



**SOLVAY**

# Q3 2019 RESULTS & STRATEGIC REVIEW

November 7, 2019



# Karim Hajjar

Chief Financial Officer



IFRS 16 has been implemented in the Group's financial statements since January 1, 2019. Comparative information for the first quarter of 2018 in the business review is presented on an unaudited pro forma basis as if the implementation had taken place on January 1, 2018. This information is labelled "pro forma" or "PF". The balance sheet evolution is compared with January 1, 2019, which includes the IFRS 16 impact versus December 31, 2018.

Besides IFRS accounts, Solvay also presents underlying Income Statement performance indicators to provide a more consistent and comparable indication of the Group's financial performance. The underlying performance indicators 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 that would distort the analysis of the Group's underlying performance.

## Safe harbor

This document may contain forward-looking information. Forward-looking statements describe expectations, plans, strategies, goals, future events or intentions. The achievement of forward-looking statements contained in this press release is subject to risks and uncertainties relating to a number of factors, including general economic factors, interest rate and foreign currency exchange rate fluctuations, changing market conditions, product competition, the nature of product development, impact of acquisitions and divestitures, restructurings, products withdrawals, regulatory approval processes, all-in scenario of R&I projects and other unusual items. Consequently, actual results or future events may differ materially from those expressed or implied by such forward-looking statements. Should known or unknown risks or uncertainties materialize, or should our assumptions prove inaccurate, actual results could vary materially from those anticipated. The Company undertakes no obligation to publicly update or revise any forward-looking statements.

# FINANCIAL RESULTS

*Focus on cost, cash and customers  
in a challenging macro environment*

9 months

Net Sales

**€7.8B**

-0.7% Y/Y organically  
+1.6% including forex & scope

Volumes impacted by headwinds  
in automotive, electronics  
and oil & gas

Q3

**€2.6B**

-2.7% Y/Y organically  
-0.5% including forex & scope

Underlying EBITDA

**€1,796M**

-2.6% Y/Y organically  
-0.2% including forex & scope

Positive net pricing and forex  
offset lower volumes, higher raw  
materials and fixed costs

Sustained margin at **23%**

**€601M**

-1.8% Y/Y organically  
+0.4% including forex & scope

Free Cash Flow  
to Solvay shareholders

**€345M**

+€217M Y/Y  
from continued operations

Disciplined working capital  
management

**€313M**

+€167M Y/Y  
from continued operations

# ADVANCED MATERIALS

## 9M 2019 PERFORMANCE

**Net Sales**  
**+1.8%**  
Y/Y organic

**EBITDA**  
**-8.4%**  
Y/Y organic

**EBITDA Margin**  
**26%**

## MARKET DRIVERS

- **Aerospace market** growth trends continue
- **Automotive market** headwinds continue
- **Electronics market** down, but improving sequentially in Q3

## PERFORMANCE HIGHLIGHTS

- Double-digit aerospace volume growth offset continued weakness in auto & electronics
- Cost discipline and efficiency measures offset by higher production costs and accounting impact of lower inventories



# ADVANCED FORMULATIONS

## 9M 2019 PERFORMANCE

**Net Sales**

**-7.9%**

Y/Y organic

**EBITDA**

**-10%**

Y/Y organic

**EBITDA Margin**

**18%**

## MARKET DRIVERS

- Shale oil and gas significantly deteriorating
- Overall resilient demand dynamics in key markets, including mining, flavors and consumer care

## PERFORMANCE HIGHLIGHTS

- Oil & gas materially impacted by market conditions and erosion of competitiveness
- Profitability sustained and margins improved in other key businesses
- Margins sustained



# PERFORMANCE CHEMICALS

## 9M 2019 PERFORMANCE

**Net Sales**

**+3.4%**

Y/Y organic

**EBITDA**

**+8.7%**

Y/Y organic

**EBITDA Margin**

**30%**

## MARKET DRIVERS

- Resilient demand in soda ash and peroxides markets

## PERFORMANCE HIGHLIGHTS

- Pricing up in soda ash and peroxides on stable volumes
- Operational efficiency and higher prices more than offset higher raw material and energy costs
- Margins progressed



# SIGNIFICANT FREE CASH FLOW GENERATION & YOY GROWTH

## Free Cash Flow to Solvay Shareholders

**€345M**

+€217M Y/Y  
Continuing operations, 9M 2019

- Strong Q3 delivery with €313M
- Strict focus on costs and working capital
- Maintained Capex discipline

**Delevered<sup>[1]</sup> by €140M in 9M 2019**  
+€241M Y/Y

[1] Operational deleveraging of net financial debt by €140 million, after payment of the dividends in the first half, a improvement of €241 million compared to the same period in 2018. Operational deleveraging is free cash flow to Solvay shareholders after dividend payments, but before forex and scope changes on net debt.



# FULL YEAR GUIDANCE

## Underlying EBITDA

**-2% to -3%**  
organically

**~€2,330M**

Flat Y/Y, at current forex

## Free Cash Flow to Solvay shareholders

**~€490M**

from continued operations

**~€300M**

total operational cash deleveraging <sup>[1]</sup>





[1] Operational deleveraging is free cash flow to Solvay shareholders after dividend payments, but before forex and scope changes on net debt.



