Towards Sustainable Development

Assessment and Prospects 2008-2012





Solvay is an independent, ethical and responsible global industrial group with a balanced portfolio of sustainable, profitable and growing businesses, managed in accordance with societal and environmental issues

The Sustainable Development strategy is supervised by the Executive Committee

There is a Comex sponsor to ensure consistency of the deployment achieved by the various Sectors, Functions, Regions and the management units, namely the Strategic Business Units, Competence Centres and Business Support Centres.

The Sustainable Development Steering Committee includes people representing these various units. It puts forward policies, proposes processes and tools, and monitors adherence to good practice.

The Strategic Business Units (SBUs) implement the Group's Sustainable Development strategy

It is the SBUs that, worldwide, provide the basis for the Group's various operations, conducting the industrial activities in accordance with the Group's strategy and guidelines. They report regularly to the Executive Committee, routinely including sustainable development aspects.

Pharmaceuticals

• SBU Pharma

Chemicals

- SBU Soda ash and derivatives
- SBU Electrochemistry and derivatives
- SBU Hydrogen Peroxide
- SBU Detergents
- SBU Advanced Functional Minerals
- SBU Fluorinated Products
- SBU Molecular Solutions

Plastics

- SBU Vinyls
- SBU PipeLife
- SBU Specialty Polymers
- SBU Inergy Automotive Systems

Comex Office of the Comex Strategic Business Units Competence Centres Business Support Centres

The Group's structure

Report boundary

The Solvay group has 178 production sites, including 58 for the joint ventures PipeLife (plastics pipes and fittings) and Inergy Automotive Systems (vehicle fuel systems) joint ventures, in a total of 37countries (2007 figures).

This report includes companies of which the Solvay Group owns at least 50%. The quantitative data relate to activities managed by the Group.

• The quantitative data for environmental parameters relate to the 112 production sites, including those operated by the joint ventures, where production involves significant releases into the environment (thus excluding PipeLife activities). The internal reporting and consolidation system for environmental data has been verified when it has been set up.

• The quantitative data relating to safety refer to all the operations for which Solvay is in charge of technical management, amounting to 154 sites.

• Human resources management and policies in this field relate to all of the management units including (except in respect of staff training policies) the joint ventures where Solvay has a majority shareholding.

Global Reporting Initiative (GRI)

The consistency with GRI (**) of the sustainable development themes dealt with in this report are based on the identification of the materiality of the major issues specifically relating to our three activity sectors: Pharmaceuticals, Chemicals, Plastics.

Other reports

The previous *"Towards Sustainable Development"* report was published in 2004. The next will be published early in 2012.

Annually updated versions of the quantitative data can be found on the website **www.solvaysustainable.com**, which also includes other environmental data supplementing the information appearing in this paper report.

Each annual report for the Solvay group includes:

- the locations where the Group is established
- the Group's main brand names, products and services
- the operational structure
- rules of governance
- the risk management
- a list of fully and proportionately consolidated Group companies
- (*) Environmental data: Local Communities chapter, page 82; Energy and climate: Society chapter, page 34
- (**) GRI index, page 86-87
- (***) Materiality of the sustainability issues specifically relevant to our activity sectors, see Investors chapter, page 16



The Matrix 5x5

The operational framework for the policy and strategy of the Solvay group regarding Sustainable Development

		Investors	Society	Customers & suppliers	Personnel & subcontractors	Local communities
	Vision and values Act as an ethical and corporate citizen	Positioning ourselves as a reference and ethical industrial investment	Practising citizenship beyond our business activities and contributing to scientific knowledge	Ensuring business ethics	Building a common ethical commitment based on shared values	Raising community dialogue and participation in local life (neighbours, authorities, associations)
	Management methods Apply efficient management processes	Achieving excellence in managing human, financial and material resources	Reducing the global ecological footprint of our production and supplychain activities	Aiming at long-term competitiveness and ensuring Product Stewardship	Guaranteeing fair labour conditions, safe working conditions, empowerment and career	Optimizing environmental performance
Axis	Products & activities today Supply sustainable, profitable and growing products and services	Prioritizing creation of long-term and sustainable value through market leadership	Bringing products and services preserving environment & health, enhancing global well-being and serving essential needs	Proposing quality, efficient, reliable, documented and validated products and services	Expanding multidisciplinarity, diversity, network / partnership practices and competencies	Contributing to local wealth : employment, salaries, purchase of local goods and services
	Future development Lead a world industrial strategy	Implementing a long-term growth strategy triggered by innovation and sustainable development	Designing new products and solutions preserving environment & health, enhancing global well-being, serving essential needs while participating in the evaluation of the legal framework	Co-developing new sustainable products, services and solutions and their related markets	Facilitating creativity and innovation	Strengthening local development : clusters of economic activities, infrastructures and equipments, competencies
	Critical risks Manage raising critical issues	Mitigating critical risks and related adverse financial impacts	Contributing to education, training and employment of young people	Taking part in the active management of product end-of-life and anticipating substitution of unsustainable products	Minimizing critical risks and related human impacts : accidents, occupational diseases, layoffs, loss of expertise	Protecting neighbours and their living environment : health, environment, employment, major risks prevention

Stakeholders



When opened, this cover flap will be a useful aid to you when you read this report, which is organized according to the Matrix 5x5.

Three sectors of activity

Pharmaceuticals

Sales 2007: EUR 2.6 billion - REBIT: EUR 457 million

Therapeutic fields

Integrated franchises (R&D and commercial)

- Cardiometabolics (dyslipidemia, obesity, type 2 diabetes, congestive heart failure, renal insufficiency, atrial fibrillation)
- Neuroscience (schizophrenia, Parkinson's disease, traumatic brain injury, cognition)
- Niches in flu vaccines and pancreatic enzymes
- **Commercial franchises**
- Gastroenterology
- Women's and men's health

Chemicals

Sales 2007: EUR 3.0 billion - REBIT: EUR 345 million

Four clusters

Minerals

- Soda ash and derivatives (bicarbonate)
- Advanced Functional Minerals (precipitated calcium carbonate)
- **Electrochemistry, fluorinated products**
- Electrochemicals and derivatives (caustic soda, epichlorohydrin)
 Fluorinated products
- Oxygen
- Hydrogen peroxide
- Detergents (persalts)
- **Organic (Molecular Solutions)**

Plastics

Sales 2007: EUR 4.0 billion - REBIT: EUR 441 million

Two clusters

Specialties

- Specialty Polymers (high and ultra-high performance polymers like fluorinated polymers, elastomers and fluids, barrier materials, polyarylamides, polysulfones, high-performance polyamides, liquid crystal polymers)
- Inergy Automotive Systems (50/50 joint venture with Plastic Omnium)

Vinyls

- Vinyls (integrated electrolysis chain, VCM (monomer), PVC (polymer) and PVC compounds)
- PipeLife (50/50 joint venture with Wienerberger)

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Sales by Sector in 2007



Employees by Sector in 2007



Customer markets

Group sales 2007 = EUR 9 572 million

Human health	29%
Construction and architecture	13%
Automobile industry	12%
Chemical industry	9%
Glass industry	6%
Water and the environment	5%
Electricity and electronics	4%
Paper	4%
Packaging	3%
Detergents, cleaning and hygiene products	3%
Consumer goods	2%
Human and animal food processing	1%
Other industries	9%

SOLARIMPULSE



Solvay is making its competence in innovative materials available for the design and construction of aircraft, powered only by solar energy with no other energy source, that will circumnavigate the world. 2006 was spent designing the aircraft. The prototype is now under construction.

