity instruments measured at fair value through other comprehensive income	Financial assets measured at fair value through other comprehensive income	66	56
Loans and other non-current assets (excluding pension fund surpluses and long-term inventory balance)	Financial assets measured at amortized cost	280	266
Current assets – Financial instruments		**2,517**	**2,509**
Trade receivables	Financial assets measured at amortized cost	1,264	1,414
Other financial instruments		119	119
Other marketable securities >3 months	Financial assets measured at amortized cost	42	44
Currency swaps	Held for trading	1	3
Other current financial assets	Financial assets measured at amortized cost	76	72
Financial instruments - Operational		**131**	**167**
Held for trading	Held for trading	99	142
Derivative financial instruments designated in a cash flow hedge relationship	Cash-flow hedge	32	25
Cash and cash equivalents	**Financial assets measured at amortized cost**	**1,002**	**809**
Total assets - Financial instruments		**2,863**	**2,830**
Non-current liabilities - Financial instruments		**3,328**	**3,541**
Financial debt		3,233	3,382
Bonds	Financial liabilities measured at amortized cost	2,776	2,859
Other non-current debts	Financial liabilities measured at amortized cost	116	155
Lease liabilities IFRS 16 - Non-current portion	Lease liabilities measured at amortized cost	341	368
Other liabilities	Financial liabilities measured at amortized cost	95	159
Current liabilities - Financial instruments		**1,743**	**2,756**
Financial debt		287	1,132
Short-term financial debt	Financial liabilities measured at amortized cost	185	1,022
Currency swaps	Held for trading	10	8
Lease liabilities IFRS 16 - Current portion	Lease liabilities measured at amortized cost	92	102
Trade payables	Financial liabilities measured at amortized cost	1,197	1,277
Financial instruments - Operational		101	187
Held for trading	Held for trading	86	135
Derivative financial instruments designated in a cash flow hedge relationship	Cash-flow hedge	15	52
Dividends payables	Financial liabilities measured at amortized cost	159	161
Total liabilities - Financial instruments		**5,072**	**6,297**

Long-term CO_2 inventory balances reported under other non-current assets (see note F28) are not measured at amortized cost hence not included in the table above.

F35.A. Overview of financial instruments

The following table gives an overview of the carrying amount of all financial instruments by category as defined by IFRS 9 *Financial Instruments*.

In € million	**2020** Carrying amount	2019 Carrying amount
Fair value through profit or loss	***132***	***170***
Held for trading (financial instruments - operational - see note F29)	99	142
Held for trading (other financial instruments - see note F36, table Changes in financial debt)	1	3
Derivative financial instruments designated in a cash flow hedge relationship (see note F29)	32	25
Financial assets measured at amortized cost	***2,731***	***2,661***
Financial assets measured at amortized cost (including cash and cash equivalents, trade receivables, loans and other current/non-current assets except pension fund surpluses and long-term inventory balance)	2,665	2,605
Equity instruments measured at fair value through other comprehensive income	66	56
Total financial assets	**2,863**	**2,830**
Fair value through profit or loss	***-111***	***-196***
Held for trading (financial instruments - operational - see note F37)	-86	-135
Held for trading (financial debt - see note F36, table Changes in financial debt)	-10	-8
Derivative financial instruments designated in a cash flow hedge relationship (see note F37)	-15	-52
Financial liabilities measured at amortized cost	***-4,528***	***-5,632***
Financial liabilities measured at amortized cost (excluding dividends payable and IFRS 16 lease liabilities)	-4,369	-5,471
Dividends payables	-159	-161
Lease liabilities measured at amortized cost	***-433***	***-470***
Lease liabilities IFRS16 measured at amortized cost	-433	-470
Total financial and lease liabilities	**-5,072**	**-6,297**

The category "Held for trading" only contains derivative financial instruments that are used for management of foreign currency risk, interest rate risk, utility and CO_2 emission rights price risks, index and Solvay share price. Contracts which have been documented as hedging instruments (hedge accounting under IFRS 9 *Financial Instruments*) or which meet the exemption criteria for own use are not included in the category "Held for trading". Equity instruments measured at fair value through OCI pertain to Solvay's New Business Development (NBD) activity: the Group has built a Corporate Venturing portfolio which is made of direct investments in start-up companies and of investments in venture capital funds. If the Group does not have significant influence or joint control, the investments are measured at fair value according to the valuation guidelines published by the European Private Equity and Venture Capital Association, and impacts are recognized in other comprehensive income.

F35.B. Fair value of financial instruments

Valuation techniques and assumptions used for measuring fair value

Accounting policy

Quoted market prices are available for financial assets and financial liabilities with standard terms and conditions that are traded on active markets. The fair values of derivative financial instruments are equal to their quoted prices, if available. In case such quoted prices are not available, the fair value of the financial instruments is determined based on a discounted cash flow analysis using the applicable yield curve derived from quoted interest rates matching maturities of the contracts for non-optional derivatives. Optional derivatives are fair valued based on option pricing models, taking into account the present value of probability weighted expected future payoffs, using market reference formulas.

The fair values of other financial assets and financial liabilities are determined in accordance with generally accepted pricing models based on discounted cash flow analysis.

Fair value of financial instruments measured at amortized cost (excluding IFRS 16 lease liabilities)

	2020		2019	
In € million	Carrying amount	Fair value	Carrying amount	Fair value
Non-current assets - Financial instruments	**280**	**280**	**266**	**266**
Loans and other non-current assets (except pension fund surpluses and long-term inventory balance)	280	280	266	266
Non-current liabilities - Financial instruments	**-2,988**	**-3,234**	**-3,173**	**-3,364**
Bonds	-2,776	-3,022	-2,859	-3,050
Other non-current debts	-116	-116	-155	-155
Other liabilities	-95	-95	-159	-159

The carrying amounts of current financial assets and liabilities are estimated to reasonably approximate their fair values, such in light of short terms to maturity.

Financial instruments measured at fair value in the consolidated statement of financial position

The table "Financial instruments measured at fair value in the consolidated statement of financial position" provides an analysis of financial instruments that, subsequent to their initial recognition, are measured at fair value, grouped into Levels 1 to 3 based on the degree to which the fair value is observable. Financial instruments, classified as held for trading and as hedging instruments in cash flow hedges are mainly grouped into Levels 1 and 2. They are fair valued based on forward pricing and swap models using present value calculations. The models incorporate various inputs including foreign exchange spot and interest rates of the respective currencies, currency basis spreads between the respective currencies, interest rate curves and forward rate curves of the underlying commodity. The equity instruments measured at fair value through OCI fall within Level 3, and are measured based on a discounted cash flow approach.

In accordance with the Group internal rules, the responsibility for measuring the fair value level resides with (a) the Treasury department for the non-utility derivative financial instruments, and the non-derivative financial liabilities, (b) the Sustainable Development and Energy department for the utility derivative financial instruments and (c) the Finance department for non-derivative financial assets.

Financial instruments measured at fair value in the consolidated statement of financial position

	2020			
In € million	Level 1	Level 2	Level 3	**Total**
Held for trading	**48**	**52**		**100**
° Foreign currency risk		6		6
° Utility risk	47	44		92
° CO_2 risk	1	0		1
° Solvay share price		1		1
° Index		1		1
Cash flow hedges	**1**	**31**		**32**
° Foreign currency risk		16		16
° Utility risk	1	13		14
° Solvay share price		2		2
Equity instruments measured at fair value through other comprehensive income			**66**	**66**
° New Business Development			66	66
Total (assets)	**49**	**83**	**66**	**198**
Held for trading	**-39**	**-57**		**-96**
° Foreign currency risk		-10		-10
° Interest rate risk		-1		-1
° Utility risk	-39	-44		-82
° CO_2 risk	0	-1		-2
° Index		-1		-1
Cash flow hedges	**-7**	**-8**		**-15**
° Foreign currency risk		-1		-1
° Utility risk	-7	-7		-14
Total (liabilities)	**-46**	**-65**		**-111**

In € million	2019 Level 1	Level 2	Level 3	Total
Held for trading	**77**	**67**		**145**
° Foreign currency risk		6		6
° Utility risk	76	59		135
° CO_2 risk	2	0		2
° Solvay share price		2		2
° Index		1		1
Cash flow hedges		**25**		**25**
° Foreign currency risk		7		7
° Utility risk		18		18
° CO_2 risk				
Equity instruments measured at fair value through other comprehensive income			**56**	**56**
° New Business Development			56	56
Total (assets)	**77**	**92**	**56**	**225**
Held for trading	**-72**	**-72**		**-144**
° Foreign currency risk		-7		-7
° Interest rate risk		-3		-3
° Utility risk	-71	-56		-127
° CO_2 risk	0	-1		-2
° Solvay share price		-4		-4
° Index		-1		-1
Cash flow hedges		**-51**		**-51**
° Foreign currency risk		-6		-6
° Utility risk		-46		-46
° CO_2 risk				
° Solvay share price				
Total (liabilities)	**-72**	**-124**		**-195**

Movements of the period

Reconciliation of level 3 fair value measurements of financial assets and liabilities

	2020		
	At fair value through profit or loss	At fair value through other comprehensive income	Total
In € million	Derivatives	Equity instruments	
Opening balance at January 1	**0**	**56**	**56**
Total gains or losses			
- Recognized in other comprehensive income		4	4
Acquisitions		7	7
Capital decreases		-1	-1
Closing balance at December 31	**0**	**66**	**66**

	2019		
	At fair value through profit or loss	At fair value through other comprehensive income	Total
In € million	Derivatives	Equity instruments	
Opening balance at January 1	**0**	**51**	**51**
Total gains or losses			
- Recognized in other comprehensive income		3	3
Acquisitions		5	5
Capital decreases		-4	-4
Closing balance at December 31	**0**	**56**	**56**

Income and expenses of financial instruments recognized in the consolidated income statement and in other comprehensive income

In € million	2020	2019
Recognized in the consolidated income statement		
Recycling from OCI of derivative financial instruments designated in a cash flow hedge relationship		
° Foreign currency risk	-25	-28
° Energy risk	-35	-31
Changes in the fair value of financial instruments held for trading		
° Energy risk	-7	-14
° CO_2 risk	-19	11
Recognized in the gross margin	**-86**	**-61**
Recycling from OCI of derivative financial instruments designated in a cash flow hedge relationship		
° Foreign currency risk	-6	0
° Solvay share price	-2	0
Changes in the fair value of financial instruments held for trading		
° Solvay share price	-9	5
Gains and losses (time value) on derivative financial instruments designated in a cash flow hedge relationship		
° Foreign currency risk	1	1
Foreign operating exchange gains and losses	-1	0
Recognized in other operating gains and losses	**-18**	**7**
Net interest expense	-85	-102
Cost of borrowings - Interest expense on financial liabilities at amortized cost	-93	-117
Interest on loans and short term deposits	8	15
Financial charge on lease liabilities	-21	-23
Other gains and losses on net indebtedness (excluding gains and losses on items not related to financial instruments)		
° Foreign currency risk	-2	-9
° Interest element of financial instruments	2	12
° Others	-1	-14
Recognized in charges on net indebtedness (*)	**-107**	**-135**
Dividends from equity instruments measured at fair value through other comprehensive income	3	4
Total recognized in the consolidated income statement	**-207**	**-186**

(*) The note F6 *Net Financial Charges* shows an amount of € (113) million reported under "Net cost of borrowings". This amount includes € (6) million of financial expenses not related to financial instruments that are excluded in this table from the line item "Recognized in charges on net indebtedness".

The loss on highly probable sales in foreign currency recognized in gross margin for € (25) million and on utility instruments for € (35) million is the result of the recycling of gains and losses of derivative financial instruments designated in a cash flow hedge relationship. The loss on utility for € (35) million is mainly related to gas procurement for € (61) million partially offset by a gain on power procurement for € 34 million.

The change in fair value of financial instruments held for trading recognized in gross margin is explained by:

- a loss of € (7) million in comparison to € (14) million in 2019 mainly due to the price decrease of gas and electricity;
- a loss of € (19) million in comparison to an income of € 11 million in 2019 mainly due to the price variation of CO_2;
- the loss of € (9) million recognized in other operating gains and losses is the result of the change in fair value of equity swaps for long-term incentives.

In the caption other gains and losses on net indebtedness, the cost reduction under others from (14) million in 2019 to € (1) million in 2020 is mainly explained by one-off costs for € (12) million in 2019 related to the early repayment of the US$ 800 million Senior bonds of Solvay Finance (America) LLC.

Income and expenses on financial instruments recognized in other comprehensive income include the following:

	Cash flow hedges									
	Foreign currency risk		Interest rate risk		Commodity risk		Risk on Solvay share price		**Total**	
In € million	**2020**	2019	**2020**	2019	**2020**	2019	**2020**	2019	**2020**	2019
Balance at January 1	**1**	**-12**	**0**	**0**	**-28**	**-13**	**0**	**-7**	**-27**	**-32**
Recycling from other comprehensive income of derivative financial instruments designated in a cash flow hedge relationship	31	28			35	31	2		68	59
Effective portion of changes in fair value of cash flow hedge	-17	-15		0	-7	-45	0	7	-24	-53
Balance at December 31	**16**	**1**	**0**	**0**	**0**	**-28**	**2**	**0**	**17**	**-27**

Conventionally, (+) indicates an increase and (-) a reduction in equity.

F35.C. Capital management

See 2 *Capital, shares and shareholders* in respect of capital in the Corporate governance statement chapter of this report.

The Group manages its funding structure with the objective of safeguarding its ability to continue as a going concern, optimizing the return for shareholders, maintaining an investment-grade rating, and minimizing the cost of debt.

The capital structure of the Group consists of equity (including perpetual hybrid bonds (see note F31 *Equity*) and of net debt (see note F36 *Net indebtedness*). Perpetual hybrid bonds are nevertheless considered as debt in the Group's Underlying metrics.

Besides the statutory minimum equity funding requirements that apply to the Company's subsidiaries in the different countries, Solvay is not subject to any additional legal capital requirements.

The Treasury department reviews the capital structure on an ongoing basis under the authority and the supervision of the Chief Financial Officer. As appropriate, the Legal department is involved to ensure compliance with legal and contractual requirements.