# Ilham Kadri

Chief Executive Officer

# ACTIONS TAKEN SINCE MARCH 2019

-  Redefined structure and responsibilities of executive leadership team
-  Focused and incentivized organization on cost improvement and cash generation
-  Initiated comprehensive strategic review of every business
-  Mobilized organization to redefine a new sense of purpose as we move forward with one culture

# INITIAL INSIGHTS

*We have a strong foundation ...*

---

Attractive end markets aligned with key megatrends

---

Leading market positions with further growth potential

---

Proven technology and innovation expertise

---

Passionate and talented people

*... with significant opportunity to accelerate value creation*

---

Clear business mandates and differentiated KPIs

---

Research & Innovation to better serve customers

---

Operational synergies and efficiencies across our businesses

---

Unified culture with a common purpose

# OUR VALUE PROPOSITION

## Sustainable Solutions Aligned to Megatrends

- Advanced materials and specialty chemicals offer sustainable solutions aligned to megatrends
- Large and growing market opportunity

## Geographic Advantage

- Evenly balanced revenues across Europe, Americas, Asia & RoW
- Customers served out of 61 countries

## Unmatched Depth of Capabilities

- Leadership positions in >75% of our portfolio
- Leverage technologies across businesses to meet complex customer demands and help reduce their total cost of ownership

## Financial Performance

- One of the highest EBITDA margins in the industry
- Maintained or raised dividend since 1982

## Significant Opportunity Ahead

Driving change through our new strategy, new operating model and new culture to maximize profitable growth, cash flows and shareholder returns

# SOLVAY BY THE NUMBERS

**€10.3B**

net sales  
50% sustainable  
solutions

**€2.2B**

underlying EBITDA  
22% margin

**>50%**

revenue in  
faster growing  
economies

**24,500** people

**125** sites

**EVENLY  
BALANCED**

revenue across  
Europe, the Americas  
and Asia & RoW

**61** countries

**>100** nationalities

**€350M** in R&I

**2,200** R&I employees  
in 21 global locations

**75%**

of R&I pipeline revenue  
to be from "Sustainable  
Solutions"

**264** new patents in '18

**2,800** patents in force

**1,500** intellectual  
property agreements



# WELL-POSITIONED TO BENEFIT FROM A MORE ESG-FOCUSED WORLD

## Sustainable Products

- Deliver financial growth and profitability through materials and compounds that help address climate change, resource efficiency and improve quality of life

## Sustainable Employer

- Offer a safe, engaging and diverse workplace to maximize our employee potential and help achieve operational excellence
- Since 2012, reduced safety incident rates by 32%

## Sustainable Planet

- Reduce environmental impact through lower resource consumption, emissions and waste generation
- Ex: 1 million tonne absolute Scope 1+2 greenhouse gas reduction



**AAA**

*MSCI ESG (on a scale of AAA-CCC)*

**#2 out of 42**

*Diversified Chemicals - Sustainalytics*

**92<sup>nd</sup> percentile**

*FTSE4GOOD*

**Top 10 of 159**

*WBCSD*



# Our Leading Market Positions Are Supported By Megatrends



# OUR BUSINESSES ARE ALIGNED TO POWERFUL MEGATRENDS

## Megatrends

### Electrification



### Lightweighting



### Resource efficiency



### Healthcare



### IoT / Digitalization



### Eco-friendly based solutions



## Macro Drivers

- Resource scarcity
- Climate change
- Consumer trends

- Responsible mobility
- Climate change
- Resource scarcity

- Safeguard ecosystem
- Resource scarcity
- Climate change

- Aging population
- Growing middle class
- Digitalization, mobility & wellness

- People connecting digitally
- Digitally interconnected ecosystems

- Health and wellness awareness
- Consumer trends
- Resource scarcity

## Growth Opportunity

- ~50% of global car production in EV or hybrid in 2030
- Global battery demand growth at 20%+ CAGR over the 2018-2030 period

- Composites in aerospace to grow 2x in next 10 years
- Composites in offshore oil pipes / risers to be worth >\$14B in 10 years
- Composites in auto to grow 30% CAGR in next 10 years

- Water treatment to grow at 4%+ CAGR over next 5 years
- Lithium supply to increase 6x by 2030 and copper to add ~4mtpa
- Energy-efficient glass to grow at 4.5% CAGR by 2025

- Global medical plastics to grow >6% in short-term
- Global medical implant to grow at 7% CAGR in short-term

- IoT sensors to grow >15% CAGR through 2023
- Display capacity to grow at 4% CAGR through 2023
- Semiconductors market to grow at 6% CAGR to 2022

- Organic shampoos to expand at 3.1% CAGR to 2025
- Natural vanillin to grow >10% CAGR by 2024
- Waterborne coatings to grow by 5.7% CAGR by 2025