Since the Group was established, many initiatives have shown a commitment to innovation and calculated risk-taking helping to create conditions for a more sustainable future : from the creation of scientific institutes, through support over more than a century of scientific expeditions – whether to the South Pole or the contribution of the SolVin Bretzel to investigations of biodiversity – to current involvement in the Solar Impulse project.



Solvay is, in fact, the first main partner and a technological partner associated with the Solar Impulse project.

The venture was started by Bertrand Piccard, and is a perfect symbol of the major efforts and technological and mental leaps needed to enter new territories implied by sustainable development: excellence, an entrepreneurial mindset, control over energy, and innovative materials.

For the Solvay group, this project embodies fundamental values:

ture and willingness to engage in collaborative efforts.



• Ethical values including a sensitivity to ecological challenges, with positive and practical awareness of sustainable development, leading the search for alternatives to non-renewable resources, particularly of energy, an issue facing all technology-based firms.

· Conceptual values of openness to world issues, encouraging dialogue and reflecting the Group's cul-

• Business-oriented values, allowing sustainable growth to be achieved through innovation, and promoting a positive and credible image for the Group and its entrepreneurial spirit.



The Chairman's message

Publication of this third Solvay Group Towards Sustainable Development report, providing an assessment of the current situation and of prospects, coincides with a time of change, for both the world around us and for the Group. At the start of the third millennium, **sustainable development has, indeed, become a major challenge for society: one that cannot be avoided and with which the Group is engaging fully**.

Far-reaching changes are needed in the way we act when faced with rapid change: change which everyone can feel. Our history and our industrial tradition cannot conceal the reality which is all around us. We now look at things globally, preparing ourselves for profound and fast-moving change, over which we have very little control. We want to analyze the limitations imposed by sustainability issues but, even more, we want to identify the opportunities they present.

In March 2007, Solvay's Executive Committee wished to express more formally its policy and strategic commitment towards sustainable development and the way the Group's societal responsibility would be exercised. This commitment is included in Solvay's Mission and Vision statement, the aim being to respond consistently to various complex but fundamental issues. These issues relate to our role as a large consumer and converter of natural resources (fossil fuels, limestone, salt, water, etc.), to the direction being taken by our portfolio of products and services, and to our geographical expansion and the associated socio-economic implications. We requested all the Business Units to carry out analyses which, when put together, would allow us to take the right decisions. It is a difficult undertaking, as we are having to learn to look differently at various situations, seeing them from the perspective of a leap into the future.

Far-reaching changes are needed in the way we act when faced with rapid change

Change is possible. The impetus for this will come from involving everyone and from each person's will to adopt and see his or her targets and initiatives within the reference frame to which I have just referred. It is against this background that, more than ever, we are asking each employee to identify with the commitments into which we have entered, and to seize every relevant opportunity. Our renewed adherence to the Global Responsible Care[®] Charter and the many initiatives already taken with regard to sustainability show that the Group's commitment in this area is nothing new.

Going beyond these developments, I would like to sketch out here five aims that must guide the action we take for the coming years:

- developing, in partnership, essential products that are more sustainable and are consistent with social and regulatory changes;
- having the Group recognized as a reference standard for sustainability and innovation in industrial investment;
- achieving success in the program for changing human resource management, and improving all aspects of working conditions: safety, health, well-being and skills development, in strict conformity with our Values;
- applying a rigorous policy for risk management, with programs to reduce risks and environmental impact, together with structured dialogue with communities living adjacent to our manufacturing sites;
- minimizing our consumption of energy and of natural resources.

We are also calling on all our stakeholders to help us appraise the expectations and constraints in this actively changing world. We have created a variety of opportunities for dialogue, in order to perceive more readily these stakeholders' expectations. You can judge what progress we have made from the following pages.

Our message is therefore one of optimism. Science, partnerships and openness to dialogue are among our Group's strengths. They will enable us to design a greener chemistry for tomorrow and to establish ourselves as "suppliers of solutions for the future", all the while helping solve the problems of today. It is for industry, and for us at Solvay, to meet the expectations in this area that I can detect. It is for us to show we are capable and responsible, making a significant contribution to solving the problems now facing society, in a word, proud of being chemists.

Christian Jourquin, Chairman of the Executive Committee







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The purpose of life is life itself. Well, I would happily say the same thing about sustainable development. I would happily say the same about civilization. I would say that civilization is a collection of knowledge, expertise, rules and values that protect us against a barbaric existence. From that perspective, sustainable development is part of civilization.

This means that non-Sustainable Development development that cannot last - i.e. the development we are experiencing today development we are experiencing today, is playing into the hands of a barbaric existence.

"

André Comte-Sponville, philosopher at the Sustainable Development Seminar of Solvay's European Works Council, La Roche-en-Ardenne, 2005(*)



(*) Further thoughts from Mr Comte-Sponville, expressed after listening to other speakers, punctuate the chapters of this report.

The sustainable Development policy of the Solvay group

Sustainable Development poses a major challenge to society. The Solvay Group fully recognizes and accepts this challenge.

We commit ourselves to take into account, in a way that is comprehensive and integrated in all our activities, the triple demand of economic, societal and environmental sustainability.

This commitment of widened responsibility as a "good citizen":

- is applied to the entire lifecycle of our products. This encompasses their design, their manufacture, their applications and also the consumption of resources that they entail, including the societal impact of their manufacture or use;
- resides in the desire to innovate and to make progress by conducting a permanent and in-depth dialogue on these challenges with all concerned stakeholders and all our specific partnerships.

Including Sustainable Development in the Group's Mission, Vision and Values

The general thrust of Solvay's activities is expressed in the Group's Mission, Vision and Values. By Including sustainable development in the Group's mission, vision and values, we are making a clear statement for everyone working in the Group about the commitment to Sustainable Development.

Vission

Building on our scientific, technical and commercial expertise, and aware of our societal responsibilities, we provide innovative products and services related to chemistry and human health to create sustainable and ever-increasing value to our customers, shareholders and employees.

> We firmly believe in: • Ethical behaviour • Respect for People • Customer Care • Empowerment • Teamwork

Solvay is an independent, ethical and responsible global industrial group with a balanced portfolio of sustainable, profitable and growing businesses, managed in accordance with societal and environmental issues.

- Amongst the world leaders in selected markets and products either alone or with sound complementary business partners.
- Valued by its customers as a highly competent, reliable and competitive solution provider.
- With a clear, motivating organization, through dialogue, developing and empowering people and teams through rewarding and challenging jobs.
- Acting as good corporate citizens, caring for the environment, health and safety of its employees and of the community at large.
- Open to the expectations of the outside world, and contributing to economic, social and environmental progress.



A sustainability strategy **driving innovatory growth**

In line with the Group's Mission and Values, Solvay is keen to create economic and social value in a responsible and ethical manner, for its customers, shareholders and employees, for the local communities in which we are established, and for society in general. We intend to do this by offering innovative products and sustainable solutions based on the Group's scientific, technical and commercial skills.

Our industrial strategy involves producing sustainable profitable growth in selected areas within our three sectors of activity: pharmaceuticals, chemicals and plastics. Innovation and collaborative action form the key for this growth and for our improved competitiveness. By responding better to the expectations of all of our stakeholders, we will be able to develop a real atmosphere of trust with each of them. Trust is the key to development and success.