F35.D. Financial risk management

The Group is exposed to market risks from movements in foreign exchange rates, interest rates and other market prices (utility prices, CO_2 emission rights prices and equity prices). The Group's senior management oversees the management of these risks and is supported by the Treasury department (non-commodity risks) and Solvay Sustainable Development and Energy department that advise on financial risks and the appropriate financial risk governance framework for the Group. Both departments provide assurance to the Group's senior management that the Group's financial risk activities are governed by appropriate policies and procedures and that financial risks are identified, measured and managed in accordance with the Group's policies and risk objectives. The Solvay Group uses derivative financial instruments to hedge clearly identified foreign exchange, interest rate, index, utility price and CO_2 emission rights price risks (hedging instruments). All derivative activities for risk management purposes are carried out by specialist teams that have the appropriate skills, experience and supervision. However, the required criteria to apply hedge accounting are not met in all cases.

Furthermore, the Group is also exposed to liquidity risks and credit risks.

The majority of derivative hedging instruments held by the Group mature in less than one year.

Foreign currency risks

The Group is a multi-specialty chemical company with operations worldwide, and hence undertakes transactions denominated in foreign currencies. As a consequence, the Group is exposed to exchange rate fluctuations. In 2019, the Group was mainly exposed to US dollar, Chinese yuan, Brazilian real and Japanese yen.

To mitigate its foreign currency risk, the Group has defined a hedging policy that is essentially based on the principles of financing its activities in local currency and hedges the transactional exchange risk at the time of invoicing (risk which is certain). The Group constantly monitors its activities in foreign currencies and hedges, where appropriate, the exchange rate exposures on expected cash flows (risk which is highly probable).

Exchange rate exposures are managed within approved policy parameters utilizing forward foreign exchange contracts or, when appropriate, other derivatives like currency options.

In the course of 2020 the EUR/USD exchange rate moved from 1.1231 at the start of January to 1.2270 at the end of December. In the course of 2019 the EUR/USD exchange rate moved from 1.1455 at the start of January to 1.1231 at the end of December.

In terms of the Group EBITDA sensitivity to US$/€ exchange rate, measuring the EBITDA variation based on the exchange rate fluctuation, based on the USD contribution to the Group's EBITDA, as of December 31, 2020, a fluctuation of (0.10) to the US$/€ exchange rate, would generate about € 100 million (€ 125 million for 2019) variation to the EBITDA. 55% of this variation is at conversion level and 45% at transaction level the latter being mostly hedged.

At the end of 2020, a strengthening of the US dollar vs EUR would increase the net debt by approximately € 56 million per 0.10 US$/€ fluctuation. Conversely, a weakening of the US dollar vs EUR would decrease the net debt by approximately € 47 million per 0.10 US$/€ fluctuation.

At the end of 2019, a strengthening of the US dollar vs EUR would increase the net debt by approximately € 100 million per 0.10 US$/€ fluctuation. Conversely, a weakening of the US dollar vs EUR would decrease the net debt by approximately € 84 million per 0.10 US$/€ fluctuation.

The Group's currency risk can be split into two categories: translation and transactional risk.

Translation risk

The translation exchange risk is the risk affecting the Group's consolidated financial statements related to investees operating in a currency other than the EUR (the Group's presentation currency).

During 2020 and 2019, the Group did not hedge the currency risk of foreign operations.

Transactional risk

The transactional risk is the exchange risk linked to a specific transaction, such as a Group entity buying or selling in a currency other than its functional currency.

To the largest extent possible, the Group manages the transactional risk on receivables and borrowings centrally and locally when centralization is not possible.

The choice of borrowing currency depends mainly on the opportunities offered by the various markets. This means that the selected currency is not necessarily that of the country in which the funds will be invested. Nonetheless, operating entities are financed essentially in their functional currencies.

In emerging countries it is not always possible to borrow in local currency, either because funds are not available in local financial markets, or because the financial conditions are too onerous. In such a situation the Group has to borrow in a different currency. Nonetheless the Group considers opportunities to refinance its borrowings in emerging countries with local currency debt.

Derivatives are initially recognized at fair value at the date a derivative contract is entered into and are classified into the two categories described below:

Held for trading

The transactional risk is managed either by spot or forward contracts. Unless documented as hedging instruments (see above), derivative financial instruments are classified as held for trading.

In 2020 the net notional amount is a short position of € (497) million compared to a short position of € (169) million in 2019. This evolution is mainly explained by a continuous increase of foreign exchange risk exposure (US dollar) in China and internal restructuring optimization activity (mainly in Mexican peso and Sterling pound).

The following table details the notional amounts of the Group's derivatives contracts outstanding at the end of the period:

	Net notional amount (1)		Fair value assets		Fair value liabilities	
In € million	**2020**	2019	**2020**	2019	**2020**	2019
Held for trading	-497	-169	6	6	-10	-7
Total	**-497**	**-169**	**6**	**6**	**-10**	**-7**

(1) Long/(short) positions (if the foreign exchange transaction does not involve the functional currency, both notionals are considered).

Cash flow hedge

The Group uses derivatives to hedge identified foreign exchange rate risks. It documents those as hedging instruments unless it hedges a recognized financial asset or liability when generally no cash flow hedge relationship is documented. Most hedges are transaction related.

At the end of 2020, the Group had mainly hedged highly probable sales in foreign currencies (short position) in a nominal amount of US$ 503 million (€ 410 million) and JP¥ 8,137 million (€ 64 million). All cash flow hedges contracts that exist at the end of December 2020 will be settled within the next 12 months, and will impact profit or loss during that period.

The following table details the notional amounts of Solvay's derivatives contracts outstanding at the end of the period:

Notional amounts net

	2020							
In € million	Notional amount of the instrument (1)	Notional amount of the risk exposure (1)	Percentage of exposure hedged		Average hedge exchange rate per risk category	Cash flow hedge reserve	Fair value of the hedging instrument	
						Equity	Assets	Liabilities
Cash flow hedges - Forecasted sales and purchases (3)								
JPY/EUR	-43	-91	47%		123.83	1	1	0
JPY/USD	-22	-46	47%	(2)	105.24	0	0	0
Total JPY	**-64**	**-138**				**1**	**1**	**0**
USD/BRL	-98	-130	75%	(2)	5.02	0	0	0
USD/CNY	-90	-185	49%	(2)	6.72	3	3	0
USD/EUR	-205	-454	45%		1.16	11	11	0
USD/MXN	-4	-44	10%	(2)	22.99	1	1	0
USD/THB	-13	-29	45%		30.71	0	0	0
Total USD	**-410**	**-843**				**15**	**15**	**0**
KRW/EUR	-42	-42	100%		1,313.80	1	1	0
Total KRW	**-42**	**-42**				**1**	**1**	**0**
Total	**-517**	**-1,023**				**16**	**16**	**-1**

(1) Long/(short) positions

(2) In compliance with Group Treasury Policy the percentage of hedged exposure will reach the progressive minimum compliance level of 60% in 2021

(3) The Hedging instruments are located in the line item: "Other Receivables" and "Other Liabilities" in the statement of financial position.

	2019						
In € million	Notional amount of the instrument (1)	Notional amount of the risk exposure (1)	Percentage of exposure hedged	Average hedge exchange rate per risk category	Cash flow hedge reserve	Fair value of the hedging instrument	
					Equity	Assets	Liabilities
Cash flow hedges - Forecasted sales and purchases (2)							
JPY/EUR	-46	-98	47%	122.75	0	0	0
JPY/USD	-30	-58	52%	106.97	0	0	0
USD/BRL	-143	-266	54%	3.94	1	2	-1
USD/CNY	-154	-256	60%	6.92	-1	1	-2
USD/EUR	-278	-493	56%	1.15	-2	1	-3
USD/MXN	-46	-84	55%	20.18	2	2	0
USD/THB	-14	-28	49%	30.52	0	0	0
Total	**-710**	**-1,284**			**1**	**7**	**-6**

(1) Long/(short) positions

(2) The Hedging instruments are located in the line item: "Other Receivables" and "Other Liabilities" in the statement of financial position.

Interest rate risks

See the Financial risk in the Management of risks section of this report for additional information on the interest rate risks management.

Interest rate risk is managed at Group level.

The Group is exposed to interest rate risk because entities in the Group borrow funds at both fixed and floating interest rates. Interest rate risk is managed at Group level by maintaining an appropriate mix between fixed and floating rate borrowings.

Interest rate exposure by currency is summarized below:

In € million	**At December 31, 2020**			At December 31, 2019		
Currency	Fixed rate	Floating rate	**Total**	Fixed rate	Floating rate	**Total**
Financial debt						
EUR	-2,119	-56	**-2,175**	-2,874	-87	**-2,960**
USD	-1,157	-7	**-1,164**	-1,276	-18	**-1,294**
SAR		-54	**-54**		-87	**-87**
INR	-26	-1	**-27**	-32	-16	**-48**
KRW	-1	-25	**-26**	-3	-24	**-27**
THB	-17	-5	**-22**	-10	-20	**-30**
BRL	-13	0	**-13**	-19	0	**-19**
Other	-32	-7	**-39**	-51	3	**-48**
Total	**-3,364**	**-155**	**-3,519**	**-4,264**	**-249**	**-4,513**
Cash and cash equivalents						
EUR		215	**215**		249	**249**
USD		534	**534**		248	**248**
CAD		3	**3**		5	**5**
THB		34	**34**		35	**35**
SAR		7	**7**		4	**4**
BRL		73	**73**		60	**60**
CNY		43	**43**		35	**35**
KRW		27	**27**		26	**26**
JPY		20	**20**		34	**34**
Other		48	**48**		113	**113**
Total		**1,002**	**1,002**		**809**	**809**
Other financial instruments						
CNY		42	**42**		44	**44**
EUR		55	**55**		50	**50**
SAR		16	**16**		19	**19**
Other		6	**6**		6	**6**
Total		**119**	**119**		**119**	**119**
Total	**-3,364**	**967**	**-2,398**	**-4,264**	**678**	**-3,586**

At the end of 2020, around € 3.4 billion of the Group's gross debt was at fixed-rate, including mainly:

- Senior EUR Bonds for a total of € 1,850 million maturing in 2022, 2027 and 2029 (carrying amount of € 1,839 million);
- Remaining part (US$ 196 million) of the US$ Senior Bonds 2023 of US$ 400 million (carrying amount of € 156 million);
- Remaining part (US$ 163 million) of the US$ Senior Bonds 2025 of US$ 250 million (carrying amount of € 131 million);
- Senior US$ Bonds for a total of US$ 800 million (carrying amount of € 650 million);
- IFRS 16 lease liability for a total of € 433 million (carrying amount of € 433 million).

The floating rate debts that are subject to interest rate swaps are discussed below.

The impact of interest rate volatility at the end of 2020 compared to 2019 is the following:

	Sensitivity to a + 100bp movement in EUR market interest rates		Sensitivity to a - 100bp movement in EUR market interest rates	
In € million	**2020**	2019	**2020**	2019
Profit or loss	-1	-1	1	1

The sensitivity to interest rates' volatility remains stable at the end of 2020 compared to 2019. The floating rate debt is very limited and part of it is hedged by interest rate swaps and cross-currency interest rate swaps reducing even more its volatility.

Interest rate risk hedged by instrument accounted for as held for trading

	Notional amount		Fair value assets		Fair value liabilities	
In € million	**2020**	2019	**2020**	2019	**2020**	2019
Held for trading	48	83	0	0	-1	-3
Total	**48**	**83**	**0**	**0**	**-1**	**-3**

The fair value of € (1) million reported under "held for trading" is mainly explained by a cross currency swap contracted in May 2017 to mitigate the volatility (forex and interest rate) of the external financing set up for our HPPO joint operation (Saudi Hydrogen Peroxide Company) 50/50 with Sadara in Saudi Arabia (notional amount € 48 million corresponding to 50%).

Interest rate risk hedged by instrument accounted for as a hedging instrument in a cash flow hedge

	2020				
				Fair value of the hedging instrument	
In € million	Notional amount of the instrument (1)	Notional amount of the risk exposure (2)	Hedge interest rate per risk category	Assets	Liabilities
Cash flow hedges - Floating rate debt	-5	-9	Pay Fix 3.125% Receive THBFIX6M	0	0
Total	**-5**	**-9**		**0**	**0**

(1) The hedging instruments are located in the line item: "Other Receivables" and "Other Liabilities" in the consolidated statement of financial position.
(2) The hedging item is located in the line items: "Non-current and current financial debt" in the consolidated statement of financial position.

	2019				
				Fair value of the hedging instrument	
In € million	Notional amount of the instrument (1)	Notional amount of the risk exposure (2)	Hedge interest rate per risk category	Assets	Liabilities
Cash flow hedges - Floating rate debt	-10	-20	Pay Fix 3.125% Receive THBFIX6M	0	0
Total	**-10**	**-20**		**0**	**0**

(1) The hedging instruments are located in the line item: "Other Receivables" and "Other Liabilities" in the consolidated statement of financial position.
(2) The hedging item is located in the line items: "Non-current and current financial debt" in the consolidated statement of financial position.

Other market risks

Utility and CO_2 price risks

The Group purchases a large portion of its coal, gas and electricity needs in Europe and the United States based on fluctuating liquid market indices. Moreover, the Group purchases raw materials with a price formula referring to market indices (e.g. benzene). In order to reduce the cost volatility, the Group has developed a policy for exchanging variable price against fixed price through derivative financial instruments. Most of these hedging instruments can be documented as hedging instruments of the underlying purchase contracts. Utility purchase contracts at fixed price with a physical delivery for use in the Group's operations are qualified as own use contracts (not derivatives) and constitute a natural hedge. Those have not been included in this note.

Similarly, the Group's exposure to CO_2 price is partially hedged by forward purchases of European Union Allowances (EUA). Forward purchases with physical delivery for use in the Group's operations are qualified as own use contracts (not derivatives).

Finally, some exposure to gas-electricity or coal-electricity prices may arise from the production of electricity on Solvay sites (mostly from cogeneration units in Europe), which can be hedged by means of forward purchases and forward sales or optional schemes. In this case, cash flow hedge accounting is applied.