## Addressable Market

>€25B

>€10B

>€50B

>€10B

>€50B

>€10B

# WE HELP CUSTOMERS LOWER TOTAL COST OF OWNERSHIP & INCREASE SUSTAINABILITY

## Megatrends

### Electrification



### Lightweighting



### Resource efficiency



### Healthcare



### IoT / Digitalization



### Eco-friendly based solutions



## Our Solutions & Value Proposition

High-performance polymer technology portfolio						Bio-based ingredients
<ul style="list-style-type: none"> <li>Binders &amp; membranes for Li-ion</li> </ul>	<ul style="list-style-type: none"> <li>Improving engine efficiency &amp; downsizing</li> </ul>	<ul style="list-style-type: none"> <li>Flexible risers</li> </ul>	<ul style="list-style-type: none"> <li>Long-term implants</li> <li>Medical devices</li> <li>Dialysis membranes</li> <li>Pharma packaging</li> </ul>	<ul style="list-style-type: none"> <li>New-generation OLED &amp; flexible displays</li> </ul>	<ul style="list-style-type: none"> <li>Vanillin: Flavors &amp; fragrances</li> <li>Guar: Agro &amp; nutrition Home &amp; personal care products</li> </ul>	
<p><b>Electrolyte technology</b></p> <ul style="list-style-type: none"> <li>Next-generation Li-ion</li> </ul>	<p><b>Thermoset composites</b></p> <ul style="list-style-type: none"> <li>Aerospace structures</li> </ul>	<p><b>Extraction technologies</b></p> <ul style="list-style-type: none"> <li>Cu flotation</li> <li>Li extraction</li> </ul>		<p><b>High-purity chemicals</b></p> <ul style="list-style-type: none"> <li>Semiconductor industry consumables</li> </ul>		
	<p><b>Thermoplastic composites</b></p> <ul style="list-style-type: none"> <li>Aerospace industry</li> <li>Automotive industry</li> </ul>		<ul style="list-style-type: none"> <li>Flexible risers</li> </ul>		<p><b>Waterborne solutions</b></p> <ul style="list-style-type: none"> <li>Coatings</li> </ul>	
		<p><b>Soda ash, Peroxides &amp; Silica</b></p> <ul style="list-style-type: none"> <li>Eco-efficient glass</li> <li>Air pollution control</li> <li>Eco-efficient tires</li> </ul>		<ul style="list-style-type: none"> <li>Dialysis</li> <li>Disinfection</li> </ul>		

# WE ANALYZED MARKET POSITIONS IN EACH BUSINESS TO DETERMINE PORTFOLIO PLAYBOOK

Business Units	Leadership Positions	Technology Penetration	Market Consolidation	Track Record	Growth Potential
Specialty Polymers	#1 high-performance polymers	Low	High	High growth and margin	High
Composite Materials	#1 aerospace for secondary & adhesives				
Soda Ash & Derivatives	#1 globally	High	High	Predictable growth and resilient cash	Medium
Peroxides	#1 globally				
Silica	#1 silica for tire globally				
Coatis	#1 phenol in Latin America				
Novecare	#2 surfactants #1 guar for personal care	Medium	Low	Volatile performance & lower returns	Medium
Special Chem	#1 rare earths for automotive catalysts #1 selected high-purity chemicals for semiconductors				
Technology Solutions	#1 copper flotation #2 specialty UV stabilizers				
Aroma Performance	#1 vanillin				



# Our New Strategy: G.R.O.W.

# OUR G.R.O.W. STRATEGY

*Distinct business mandates with capital and resource discipline to maximize profitable growth and stable cash flows to drive shareholder returns*

## Accelerate **G**rowth

We will prioritize investments in high margin Materials businesses with high **growth** potential, which are also our most sustainable solutions



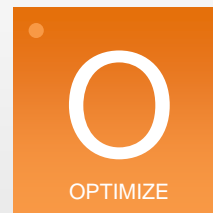
## Deliver **R**esilient cash

We will maximize cash flow generation from our **resilient** Chemicals businesses where we have a competitive advantage



## **O**ptimize returns

We will **optimize** our Solutions businesses to unlock value and increase returns



## **W**in

We are creating a **winning** team and operating model to support a performance-driven culture and win with our customers — Solvay ONE



# DIFFERENTIATED BUSINESS MANDATES

# G

GROWTH

# R

RESILIENCE

# O

OPTIMIZE

# W

WIN

## MATERIALS

*Extend position as  
#1 pure-play advanced  
materials business*

### Accelerate growth

- Specialty Polymers
- Composite Materials

**~€3.1B**

2019 FY  
NET SALES

**~28%**

2019 FY  
EBITDA MARGIN

## CHEMICALS

*Become  
#1 cash conversion  
chemical player*

### Deliver resilient cash

- Soda Ash & Derivatives
- Peroxides
- Silica
- Coatis
- Rusvinyl

**~€3.2B**

2019 FY  
NET SALES

**~27%**

2019 FY  
EBITDA MARGIN

## SOLUTIONS

*Unlock  
value*

### Optimize returns

- Novecare
- Technology Solutions
- Special Chem
- Aroma Performance

**~€3.9B**

2019 FY  
NET SALES

**~17%**

2019 FY  
EBITDA MARGIN

*Enabled by Solvay ONE operating model*

# G

GROWTH

# R

RESILIENCE

# O

OPTIMIZE

# W

WIN

# MATERIALS

## #1 pure play advanced materials business

### Unique high-performance polymers & composite technologies

#### Strong growth opportunities

- Sustainable automotive
- Sustainable aerospace
- Healthcare
- Electronics



Lightweighting



Electrification



Expanding healthcare



IoT digitalization



Resource efficiency

### Strategic intent *Accelerate growth*

#### INNOVATION

Research, digital and technical support

#### CUSTOMERS

Upgrade key account resources and e-commerce platforms

#### INVESTMENT

Prioritize investments for growth

#### Key levers

- Realign organization around growth opportunities
- Accelerate innovation with highest-growth customers
- Reallocate resources to thermoplastic composites and battery platforms to accelerate customer wins
- Improve operational efficiencies through simplification, order to cash optimization and digitalization