This approach applies in particular to the major investments made to protect against risks and to promote safety and health at work: They protect the health of our employees, improve the performance of our work teams and reduce social costs.



In order to succeed in this, each employee, whatever that person's function and activity, must therefore act fully in accordance with developments in expectations resulting from the economic, social and environmental challenges facing the Group. In practice, this means making the Group's development inseparable from sustainability, with the latter used as an effective means of achieving growth in business.

By meeting our employees' expectations, the commitment to sustainable development helps produce a consensus, consistency and motivation within the Group itself. Indeed, the social partners are as much concerned about the quality of working life as of their firm's social responsibility and continued existence. Similarly, the commitment establishes and strengthens social links with the communities living in the vicinity of our production sites.

Sustainable development and our concern to be socially responsible are thus becoming essential aspects for innovation and the Group's openness to new markets. This is of fundamental importance for a Group that has set itself the target of achieving 30% of its sales

value in 2009 from new products, new markets and new technology. Our approach to "Open Innovation" is encouraging - if not obliging - us to look outwards and compare ourselves with those who perform best, both in our existing fields and in new activities.

This sustainable development initiative is also a major means of achieving improved business effectiveness, and this helps establish the initiative's complete legitimacy within the Group. It is, indeed, this change in our processes for researching, designing, manufacturing and also managing our portfolio of products and services that will open up to us the new markets necessary for sustainable growth serving the community, while also providing new ways for protecting non-renewable resources.



Island Press, 2003

A strategy in line with society's changing expectations

Sustainable development has a profound influence on the directions taken by large industrial firms. A more explicit commitment in this area from Solvay implies a commitment to think and act differently, so as to respond to new challenges. It is not the Group's task to provide solutions to all the challenges facing the planet and its inhabitants, nor do we have the ability to do so. What Solvay can do and wants to do is to meet the expectations and respond to the constraints imposed by those challenges. In particular, those that are at stake for parties that interact with the Group: investors, customers and suppliers, the employees, and civil society as a whole.

Clearly the stakeholders have a variety of expectations.

Investors:	 transparent financial results transparent governance of the company control of risks visibility over the long term
Society:	 responsible behavior transparency and information respect for fundamental rights, notably human rights protection of natural resources
Customers and suppliers:	 quality of service, competitiveness and ethics satisfaction with the products and services, from their design to the end of their life collaborative innovation
Employees:	 sustainable management of employment health and safety protection against risks compliance with regulations and with labor law
Local communities:	 safety environmental protection responsible behavior participation in local life and employment



Including the challenges of Sustainable development in the Group's management processes

Solvay's present and future activities are therefore aimed at meeting the expectations of the various stakeholders of the Group. Taking account of those expectations regarding sustainable development is included in the Group's business model and its normal management processes.



Starting from a dialogue with the stakeholders

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to tackle the challenges of sustainability

Global sustainability challenges

Solvay

group's

strategy

- Climate change and energy
- Energy supply
- Access to drinking water
- Biodiversity
- Management of natural resources
- Demography
- Health and education
- Economic globalization

5 driving axes

Citizenship

Management efficiency

Product and activities today

Future developments

Critical risks

Priority to growth in selected areas of Pharmaceuticals, Chemicals and Plastics;

- Innovation, the key to growth and to constantly improving competitiveness;
- An expanded presence in Asia, the Americas and Eastern Europe.

The Matrix 5x5

The Matrix 5x5 guides and formalizes the Sustainable development strategy for the Solvay group and all of its entities. By cross-looking at the intersection of the expectations of the stakeholders of the Group and the five driving axes of its strategy, key fields are identified which, when combined, will be the sphere of operation for the action we take in relation to business, the environment and our role in society.

When combined with the fields of action in the Matrix 5x5, tools enable each of the Group's management units (Strategic Business Units, Competence Centres and Business Support Centers) to:

1. carry out, within its own area of responsibility, regular self-analysis of issues that pose a threat to sustainability;

2• decide its own priorities;

3• identify opportunities for action to be taken.



The challenges as seen through the prism of the Group's stakeholders expectations

Positioning	Practicing	Ensuring	Building	Raising
Achieving	Reducing	Aiming	Guaranteeing	Optimizing
Prioritizing	Bringing	Proposing	Expanding	Contributing
Implementing	Designing	Co-developing	Facilitating	Strengthening
Mitigating	Contributing	Taking	Minimizing	Protecting



25 Major Targets to be achieved by 2012 or 2020

2012



2008

Using sustainability assessment tools validated by the Group (a) for 100% of significant planned innovations or acquisitions, and carrying out the assessments jointly in the case of partnership projects.

2020

- Using sustainability assessment tools and indicators of environmental impact validated by the Group in making policy decisions and deciding budgets, for 100% of important investment plans.
- **3** Having projects economizing on natural resources reaching at least 20% of the proposals competing for the Solvay Innovation Trophies.
 - Developing our projects regarding eco-efficient products (b), particularly those in fuel cells and in organic electronics.

Society

- Reducing by 20% (in tonnes-km) the share accounted for by road among transport of our products in Europe.
- **6** Reducing the overall energy intensity of our vehicle fleet by over 30%.
- **7** Reducing by 20% the greenhouse gases emissions (in CO₂ equivalent), both direct and indirect (through energy purchases), associated with our manufacturing.
- 8 Reducing by 20% our total energy consumption.
 - Establishing energy diagnosis audits at 80% of our manufacturing sites and all our administrative sites.

10 Applying Solvay's **policy on the use of laboratory animals** throughout the Group and introducing ethical supervision of animal experiments by the Solvay Animal Care and Use Committee (SACUC).

Customers and Suppliers



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Applying audit and selection systems to 100% of the Group's providers of logistical services for dangerous products.

- Communicating Ecoprofile-type product information (c) to customers on:
 - any existing major product;
 - any product with critical characteristics (in relation to sustainability);
 - any new product.



Employees

- Establishing a discussion forum at each site, bringing together employees and management of all levels, 13 to initiate and provide support to the Sustainable Development projects of each site.
- 14' Including Sustainable Development in the training of employees at all levels.
- Strengthening employee commitment to the company and the way it operates at its current high level 15 $(\geq 75\%)$ as measured by Solvay People Surveys.
- **16** Introducing structured programs to protect the employees against risks at all sites, ensuring the programs extend to subcontractors.
- Applying the Health Module of Solvay's Medexis Information System (d) to 70% of the staff (not including the 17 United States) with the aim of ensuring a uniform prevention against health risks and a uniform medical monitoring throughout the Group.
- 18 Applying the Group's preparedness plan for a human pandemic originating from avian influenza.

Local communities

- 19" Reducing by 20% the Global Air Emission Index.
- 20" Reducing by 20% the Global Water Emission Index.
- Extending the Risk-Based Inspection system for predictive examination of the physical integrity of installations 21" to all the Group's sites of major risk.
- Obtaining OHSAS 18001 (e) or equivalent certification for safety management systems at 30 of our production 22" sites, and ISO, EMAS or equivalent environmental certification for all relevant sites (f).
- Making available annual data on emissions and releases for each site with potential significant impact, based 23 on the criteria of public databases of PRTR or TRI-type (g), in accordance with the Responsible Care® Global Charter.
- 24' Establishing projects at all sites that encourage employee participation in the life of the local community.
- Regularly conducting opinion surveys about our activities among the communities living in the vicinity of our 25 large production sites.
 - (a) The Matrix 5x5, the Solvay Sustainability Screening (S3) tool and the Umberto Lifecycle Analysis Tool from IFEU,

 - the Umberto Lifecycle Analysis 1001 from IFEU, Heidelberg.
 (b) See Investors chapter, page 21.
 (c) Ecoprofile: inventory of emissions and releases associated with raw materials and manufacturing.
 (d) Information system on employees' medical and industrial hygiene data ourspatt.
 - data, currently under development.
- (e) OHSAS 18001: Occupational Health and Safety Assessment Series 18001: standard compatible with ISO 9000 and ISO 14001.
- Including main pharmaceutical manufacturing sites, but excluding sites processing plastic materials to produce pipes and fittings (PjpeLife). (g) PRTR: Pollutant Release and Transfer Register; TRI: Toxic
- Release Inventory (US).