Financial hedging of utility and CO_2 emission rights price risks is managed centrally by Energy Services on behalf of the Group entities.

Energy Services also carries out trading transactions with respect to utility and CO_2, for which the residual price exposure is maintained close to zero.

The following tables detail the notional principal amounts and fair values of utility and CO_2 derivative financial instruments outstanding at the end of the reporting period:

In € million (except where indicated)	Notional amount of the instrument (1)		Notional amount of the instrument (in units)			Fair value of the instrument - Asset		Fair value of the instrument - Liability	
Held for trading	**2020**	2019	**2020**	2019		**2020**	2019	**2020**	2019
Benzene					Tons		0		0
Coal	1	8	24,008	126 008	Tons	0	1	0	-1
Power	619	716	19,565,300	21 753 757	MWh	54	75	-51	-67
Standard Quality Gas	317	354	22,730,352	21 183 576	MWh	34	59	-31	-55
CO2	12	26	421,395	723 320	Tons	4	2	-2	-2
Total	**949**	**1 104**				**92**	**137**	**-84**	**-125**

(1) The hedging instruments are located in the line item: "Other Receivables" and "Other Liabilities" in the consolidated statement of financial position.

The amounts presented in the tables hereafter include hedging needs of GBUs of the Group that sourced through Energy Services, and not the full Group utility hedging needs.

In € million (except where indicated)	2020 Notional amount of the instrument (1)	Notional amount of the instrument (in units)		Notional amount of the risk exposure	Notional amount of the risk exposure (in units)		Percentage of exposure hedged
Cash flow hedge							
Benzene	9	18,495	Tons	39	73,728	Tons	25%
Coal	28	499,992	Tons	53	917,127	Tons	55%
Power	108	2,125,309	MWh	180	3,246,896	MWh	65%
Standard Quality Gas	158	12,343,308	MWh	335	24,601,786	MWh	50%
Total	**303**			**607**			

In € million (except where indicated)	Average hedge price per risk category		Cash flow hedge reserve	Fair value of the instrument - Asset	Fair value of the instrument - Liability
Cash flow hedge					
Benzene	509	EUR/ton	1	1	0
Coal	68	USD/ton	1	1	0
Power	50	EUR/MWh	-7	1	-8
Standard Quality Gas	15	EUR/MWh	5	11	-6
Total			**0**	**14**	**-14**

(1) The hedging instruments are located in the line item: "Other Receivables" and "Other Liabilities" in the consolidated statement of financial position.

In € million (except where indicated)	2019 Notional amount of the instrument (1)	Notional amount of the instrument (in units)		Notional amount of the risk exposure	Notional amount of the risk exposure (in units)		Percentage of exposure hedged
Cash flow hedge							
Benzene	5	6,991	Tons	40	61,353	Tons	11%
Coal	48	780,984	Tons	97	1,769,600	Tons	44%
Power	135	2,838,006	MWh	195	3,694,068	MWh	77%
Standard Quality Gas	218	22,798,066	MWh	474	27,481,119	MWh	83%
Total	**405**			**807**			

In € million (except where indicated)	Average hedge price per risk category		Cash flow hedge reserve	Fair value of the instrument - Asset	Fair value of the instru-ment - Liability
Cash flow hedge					
Benzene	722	EUR/ton	0	0	0
Coal	70	USD/ton	-6	0	-6
Power	56	EUR/MWh	0	0	0
Standard Quality Gas	16	EUR/MWh	-23	17	-40
Total			**-31**	**17**	**-48**

(1) The hedging instruments are located in the line item: "Other Receivables" and "Other Liabilities" in the consolidated statement of financial position.

Performance Share Units Plan (PSU) risk on Solvay share price

In order to neutralize the volatility of the Solvay share price which will impact the liability valuation relating to the PSUs (with related employer charges), the Group entered into equity swaps covering approximately 90% of the risk. The liability of € 8 million recognized for 2020 PSU plans corresponds to the best estimate of the amount due at maturity.

Credit risk

See the Financial risk in the Management of risks section of this report for additional information on the credit risk management.

The Group continuously monitors the credit risk of important business partners.

The Group engages in transactions only with financial institutions with a good credit rating. The Group monitors and manages exposures to financial institutions within approved counterparty credit limits and credit risk parameters in order to mitigate the risk of default. For financial guarantees, see note F39 *Contingent liabilities and financial guarantees*.

The Group recognizes expected credit losses on all of its trade receivables: it applies the simplified approach and recognizes lifetime expected losses on all trade receivables, using a provision matrix in order to calculate the lifetime expected credit losses for trade receivables, using historical information on defaults adjusted for the forward looking information.

The Group classifies the customers and their related receivables in various rating classes, based on the risks' grading attributed to the customers and on the ageing balance of receivables. As such, for all receivables overdue below 6 months, the Group considers percentages within a range between 0.005% and 4.285%, depending on the rating class. For all receivables overdue in excess of 6 months, the Group considers a rate of 50% or of 100%, depending on the rating class. The customer's grading is reviewed annually for customers assessed as low risk profile, and every six months for customers assessed as higher risk profile.

There is no significant concentration of credit risk at Group level because the receivables' credit risk is spread over a large number of customers and markets.

The ageing of trade receivables, financial instruments - operational, loans and other non-current assets is as follows:

2020			With expected loss allowance, not credit-impaired				
In € million	**Total**	Credit-impaired	past due	not less than30 days	between 30 and 60 days	between 60 and 90 days	more than 90 days
Trade receivables	**1,304**	39	1,222	38	3	1	1
Trade receivables - allowance	**-39**	-36	-2				-2
Trade receivables - net	**1,264**	**4**	**1,220**	**38**	**3**	**1**	**-1**
Financial instruments - operational	**131**		**131**				
Loans and other non-current assets	**368**	124	243	0			
Loans and other non-current assets - allowance	**-57**	-57					
Loans and other non-current assets - net	**311**	**68**	**243**	**0**	**0**	**0**	**0**
Total	**1,706**	**71**	**1,594**	**38**	**3**	**1**	**-1**

The Loans and other non-currents assets do not include the long term inventory balance.

2019			With expected loss allowance, not credit-impaired				
In € million	**Total**	Credit-impaired	past due	not less than30 days	between 30 and 60 days	between 60 and 90 days	more than 90 days
Trade receivables	**1,460**	51	1,321	74	9	3	2
Trade receivables - allowance	**-46**	-43	-1				-2
Trade receivables - net	**1,414**	**8**	**1,320**	**74**	**9**	**3**	**0**
Financial instruments - operational	**167**		**167**				
Loans and other non-current assets	**352**	136	215	0			
Loans and other non-current assets - allowance	**-62**	-62					
Loans and other non-current assets - net	**289**	**74**	**215**	**0**	**0**	**0**	**0**
Total	**1,871**	**82**	**1,702**	**74**	**9**	**3**	**0**

The table below presents the allowances on trade receivables:

In € million	**2020**	2019
Carrying amount at January 1	**-46**	**-52**
Additions	-8	-4
Uses	4	8
Reversal of impairments	3	3
Currency translation differences	5	0
Transfer to assets held for sale	2	0
Other	1	0
Carrying amount at December 31	**-39**	**-46**

Liquidity risk

See the Financial risk in the Management of risks section of this report for additional information on the liquidity risk management.

Liquidity risk relates to Solvay's ability to service and refinance its debt (including notes issued) and to fund its operations.

This depends on its ability to generate cash from operations and not to overpay for acquisitions.

The Finance Committee gives its opinion on the appropriate liquidity risk management for the Group's short, medium and long term funding and liquidity management requirements.

The Group manages liquidity risk by maintaining adequate reserves, banking facilities and reserve borrowing facilities, by continuously monitoring forecasts and actual cash flows, and by matching the maturity profiles of financial assets and liabilities.

The Group staggers the maturities of its financing sources over time in order to limit amounts to be refinanced each year.

The following tables detail the Group's remaining contractual maturity for its financial liabilities with contractual repayment periods.

The tables have been prepared using the discounted cash flows of financial liabilities, based on the earliest date on which the Group can be required to pay.

The following tables present discounted amounts (carrying amounts):

2020 - In € million	**Total**	Within one year	In year two	In years three to five	Beyond five years
Outflows of cash :					
Trade liabilities	**1,197**	1,197			
Dividends payables	**159**	159			
Financial instruments - operational	**101**	101			
Other non-current liabilities	**95**		36	22	38
Financial debt	**3,086**	194	809	966	1,117
Leasing debt	**433**	92	70	134	138
Total	**5,072**	**1,743**	**914**	**1,122**	**1,292**

2019 - In € million	**Total**	Within one year	In year two	In years three to five	Beyond five years
Outflows of cash:					
Trade liabilities	**1,277**	1,277			
Dividends payables	**161**	161			
Financial instruments - operational	**187**	187			
Other non-current liabilities	**159**		26	89	44
Financial debt	**4,044**	1,030	54	1,001	1,958
Leasing debt	**470**	102	67	138	163
Total	**6,297**	**2,756**	**147**	**1,229**	**2,166**

The following tables present undiscounted amounts (nominal value):

2020 - In € million	**Total**	Within one year	In year two	In years three to five	Beyond five years
Outflows of cash :					
Trade liabilities	**1,197**	1,197			
Dividends payables	**159**	159			
Financial instruments - operational	**101**	101			
Other non-current liabilities	**95**		36	22	38
Financial debt	**3,107**	194	812	976	1,125
Leasing debt	**433**	92	69	134	138
Total	**5,092**	**1,743**	**917**	**1,131**	**1,301**
Interests on financial debt and lease liabilities	**447**	89	88	190	81
Total outflows of cash	**5,539**	**1,832**	**1,005**	**1,321**	**1,381**

2019 - In € million	**Total**	Within one year	In year two	In years three to five	Beyond five years
Outflows of cash :					
Trade liabilities	**1,277**	1,277			
Dividends payables	**161**	161			
Financial instruments - operational	**187**	187			
Other non-current liabilities	**159**		26	89	44
Financial debt	**4,067**	1,029	54	1,011	1,973
Leasing debt	**470**	102	67	138	163
Total	**6,321**	**2,755**	**148**	**1,238**	**2,180**
Interests on financial debt and lease liabilities	**576**	100	97	235	145
Total outflows of cash	**6,897**	**2,854**	**244**	**1,473**	**2,325**

Solvay’s liquidity exceeds € 4 billion including € 1 billion of cash on the balance sheet and € 3 billion of committed fully undrawn credit facilities (€ 2 billion multilateral RCF due 2024, and € 1 billion bilateral RCF, largely multi-year). They are all unused at the end of December 2020.

In addition, Solvay has access to a Belgian Treasury Bill program for € 1.5 billion and, alternatively, to a US commercial paper for $ 500 million (no outstanding balance for both on December 31, 2020). The two programs are covered by back-up credit lines.

NOTE F36
NET INDEBTEDNESS

The Group’s net indebtedness is the balance between its financial debts and other financial instruments, and cash and cash equivalents.

In € million	**2020**	2019
Financial debt	3,519	4,513
- Cash and cash equivalents	-1,002	-809
- Other financial instruments	-119	-119
Net indebtedness	**2,398**	**3,586**

The decrease in the net indebtedness is mainly due to (a) the repayment of short-term treasury notes amounting to € 700 million decreasing the financial debt, and (b) the increase of cash and cash equivalents is mainly due to the strong free cash flow generation and the closing of the polyamide sale.

Solvay Investment Grade rating is Baa2/P2 (negative outlook) with Moody’s and BBB/A2 (stable outlook) with Standard & Poor’s.

Financial debt: main borrowings

	2020						2019	
	Nominal amount	Coupon	Maturity	Secured	Amount at amortized cost	Fair value	Amount at amortized cost	Fair value
In € million (except where indicated)	-	-	-	-				
Senior € notes	750	1.625%	2022	No	747	773	746	781
Senior US$ note Cytec Industries Inc (issuance US$ 400 million)	159	3.5%	2023	No	156	165	169	178
Senior US$ note Cytec Industries Inc (issuance US$ 250 million)	133	3.95%	2025	No	131	141	143	150
Senior US$ notes (144A;US$ 800 million)	651	4.45%	2025	No	650	745	709	775
Senior € notes	500	2.75%	2027	No	497	587	496	584
Senior € notes	600	0.500%	2029	No	596	611	595	582
Total					**2,776**	**3,022**	**2,859**	**3,049**

In 2019 Solvay SA issued a 10-year Senior note (€ 600 million) with an 0.5% yearly coupon in parallel with the early repayment of the US$ 800 million Senior US$ notes of Solvay Finance (America) LLC, initially maturing in 2020.

There are no instances of default on the above-mentioned financial debts. There are no financial covenants, neither on Solvay SA, nor on any of the Group's holding companies.

Other financial instruments

In € million	2020	2019
Currency swaps	1	3
Other marketable securities > 3 months	42	44
Other current financial assets	76	72
Other financial instruments	**119**	**119**

The other marketable securities > 3 months include the bank drafts position.

The other current financial assets mainly include margin calls of Energy Services for instruments with a negative fair value, and represent collateral for the obligations.

Cash and cash equivalents

In € million	2020	2019
Cash	547	664
Term deposits	455	144
Cash and cash equivalents	**1,002**	**809**

By their nature, the carrying amount of cash and cash equivalents is equal to, or a very good proxy of, its fair value.