[1] Vitality index: % of sales coming from newly developed products in last 5 years

### Track record

**+7%**

EBITDA growth (organic 2014-2019)

**~28%**

EBITDA margin (2019)

**>25%**

Vitality index (2018) [1]

**Returns > WACC**

(average 2014-2019)

# G

GROWTH

# R

RESILIENCE

# O

OPTIMIZE

# W

WIN

# CHEMICALS

*#1 cash conversion chemical player*

## World-leaders in essential chemicals to daily life

### Mono-technology businesses

- Soda ash
- Peroxide
- Silica
- Phenol chain



Resource efficiency



Expanding healthcare

## Strategic intent *Deliver resilient cash*

### INNOVATION

Focus on process innovation

### CUSTOMERS

Leverage best-in-class global production assets

### INVESTMENT

Selectively invest in capacity

### Key levers

- Adapt organization to focus on cash and returns
- Drive focused productivity and rationalization programs
- Prioritize Capex to maintenance and invest selectively for compelling cash returns, e.g. natural soda ash
- Focus R&I on process innovation

[1] Cash conversion: (EBITDA – Capex) / EBITDA

## Track record

**+9%**

Cash flow growth  
(organic 2014-2019)

**~79%**

Cash conversion  
(2019) <sup>[1]</sup>

**~27%**

EBITDA margin  
(2019)

**Returns at WACC**

(average 2014-2019)



# G

GROWTH

## SOLUTIONS

*Unlock value*

# R

RESILIENCE

# O

OPTIMIZE

# W

WIN

### Unique formulation & application expertise

#### Selective opportunities to grow

- Natural food ingredients
- Crop care
- Coatings
- Mining solutions



### Strategic intent

#### Optimize returns

#### INNOVATION

Focus on eco-friendly solutions

#### CUSTOMERS

Digitalization, focus on key accounts

#### INVESTMENT

Selective in niche opportunities

#### Key levers

- Innovate selectively in specialty niche markets
- Fix shale oil & gas and other low-return businesses
- Drive efficiency and address fragmented industrial footprint

### Track record

Returns < WACC

(average 2014-2019)

Flat

Net sales & EBITDA growth (average 2014-2019)

~17%

EBITDA margin (2019)

# G

GROWTH

# R

RESILIENCE

# O

OPTIMIZE

# W

WIN

# SOLVAY ONE: NEW GROUP OPERATING MODEL TO WIN

## LEGACY SOLVAY

### Multiple cultures

- Solvay + Rhodia + Cytec + ...

### Decentralized operating model

- Significant empowerment to deliver at business unit level
- Fragmented customer account management and culture
- Limited cross-business talent development

### Partial enterprise-wide efficiency programs

- Manufacturing excellence

### Non-differentiated mandates

- Same KPIs and incentives for all

## NEW SOLVAY

### Single purpose

### Enterprise leadership with strong performance management

- Strategic enterprise customer engagement
- Capital discipline & resource redeployment
- Group best practices, know-how and simplified processes
- Centrally driven talent development and deployment
- Business units empowered to deliver (P&L and cash)

### Repeatable cost and cash playbook

- Simplification, order-to-cash, indirect spend, Zero Based Budgeting
- Productivity measures

### Distinct mandates with aligned incentives



# G

GROWTH

# R

RESILIENCE

# O

OPTIMIZE

# W

WIN

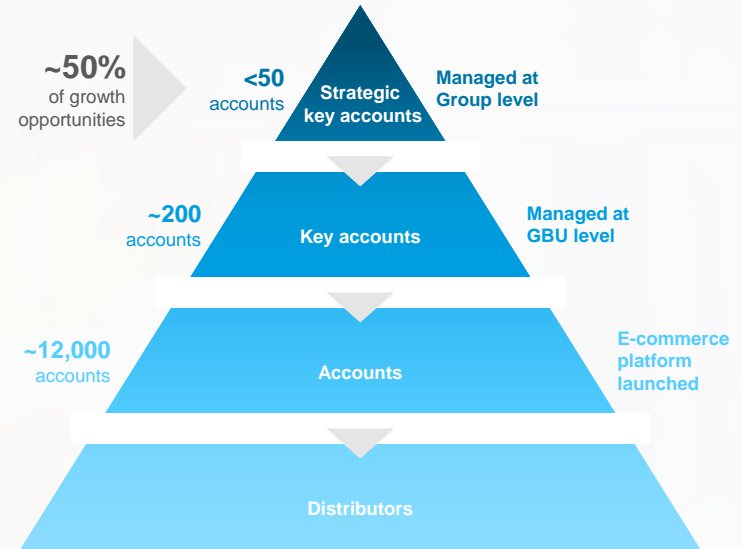
## SOLVAY ONE

*Organic growth fueled by differentiated customer engagement model*

### CUSTOMER CENTRICITY

- Tailor service and approach based on customer segmentation to drive innovation
- Deploy talent to new strategic account roles centered around key accounts
- Incentives to align with customer value creation and NPS <sup>[1]</sup>
- Deploy Specialty Polymers e-commerce global platform across the Group, with first sales in 2019
- Leverage Group distribution channel for efficient order-to-cash process