	Investors
p. 14	Investors Reconciling development with sustainability to promote continued creation of value
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p.19	2. Our leadership strategy
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p. 29	Personal statement: Philippe Lamberts, Spokesperson for the European Green Party
p. 30	Our key activities
p. 32	1. Products that meet fundamental needs and economize on resources
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p. 34	3. Energy efficiency and climate issues
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p. 47	2. Product quality serving eco-efficiency in their applications
p. 48	3. Products that are well documented and that comply with regulations
p. 50	4. Informing users and providing knowledge about the products, associated risks and precautions to take in use
p. 51	5. Transport safety and the transport of hazardous products
p. 52	6. Recycling and management of product lifecycles
p. 54	Innovation and environmental technologies

	Employees and subcontractors Respecting our employees and developing their skills
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p. 60	1. Occupational hygiene
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p. 73	Personal statement: Jucilene Aciole Silva, a resident in the vicinity of Santo Andre plant (Brazil)
p. 74	Our key activities
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-	2. Health, safety and the environment in newly acquired plants
p. 77 .g	3. Management and control over local environmental impact
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p. 78 p. 80	 Systems for environmental management and compliance with regulations Management of contaminated soil and historic pollution
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	5. Management of contaminated soil and historic pollution

GRI (Global Reporting Initiative) index

Solvay Policies, Management Tools and Reference Systems

Reconciling development with sustainability to promote continued creation of value

A blue-chip industrial **investment Managing** human, financial and physical resources Creating **sustainable value** and a leading position Combining **innovation** and sustainable development **Control** of critical risks

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The situation as seen by a risk-capital investor

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Our objective as a risk-capital fund is not to invest and then sit back, waiting and hoping. We want to anticipate what will happen in the technologies and markets where we are investing, and take action when that is necessary. In order to do that, we have to know from the inside the businesses in which are investing. And when it comes to sustainable development, we have no choice: if your activity is not sustainable, you risk disaster. Each firm has to adopt a strategy that allows it to be on board.

The board of our fund, Conduit Ventures, is a real forum bringing together entrepreneurs. We discuss things openly, talking about what is good and what is bad. Our fellow members thus provide us with a better idea of how sustainable the projects are in which we are investing. And nobody around the table has any doubts about the challenges presented by sustainable development.

Solvay's general attitude towards Conduit Ventures has been that of a committed firm, yet not such as to be a threat to small organizations collaborating with the Group. I have been happily surprised by this openness of mind, which is being confirmed. There are not many firms of comparable size and quality that behave like that. In emerging technologies such as fuel cells, which bring together and influence many industries, the investing partners have to provide not only cash, but also their skills. And, in fact, the Solvay group is providing us with skills in material science, which it applies in many fields, from heavy industry to products aimed at the general public.

Going further, what is essential to a young firm is a market. There has to be a need, customers, added value, and social utility. It is essential to know the customers' needs. I therefore recommend that Solvay, even as an upstream producer, becomes – in one way or another – a stakeholder in the downstream markets. Your product may be just one of the components obtained by the end user, but you nevertheless need to have a good understanding of how important your technology is to him.

I see 'sustainable' risk capital now being supplied by public-sector institutions, financial organizations and very professional firms. The investment made is of high quality, drawing on enormous sums of money, which is available for the asking.

To conclude, I think that the ecology lobby formed of ecological groups has done a tremendous job putting environmental protection on everybody's agenda. We have got to the stage where firms can make use of environmental sustainability as a key factor in their competitiveness and differentiation. We can therefore now easily see that it is the added value for society that is creating the dynamics and the market.





John Butt, Managing Director, Conduit Ventures (UK)

"And when it comes to sustainable development, we have no choice: if your activity is not sustainable, you risk disaster. Each firm has to adopt a strategy that allows it to be on board."

Reconciling development with sustainability to promote continued creation of value Our key activities

Investors



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he Group's industrial strategy is founded on sustainable and profitable growth in our three sectors of activity. This strategy results in an emphasis on developing the pharmaceutical sector and high-performance specialty products, and in stronger expansion in the geographical areas that constitute growing markets: Asia, Mercosur, NAFTA and Russia.

This approach is based on innovation, vertical integration and control over energy costs.

Continuous review of our competitiveness and the sustainability of our activity portfolio are also part of our strategy for creating sustainable value for our shareholders and customers, whilst ensuring high-quality employment for our staff and contributing to local development that will assist the continued functioning of our production sites.

Materiality Control level

Achieving

excellence in managing human, financial and material resources

Materiality* and degree of control regarding key sustainability challenges for our stakeholders

Prioritizing

creation of long-term and sustainable value through market leadership

Implementing

a long-term growth strategy triggered by innovation and sustainable development

Mitigating

critical risks and related adverse financial impact

	Waterianty	Control level
Chemicals		
Improved production techniques		
Consumption of energy and of raw materials		A
Renewable raw materials	—	
Transport of raw materials and finished products		
Toxicity and eco-toxicity of substances	—	
Risks for users		
Risks for consumers and the general public		
Replacing substances involving uncontrollable risks		
Plastics		
Improved production techniques		
Consumption of energy and of raw materials		
Renewable raw materials		
Lifespan of finished products	-	A
Weight relative to the effectiveness of finished products		
Replacing certain additives		
Packaging waste and other waste products		
Degradable plastics	•	
Recycling after use	—	A
Pharmaceuticals		
Value to society of pharmaceutical products		
Contribution to treating major disease categories		A
Operational excellence: reduced production of by-products, and reduced energy consumption relative to output of finished	products	A
Active substances released into the environment		
Pharmacovigilance		A
Inexpensive forms of medication - Generics		
Participation in programs providing access to medicinal products free of charge		
Restructuring of production activities		
Reducing, Refining and Replacing experimentation involving animals		
Important for our activities 📕 Very important for our activities 🔺 Programs under way 🔺 V	Well managed	Marginally involve



"Change is not an aim in itself, but a means to an end. The reason why change is now necessary is that if we want development to last, we need to change our mode of development. This is true for civilization, and it is also true for a firm."

André Comte-Sponville, at the Sustainable Development Seminar of Solvay's European Works Council, 2005



If we want development to last, we need to change our mode of development. **55**

Networking with the investors

The societal rating agencies – and increasingly also the financial rating agencies – include parameters of good environmental and social management in their assessments of firms. Whether the assessments are made by a specialist rating agency – such as Vigeo, Oekom or SAM for the Dow Jones Sustainability Index – or one in the financial field, and whether or not they are solicited by the firm, these ratings cannot help but become more prevalent. The criteria used for assessment do, nevertheless, vary. Solvay answers requests for such ratings, is included in the FT4Good indices, and intends to participate actively in the development of these assessments through a dialogue with the analysts.