Changes in financial debt and in other financial instruments arising from financing activities

	2019	2020								
In € million	**Total**	Cash flows from increase of borro-wings	Cash flows from repayment of borro-wings	Changes in foreign exchange rates	Changes in other current financial assets	Other in financing cash flows	Transfer from non-current to current	Payment of lease liabilities	Other	**Total**
Bonds	2,859		-0	-87		-	-		4	2,776
Other non-current debts	155	34	-36	-8		-	-51		21	116
Long term leasing debt	368			-20			-105		98	341
Non-current financial debt	**3,382**	**34**	**-36**	**-114**	**-**	**-**	**-156**	**-**	**123**	**3,233**
Short-term financial debt (excluding finance lease obligations)	1,022	523	-1,333	-5	-	-94	51	-	21	185
Currency swaps	8	-	-	-1		-	-	-	2	10
Short term leasing debt	102	-		-5		-	105	-108	-1	92
Current financial debt	**1,132**	**523**	**-1,333**	**-10**	**-**	**-94**	**156**	**-108**	**21**	**287**
Total financial debt	**4,513**	**557**	**-1,368**	**-124**	**-**	**-94**	**-0**	**-108**	**144**	**3,520**
Currency swaps	-3	-	-	-0	-0	-	-	-	2	-1
Other marketable securities > 3 months	-44			1	1	-	-	-	-0	-42
Other current financial assets	-72	-	-	3	-6	-	-		-0	-76
Other financial instruments	**-119**	**-**	**-**	**4**	**-5**	**-**	**-**	**-**	**1**	**-119**
Total cash flow		**557**	**-1,368**		**-5**	**-94**		**-108**	**145**	**-873**

The financial debt decreased from € 4,513 million at the end of 2019 to € 3,519 million at the end of 2020.

The non-current financial debt decreased by € (149) million, mainly resulting from:

- the decrease for € (27) million of IFRS 16 lease liabilities;
- the change in foreign exchange rates on bonds amounting to € (87) million (USD/EUR);
- the transfer to current financial debt for € (156) million;
- the € 123 million in "Other" mainly relates to leases that commenced during the year, as well as lease modifications.

The current financial debt decreased by € (845) million, mainly in short term financial debt:

- the net decrease of the € (700) million commercial papers outstanding in 2019 and presented in the cash flow statement under "increase in borrowings" and "repayment of borrowings";
- the decrease of € (94) million of margin calls on hedging instruments as part of Energy Services' activities;
- the transfer from non-current financial debt to current financial debt (€ 156 million);
- the repayment of short term finance lease obligations under IFRS 16 € (108) million

NOTE F37
OTHER LIABILITIES (CURRENT)

In € million	**2020**	2019
Wages and benefits debts	275	293
VAT and other taxes	104	112
Social security	60	61
Financial instruments - operational	101	187
Insurance premiums	12	15
Advances from customers	42	42
Other	126	82
Other current liabilities	**720**	**792**

The Other current liabilities include an amount of € 52 million due to EBRD for which a Call Option Notice was sent early 2021

Financial instruments – operational include held for trading and cash flow hedge derivatives (see note F35.A. *Overview of financial instruments*).

MISCELLANEOUS NOTES

NOTE F38
COMMITMENTS TO ACQUIRE PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS

In € million	**2020**	2019
Commitments to acquire property, plant and equipment and intangible assets	169	102

The amount mainly relates to commitments for the acquisition of property, plant and equipment.

NOTE F39
CONTINGENT LIABILITIES AND FINANCIAL GUARANTEES

Accounting policy

A contingent liability is:

(a) a possible obligation that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the entity; or

(b) a present obligation that arises from past events but is not recognized because:

(i) it is not probable that an outflow of resources embodying economic benefits will be required to settle the obligation; or

(ii) the amount of the obligation cannot be measured with sufficient reliability

Contingent liabilities are not recognized in the consolidated financial statements, except if they arise from a business combination. They are disclosed unless the possibility of an outflow of economic benefits is remote.

Financial guarantees are contracts that require the Group to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payment when due in accordance with the original or modified terms of a debt instrument.

In order to avoid double counting, only guarantees in excess of liabilities recognized or disclosures made elsewhere in the Group's financial statements are disclosed in this note. Regarding financial guarantees, all financial guarantees of the Group are presented in this note.

In € million	**2020**	2019
Financial guarantees RusVinyl	84	84
Guarantees for pensions	335	456
Contingent liabilities	301	312
Total	**720**	**852**

Financial guarantees related to Rusvinyl, the joint venture with SIBUR for the operation of a PVC plant in Russia, amount to € 84 million at December 31, 2020 (€ 84 million at the end of 2019). Those guarantees have been given on a several basis by both shareholders, Solvin/Solvay and Sibur, proportionate to their equity interest (50/50). In light of Rusvinyl's demonstrated capacity to honor its debt obligations, the probability of the guarantees being called is considered to be highly remote.

The guarantees related to pensions are mainly related to the UK Rhodia Pension Fund (€ 320 million) – See note F34.B.2.Description of obligations. Such corresponds to the amount by which the guarantee exceeds the recognized pension liability. This guarantee applies to the pension liability measured based on a local UK regulatory basis (prudential basis) plus an allocation for market risk, which is higher when compared to the liability measured based on the methodology as prescribed by IAS 19. The probability of the guarantees being called is considered to be highly remote.

Contingent liabilities of € 301 million above relate to environmental remediation matters that can be estimated with sufficient reliability.

Generally, in line with good business practice, we are not reporting any pending proceeding which has not matured and where the probability of existing or future exposure is unlikely or uncertain, where financial impact is not estimable and for which no contingent liabilities are able to be quantified.

In the United States Solvay Specialty Polymers USA, LLC (SpP) is defending several litigation matters relating to per- and polyfluoroalkyl substances (PFAS) commenced by governmental entities or private plaintiffs, including claims sounding in products liability, putative class action, personal injury, environmental contamination, natural resource damages, and medical monitoring

The company is vigorously defending such matters which are in their early stages. Based on the overall assessment, including compliance with applicable laws and regulations and the unlikely or uncertain probability of existing or future exposure, as well as undefined financial impact which is not estimable at this time, no additional provisions have been booked in association with these litigations and no contingent liabilities are able to be quantified.

NOTE F40
RELATED PARTIES

Balances and transactions between Solvay SA and (a) its subsidiaries and (b) its joint operations for the Group's share of the respective joint operations, which are related parties of Solvay SA, have been eliminated in consolidation and are not disclosed in this note. Details of transactions between the Group and other related parties are disclosed below.

Sale and purchase transactions

	Sale of goods		Purchase of goods	
In € million	**2020**	2019	**2020**	2019
Associates	9	10	-18	-5
Joint ventures	37	41	-14	-23
Other related parties	34	30	-68	-70
Total	**81**	**81**	**-100**	**-99**

	Amounts owed by related parties		Amounts owed to related parties	
In € million	**2020**	2019	**2020**	2019
Associates	0	1	0	0
Joint ventures	1	1	1	2
Other related parties	13	8	5	11
Total	**15**	**9**	**6**	**13**

Loans to related parties

In € million	**2020**	2019
Loans to joint ventures	5	9
Loans to other related parties	29	17
Total	**34**	**26**

Compensation of key management personnel

Key management personnel is composed of all members of the Board of Directors and members of the Executive Committee.

Amounts due in respect of the year (compensation) and obligations existing at the end of the year in the consolidated statement of financial position:

In € million	**2020**	2019
Wages, charges and short-term benefits	3	3
Long-term benefits	1	1
Cash-settled share-based payments liability	2	6
Total	**6**	**10**

Expenses of the year:

In € million	**2020**	2019
Wages, charges and short-term benefits	-9	-8
Long-term benefits	-2	-2
Share-based payments expenses	-1	-9
Total	**-11**	**-19**

Excluding employer social charges and taxes

Please refer to the Compensation Report for further details

NOTE F41
DIVIDENDS PROPOSED FOR DISTRIBUTION

The Board of Directors will propose to the "General Shareholders' Meeting" a gross dividend of € 3.75 per share.

Taking into account the dividend advance payment distributed in January 2021 of € 1.50 per share, the dividends proposed for distribution, but not yet recognized as a distribution to equity holders amount to € 238 million.

NOTE F42
EVENTS AFTER THE REPORTING PERIOD

Accounting policy

Events after the reporting period which provide evidence of conditions that existed at the end of the reporting period (adjusting events) are recognized in the consolidated financial statements. Events indicative of conditions that arose after the reporting period are non-adjusting events and are disclosed in the notes if material.

On January 18, 2021 Solvay sent a Call option Notice to the European Bank for Reconstruction and Development (EBRD) to purchase the EBRD shares in the Solvay holding of the Rusvinyl Joint Venture. The expected option price is €52 million and is booked as an Other current liability at the end of 2020.

An additional voluntary contribution of approximately €100 million was made in January 2021 to the Belgian pension plans.

In January, Solvay launched a new chapter of its strategic transformation aimed to further align its structure to its G.R.O.W. strategy. This builds on previous plans announced in 2020, and represents a profound simplification of all support functions to serve the business more effectively. The plan will lead to an additional net reduction of approximately 500 roles by the end of 2022 and incremental cost savings of €75 million. As a consequence of the new restructuring plan, a non-cash restructuring provision of around €170 million will be recognized in Q1 2021.

Solvay also reached an agreement to purchase a seed coating technology to bolt-on to its existing agro products within the Novecare business. This is a natural extension to Solvay's own AgRHO® family of sustainable seed boosting solutions and supports the drive toward more bio-based, sustainable technologies.

NOTE F43
LIST OF COMPANIES INCLUDED IN THE CONSOLIDATION SCOPE

The Group consists of Solvay SA and a total of 318 investees.

Of these 318 investees, 166 are fully consolidated, 7 are proportionately consolidated and 25 are accounted for under the equity method, whilst the other 120 do not meet the criteria of significance.

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List of companies entering or leaving the consolidation scope

Companies entering the consolidation scope

Country	Company	Comments
FRANCE	Alsachimie S.A., Chalempe	New company
	Performance Polyamides S.A.S. , Lyon	New company
	Polytechnyl S.A.S. , Saint Fons	New company
GERMANY	Solvay Persalze Gmbh , Hannover	New company
PORTUGAL	Solvay Peroxidos Portugal Unipessoal LDA , Povoa	New company

Companies leaving the consolidation scope

Country	Company	Comments
BRAZIL	Techpolymers Industria E Comercio Ltda, Sao Paulo	Sold to BASF
	Rhodia Poliamida e Especialidades Ltda, Sao Paolo	Merged into Rhodia Brazil SA
CHINA	Beijing Rhodia Eastern Chemical Co., Ltd , Beijing	Liquidated
	Solvay (Shanghai) Engineering Plastics Co., Ltd, Shanghai	Sold to BASF
	Solvay (Beijing) Energy Technology Co., Ltd , Beijing	Liquidated
	Solvay Silica Qingdao Co., Ltd , Qingdao	No longer meets the consolidation criteria
	Suzhou Interox Sem Co. Ltd, Suzhou	No longer meets the consolidation criteria
FRANCE	RHOD V S.N.C. , Courbevoie	Merged into Rhodianyl S.N.C.
	RHOD W S.N.C. , Courbevoie	Merged into Rhodia V S.N.C.
	Alsachimie S.A., Chalempe	Sold to the BASF-Domo Joint Venture
	Butachimie S.N.C., Chalempe	Sold to BASF
	Performance Polyamides S.A.S. , Lyon	Sold to BASF
	Polytechnyl S.A.S. , Saint Fons	Sold to Domo
	Cogénération Belle Etoile SAS, Paris	Merged into EECO Holding SA
GERMANY	Performance Polyamides Gmbh , Freiburg	Sold to BASF
	PolyTechnyl Germany GmbH , Freiburg	Sold to Domo
INDIA	Rhodia Polymers & Specialties India Private Limited, Mumbai	Sold to BASF
ITALY	Performance Polyamide Italy Srl, Bollate	Sold to Domo
MEXICO	Solvay Industrial S.de R.L. de C.V., Mexico	Sold to BASF
POLAND	Solvay Engineering Plastics Poland Sp z.o.o. , Gorzow Wielkopolski	Sold to Domo
	Zaklad Energoeloctryczny Energo-Stil Sp. z o.o., Gorzow Wielkopolski	Sold to Domo
SOUTH KOREA	Solvay Chemicals Korea Co. Ltd , Seoul	Sold to BASF
SPAIN	Solvay Solutions Espana S.L. , Madrid	Sold to Domo
SWITZERLAND	Solvay (Schweiz) AG, Bad Zurzach	Sold to Sodi Beteiligungen AG
UNITED STATES	Solvay Financial Services Inc., Wilmington, Delaware	Merged into Solvay Holding Inc.

List of subsidiaries

Indicating the percentage holding.

The percentage of voting rights is very close to the percentage holding.

ARGENTINA	
Solvay Argentina SA, Buenos Aires	100
Solvay Quimica SA, Buenos Aires	100
AUSTRALIA	
Cytec Asia Pacific Holdings Pty Ltd, Baulkham Hills	100
Cytec Australia Holdings Pty Ltd, Baulkham Hills	100
Solvay Interox Pty Ltd, Banksmeadow	100
AUSTRIA	
Solvay Österreich GmbH, Wien	100
BELGIUM	
Carrières les Petons S.P.R.L., Walcourt	100
Solvay Chemicals International S.A., Brussels	100
Solvay Chimie S.A., Brussels	100
Solvay Participations Belgique S.A., Brussels	100
Solvay Pharmaceuticals S.A. - Management Services, Brussels	100
Solvay Specialty Polymers Belgium SA / NV, Brussels	100
Solvay Stock Option Management S.P.R.L., Brussels	100
BRAZIL	
Cogeracao de Energia Electricica Paraiso SA, Brotas	100
Rhodia Brasil SA, Sao Paolo	100
Rhodia Poliamida Brasil Ltda , Sao Paolo	100
Rhopart-Participacoes Servidos e Comercio Ltda, Sao Paolo	100
BULGARIA	
Solvay Bulgaria EAD, Devnya	100
CANADA	
Cytec Canada Inc, Niagara Falls Welland	100
Solvay Canada Inc, Toronto	100
CHINA	
Cytec Industries Co. Ltd, Shanghai	100
Cytec Engineered Materials Co. Ltd, Shanghai	100
Liyang Solvay Rare Earth New Material Co., Ltd, Liyang City	96.3
Rhodia Hong Kong Ltd , Hong Kong	100
Solvay (Shanghai) International Trading Co., Ltd, Shanghai	100
Solvay (Shanghai) Ltd, Shanghai	100
Solvay (Zhangjiangang) Specialty Chemicals Co. Ltd, Suzhou	100
Solvay (Zhenjiang) Chemicals Co., Ltd, Zhenjiang New area	100
Solvay Chemicals (Shanghai) Co. Ltd, Shanghai	100
Solvay China Co., Ltd , Shanghai	100
Solvay Fine Chemical Additives (Qingdao) Co., Ltd, Qingdao	100
Solvay Hengchang (Zhangjiagang) Specialty Chemical Co., Ltd, Zhangjiagang City	70
Solvay Lantian (Quzhou) Chemicals Co., Ltd, Zhejiang	55
Solvay Speciality Polymers (Changshu) Co. Ltd, Changshu	100
Zhuhai Solvay Specialty Chemicals Co Ltd, Zhuhai City	100
CHILE	
Cytec Chile Ltda, Santiago	100
FINLAND	
Solvay Chemicals Finland Oy, Voikkaa	100
FRANCE	
Cogénération Tavaux SAS, Paris	33.3
Cytec Process Materials Sarl, Toulouse	100
Rhodia Chimie S.A.S. , Aubervilliers	100
Rhodia Energy GHG S.A.S. , Puteaux	100
Rhodia Laboratoire du Futur S.A.S. , Pessac	100
Rhodia Operations S.A.S. , Aubervilliers	100