[1] Net Promoter Score



# G

GROWTH

# R

RESILIENCE

# O

OPTIMIZE

# W

WIN

## SOLVAY ONE

*Disciplined centrally allocated resources*

### CAPEX

- Contain Group Capex at 7-8% sales
- Prioritize at Group vs GBU level
- Redirect resources from ~40% to ~60% to Materials and selective growth opportunities
- Capex minimization through digitalization
- Strict returns criteria:
  - IRR 15%
  - ROCE 20%+



### R&I

- Contain Group R&I at ~€350M/year
- Prioritize at Group vs GBU level
- Redirect resources from ~35% to >50% to Materials and selective growth opportunities

MATERIALS  
CHEMICALS  
SOLUTIONS  
CORPORATE



# G

GROWTH

# R

RESILIENCE

# O

OPTIMIZE

# W

WIN

## SOLVAY ONE

Cost reductions of €300 to €350M

### SIMPLIFICATION & SYNERGIES

€100-150M  
run-rate by 2024

#### Complete Current Simplification Program

- Announced in 2018, to be completed by FY2020

#### Launch New Synergy Program

- Reduce indirect spend through improved group-wide policies
  - Technical goods & services
  - General and IT expenses
- 'Order to Cash' program
  - Reduce logistics & packaging costs
- Zero-Based Budgeting



MATERIALS SOLUTIONS CHEMICALS CORPORATE



**Total gross savings**  
**€300-350M**  
**run-rate by 2024**

### PRODUCTIVITY MEASURES

€200M  
run-rate by 2024

#### Continued operational cost reductions

- Yield improvements
- Raw material & energy efficiency

#### Overall Equipment Effectiveness (OEE)

- For better asset utilization

#### Benefiting from deployment of digital

- Manufacturing Capex avoidance, improving yield and effectiveness

# G

GROWTH

# R

RESILIENCE

# O

OPTIMIZE

# W

WIN

## SOLVAY ONE

### Cash management

#### REDUCING PENSIONS & INTERESTS

€75M

run-rate by 2024

##### Lower pension cash service by >€40M run-rate as from 2020

- Deploy ~€0.5B of proceeds from sale of Polyamide to reduce pension liabilities
- Return > WACC
- Better security for pension obligations

##### Decrease interest payments by >€35M run-rate by 2024

- Deleveraging net debt by ~€0.6B with proceeds from sale of Polyamide & consistent operational FCF growth

#### REDUCING WORKING CAPITAL NEEDS

€150M

cumulative by 2024

##### Order-to-cash program

- A leaner enterprise-wide supply chain
- Inventory management and warehousing

##### Reduce working capital / sales ratio by 1-2% of sales

**~€500M more cumulative cash from operations by 2024**



# Financial Commitments

G

GROWTH

R

RESILIENCE

O




OPTIMIZE

W

WIN

# COMMITTED TO DELIVERING ENHANCED VALUE

## MID-TERM FINANCIAL TARGETS

	2019 estimate	2020 – 2024	
Underlying EBITDA growth	-2% to -3%	Mid-single digit / year average	
FCF conversion <sup>[1]</sup>	Around 22%	Exceed 30% by 2024	
ROCE	Around 8%	Exceed 11% by 2024	

2020 outlook to be communicated in February 2020  
All targets are on an organic basis (at constant forex and scope)

[1] FCF Conversion: FCF to Solvay shareholders (before netting of dividends paid to Non Consolidated Interests) divided by the EBITDA  
[2] FCF to Solvay shareholders



# OUR CAPITAL DEPLOYMENT PRIORITIES

- Disciplined approach to Capex and R&I
- Reduce liabilities (net financial debt and pensions)
- Portfolio opportunities
- Maintain stable and growing dividend
- Maintain investment grade rating

# WHY INVEST?

- ✓ Attractive secular trends drive long term growth
- ✓ Leadership positions >75% of portfolio
- ✓ Strong ESG credentials
- ✓ Best-in-class margins
- ✓ Resilient cash, investment-grade
- ✓ Growth and cash generation to drive stable and growing dividends

*G.R.O.W. strategy to enhance shareholder value*



# Appendix

# AUTOMOTIVE

*We make cars more efficient*

~15% net sales



## MARKET DRIVERS

Fuel efficiency / lightweighting regulations driving CO<sub>2</sub> reductions

- EU target 95g CO<sub>2</sub>/km by 2020
- US target 50% reduction on new vehicles by 2025

Shift to electrification

- ~**30% CAGR** hybrid & plug-in electric vehicles in 10 years
- Increasing polymer weight per car  
**6kg ICE → 12kg P(HEV)**
- Content doubles with move toward hybrid vehicles