In addition, Solvay is an active member of networks and associations of European firms that consider corporate social responsibility to be at the heart of their initiative. Examples are CSR Europe and EABIS (European Academy of Business in Society), which is a unique alliance of companies, business schools and academic institutions that includes corporate responsibility in its research programs and training for potential managers.







Becoming recognized as a reliable investment in terms of sustainability

Strategy

- Implementing our general strategy in relation to sustainability through a set of specific policies and management methods.
- Selecting targets and indicators of progress that permit objective monitoring of performance.

<image><image>

The Group has a wide range of Policies, Systems and management tools relating to sustainability (see page 88).

Systematic analysis of the sustainability of our product portfolio forms part of the strategic commitment to sustainable development that received formal endorsement from the Executive Committee in March 2007. The commitment brings together and supplements pre-existing policies in a consistent analysis and action plan. It will be supported by new indicators that permit on assessment of how these policies have been applied and enabling them to be included in our communications with the societal and financial rating agencies questioning us on these matters.

The Group has signed the updated Responsible Care[®] Global Charter of the International Chamber of Chemical Associations (ICCA) and updated its own policy on health, safety and the environment. Measurements and verification of performance are key elements here.

Strict compliance with the Corporate Governance Rules and the Code of Conduct, as revised in 2007 (see "Employees" page 64), provide further indications of the desire to be recognized as a reliable and lasting partner.

Sustainability criteria are also taken into account in all our innovation programs. Evidence of this is provided in particular by the Future Businesses activities and the prize-winning projects in the Sustainable Development category of the Solvay Innovation Trophy.

Solvay is included in the FT4Good Europe and FT4Good Global indices



Targets for 2012

- Having projects that economize on natural resources reach at least 20% of the proposals competing for the Innovation Trophies.
- Developing our projects regarding eco-efficient products, particularly those in fuel cells and in organic electronics. (*)
- Progressively incorporating economic, social and environmental data in our activity reports.
- Strengthening the dialogue with investors and analysts on economic, environmental and societal responsibilities.

(*) see page 21



Our leadership strategy



Strategy

- Pursuing a long-term leadership position in both our "essential" products and specialties.
- Ensuring that the Group has a clear view in relation to the sustainability of products and markets, including in strongly growing countries.



For vehicle fuel systems, the Inergy Automotive Systems joint venture has developed multi-layer tanks with remarkably improved performance in terms of being fuel-tight and leakproof. This limits the evaporation of volatile organic compounds (VOC) from the fuel through the tank wall, ensuring compliance with the most stringent regulations. Our leadership strategy requires that we continuously improve the sustainability of our main product lines, throughout their lifecycles : vinyl products, soda ash and its derivatives, peroxides, vehicle fuel systems, special polymers, electrochemistry products and derived specialties.

In the pharmaceutical field, we put the emphasis on therapeutic added value. This factor, more than ever, will guide future commercial success in this area, under the combined effects of the growth in medical costs, health economics in general and reimbursement rates for medicinal products. There is also a shift in the choice of drugs towards patient influence (particularly resulting from the Internet) and away from that of practitioners.

Our recognized expertise in chemical engineering is enabling us to introduce technologies that are better-performing and more economical in terms of raw materials, resulting in reduced production of emissions and by-products, together with increasing environmental efficiency and safety

Main products - world positions

Pharmaceuticals	Fibrates, anti-emetics and anti-nausea drugs, pancreatic enzymes, anti-spasmodics / irritable bowel syndrome, male hormone treatment	1
	Female hormone treatment	2
Chemicals	Soda ash, sodium bicarbonate	1
	Hydrogen peroxide, sodium percarbonate / perborate	1
	Caustic soda	3
	Precipitated calcium carbonate	Amongst the world leaders
Plastics	Fluorinated polymers, vinyls	3
	Other specialty polymers	Amongst the world leaders
	Fuel systems (Inergy Automotive Systems)	1
	Tubes and fittings (PipeLife)	Leader in our markets

Targets for 2012

- Applying our sustainability approach in new developments, as an integral part of our leadership strategy : vinyl products (in Russia, Thailand and Brazil), hydrogen peroxide (in Belgium, and another planned in Thailand for 2010), vehicle fuel systems (Inergy Automotive Systems), and epichlorohydrin, using the EPICEROL[®] process (in France and Thailand).
- Making progress in strongly growing countries (China, India, South Korea, etc.) especially in specialty activities: special polymers, pharmaceutical products and fluorinated specialties.



3

Technologically innovative fields with sustainable growth potential

Strategy

- Bringing together innovation and sustainable development, particularly in order to enter market segments with high and growing added value.
- Developing skills and collaborative ventures so as to investigate and exploit emerging opportunities.
- Ensuring our Future Businesses Competence Centre is focused on contributions to sustainable development.



With flexible screens and OLED lighting panels, etc., printed electronics is making dramatic applications possible.

Printed electronics is now advancing on all fronts, as it becomes possible to produce electronic components on an ever-wider variety of support materials. Such "organic" electronic systems will soon be mass-produced, at lower cost, on rotary printing presses; and the development of OLED lighting components is opening the way to very bright prospects. They are cheap to run and sparing in energy consumption, while providing gentle and diffuse illumination. We can expect to see them very soon on the ceilings of our homes.

OLED technology is also making it possible to produce display screens with higher light levels and greater contrast. Most important, though, is that they will be much thinner than the ones we are used to, with the promise of poster-size portable televisions and mobile phone screens that can be rolled up. New sectors establish emerging opportunities for sustainable activities with high added value (see also page 40).

Solvay has identified organic electronics and sustainable energy as potential growth areas, based on disruptive innovation. Both areas can contribute to sustainable growth with high added value.

The research program on materials for fuel cells is a mainstream component of the sustainable development prospect. In particular, the investigations relate to increasing the reliability and reducing the cost of the membrane-electrode assemblies at the heart of the fuel cell. Radically new concepts for fuel cells are being explored in collaboration with partners in France, the UK and Germany. In this connection, Solvicore (a 50/50 joint venture between Solvay and Umicore) and Michelin have combined their efforts to develop a fuel-cell system for the HyLight 2 concept vehicle designed by Michelin and presented at the Challenge Bibendum event in Shanghai in November 2007 (see page 40). The developments in organic photovoltaic cells complete the platform on sustainable energies.

The synthesis of organic materials and the formulation of ink intended for printed electronic

devices in replacement of silicium-based components, forms the second platform of our "Future Businesses" Competence Centre. In this framework, Solvay, Solvay Solexis and Thin Film Electronics ASA (of Norway) have pooled their efforts to optimize ferroelectric materials in order to obtain higher performance from thin-layer printed electronic memories.

Solvay is involved, through research contracts with Georgia Institute of Technology (USA) and a significant investment in the company Plextronics, with research aimed at greatly reducing the cost of solar cells, by replacing systems based on crystalline silicon with organic cells. The collaboration is also concerned with developing displays using organic light-emitting diodes (OLEDs).

We are currently developing new applications for products from our Chemicals and Plastics sectors: In health-related fields, biomaterials and medical equipment, products for disinfection, hygiene and cosmetic purposes, protective products for human and animal nutrition have been assessed as part of the monitoring and risk management provisions specific to these markets. In the field of micro- and nano-particles, NANOVIN® is a PVC specialty containing particles that modify the product's viscosity. Possible applications in the pre-marketing stage are motor vehicle bodywork and artificial leather.