Rhodia Participations S.N.C. , Courbevoie	100
Rhodianyl S.A.S. , Saint-Fons	100
Solvay - Opérations - France S.A.S., Paris	100
Solvay - Fluorés - France S.A.S., Paris	100
Solvay Energie France S.A.S., Paris	100
Solvay Energy Services S.A.S. , Puteaux	100
Solvay Finance S.A., Paris	100
Solvay France S.A. , Courbevoie	100
Solvay Speciality Polymers France S.A.S., Paris	100
Solvin France S.A., Paris	100
GERMANY	
Cavity GmbH, Hannover	100
Cytec Engineered Materials GmbH, Oestringen	100
European Carbon Fiber GmbH , Kelheim	100
Horizon Immobilien AG, Hannover	100
Salzgewinnungsgesellschaft Westfalen GmbH & Co KG, Hannover	65
German limited partnership, which makes use of the exemptions offered by Section 264(b) of the German Commercial Code, not to publish their annual financial statements.	
Solvay Chemicals GmbH, Hannover	100
Solvay Fluor GmbH, Hannover	100
Solvay Flux GmbH, Hannover	100
Solvay GmbH, Hannover	100
Solvay Infra Bad Hoenningen GmbH, Hannover	100
Solvay P&S GmbH, Freiburg	100
Solvay Solvay Persalze Gmbh, Hannover	100
Solvay Specialty Polymers Germany GmbH, Hannover	100
Solvin GmbH & Co. KG - PVDC, Rheinberg	100
Solvin Holding GmbH, Hannover	100
INDIA	
Solvay Specialities India Private Limited, Mumbai	100
Sunshield Chemicals Limited, Mumbai	62.4
INDONESIA	
PT. Cytec Indonesia, Jakarta	100
IRELAND	
Solvay Finance Ireland Unlimited , Dublin	100
ITALY	
Cytec Process Materials S.r.l., Mondovi	100
Solvay Chimica Italia S.p.A., Milano	100
Solvay Energy Services Italia S.r.l., Bollate	100
Solvay Solutions Italia S.p.A. , Milano	100
Solvay Specialty Polymers Italy S.p.A., Milano	100
JAPAN	
Nippon Solvay KK, Tokyo	100
Solvay Japan K.K., Tokyo	100
Solvay Nicca Ltd, Tokyo	60
Solvay Special Chem Japan Ltd, Anan City	67
Solvay Specialty Polymers Japan KK, Minato Ku-Tokyo	100
LATVIA	
Solvay Business Services Latvia SIA, Riga	100
LUXEMBOURG	
Cytec Luxembourg International Holdings Sarl, Strassen	100
Solvay Chlorovinyls Holding S.a.r.l., Luxembourg	100
Solvay Finance (Luxembourg) SA, Luxembourg	100
Solvay Hortensia S.A., Luxembourg	100
Solvay Luxembourg S.a.r.l., Luxembourg	100
MEXICO	
Cytec de Mexico S.A. de C.V., Jalisco	100
Solvay Fluor Mexico S.A. de C.V., Ciudad Juarez	100
Solvay Mexicana S. de R.L. de C.V., Monterrey	100

NETHERLANDS	
Cytec Industries B.V., Vlaardingen	100
Rhodia International Holdings B.V., Den Haag	100
Solvay Chemicals and Plastics Holding B.V., Linne-Herten	100
Solvay Chemie B.V., Linne-Herten	100
Solvay Solutions Nederland B.V., Klundert	100
Solvin Holding Nederland B.V., Linne-Herten	100
NEW ZEALAND	
Solvay New Zealand Ltd, Auckland	100
PERU	
Cytec Peru S.A.C., Lima	100
POLAND	
Solvay Poland Sp. z o.o. , Gorzow Wielkopolski	100
PORTUGAL	
Solvay Business Services Portugal Unipessoal Lda, Carnaxide	100
Solvay Peroxidos Portugal Unipessoal LDA , Povoa	100
Solvay Portugal - Produtos Quimicos S.A., Povoa	100
RUSSIA	
Solvay Vostok OOO, Moscow	100
SINGAPORE	
Rhodia Amines Chemicals Pte Ltd , Singapore	100
Solvay Fluor Holding (Asia-Pacific) Pte. Ltd., Singapore	100
Solvay Specialty Chemicals Asia Pacific Pte. Ltd., Singapore	100
SOUTH KOREA	
Cytec Korea Inc, Seoul	100
Daehan Solvay Special Chemicals Co., Ltd, Seoul	100
Solvay Chemical Services Korea Co. Ltd, Seoul	100
Solvay Energy Services Korea Co. Ltd , Seoul	100
Solvay Korea Co. Ltd, Seoul	100
Solvay Silica Korea Co. Ltd , Incheon	100
Solvay Specialty Polymers Korea Company Ltd, Seoul	100
SPAIN	
Solvay Quimica S.L., Barcelona	100
SWITZERLAND	
Solvay Vinyls Holding AG, Bad Zurzach	100
THAILAND	
Solvay Asia Pacific Company Ltd, Bangkok	100
Solvay (Bangpoo) Specialty Chemicals Ltd, Bangkok	100
Solvay (Thailand) Ltd, Bangkok	100
Solvay Peroxythai Ltd, Bangkok	100
TURKEY	
Solvay Istanbul Kimya Limited Sirketi, Istanbul	100
UNITED KINGDOM	
Advanced Composites Group Investments Ltd, Heanor	100
Cytec Engineered Materials Ltd, Wrexham	100
Cytec Industrial Materials (Derby) Ltd, Heanor	100
Cytec Industrial Materials (Manchester) Ltd, Heanor	100
Cytec Industries UK Holdings Ltd, Wrexham	100
Cytec Med-Lab Ltd, Heanor	100
Cytec Process Materials (Keighley) Ltd, Keighley	100
McIntyre Group Ltd , Watford	100
Rhodia Holdings Ltd , Watford	100
Rhodia International Holdings Ltd , Oldbury	100
Rhodia Limited , Watford	100
Rhodia Organique Fine Ltd , Watford	100
Rhodia Overseas Ltd , Watford	100
Rhodia Pharma Solutions Holdings Ltd, Cramlington	100
Rhodia Pharma Solutions Ltd, Cramlington	100
Rhodia Reorganisation, Watford	100
Solvay Interox Ltd, Warrington	100

Solvay Solutions UK Ltd, Watford	100
Solvay UK Holding Company Ltd, Warrington	100
Umeco Composites Ltd, Heanor	100
Umeco Ltd, Heanor	100
UNITED STATES	
Ausimont Industries, Inc., Wilmington, Delaware	100
CEM Defense Materials LLC, Tempe Arizona	100
Cytec Aerospace Materials (ca) Inc., Sacramento California	100
Cytec Engineered Materials Inc., Princeton New Jersey	100
Cytec Global Holdings Inc., Princeton New Jersey	100
Cytec Industrial Materials (ok) Inc., Tulsa Oklahoma	100
Cytec Industries Inc, Princeton New Jersey	100
Cytec Korea Inc., Princeton New Jersey	100
Cytec Process Materials (ca) Inc., Santa Fe Springs California	100
Cytec Technology Corp., Princeton New Jersey	100
Garret Mountain Insurance Co., Burlington Vermont	100
Rocky Mountain Coal Company, LLC, Houston, Texas	100
Solvay America Holdings, Inc., Houston, Texas	100
Solvay America Inc., Houston, Texas	100
Solvay Chemicals, Inc., Houston, Texas	100
Solvay Finance (America) LLC, Houston, Texas	100
Solvay Fluorides, LLC., Greenwich, Connecticut	100
Solvay Holding Inc., Princeton, New Jersey	100
Solvay India Holding Inc., Princeton, New Jersey	100
Solvay Soda Ash Expansion JV, Houston, Texas	80
Solvay Soda Ash Joint Venture, Houston, Texas	80
Solvay Specialty Polymers USA, LLC, Alpharetta, Georgia	100
Solvay USA INC., Princeton, New Jersey	100
URUGUAY	
Zamin Company S/A, Montevideo	100

List of joint operations

Indicating the percentage holding.

AUSTRIA	
Solvay Sisecam Holding AG, Wien	75
BELGIUM	
BASF Interox H2O2 Production N.V., Brussels	50
BULGARIA	
Solvay Sodi AD, Devnya	73.5
NETHERLANDS	
MTP HP JV C.V., Weesp	50
MTP HP JV Management bv, Weesp	50
SAUDI ARABIA	
Saudi Hydrogen Peroxide Co, Jubail	50
THAILAND	
MTP HP JV (Thailand) Ltd, Bangkok	50

List of companies consolidated by applying the equity method of accounting

Indicating the percentage holding. Joint ventures

AUSTRALIA	
Aqua Pharma Australia Pty Ltd, Armidale	50
BELGIUM	
EECO Holding SA, Brussels	33.3
BRAZIL	
Peroxidos do Brasil Ltda, Sao Paulo	69.4
CANADA	
Aqua Pharma Inc, Saint John	50
CHILE	
Aqua Pharma Chile Spa, Puerto Montt	50
CHINA	
Shandong Huatai Interox Chemical Co. Ltd, Dongying	50
GERMANY	
Solvay & CPC Barium Strontium GmbH & Co KG, Hannover	75
Solvay & CPC Barium Strontium International GmbH, Hannover	75
INDIA	
Hindustan Gum & Chemicals Ltd, New Delhi	50
IRELAND	
Aqua Pharma Ireland Ltd, Dublin	50
ITALY	
Cogeneration Rosignano S.r.l., Rosignano	25.4
Cogeneration Spinetta S.p.a., Bollate	33.3
MEXICO	
Solvay & CPC Barium Strontium Monterrey S. de R.L. de C.V., Monterrey	75
NORWAY	
Aqua Pharma Group A.S., Lillehammer	50
Aqua Pharma A.S., Lillehammer	50
Haugaland Shipping A.S., Haugesund	50
RUSSIA	
RusVinyl OOO, Moscow	50
UNITED KINGDOM	
Aqua Pharma Technical Ltd, Inverness	50
Aqua Pharma Ltd, Inverness	50
UNITED STATES	
Aqua Pharma U.S. Inc, Kirkland	25

Associates

CHINA	
Qingdao Hiwin Solvay Chemicals Co. Ltd, Qingdao	30
FRANCE	
GIE Chime Salindres, Salindres	50
INDONESIA	
Solvay Manyar P.T., Gresik	50
MEXICO	
Silicatos y Derivados S.A. DE C.V., Estado de Mexico	20
UNITED KINGDOM	
Penso Holdings Ltd, Coventry	20

3. SUMMARY FINANCIAL STATEMENTS OF SOLVAY SA

GRI Disclosures 102-1 102-2 102-4 102-7

The annual financial statements of Solvay SA are presented in summary format below. In accordance with the Belgian Companies Code, the annual financial statements of Solvay SA, the management report and the statutory auditor's report will be filed with the National Bank of Belgium.

These documents are also available free of charge on the internet or upon request sent to:

Solvay SA
Rue de Ransbeek 310
B – 1120 Brussels

The balance sheet of Solvay SA at the end of the year 2020 presented below is based on a dividend distribution of € 3.75 per share.

At the end of 2020, Solvay SA has still one Branch, Solvay S.A. Italia (Viale Lombardia 20, 20021 Bollate, Italy).

The accounts of Solvay SA are prepared in accordance with Belgian generally accepted accounting principles.

The main activities of Solvay SA consist of holding and managing a number of investments in Group companies and of financing the Group's activities from the bank and bond markets. Solvay SA also has a Group internal factoring activity without recourse. As a result, Solvay SA owns and manages Group's trade receivables from customers based in Europe and in Asia. It manages the research center at Neder-Over-Heembeek (Brussels, Belgium) and a very limited number of commercial activities not undertaken through subsidiaries.

BALANCE SHEET OF SOLVAY SA (SUMMARY)

In € million	**2020**	2019
ASSETS		
Fixed assets	**11,235**	**13,286**
Start-up expenses and intangible assets	137	164
Tangible assets	64	64
Financial assets	11,034	13,058
Current assets	**4,356**	**5,080**
Inventories	0	0
Trade receivables	639	862
Other receivables	3,029	3,861
Short-term investments and cash equivalents	655	338
Accrued income and deferred charges	33	19
Total assets	**15,591**	**18,366**
SHAREHOLDERS' EQUITY AND LIABILITIES		
Shareholders' equity	**8,872**	**11,337**
Capital	1,588	1,588
Issue premiums	1,200	1,200
Reserves	1,982	1,982
Net income carried forward	4,101	6,566
Provisions and deferred taxes	**578**	**309**
Financial debt	**3,153**	**3,353**
- due in more than one year	3,152	2,652
- due within one year	1	701
Trade liabilities	**100**	**84**
Other liabilities	**2,845**	**3,256**
Accrued charges and deferred income	**43**	**27**
Total shareholders' equity and liabilities	**15,591**	**18,366**

The decrease of the total assets (€ (2,775) million) is the combination of:

- A decrease of financial assets by € (2,024) million, resulting mainly from the impact of:
  - The equity reduction in Solvay Finance Luxembourg (€ (185) million) mainly through the payment of a dividend (€ 170 million);
  - The impairment on the shares held in Solvay Holding Inc (€ (1,880) million) based on the same business assumptions that were taken into account for the impairments in Group accounts for the Composites, Technology Solutions and Oil & Gas businesses.