## HOW WE WIN

Broadest portfolio of advanced materials

- Greater use of high-performance polymers to meet more critical applications

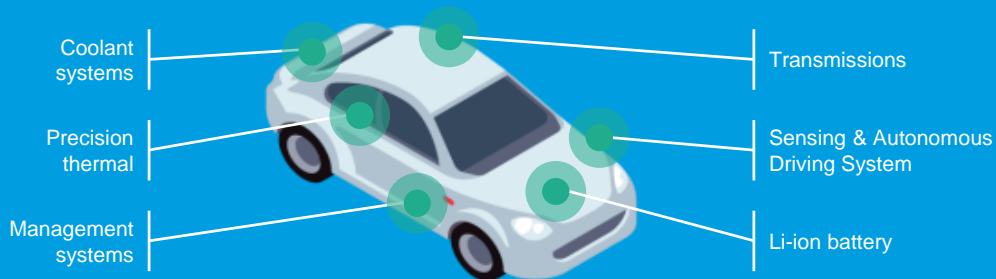
Deep customer relationships

- Strategic collaborations across OEMs
- Alliance on next generation battery development

Leveraging core competencies

- Knowledge to integrate design, materials and processes

**Solvay  
outpaces  
growth 3X**



# AEROSPACE

*We make aircraft lighter & more efficient*

~10% net sales

## MARKET DRIVERS

4.3% annual growth in passenger traffic

10% → 50% by weight

- Significant increase of composites on new aircrafts vs. legacy aircrafts

~40,000 new aircrafts in next 20 years

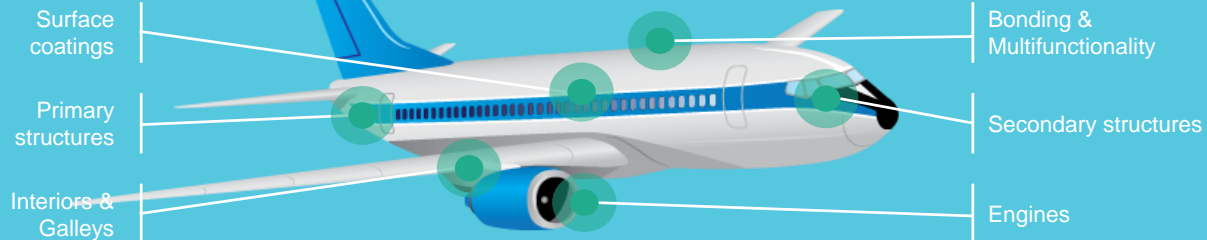
## HOW WE WIN

### Broad customer base

- Positions with major global OEMs in US, Europe, China & Russia
- Long-term contracts on key programs across commercial & military sectors

### Technology leadership

- Thermoset & thermoplastic composites
- Resin infusion & bonding technology
- LEAP engine technology
- Airbus A220 wing technology
- Winglet aerodynamic technologies



# THERMOPLASTIC COMPOSITES

*For aerospace,  
automotive and  
oil & gas*



## MARKET DRIVERS *Why Thermoplastics?*

### Fast cycle time

- Enabling increased build rates
- More efficient part assembly

### Performance and durability

- High strength
- Unrivalled toughness
- Weight reduction

### Environmental resilience

- Resistance to aggressive fluids
- Corrosion resistance

## HOW WE WIN

### Investments

- Capacity expansions in aero (Sept 2019)
- New capacity for oil & gas (Oct 2019)
- Two innovation center openings (Oct 2019)
  - Brussels
  - Atlanta USA

### Customer partnerships

- Supplying aero for >30 years
- New customer agreement in oil & gas

### Addressable market size (aero + oil & gas)

- €500M



Lightweighting



Resource  
efficiency

# HEALTHCARE

*We improve comfort for others*

~5% net sales

## MARKET DRIVERS

### +5-7% CAGR

- Health care coverage in developing markets
- The growing care needs of elderly populations (ageing and growing populations and increasing life expectancy)
- Advances in treatments and health technologies
- High sterilization capabilities

## HOW WE WIN

**Patient care:** World leader in thermoplastics used for high performance membrane

**Pharma packaging:** World leader in high barrier polymers to package pharmaceuticals

### Medical devices

- Medical grade plastics for limited exposure applications
- Biomaterials for long-term exposure applications
- 3D additive manufacturing compatibility

*We improve comfort for over **2 million patients** undergoing a.o. dialysis, orthopedic (knee, hip, spine) or cardiovascular procedures.*

*We provide **50 to 90% reduction in medical device cost** while enabling greater design freedom and improved ergonomics through lightweighting.*

*We are in **1 in every 4 pharmaceutical blister packs** globally which is over 400 billion pills.*



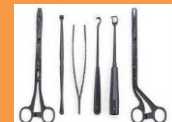
Hemodialysis membranes



Packaging



Long-term implants



Surgical instruments



Case & trays

# ELECTRONICS

*Beyond smartphones*

~5% net sales

## MARKET DRIVERS

### Double digit growth expected

- The growing demand for hyper-connectivity and the fast development of 5G
- Exponential growth of data, leading to necessary miniaturization
- Internet of Things
- Need to reduce the energy consumption of components