Application of the NOVOSOL[®] process to cleanse sediment contaminated by heavy metals and/or organic compounds (oils, pesticides, etc.) that has been dredged from waterways has now proceeded beyond the pilot stage. This is an outstanding example of an approach to industrial ecology, with recycling and the production of "secondary" raw materials. Two industrial projects are currently planned: one to treat sediments in Wallonia (southern Belgium) and the other in the industrial harbour of Venice (Italy), each for about one million tonnes of contaminated sediments (see page 55)





Fuel cells

At the beginnning of 2006, during a research seminar held by Solvay Solexis in Bollate (Italy), Jacques van Rijckevorsel, General Manager of the Plastics Sector drove the first urban car powered by a fuel cell engine. in the presence of the project team.

Two major challenges for the pharmaceutical industry: greater safety and therapies that are more personalized

There is an ever-increasing demand for more data and a trend towards having to demonstrate the safety and benefit of any new medicinal product when compared with an existing medication rather than a placebo; such as the strengthened regulatory requirements for the safety of pharmaceutical products.

The need for volunteers to participate in clinical trials will therefore increase. While the pharmaceutical industry's R&D spending has tripled over the past 10 years, the number of marketing authorizations for new compounds has fallen, obliging the industry to increase still further its efforts in research and innovation. At the same time, the move towards treatments that are more targeted, bringing together diagnosis and personalized therapy, is leading to the development of niche drugs rather than "blockbusters". Meanwhile, from a global perspective, there remains a need to respond to many medical conditions that are still waiting for effective treatments, but where development receives inadequate finance.



Innovation Trophy 2006, an excellent vintage !

Quantity and Quality: There were 312 proposals, collected from a total of 1,381 employees, in the final round in the six categories for the 2006 Trophy.



Targets for 2012

Protecting the atmosphere

Developing membranes for hydrogen-powered fuel cells to drive electric motors

Technical validation of water-based anti-corrosion paints that do not release any volatile organic compounds, using the polymer PVDC (polyvinylidene chloride).

Protecting water

Extending the lifetime (to at least 50 years) for PVC pipes replacing traditional materials (cast iron and other metals, concrete, etc.) for water supply and sewage pipes (PipeLife).

Developing new services in pipes and fittings made of polymers: for cleansing/treatment, recycling, separation of fats, in domestic waste water treatment.

Lifespans

Developing products that are more durable and have a higher service temperature (e.g. HYFLON® MFA polymer resins).

Health & hygiene

Developing applications and extending the markets for peracetic acid, as a disinfectant leaving no residue, for sterilization in the food processing and pharmaceutical industries.

Contributing to biomaterials with medical applications, specifically implantable devices, using a new polymer family (SOLVIVA™).

Energy

Developing organic compounds for printed electronic devices in collaboration with scientific institutes, universities and start-up companies that are able to respond very rapidly to technological developments, e.g. GeorgiaTech, EPFL and Plextronics.

Acquiring expertise through participation in specialist risk capital companies, acquisitions and joint ventures.





Control of critical and financial risks, anticipation of crisis situations

Strategy

- Making risk management a key area of competence serving an entrepreneurial approach.
- Making risk assessment and risk management routine in order to allow a controlled approach to taking business risks.
- Managing policy on the insurance of catastrophic risk.
- Managing crisis communication with adapted policies and tools.

Risk management in Solvay : 10 categories

- 1. Markets and growth strategic risk
- 2. Supply chain risks and risk attached to production units
- 3. Regulatory, political and legal risk
- 4. Corporate governance and risks attached to internal procedures
- 5. Financial risk
- Product risk
- 7. Risk to people
- 8. Environmental risk
- 9. Information and IT risk
- 10. Reputational risk

A general overview of risk types and of how Solvay manages them can be found in the Annual Report, accessible at solvay.com

Nano-materials: new applications and control of the associated risks

There is a network enabling a cross-fertilization of ideas between all of the Business Units and Competence Centres that are involved in studying micro- and nano-materials.

Combining these areas of expertise opens up the possibility of new applications that are sustainable for the company and for society. In the context of product assessment policy, the experts in health and environmental questions are undertaking investigations to anticipate possible adverse effects.

Solvay also participates in research and discussions relating to nanotechnologies by being associated with studies on determining parameters regarding health and environmental impact. These investigations are taking place in various countries: the Record study in France, Nanocare in Germany and Belspo as the Belgian branch of the European S2Nano project ; also in various workgroups within ECETOC(*) and CEFIC(**). This includes the setting of guidelines for the assessment of the potential impacts of nano-materials.

(*) ECETOC = European Centre for Ecotoxicology & Toxicology of Chemicals (**) CEFIC = European Chemical Industry Council **Risk management is now an integral part of our policy, applied routinely when deciding** on strategy, on strategic business decisions and on activities of a more everyday nature. For this purpose, Solvay makes use of a model comprising 10 categories of risks. The aim is to identify, quantify, assess and manage risks related to existing activities, and to anticipate effects on our portfolio of activities. Our Risk Management Competence Centre, attached to the Financial Management, uses this to decide on strategies, develop appropriate tools and provide back-up for a more systematic management of risks.

As part of this approach, each of the Strategic Business Units carried out a comprehensive analysis of its own critical risks in 2007, looking especially at those that could be considered

strategic. This management of risks has facilitated the realization of major investment projects. The process has also been used to assess critical risks associated with new applications of chemical and plastics specialties, particularly in the field of human health or for the micro- and nano-materials previously described.

The risks are covered by insurance arrangements where such a solution is the best from a business perspective. This is, of course, the case where such cover is mandatory. New possibilities for insurance cover are constantly being analyzed.

In the pharmaceutical area, insuring against public liability risks is difficult given the wide range of possible outcomes. The answer is to insure those risks for which this is mandatory, and to identify when insurance represents the best solution from an economic viewpoint.

At the end of 2007, the Group's provisions for health, safety and the environment amounted to 417 million EUR (422 million at end-2006). Provisions cover in particular the risks and charges associated with mineral extraction to obtain our raw materials (limestone, salt, fluorspar, barium-strontium, etc.), the growing restrictions relating to disposal or treatment of waste products and, more generally, the risks resulting from the present – or past - management of our manufacturing sites.

There is a specific policy, including appropriate resources, to anticipate and prepare for crisis situations, and this includes provision for crisis-related communication



Solvay is a member of the Global Business Coalition (GBC) on AIDS, and takes this into account particularly when considering its investment projects in countries where this risk is significant.





Effective anticipation and management of crisis situations

A crisis is defined as "any unexpected and serious situation, either internal or external, directly or indirectly involving the Group, and requiring immediate decisions and action".

The crisis management systems have four objectives:

- being prepared, through management principles, alerts and protective measures, for the emergence of crisis situations;
- preparing teams to respond rapidly and effectively, by providing them with a crisis-management plan, methods and procedures that are clear and can be understood by everyone;
- maintaining (tele)communications equipment that will be reliable in any crisis situation, and carrying out regular training and awareness-raising measures;
- ensuring that it is possible at all times to draw instantly on the necessary abilities and skills, in terms of both individuals and collectively.

The requirement is for each management unit to be able to manage the situation at its own level as autonomously as possible, right from the start; learn from the experience; and improve its procedures and arrangements for the future. Each management unit and each site has its own organizational arrangements depending on its own specific features and regulatory restrictions, and will thus act in accordance with a "subsidiarity" principle.