- A decrease of current assets by € (724) million, resulting mainly from:
  - The reduction of trade receivables (€ (223) million), particularly the consequence of the strong reduction in overdue amounts;
  - The decrease of other receivables for current accounts with subsidiaries (€ (832) million),
  - The increase of cash at bank (€ 317 million).

Shareholders equity decreases by € (2,465) million due to the result of the year (€ (2,068) million) and the dividend to be distributed in 2021 (€ (397) million).

The provisions have significantly increased (€ 269 million) in 2020 essentially due to the specific € 350 million provision to cover risks related to UK subsidiaries. Other adjustments for provisions are related to intercompany recharges.

The financial debt totals € 3,153 million (compared to € 3,353 million at the end of 2019). The decrease of € (200) million is due to:

- The repayment of commercial paper (€ (700) million) partly offset by
- The issuance of a new hybrid bond (€ 500 million) in order to enable Solvay France to reimburse hybrid bonds.

Other liabilities decrease by € 411 million due to a decrease of current accounts vis-à-vis affiliates. Payable for dividend is stable compared to last year.

INCOME STATEMENT OF SOLVAY SA (SUMMARY)

In € million	**2020**	2019
Operating income	868	987
Sales	11	13
Other operating income	857	974
Operating expenses	-1,122	-855
Operating profit	**-255**	**132**
Financial income and expenses	-1,815	413
Profit / (loss)for the year before taxes	**-2,070**	**545**
Income taxes	2	-18
Profit / (loss) for the year	**-2,068**	**527**
Profit / (loss) for the year available for distribution	**-2,068**	**527**

In 2020, the net result for the year of Solvay SA is a loss amounting to € (2,068) million, compared with a profit of € 527 million in 2019.

This result includes:

- The operating result amounting to € (255) million, compared with € 132 million in 2019. This decrease is mainly driven by the provision of € 350 million recognized in 2020 to cover risks on UK subsidiaries and by lower recharges to affiliates;
- Financial gains and losses mainly related to Impairment loss on shares of Solvay Holding Inc. (€ (1,880) million) and on shares of Solvay Finance Luxembourg (€ (185) million) partly offset by dividends received mainly (€290 million) from Solvay Finance Luxembourg (€ 170 million) and from Solvay affiliates in Italy (€ 109 million).

In addition to the available reserves (€ 1,056 million), an amount of € 4,498 million including the net loss of the year is available for distribution as follows:

PROFIT AVAILABLE FOR DISTRIBUTION

In € million	**2020**	2019
Profit / (loss) for the year available for distribution	-2,068	527
Carried forward	6,566	6,436
Total available to the General Shareholders' Meeting	**4,498**	**6,963**
Appropriation		
Gross dividend	397	397
Carried forward	4,101	6,566
Total	**4,498**	**6,963**

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Declarations: Auditor's reports & Declaration by the persons responsible

Deloitte.

Solvay SA/NV

Assurance report of the statutory auditor on a selection of social, environmental and other sustainable development information for the year ended 31 December 2020

Assurance report of the statutory auditor on a selection of social, environmental and other sustainable development information for the year ended 31 December 2020

Pursuant to your request and in our capacity of statutory auditor of Solvay SA / NV ("the Company"), we hereby present you our assurance report on a selection of social, environmental and other sustainable development information disclosed in the Solvay Group Annual Integrated Report for the year ended 31 December 2020 (the "2020 Annual Integrated Report"), identified by the symbol 'L' and 'R'.

Responsibility of the Company

This selection of information (the "Information") extracted from the 2020 Annual Integrated Report has been prepared under the responsibility of Solvay Group management, in accordance with internal measurement and reporting principles used by Solvay Group (the "Reporting Framework"). The Reporting Framework consists of specific definitions and assumptions that are summarized in section "Extra-financial statements" of the 2020 Annual Integrated Report.

Responsibility of the Statutory Auditor

It is our responsibility, based on the procedures performed by us, to express:

- *"Limited assurance" for the Information identified by the symbol* 'L' as included in the 2020 Annual Integrated Report
- *"Reasonable assurance" for the Information identified by the symbol 'R'* as included in the 2020 Annual Integrated Report

The complete list of Information in scope of our assurance engagement together with the type of assurance has been included in appendix A of this report.

We conducted our procedures in accordance with the international standard as defined in ISAE (International Standard on Assurance Engagements) 3000. With respect to independence rules, these are defined by the respective legal and regulatory texts as well as by the professional Code of Ethics, issued by the International Federation of Accountants ("IFAC").

Nature and scope of procedures

We have carried out the following procedures:

- *General procedures:*
    - We assessed the appropriateness of the Reporting Framework with respect to its relevance, completeness, neutrality, clarity and reliability, by taking into consideration, when relevant, the sector reporting practices.
    - We have verified the set-up within Solvay Group of the process to obtain, consolidate and check the selected Information with regard to its completeness and consistency. We have familiarized ourselves with the internal control and risk management procedures relating to the compilation of the information. We have conducted interviews with individuals responsible for social, environmental and other sustainable development reporting.
    - At the sites that we have selected based on their activity, their contribution to the consolidated data, their location and a risk analysis, we have:
        - Conducted interviews to verify the proper application of procedures and obtained information to perform our verifications;
        - Conducted substantive tests, using sampling techniques, to verify the calculations performed and reconcile data with supporting evidence.
    - All the audited sites and perimeters are listed in appendix B of this document.

- *"Limited assurance" for the Information identified by the symbol 'L' as included in the 2020 Annual Integrated Report:*
    - For the entity in charge of consolidation ("the Company"), as well as for the controlled entities, we have designed analytical procedures and verified, using sampling techniques, the calculations as well as the consolidation of this information in order to obtain limited assurance that the selected information does not contain any material errors that would question its preparation, in all material respects, in accordance with the Reporting Framework. A higher level of assurance would have required more extensive procedures.
- *"Reasonable assurance" for the Information identified by the symbol 'R' as included in the 2020 Annual Integrated Report:*
    - We conducted work of the same nature as the work described in section above (limited assurance) but in further detail, in particular performing an increased number of tests. In these cases, the selected sample represents between 7% and 54% of the published data.

Conclusion

- *For the indicators in scope of "limited assurance" (identified by the symbol 'L')*

  On the basis of the procedures performed by us, nothing came to our attention that causes us to believe that the Information identified by the symbol *'L'* as included in the 2020 Annual Integrated Report, is not prepared, in all material respects, in accordance with the Reporting Framework.

- *For the indicators in scope of "reasonable assurance" (identified by the symbol 'R')*

  In our opinion, based on the procedures performed, the Information identified by the symbol *'R'* as included in the 2020 Annual Integrated Report, has been prepared in all material respects in accordance with the Reporting Framework.

Zaventem, 22 March 2021

The statutory auditor

Deloitte Bedrijfsrevisoren/Réviseurs d'Entreprises CVBA/SCRL
Represented by

_____________	____________
Michel Denayer	Corine Magnin

Appendices:
Appendix A – Overview of indicators reviewed
Appendix B – Overview of audited sites

Appendix A - Overview of indicators reviewed

Indicators in **bold** are selected for reasonable assurance.

Reporting scope	Information	Audit Procedure	Audit scope
Sustainable business solutions	**Product portfolio assessed**	**Reasonable Assurance**	Group level
	Sustainable business solutions	**Reasonable Assurance**	Group level
Greenhouse gas emissions	**Greenhouse gas emissions intensity**	**Reasonable Assurance**	Group level
	GHG reductions achieved compared to last year (at constant scope and constant GHG accounting methodology)	**Reasonable Assurance**	Group level
	Direct emissions (Scope 1)	**Reasonable Assurance**	Site level
	Indirect emissions (Scope 2)	**Reasonable Assurance**	Site level
	Total direct and indirect emissions (Scope 1+2)	**Reasonable Assurance**	Site level
	Other greenhouse gas emissions not according to Kyoto Protocol (Scope 1)	Limited Assurance	Site level
	Scope 3 emissions – all categories	Limited Assurance	Group level
Energy	Primary energy consumption	Limited Assurance	Site level
	Energy efficiency index	Limited Assurance	Site level
	Phase-out of coal use in energy production	**Reasonable Assurance**	Group level
Air quality	Nitrogen oxides emissions – NO_x	Limited Assurance	Site level
	Nitrogen oxides intensity	Limited Assurance	Site level
	Sulphur oxides emissions – SO_x	Limited Assurance	Site level
	Sulphur oxides intensity	Limited Assurance	Site level
	Non-methane volatile organic compounds emissions – NMVOC	Limited Assurance	Site level
	Non-methane volatile organic compounds intensity	Limited Assurance	Site level
Water and wastewater	**Freshwater withdrawal**	**Reasonable Assurance**	Site level
	Freshwater withdrawal intensity	**Reasonable Assurance**	Site level
	Chemical oxygen demand (COD)	Limited Assurance	Site level
	Chemical oxygen demand intensity	Limited Assurance	Site level

Reporting scope	Information	Audit Procedure	Audit scope
Waste and hazardous materials	**Non-hazardous industrial waste**	**Reasonable Assurance**	Site level
	Hazardous industrial waste	**Reasonable Assurance**	Site level
	Total industrial waste	**Reasonable Assurance**	Site level
	Industrial non-hazardous waste not treated in a sustainable way	**Reasonable Assurance**	Site level
	Industrial hazardous waste not treated in a sustainable way in absolute volume	**Reasonable Assurance**	Site level
	Industrial hazardous waste not treated in a sustainable way in absolute volume	**Reasonable Assurance**	Site level
	Industrial hazardous waste not treated in a sustainable way intensity	**Reasonable Assurance**	Site level
	Total industrial waste not treated in a sustainable way	**Reasonable Assurance**	Site level
	Substance of very high concern (SVHC) according to REACH criteria present in products sold	Limited Assurance	Group level
	Percentage of completion of Analysis of Safer Alternatives program for marketed substances	Limited Assurance	Group level
Employee health and safety	**Medical Treatment Accident Rate – for Solvay Employees, and contractors (MTAR)**	**Reasonable Assurance**	Site level
	Lost Time Accident Rate – for Solvay Employees and contractors (LTAR)	**Reasonable Assurance**	Site level
	Fatal accidents of Solvay employees and contractors	**Reasonable Assurance**	Site level
Employee engagement and wellbeing	Coverage by collective agreement	Limited Assurance	Group level
	Solvay engagement index	Limited Assurance	Group level
Diversity and inclusion	**Total headcount**	**Reasonable Assurance**	Group level
	Percentage of women in the Group	**Reasonable Assurance**	Group level
	Headcount by employee category (senior manager, middle manager, junior manager, non-manager)	Limited Assurance	Group level

Reporting scope	Information	Audit Procedure	Audit scope
Process accident and safety	Process safety incident rate	Limited Assurance	Group level
	Process Safety Incidents with High or Catastrophic severity	Limited Assurance	Site level
	Process Safety Incidents with environmental consequences	Limited Assurance	Site level
	Process Safety Incidents with environmental consequences in which the limits of the operating permit were exceeded	Limited Assurance	Site level
Customer welfare	Solvay's Net Promoter Score (NPS)	Limited Assurance	Group level
Biodiversity	Pressure of Solvay products on biodiversity	Limited Assurance	Group level
Management of the legal, ethics and regulatory framework	Total claims made	Limited Assurance	Group level
	Total claims closed including cases for which there was insufficient information or cases that were misdirected or referred	Limited Assurance	Group level
	Unsubstantiated claims among resolved cases	Limited Assurance	Group level
	Substantiated claims among resolved cases	Limited Assurance	Group level

Appendix B - Overview of audited sites

Audited site	Country	Greenhouse gas emissions	Energy	Air quality	Water and wastewater	Waste and hazardous materials	Employee health and safety	Process accident and safety
Mount Pleasant	USA	●	●	●	●	●	●	●
Niagara Welland	Canada	●	●	●	●	●	●	●
Devnya	Bulgaria					●		
Tavaux	France			○		●		
St. Fons Spécialités	France	●	●	●	●	●	●	●
Rheinberg	Germany	●	●	●	●	●	●	●
Bernburg	Germany				●	○		
Panoli	India		●					●
Torrelavega	Spain				○			
Linne-Herten	The Netherlands		●	●	●	●	●	●
Oldbury	UK	●	●					
Wrexham	UK							●
Voikkaa	Finland				○			
Asia Ind Estate	Thailand					●		
Zhangjiagang Feixiang	China		●			●	●	
Zhenjiang Songl	China					●		
Qingdao	China							●

A selection of indicators audited ○

All relevant indicators audited ●

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Solvay SA

Statutory auditor's report to the shareholders' meeting for the year ended 31 December 2020 - Consolidated financial statements

Statutory auditor's report to the shareholders' meeting of Solvay SA for the year ended 31 December 2020 - Consolidated financial statements

In the context of the statutory audit of the consolidated financial statements of Solvay SA ("the company") and its subsidiaries (jointly "the group"), we hereby submit our statutory audit report. This report includes our report on the consolidated financial statements and the other legal and regulatory requirements. These parts should be considered as integral to the report.

We were appointed in our capacity as statutory auditor by the shareholders' meeting of 14 May 2019, in accordance with the proposal of the board of directors issued upon recommendation of the audit committee and presentation of the works council. Our mandate will expire on the date of the shareholders' meeting deliberating on the financial statements for the year ending 31 December 2021. We have performed the statutory audit of the consolidated financial statements of Solvay SA for 20 consecutive periods.

Report on the consolidated financial statements

Unqualified opinion

We have audited the consolidated financial statements of the group, which comprise the consolidated statement of financial position as at 31 December 2020, the consolidated income statement, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the year then ended, as well as the summary of significant accounting policies and other explanatory notes. The consolidated statement of financial position shows total assets of 16 792 million EUR and the consolidated income statement shows a loss for the year then ended of 929 million EUR.

In our opinion, the consolidated financial statements give a true and fair view of the group's net equity and financial position as of 31 December 2020 and of its consolidated results and its consolidated cash flow for the year then ended, in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union and with the legal and regulatory requirements applicable in Belgium.