## HOW WE WIN

We target advanced technology markets driven by strong long-term trends with a portfolio of solutions

- Specialty polymers providing high performance solutions for structural and electronic components
- Recognized expertise in high purity chemistry for the semi-conductor industry
- New generation materials for OLED, delivering high quality diffuse light from thin and potentially flexible displays

*Innovation is key to anticipate the fast moves in this industry.*

*More specifically, 5G and Internet of things, will open many new markets where Solvay's expertise and customer intimacy will be key assets.*



Chip testing pump



Wearable bands



Cover films



O-ring & sealing



Vacuum pump sealing



Acoustic components



Smart sensor packaging



IoT  
Digitalization



# HOME & PERSONAL CARE

*Performant & convenient*

~10% net sales

## MARKET DRIVERS

Attractive market potential: GDP+

- Request for more natural and bio based solutions
- Growing customer base
- Enhanced performance and convenience
- Demand for Personalized and Premium Products
- Digital tools enabling the niche brands

## HOW WE WIN

We provide our customers with portfolio of innovative polymers and surfactants

- Homecare and I&I: solutions & ingredients for fabric care, dish care and surface care that enhance the performance
- Personal care: natural & synthetic polymers, surfactants, fragrances and precipitated silica serving the hair/skin/oral care and cosmetics markets
- Food packaging: high performance materials for safe, reliable and convenient food packaging
- Aroma: world's largest integrated producer of vanillin for the flavors & fragrances industries

*Our Products can be found in over **2.5B bottles of personal care products** every year, enhancing the lifestyle of millions of consumers around the globe.*



*We support more sustainable lifestyles in Home & Hygiene through our solutions for long lasting disinfection, low energy washing, and fabric enhancement, present in **over 1.5B bottles** every year.*



Eco-friendly solutions

# SODA ASH & BICARBONATE

*Resilient demand & strong cash conversion*

**16%** net sales

**>10%**  
Cash flow growth <sup>[1]</sup>  
(average 2016-2019)

**~75%**  
Cash conversion <sup>[2]</sup>  
(2019)

[1] Operational cash flow after Capex and WC before payment of taxes and liabilities

[2] EBITDA – Capex / EBITDA



Resource efficiency



Expanding healthcare

## MARKET DRIVERS

### Resilient growing soda ash demand

- Mix of consumer and industrial-driven demand

### Environmental standards supporting future growth

- Insulation glazing & solar panels
- Plastics substitution in container glass
- Air pollution control from land facilities (power plants, incinerators) to shipping vessels
- Lithium extraction to fuel (EV) batteries

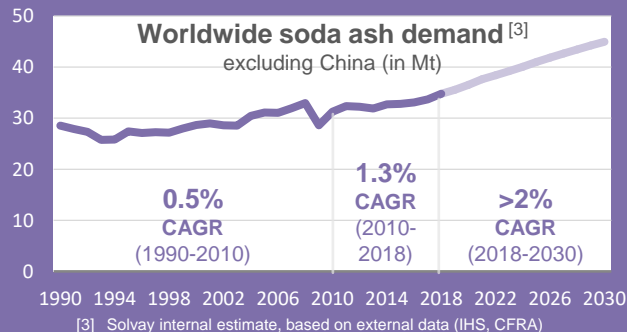
## HOW WE WIN

### We offer security of supply

- Global network of world-class and local assets
- Capacity addition of 1.4 Mt capacity in soda ash and bicarbonate by 2022

### We are technology and cost leaders

- Strong asset base, based on scale, access to marine transport and natural soda ash
- Digitalization & manufacturing excellence drive cost competitiveness
- Focus on reducing CO2 footprint
- Development of sustainable bicarbonate solutions



Solvay sales (2018)



Food packaging



Home & health care



Chemical industry



Construction



Resources & Environment  
(flue gas treatment, mining, ...)



Agro & Food

# PEROXIDES

*Resilient demand & strong cash conversion*

6% net sales

>25%  
Cash flow  
growth <sup>[1]</sup>  
(average  
2016-2019)

~85%  
Cash  
conversion <sup>[2]</sup>  
(2019)

[1] Operational cash flow after Capex and WC before payment of taxes and liabilities

[2] (EBITDA – Capex) / EBITDA



Resource  
efficiency

## MARKET DRIVERS

Resilient & growing H<sub>2</sub>O<sub>2</sub> & (HP)PO markets

- Diversity of markets decreases cyclicality
- Applications in Agro / Food, Consumer Goods, Electronics, Energy / Environment to grow at GDP+
- HP-PO capacity to grow at ~4% CAGR to 2024 as one winning technology

Sustainability is a key growth driver

- Versatility of use, efficiency and sustainability profile of peroxides drives demand & new applications

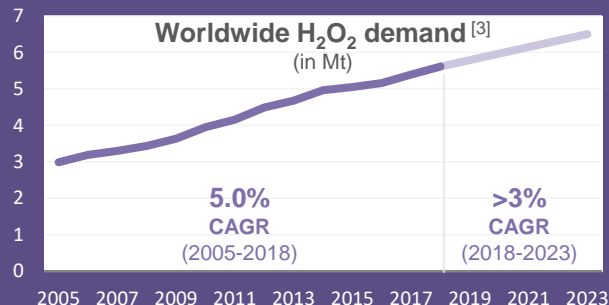
## HOW WE WIN

We partner with our customers

- Offering a global footprint for security of supply
- Building long term partnerships to joint develop business
- Developing selectively high value applications close to the markets

We offer best-in-class technology

- Unique ability to build small to mega-plants
- 3 mega HP-PO plants (>60% of WW HP-PO capacity) with long term contracts with BASF, Dow & Saudi Aramco in PO/PU chain, with stable return mechanism



[3] Source: Solvay figures based on external sources (IHS, ...)