With regard to crisis communication, a Group policy applies to all the management units, requiring that SECOM, an international alert procedure, be applied. This lays down general principles serving to establish common methods of acting and requirements throughout the Group. The procedure relates to management of communication for any type of crisis that could involve the Group's activities, reputation, staff or customers.

Risk management in relation to a human pandemic of avian flu

Avian Influenza Risk working groups have been established at various levels of the Group (Regions and SBUs), coordinated by a central Solvay Global Pandemic Preparedness Project Team. The coordinating body includes representatives from Solvay's three Sectors and the relevant Competence Centres.

The World Health Organization considers that the risk of a worldwide pandemic of human flu originating from the H5N1 avian flu cannot be discounted. The Project Team's task is to prepare Solvay for this eventuality, anticipate the real consequences (in terms of illnesses, absenteeism, site safety and security, supplies, production, repatriation of families, deliveries, logistical and information support), and coordinate the action taken by each of the Group's management entity in this area. A budget has been allocated to obtain the necessary means of protection, and ways of proceeding have been suggested to each management unit, so that they can establish practical health protection of an appropriate scale, together with a plan for business continuity.

Targets for 2012

- Assessing the critical risks in the 10 categories for each new business opportunity.
- Making risk management a routine procedure in the 10 risk categories.
- Making each manager aware of the main risks within that person's area of responsibility, and of the risk control measures taken.
- Ensuring that Solvay is a company recognized for its expertise in risk management.



Reference tools on crisis management are at the disposal of communicators to help them to prepare for the management of a crisis situation:

- Crisis communication process.
- 12 essential reflex actions in the event of a crisis.
- Crisis communication Toolkit.
- Crisis SECOM alert process.
- Crisis "passport" (manual for the first moments of management of the situation).
- Intranet site for crisis management and communication.
- Database of essential basic information in the event of a crisis.



Sustainability criteria in strategic decision-making

Strategy

- Analyzing from the perspective of social, economic and environmental sustainability any strategic decision for investment, for the direction to be taken by the activity portfolio or for management of the existing activities; ascertaining stakeholders' expectations.
- Applying, for this analysis, an approach using the Matrix 5x5 that has been adopted, together with the associated tools such as lifecycle analysis and Solvay Sustainability Screening.

A broader vision: managing the complexity of the challenges of sustainability requires the integration of a systemic dimension into the analysis

Looking at the choice of packaging for a product, or the expenditure on fuel to transport it, has to take account of the "full picture" of the product's added value, including when the product is consumed far away from where it was manufactured, and has thus been transported over a long distance. Tools are there to help to take into account the "full picture".

Meanwhile, it is rather unrealistic to imagine a single medical examination that would diagnose everything, and it is similarly unrealistic to think that one single method, one single and universal reference tool, could unequivocally assess all the products and practices in respect of social, economic and environmental sustainability. Lifecycle assessments, "ecobalances", carbon-footprint assessments are tools that can answer specific questions: comparing glass and plastic for a packaging application, ethanol and bio-diesel as a fuel, etc.

These analytical tools should be put into the perspective of a more systemic approach: All elements are in irreductible interactions. Specific tools are necessary to really put these interactions in sustainability issues into their global perspective.

Furthermore, sustainability assessments necessitate taking a long-term view. While some aspects of the future can be foreseen, other aspects are not predictable and cannot be expected to conform to «business as usual». For example, when investigating the future and the sustainability of a product or an application, it is difficult to single out how the markets will change, or what might be the evolution of road or intercontinental transport as a result of energy costs and/or of the constraints linked to climate change policies. It is therefore necessary to consider a variety of scenarios involving very different possible socio-economic developments. The framework intended to guide the Sustainable development strategy for all the Group's management units was decided in 2007. The Matrix 5x5 and the associated analysis tools should progressively help provide a real vision of how sustainable the various business processes and projects are.

For many years Solvay has carried out – or contributed to - lifecycle analyses of many of its products, in collaboration with specialist bodies. These analyses make it possible to compare the performance of different products and to assess what contribution they make to sustainability in their applications.

In late 2007, the Strategic Business Units and Competence Centres began a more thorough and systematic analysis of the sustainability of all the Group's activities. The aim was to test the methods and establish a baseline assessment of the long-term sustainability challenges specific to each activity and the corresponding markets.

The management units should constantly look at the challenges of sustainability more deeply, through dialogue within those units and in collaboration with their direct stakeholders, particularly their customers and suppliers to anticipate their constraints and requirements. These discussions could relate to changing restrictions or to developments in markets, including constraints in relation to materials (natural resources, energy, transport, and operating permits etc.) or resulting from new regulations. On this basis, objectives are chosen and associated to appropriate indicators.

Strategic projects are and will continue to be screened, notably by using Solvay Sustainability Screening ("S³"). This tool, developed internally and validated by TNO (Dutch Organization for Applied Scientific Research), uses a very detailed questionnaire (180 questions) to draw up a semiquantitative assessment of the sustainability of a specific application or product, by looking beyond the environmental impact of the product's lifecycle and taking social aspects into consideration. This assessment, possibly completed with other analysis using further tools (ecobalance, for example) are used to decide between alternative investments

Targets for 2012

- Using the sustainability assessment tools (*) validated by the Group* for 100% of significant planned innovations or acquisitions, and carrying out the assessments jointly in the cases of partnership projects.
- Using the sustainability assessment tools (*) and environmental impact indicators validated by the Group in making policy decisions and deciding budgets, for 100% of important investment plans.

(*) Matrix 5x5, Solvay Sustainability Screening (S³), and Umberto lifecycle analysis model from IFEU, Heidelberg.



Up for discussion

Geographical expansion and outsourcing of European employment



"In order to be sustainable, the Group must, of course, adjust to economic and business realities. Since it announced that it was seeking strong growth in order to rapidly increase its sales value, a lot of questions have arisen: in particular, which continent should be favored? And what about financial practices which, by concentrating the profits while diluting the risks widely in society in general – neglecting the principle of responsibility – are encouraging the development of a crisis, which could amount to a worldwide pandemic?

Giving complete power to an extreme free-market economic environment where the only thing that counts is the financial results demanded of companies would have a devastating effect on many of Solvay's existing production sites.

From this perspective, we must protect employment in the old-industrialized countries. It is essential to rapidly establish conditions that will limit delocalization. The fact is that, with the rising prices of petroleum and foodstuffs, the dramatic fall in the dollar and very probable financial and economic crisis in the United States, the clouds are piling up overhead – and there will be a very real price to pay!

We are therefore counting on the Group to find a new tack in Europe, through innovative technologies and products, making up for the job losses that result from the existence of lower wages in other parts of the world. We are also asking for a heartfelt attachment in all countries to common values and an equally heartfelt attachment to a uniform policy of sustainable development that really applies to all three 'pillars' of the Group's economic, social and environmental matters. There cannot be differences between countries or between world regions in working conditions or in compliance with environmental rules.

In addition, we must avoid making decisions that are insulated from the local circumstances. It is important to take account of this in projects such as the decentralization to Portugal of internal services for management activities and widening the range of countries from which we purchase goods and services. Initiatives that save trivial sums for the Group as a whole could significantly damage the economy of a community in the vicinity of one of our production sites. Extreme delocalization policies would also go against the social responsibility commitments proclaimed by the Group. There is therefore a need to find the right balance in each case.

Our European Works Council is at the centre of these interesting discussions; and how the Sustainable Development concept can be incorporated into plans for the future will provide evidence of success for the Group and its employees."