Basis for the unqualified opinion

We conducted our audit in accordance with International Standards on Auditing (ISA), as applicable in Belgium. In addition, we have applied the International Standards on Auditing approved by the IAASB applicable to the current financial year, but not yet approved at national level. Our responsibilities under those standards are further described in the "Responsibilities of the statutory auditor for the audit of the consolidated financial statements" section of our report. We have complied with all ethical requirements relevant to the statutory audit of consolidated financial statements in Belgium, including those regarding independence.

We have obtained from the board of directors and the company's officials the explanations and information necessary for performing our audit.

We believe that the audit evidence obtained is sufficient and appropriate to provide a basis for our opinion.

Key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key audit matters	How our audit addressed the key audit matters
1. Impairment test on goodwill and non-current assets • In the context of Solvay's transition into a multi-specialty chemicals company, significant goodwills have arisen from acquisitions. At 31 December 2020 goodwill amount to 3 265 million EUR and represent 19% of the consolidated total assets. • In accordance with IFRS requirements, the carrying value of goodwill is tested annually for impairment by comparing the carrying amount of each cash-generating unit ("CGU") or Group of CGUs to its value in use. The COVID-19 context has triggered some additional impairment tests at 30 June 2020 which resulted in an impairment of 1 050 million EUR of goodwill in 2020. The COVID-19 related uncertainties significantly increase the judgements and estimates needed in determining the key assumptions in the projection of future cash flows. • Based on the headroom that exists per CGU or Group of CGUs as well as sensitivity analyses performed on the valuation and cash flow assumptions used in the impairment test, we have determined the **cash flow assumptions** of the following CGUs or Group of CGUs as focus area in our audit: **Composite Materials** and **Technology Solutions**. The goodwill balances for these CGUs or Group of CGUs respectively amount to 509 and 636 million EUR at 31 December 2020, representing the largest goodwill balances per CGU or Group of CGUs of the group. After the impairments recorded in June 2020, the remaining difference between the CGU's carrying amount and the value in use ("headroom") at year end is small and sensitivities were disclosed in the financial statements. • The impairments tests performed in 2020 also led to an impairment of 160 million EUR on tangible and intangible assets of the **Oil & Gas** CGU. The goodwill was already fully impaired in 2019. • We have also focused on the **valuation assumptions** (discount rate and long-term growth rate) considering the important sensitivity to said assumptions, and the fact that management applied the same discount rate for all the CGUs. • As a consequence, we consider impairment test for the 3 CGUs or Group of CGUs mentioned above to be a key audit matter.	• We obtained an understanding and performed walkthroughs of the impairment and the budgeting/forecasting processes through which we identified relevant controls; • We evaluated and challenged management's determination of CGUs or Group of CGUs for the purpose of impairment testing; • We tested the carrying amounts of the CGUs or Group of CGUs used in the impairment test for reconciliation with the financial reporting system; • We evaluated whether the valuation methodology is appropriate in the circumstances and whether the methodology used for determining the value in use is applied consistently with the preceding periods; • We assessed and challenged the reasonableness of the valuation assumptions (discount rate and long-term growth rate); • We assessed and challenged the reasonableness of the cash flow assumptions, both in the projection period as in the terminal period; • We performed benchmarking and sensitivity analyses with peers and analyst reports, on valuation and cash flow assumptions; • We tested the mathematical accuracy of the valuation model; • We recalculated the impairments recorded and evaluated the allocation over the different asset categories; • We reviewed and tested the management's reconciliation of the valuations, used for impairment testing purposes, to the entity's market capitalization; • We involved our valuation specialists to assist us in performing certain of the above procedures;

Key audit matters	How our audit addressed the key audit matters
• Management's disclosure on the impairment tests is included in Notes F21 and F27 of the consolidated financial statements.	• We assessed and reviewed the completeness and accuracy of the disclosures in the notes in accordance with IAS 36.
2. Defined benefit obligations	
• The defined benefit net liability, amounting to 1 975 million EUR, consists of defined benefit obligations (5 436 million EUR) offset partially by (recognized) plan assets (3 461 million EUR). The largest post-employment plans in 2020 are in the United Kingdom, France, the United States, Germany and Belgium. These five countries represent 94% of the total defined benefit obligations. • Defined benefit obligations is a key audit matter mainly as the amounts are significant, the assessment process is complex and it requires key management estimates to determine the actuarial assumptions and fair value of assets. The actuarial assumptions used in the measurement of the group's pension commitments involve judgements in relation to mortality, price inflation, discount rates, and rates of pension and salary increases, around which there are inherent uncertainties. • Management's disclosure on defined benefit obligations is included in Note F34A of the consolidated financial statements.	• We assessed and challenged management's assumptions (actuarial and other assumptions), the numerical data, the actuarial parameters, the calculation of the provisions as well as the presentation in the consolidated statement of financial position based on the actuarial reports; • Our audit of the fair value of the plan assets was carried out on the basis of respective bank and fund confirmations; • We assessed and reviewed the completeness and accuracy of the disclosures in the notes in accordance with IAS 19; • We involved in this review our actuaries. We also reviewed the internal controls, mainly around database maintenance and update of assumptions.

Responsibilities of the board of directors for the preparation of the consolidated financial statements

The board of directors is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union and with the legal and regulatory requirements applicable in Belgium and for such internal control as the board of directors determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the board of directors is responsible for assessing the group's ability to continue as a going concern, disclosing, as applicable, matters to be considered for going concern and using the going concern basis of accounting unless the board of directors either intends to liquidate the group or to cease operations, or has no other realistic alternative but to do so.

Responsibilities of the statutory auditor for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue a statutory auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISA will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

During the performance of our audit, we comply with the legal, regulatory and normative framework as applicable to the audit of consolidated financial statements in Belgium. The scope of the audit does not comprise any assurance regarding the future viability of the company nor regarding the efficiency or effectiveness demonstrated by the board of directors in the way that the company's business has been conducted or will be conducted.

As part of an audit in accordance with ISA, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from an error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the group's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the board of directors;
- conclude on the appropriateness of the use of the going concern basis of accounting by the board of directors and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our statutory auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our statutory auditor's report. However, future events or conditions may cause the group to cease to continue as a going concern;
- evaluate the overall presentation, structure and content of the consolidated financial statements, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation;
- obtain sufficient appropriate audit evidence regarding the financial information of the entities and business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with the audit committee regarding, amongst other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with the audit committee with a statement that we have complied with relevant ethical requirements regarding independence, and we communicate with them about all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated to those charged with the audit committee, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our report unless law or regulation precludes any public disclosure about the matter.

Other legal and regulatory requirements

Responsibilities of the board of directors

The board of directors is responsible for the preparation and the content of the directors' report on the consolidated financial statements, the statement of non-financial information attached to the directors' report on the consolidated financial statements and other matters disclosed in the annual report on the consolidated financial statements.

Responsibilities of the statutory auditor

As part of our mandate and in accordance with the Belgian standard complementary to the International Standards on Auditing (ISA) as applicable in Belgium, our responsibility is to verify, in all material respects, the director's report on the consolidated financial statements, the statement of non-financial information attached to the directors' report on the consolidated financial statements and other matters disclosed in the annual report on the consolidated financial statements, as well as to report on these matters.

Aspects regarding the directors' report on the consolidated financial statements and other information disclosed in the annual report on the consolidated financial statements

In our opinion, after performing the specific procedures on the directors' report on the consolidated financial statements, this report is consistent with the consolidated financial statements for that same year and has been established in accordance with the requirements of article 3:32 of the Code of companies and associations.

In the context of our statutory audit of the consolidated financial statements we are responsible to consider, in particular based on information that we became aware of during the audit, if the directors' report on the consolidated financial statements and other information disclosed in the annual report on the consolidated financial statements, are free of material misstatements, either by information that is incorrectly stated or otherwise misleading. In the context of the procedures performed, we are not aware of such a material misstatement.

The non-financial information as required by article 3:32, § 2 of the Code of companies and associations, has been disclosed in the the directors' report on the consolidated financial statements that is part of the annual report. This non-financial information has been established by the company in accordance with the Global Reporting Initiative (GRI) framework. As requested by Solvay management, we have issued a separate limited and reasonable assurance report on a selection of social, environmental and other sustainable development information in accordance with the International Standard on Assurance Engagements ISAE 3000. In accordance with article 3:80 § 1, 5° of the Code of companies and associations we do not express any opinion on the question whether this non-financial information has been established in accordance with this GRI framework. For information not included in our specific assurance report on non-financial information, we do not express any assurance on individual elements that have been disclosed in this non-financial information.

Statements regarding independence

- Our audit firm and our network have not performed any prohibited services and our audit firm has remained independent from the group during the performance of our mandate.
- The fees for the additional non-audit services compatible with the statutory audit, as defined in article 3:65 of the Code of companies and associations, have been properly disclosed and disaggregated in the notes to the consolidated financial statements (chapter corporate governance).

Other statements

- This report is consistent with our additional report to the audit committee referred to in article 11 of Regulation (EU) No 537/2014.

Zaventem, 22 March 2021

The statutory auditor

Deloitte Bedrijfsrevisoren/Réviseurs d'Entreprises CVBA/SCRL
Represented by

_____________ _____________
Michel Denayer Corine Magnin

Declaration by the persons responsible

The Board of Directors hereby declares that, to the best of its knowledge:

a. the financial statements, prepared in accordance with International Financial Reporting Standards ("IFRS"), give a true and fair view of the assets, liabilities, financial position, and earnings of the issuer and of the entities included in the consolidation,

b. the management report includes an accurate review of the business developments, earnings, and financial position of the issuer and of the entities included in the consolidation, as well as a description of the main risks and uncertainties that these entities face.

For the Board of Directors,

Nicolas Boël
Chairman of the Board of Directors

Ilham Kadri
Chairman of the Executive Committee and CEO
Director

Glossary

ADDITIONAL VOLUNTARY CONTRIBUTIONS RELATED TO EMPLOYEE BENEFITS PLAN

Contributions to plan assets in excess of Mandatory Contributions to employee benefits plans. These payments are discretionary and are driven by the objective of value creation. These voluntary contributions are excluded from free cash flow as they are deleveraging in nature as a reimbursement of debt.

ADJUSTEMENTS

Each of these adjustments made to the IFRS results is considered to be significant in nature and/or value. Excluding these items from the profit metrics provides readers with relevant additional information on the Group's underlying performance over time because it is consistent with how the business' performance is reported to the Board of Directors and the Executive Committee. These adjustments consist of:

- Results from portfolio management and major restructurings,
- Results from legacy remediation and major litigations,
- Amortization of intangible assets resulting from Purchase Price Allocation (PPA) and inventory step-up in gross margin,
- Net financial results related to changes in discount rates, coupons of hybrid bonds deducted from equity under IFRS and debt management impacts (mainly including gains/(losses) related to the early repayment of debt,
- Adjustments of equity earnings for impairment gains or losses and unrealized foreign exchange gains or losses on debt,
- Results from equity instruments measured at fair value through other comprehensive income,
- Tax effects related to the items listed above and tax expense or income of prior years
- All adjustments listed above apply to both continuing and discontinuing operations, and include the impacts on non-controlling interests

BASIC EARNINGS PER SHARE

Net income (Solvay's share) divided by the weighted average number of shares, after deducting own shares purchased to cover stock options program.

CAPITAL EXPENDITURE (CAPEX)

Cash paid for the acquisition of property, plant and equipment, and intangible assets presented in cash flows from investing activities, and cash paid on the lease liabilities (excluding interests paid), presented in cash flows from financing activities. This indicator is used to manage capital employed in the Group.

CASH CONVERSION

Is a ratio used to measure the conversion of EBITDA into cash. It is defined as (Underlying EBITDA + Capex from continuing operations) / Underlying EBITDA.

CARECHEM

Carechem 24 is a multilingual telephone advice service providing access to a team of trained responders 24 hours a day, 365 days a year. Carechem 24 provides companies all over the world with emergency product support during a hazardous materials incident.

CFROI

Cash Flow Return On Investment measures the cash returns of Solvay's business activities. Movements in CFROI levels are relevant indicators for showing whether economic value is being added, though it is accepted that this measure cannot be benchmarked or compared with industry peers. The definition uses a reasonable estimate (management estimate) of the replacement cost of assets and avoids accounting distortions, e.g. for impairments. It is calculated as the ratio between recurring cash flow and invested capital, where:

- Recurring cash flow = Underlying EBITDA + (Dividends from associates and joint ventures – Underlying Earnings from associates and joint ventures) + Recurring capex + Recurring income taxes;
- Invested capital = Replacement value of goodwill & fixed assets + Net working capital + Carrying amount of associates and joint ventures;
- Recurring capex is normalized at 2,3% of the Replacement value of fixed assets net of Goodwill;
- Recurring income taxes are normalized at 28% of (Underlying EBIT – Underlying Earnings from associates and joint ventures).

CGU

Cash-generating unit

CODE OF CONDUCT

Solvay is committed to responsible behavior and integrity, taking into account the sustainable growth of its business and its good reputation in the communities in which it operates.

CSR

Corporate Social Responsibility.

CTA

Currency Translation Adjustment

DILUTED EARNINGS PER SHARE

Net income (Solvay's share) divided by the weighted average number of shares adjusted for effects of dilution.

DISCONTINUED OPERATIONS

Component of the Group which the Group has disposed of or which is classified as held for sale, and:

- Represents a separate major line of business or geographical area of operations;
- Is part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations; or
- Is a subsidiary acquired exclusively with a view to resale

DIVIDEND YIELD (NET)

Net dividend divided by the closing share price on December 31.

DIVIDEND YIELD (GROSS)

Gross dividend divided by the closing share price on December 31.

DJ STOXX

Dow Jones Stoxx is a European stock index composed of the 665 most important European shares.

DJ EURO STOXX

Dow Jones Euro Stoxx is a pan-European stock index which includes the 326 most important shares of the general Dow Jones index, belonging to eleven countries of the Eurozone.

EBIT

Earnings before interest and taxes. Performance indicator that is a measure of the Group's operating profitability irrespective of the funding's structure.