[4] PO use in the following applications: Consumer goods, Industrial & chemicals, Construction and Automotive & Aerospace

# OUR NEWLY REALIGNED BUSINESS SEGMENTS

*Allow a differentiated management approach*

Former Segments



**New Segments**

Announced November 7, 2019

ADVANCED MATERIALS

Specialty Polymers  
-----  
Composite Materials  
-----  
**Special Chem**  
-----  
**Silica**  
-----

PERFORMANCE CHEMICALS

Soda Ash & Derivatives  
-----  
Peroxides  
-----  
Coatis  
-----  
Rusvinyl

ADVANCED FORMULATIONS

Novicare  
-----  
Technology Solutions  
-----  
Aroma Performance

MATERIALS

Specialty Polymers  
-----  
Composite Materials

CHEMICALS

Soda Ash & Derivatives  
-----  
Peroxides  
-----  
Silica  
-----  
Coatis  
-----  
Rusvinyl

SOLUTIONS

Novicare  
-----  
Technology Solutions  
-----  
Special Chem  
-----  
Aroma Performance

# DIGITALIZATION AS KEY ENABLER FOR FURTHER VALUE CREATION

## DIGITALIZATION OF PLANTS

- Increase asset performance
  - Leveraging data analytics
- Improve reliability of equipment
  - Monitoring and predictive modeling for failure prevention
- Improve productivity of shop floor
  - Mobile dashboards and digital resources for operators

### Example in Specialty Polymers

- +18% tons/yr gain in fluids
- +26% tons/yr gain in HFP
- +15% tons/yr gain in PVDC & PVDF

## DIGITALIZATION FOR CUSTOMERS

- Real-time data analysis
- Technical recommendations
- Reduce process variability

### Example in Technology Solutions

- Real-time data enables ongoing interaction with customer
- Immediate recommendations on new solutions
- Virtual tech support with immediate benefit to customers' bottom line

# SCALE AND DIVERSITY ADVANTAGE

*Leveraging the power of Solvay*



## Financial Strength

Balance of high margin growth and strong cash-generating businesses



## Diverse Portfolio

Ability to manage cyclical and deepen customer relationships



## Geographic Breadth

Global presence confers market insight and diversification advantage, customer advantage



## R&I Scale

Powerful R&I – at business and corporate level – to drive innovation across the company



## Identify New Opportunities

We can extend opportunities with existing customers by weaving together solutions and technologies from multiple GBUs



## Operational Efficiency

Scale operations and supply chain efficiency across our businesses



## Attract and Retain Talent

As a global and diverse organization of scale, we can attract the best talent

# SOURCES FOR MEGATRENDS

- ~50% of global car production in EV or hybrid in 2030 (Source: Roland Berger)
- Global battery demand growth at 20%+ CAGR over the 2018-2030 period (Source: World Material Forum, Global Battery Alliance)
- Composites in aerospace to grow 2x in next 10 years (Source: Bain - BSR Composites)
- Composites in offshore oil pipes / risers to be worth >\$14B in 10 years (Source: UBS Global Research, “Offshore Contractors take sides in composite pipe race” 8 October 2019)
- Composites in auto to grow 30% CAGR in next 10 years (Source: Roland Berger)
- Water treatment to grow at 4%+ CAGR over next 5 years (Source: Solvay internal research)
- Lithium supply to increase 6x by 2030 and copper to add ~4mtpa (Source: World Material Forum, Global Battery Alliance)
- Energy-efficient glass to grow at 4.5% CAGR by 2025 (Source: “Energy Efficient Glass – Market Analysis, Trends, and Forecasts” Research and Markets, October 2019)
- Global medical plastics to grow >6% in short-term (Source: BCC Research - 2018 report)
- Global medical implant to grow at 7% CAGR in short-term (Source: “Medical Implants Market: Global Industry Trends, Share, Size and Forecast Report By 2023”, Kenneth Research, 1 August 2019)
- IoT sensors to grow >15% CAGR through 2023 (Source: BCC Sensors Technologies and Markets - July 2018)
- Display capacity to grow at 4% CAGR through 2023 (Source: Solvay internal research)
- Semiconductors market to grow at 6% CAGR to 2022 (Source: PwC publication, 2019)
- Organic shampoos to expand at 3.1% CAGR to 2025 (Source: Solvay internal research)
- Natural vanillin to grow >10% CAGR by 2024 (Source: Solvay internal research)
- Waterborne coatings to grow by 5.7% CAGR by 2025 (Source: Solvay internal research)