EBITDA

Earnings before interest and taxes, depreciation and amortization. The Group has included EBITDA as an alternative performance indicator because management believes that the measure provides useful information to assess the Group's operating profitability as well as the Group's ability to generate operating cash flows.

ENVIRONMENTAL PROTECTION AGENCY

The U.S. Environmental Protection Agency (EPA or USEPA) is an agency of the United States federal government which was created for the purpose of protecting human health and the environment by writing and enforcing regulations based on laws passed by Congress.

EQUITY PER SHARE

Equity (Solvay share) divided by the number of outstanding shares at year end (issued shares – treasury shares).

EURONEXT

Global operator of financial markets and provider of trading technologies.

FREE CASH FLOW

Cash flows from operating activities (excluding cash flows linked to acquisitions or disposals of subsidiaries and cash outflows of Additional Voluntary Contributions related to pension plans, as they are deleveraging in nature as a reimbursement of debt), cash flows from investing activities (excluding cash flows from or related to acquisitions and disposals of subsidiaries and other investments, and excluding loans to associates and non-consolidated investments, and recognition of factored receivables), payment of lease liabilities, and increase/decrease of borrowings related to environmental remediation. Prior to the adoption of IFRS 16, operating lease payments were included within free cash flow. Following the application of IFRS 16, because leases are generally considered to be operating in nature, free cash flow incorporates the payment of the lease liability (excluding the interest expense). Excluding this item in the free cash flow would result in a significant improvement of free cash flow compared to prior periods, whereas the operations themselves have not been affected by the implementation of IFRS 16. It is a measure of cash generation, working capital efficiency and capital discipline of the Group.

FREE CASH FLOW TO SOLVAY SHAREHOLDERS

Free cash flow after payment of net interests, coupons of perpetual hybrid bonds and dividends to non-controlling interests. This represents the cash flow available to Solvay shareholders, to pay their dividend and/or to reduce the net financial debt.

FREE CASH FLOW CONVERSION

Calculated as the ratio between the free cash flow to Solvay shareholders of the last rolling 12 months (before netting of dividends paid to non-controlling interest) and underlying EBITDA of the last rolling 12 months.

FSB

Financial Stability Board

FTSEUROFIRST 300

The FTSEurofirst 300 Index tracks the equity performance across the region of the 300 largest companies ranked by market capitalization in the FTSE Developed Europe Index.

GBU

Global business unit.

GEARING RATIO

Underlying net debt / total equity

GRI

The Global Reporting Initiative (GRI) is a leading organization in the sustainability field. GRI promotes the use of sustainability reporting as a way for organizations to become more sustainable and contribute to sustainable development.

HPPO

Hydrogen peroxide propylene oxide, a new technology to produce propylene oxide using hydrogen peroxide.

H-MTA

(High Severity Medical Treatment Accident): occupational accident of severity level high, as determined by an internal classification of severity of injuries. This severity is comparable to the definition of High Injury & Illness of US OSHA 29 CFR 1904.

ICCA

International Council of Chemistry Associations

IFRS

International Financial Reporting Standards.

IIRC

International Integrated Reporting Council

INTEGRATED REPORTING

This is a process founded on integrated thinking, which results in a periodic integrated report by an organization about value creation over time and related communications regarding aspects of value creation.

ISO 9001

The ISO 9001 standard defines a set of requirements for the establishment of a system of quality management in an organization, whatever its size and activity.

ISO 14001

The ISO 14001 family addresses various aspects of environmental management. It provides practical tools for companies and organizations looking to identify and control their environmental impact and constantly improve their environmental performance.

ISO 14040

The ISO 14040 standard covers life cycle assessment (LCA) studies and life cycle inventory (LCI) studies.

ISO 26000

The ISO 26000 is a global standard which provides guidelines for organizations that wish to operate in a socially responsible manner. The standard was published in 2010 after five years of negotiations among a large number of stakeholders worldwide. Representatives of governments, NGOs, industry, consumer groups, and the world of work were involved in its development. It therefore represents an international consensus.

LCA

Life Cycle Assessment

LEVERAGE RATIO

Net debt / underlying EBITDA of the last 12 months. Underlying leverage ratio = underlying net debt / underlying EBITDA of the last 12 months.

LOSS PREVENTION PROCESS

Loss prevention aims at maintaining production flow and profitability of the plants by providing risk mitigation. It also contributes to increasing the protection of people and the environment.

LTA

(Lost Time Accident): Accident resulting in the inability for the worker to work from the first day after the accident in his normal work schedule.

LTAR

Lost Time Accident Rate: number of lost time accidents per million work hours.

MANDATORY CONTRIBUTIONS TO EMPLOYEE BENEFITS PLANS

For funded plans, contributions to plan assets corresponding to amounts required to be paid during the respective period, in accordance with agreements with trustees or regulation, as well as, for unfunded plans, benefits paid to beneficiaries.

MATERIALITY

Organizations are faced with a wide range of topics on which they could report. The relevant topics are those that may reasonably be considered important for reflecting the organization's economic, environmental, and social impacts, or influencing the decisions of stakeholders, and therefore potentially merit inclusion in an annual report. Materiality is the threshold at which aspects become sufficiently important that they should be reported.

MTA

Medical Treatment accident: occupational accident of severity level medium or high, as determined by an internal classification of severity of injuries. (cf. Group Procedure IND-HSE-01.01-PRO v2.1 Reporting of HSE Events)

MTAR

Medical Treatment Accident Rate: number of Medical Treatment accidents per million work hours.

NATURAL CURRENCY HEDGE

A natural currency hedge is an investment that reduces the undesired risk by matching cash in and outflows.

NEAR MISS

accident or collision narrowly avoided

NET COST OF BORROWINGS

Cost of borrowings netted with interest on loans and short-term deposits, as well as other gains (losses) on net indebtedness.

NET FINANCIAL DEBT (IFRS)

(IFRS) net debt = Non-current financial debt + Current financial debt – Cash & cash equivalents – Other financial instruments. Underlying net debt reclassifies as debt 100% of the hybrid perpetual bonds, considered as equity under IFRS. It is a key measure of the strength of the Group's financial position and is widely used by credit rating agencies.

NET FINANCIAL CHARGES

Net cost of borrowings, and costs of discounting provisions (namely, related to post-employment benefits and HSE liabilities).

NET PRICING

The difference between the change in sales prices and the change in variable costs.

NET SALES

Sales of goods and value added services corresponding to Solvay's know-how and core business. Net sales exclude Revenue from non- core activities.

NET WORKING CAPITAL

Net working capital includes inventories, trade receivables and other current receivables, netted with trade payables and other current liabilities.

OCCUPATIONAL ACCIDENT

Accident which occurred during the execution of a work contract with Solvay. Accidents on the way to/from home are not considered as work related except if at the time of the accident, the worker was travelling for Solvay.

OCI

Other Comprehensive Income.

OECD

Organisation for Economic Co-operation and Development.

OHSAS 18001

OHSAS 18001 is an international occupational health and safety management system specification.

OPEN INNOVATION

Innovation that is enriched with outside expertise, through partnerships with the academic world and by shareholdings in start-ups, either directly or via investment funds.

OPERATIONAL DELEVERAGING

Reduction of liabilities (net debt or provisions) through operational performance only, i.e. excluding impacts from M&A and scope, as well as remeasurements impacts (changes of foreign exchange, inflation, mortality and discount rates).

ORGANIC GROWTH

Growth of net sales or underlying EBITDA excluding scope changes and forex conversion effects. The calculation is made by rebasing the prior period at the business scope and foreign exchange conversion rate of the current period.

OSHAS

United States Occupational Safety and Health Administration

PP

Unit of percentage points or 1.0%, used to express the evolution of ratios.

PPA

Purchase Price Allocation (PPA) accounting impacts related to acquisitions, primarily for Rhodia and Cytec.

PRICING POWER

The ability to create positive net pricing.

PSM

Process safety management

PSU

Performance Share Unit

PRODUCT STEWARDSHIP

A responsible approach in managing risks throughout the entire life cycle of a product, from the design stage to the end of life.

RESEARCH & INNOVATION

Research & development costs recognized in the income statement and as capital expenditure before deduction of related subsidies, royalties and depreciation and amortization expense. It measures the total cash effort in research & innovation, regardless of whether the costs were expensed or capitalized.

RESEARCH & INNOVATION INTENSITY

Research & innovation intensity is the ratio of research & innovation to net sales.

REACH

REACH is the European Community Regulation on chemicals and their safe use (EC 1907/2006). It deals with the registration, evaluation, authorization, and restriction of chemical substances. The law entered into force on June 1, 2007.

RESPONSIBLE CARE®

Responsible Care® is the global chemical industry's unique initiative to improve health, environmental performance, enhance security, and to communicate with stakeholders about products and processes.

RESULT FROM LEGACY REMEDIATION AND MAJOR LITIGATIONS

It includes:

- The remediation costs not generated by on-going production facilities (shut-down of sites, discontinued productions, previous years' pollution), and
- The impact of significant litigations.

RESULTS FROM PORTFOLIO MANAGEMENT AND MAJOR RESTRUCTURING

It includes:

- Gains and losses on the sale of subsidiaries, joint operations, joint ventures, and associates that do not qualify as discontinued operations;
- Acquisition costs of new businesses;
- Gains and losses on the sale of real estate not directly linked to an operating activity;
- Restructuring charges driven by portfolio management and by major reorganization of business activities, including impairment losses resulting from the shutdown of an activity or a plant;
- Impairment losses resulting from testing of CGUs;
- It excludes non-cash accounting impact from amortization and depreciation resulting from the purchase price allocation (PPA) from acquisitions

REVENUE FROM NON-CORE ACTIVITIES

Revenues primarily comprising commodity and utility trading transactions and other revenue, considered to not correspond to Solvay's know-how and core business.

RII

(Reportable Injury & Illness): work related injury or illness resulting from an accident with severity above first aid, according to US OSHA 29 CFR 1904.

ROCE

Return on Capital employed, calculated as the ratio between underlying EBIT (before adjustment for the amortization of PPA) and capital employed. Capital employed consists of net working capital, tangible and intangible assets, goodwill, rights-of-use assets, investments in associates & joint ventures and other investments, and is taken as the average of the situation at the end of the last 4 quarters.

ROE

Return on equity

SAFETY DATA SHEETS

Safety Data Sheets are the main tool for ensuring that manufacturers and importers communicate enough information along the supply chain to allow safe use of their substances and mixtures.

SAELS

Solvay Acceptable Exposure Limits

SASB

Sustainability Accounting Standards Board. SASB's mission is to develop and disseminate sustainability accounting standards that help public corporations disclose material, decision-useful information to investors. That mission is accomplished through a rigorous process that includes evidence-based research and broad, balanced stakeholder participation.

SCMS

Solvay Care Management System

SDG

United Nations Sustainable Development Goals

SEVESO REGULATIONS

The Control of Major Accident Hazards Involving Dangerous Substances Regulations. These regulations (often referred to as "COMAH Regulations" or "Seveso Regulations") give effect to European Directive 96/82/EC. They apply only to locations where significant quantities of dangerous substances are stored.

SOCRATES

Global tool for industrial hygiene management

SOLVAY WAY

Launched in 2013 and aligned with ISO 26000, Solvay Way is the sustainability approach of the Group. It integrates social, societal, environmental, and economic aspects into the Company's management and strategy, with the objective of creating value shared by all of its stakeholders. Solvay Way is based on an ambitious and pragmatic framework serving as a tool of both measurement and progress. Solvay Way lists 49 practices – practices that reflect the Solvay Way's 22 commitments and are structured on a four-level scale (launch, deployment, maturity, performance).

SOP

Stock Option Plan.

SPM

The Sustainable Portfolio Management tool is integrated into the Solvay Way framework (linked to five practices). It serves as a strategic tool for developing information on our portfolio and analyzing the impacts of sustainability megatrends on our businesses.

SVHC

Substance of Very High Concern (SVHC) is a chemical substance, the utilization of which within the European Union has been proposed to become subject to legal authorization under the REACH regulation.

TCFD

Task Force on Climate-related Financial Disclosure

UN GLOBAL COMPACT

Voluntary corporate sustainability initiative to support companies to align strategies and operations with universal principles on human rights, labor, environment, and anti-corruption, and take actions that advance broader societal goals.

UNDERLYING

Underlying results are deemed to provide a more comparable indication of Solvay's fundamental performance over the reference periods. They are defined as the IFRS figures adjusted for the "Adjustments" as defined above. They provide readers with additional information on the Group's underlying performance over time as well as the financial position and they are consistent with how the business' performance and financial position are reported to the Board of Directors and the Executive Committee.

UNDERLYING NET DEBT

Underlying net debt reclassifies as debt 100% of the perpetual hybrid bonds, considered as equity under IFRS.

UNDERLYING TAX RATE

Income taxes / (Result before taxes – Earnings from associates & joint ventures – interests & realized foreign exchange results on RusVinyl joint venture) – all determined on an Underlying basis. The adjustment of the denominator regarding associates and joint ventures is made as these contributions are already net of income taxes.

WACC

Weighted Average Cost of Capita

VELOCITY

Total number of shares traded during the year divided by the total number of listed shares, using the Euronext definition.

VELOCITY ADJUSTED BY FREE FLOAT

Velocity adjusted as a function of the percentage of the listed shares held by the public, using the Euronext definition.

WBCSD

World Business Council for Sustainable Development.

YOY

Year on year comparison.

Shareholders'diary

MAY 5, 2021
First quarter 2021 results

MAY 11, 2021
Ordinary General Shareholders' meeting

MAY 17, 2021
Ex-coupon date

MAY 18, 2021
Final dividend: payment date

MAY 19, 2021
Final dividend: record date

JULY 29, 2021
First half 2021 results

OCTOBER 28, 2021
Nine months 2021 results

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AgRHO® S Boost is a macromolecule extracted from guar, a legume, which improves the plant's absorption of water and nutrients, boosts germination and ultimately increases yield.

SOLVAY

Progress beyond

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All together,
let's contribute
to fight Covid-19:

solvay.com/en/solvay-solidarity-fund

To learn more about Solvay in 2020, read the online Integrated Report that provides additional, interactive features.

reports.solvay.com/integrated-report/2020