Noël Tritz

Secretary of Solvay's European Works Council



Berezniki - Urals, Russia

Syracuse - USA

Panoli - Gujarat, India

A long history, from the initial international expansion in Syracuse and Berezniki in the XIXth century, up to the recent acquisition of a plant in Panoli, where the high-performance polymer KETASPIRE[®] (polyetheretherketone), is being produced.

Searching for alternatives to fossil fuels

Non-recyclable residues as fuel for a power station in Bernburg (Germany)

By building a power station fuelled by the non-recycled high-energy part of waste materials, Solvay and its partner, Tönsmeier, are among the first to adopt the EU's new approach to managing waste products.

The power station, at the Bernburg plant in Germany, will produce both electricity and heat, in the form of steam, for the production of sodium carbonate.

The waste materials, called Refuse-Derived Fuels, comprise a non-recyclable mixture of plastics, wood waste from furniture and buildings, textiles, paper and cardboard. These fuels can replace and economize on fossil fuels, thus reducing CO₂ emissions. In addition, if put into landfill, part of the mixture could undergo fermentation and release methane, which has a potential greenhouse effect 20 times that of CO₂.

Construction of the plant began in April 2008, and it is planned to enter service in the spring of 2010. A similar project for Solvay's Rheinberg (Germany) site has been decided.



Use of biomass to fuel a power station at the Tavaux (France) plant

Solvay and the energy engineering company Dalkia are considering co-producing both electricity (20-30 MW) and heat (50 tonnes/h of steam) by burning biomass waste.

The project now adopted arose from a call for tenders by the French government. The energy in the form of steam will be used for our chemicals and plastics production, with surplus electricity fed into the public grid. The unit will consume 280 000 tonnes a year of biomass: 45% from agricultural and food processing waste, 4% from the growth of dedicated species and 51% from fallen branches. The biomass will be brought by train, or by lorry where distances of under 100 km are involved. The project will have a capital cost of 60 million EUR and create 50 jobs. It will result in the setting up a full regional supply chain for biomass.

With regard to the environment, in addition to the CO₂ emissions avoided, the project will help derive value from local energy resources and assist forest maintenance. The possibility of exploiting the combustion ash for soil enrichment is being studied.





Wind power, nuclear, hydroelectric, geothermal, solar, biofuels and recycling: Alternatives to fossil fuels as energy sources have to be taken into account.



PVC made from sugar and salt in Brazil

27

Solvay Indupa in Brazil will soon have an integrated ethylene production plant that uses ethanol derived from sugar cane. Ethylene is one of the two main raw materials for PVC.

Santo André will thus become the first site in Brazil producing PVC from renewable resources: an innovation avoiding large quantities of CO₂ emissions.





Biodiesel by-product as a raw material for polyester resins

The new EPICEROL[™] technology produces epichlorohydrin, a raw material for polyester resins, from glycerol, a by-product from biodiesel production using rapeseed. The technology improves the overall lifecycle balances both of polyester resins and of biodiesel.

More efficient than the technology previously used to produce epichlorohydrin, the new process reduces chlorinated residues eightfold and water consumption tenfold. Solvay has applied for 22 patents for the new Epicerol new technology. The main uses of epichlorohydrin includes the production of epoxy resins used

in cars, boats and planes, wind power plants, water purification products, and paper strengthening.

This process has received several environmental awards in France, the UK and Canada.





Taking more account of society's expectations

Widened citizenship responsibilities Global ecological footprint of our activities Products protecting the environment and meeting essential needs New solutions to protect health and the environment Education, training, employability of young people

The situation as seen by an ecologist

"

Industry wishes to operate in an environment where things are reasonably predictable; that is understandable. I think it is wholly in industry's interest to cooperate with the world of politics to establish the ground rules. Living as part of society means accepting the restrictions imposed by regulations and incentives. Without regulations, it is the bad players and those who are slow to act who win! So, finding new ways for firms and politicians to cooperate presupposes a long-term view and a common interest.

The development model we need to find is no longer that of the 19th and 20th centuries; we need to adopt a model that takes full account of environmental and social effects. It is clear that, while industry is undoubtedly an important factor posing a threat to the environment, it is also a means to achieving a more sustainable development mode for the present and future generations. Unfortunately, the technologies for sustainable development remain, in Europe, a field that is still at a rather embryonic stage. In order to seize the chance to gain a business advantage from them, we need to move quickly; the rest of the world will not wait for us.

The problem is that many quoted companies have the sole objective of profit in the very short term, for the benefit of a single stakeholder, the shareholders. Such a firm's rationale is then exclusively financial, unconnected with the real economic situation. It is nonsense that results in unacceptable inequalities being created, with a tiny minority cornering a growing proportion of our planet's wealth.

If there is one thing I request of Solvay, it is to stand up and be counted. It is important that firms, which take account of the long term and the variety of milieux in which they live, take part in public discussions on sustainability, as it is in everyone's interest for our mode of development to become more sustainable.

However, we cannot limit ourselves to encouraging Corporate Social Responsibility by firms, which would amount to saying 'We trust their altruism, as a response to the social and environmental challenges we face,...', in other words trusting something that is not one of a company's objectives. Too often, that is a convenient excuse for governmental authorities, who thus relieve themselves of their responsibilities. Rather than an environment where freedom of choice rules, I still prefer the rule of law, with its restrictions and its incentives. It has the merit of putting firms on an equal footing in managing their social responsibilities.

We, the Greens, intend to stand resolutely together with our fellowcitizens – and not just here and now: a democratic and sustainable European society cannot develop at the expense of living conditions for our fellow citizens in other parts of the world.





Philippe Lamberts, Spokesperson for the European Green Party

"It is important for firms to take part in public discussions on sustainability, as it is in everyone's interest for our mode of development to become more sustainable."

Taking more account of society's expectations **Our key activities**

Society

Practicing

citizenship beyond our contributing to scientific knowledge



• Taking account of the overall eco-efficiency(*) via lifecycle, or "ecobalance", analyses of our products, which generally address fundamental needs (automotive, building and health industry, etc).

- Seeking new products with improved eco-performance and making use of manufacturing technologies that are less polluting for products serving sectors that increasingly strive for improved sustainability - notably for the automotive building and health industry.
- · Optimizing the transport of our products by locating as far as possible production plants for heavy chemicals close to their raw materials, their markets or close to waterways. and seeking realistic alternatives to road transport.
- Improving the energy efficiency of our production processes and reducing emissions of greenhouse gases, notably through the use of co-generation units, research to find alternative (i.e. non-fossil) energy sources (e.g. biomass and bioethanol), the development of treatment and recycling arrangements for fluorinated products at the end of their life.
- · Helping define and adopting Best Available Techniques (BATs) for production activities, valid for Europe as a whole, and progressively applying them to units outside Europe.
- · Action in scientific education and employability, notably a project to train young people in need of occupational training, and receive them at a large number of our production sites, and sharing knowledge and experience with our peers, public sector bodies and society in general.
- (*) as defined by the World Business Council for Sustainable Development, see "Customers" page 45.

Progress in meeting 2005-2008 targets

Productic	n targets				
Carry out new	energy audits in sites to identify additional possibilities for saving energy				
Establish new	cogeneration units where the economics and energy requirements make this feasible				
Increase the r	euse of our manufacturing waste products				
Seek further p	Seek further possibilities for combining road and rail transport				
Carry out app	raisals assessing PVC additives, as part of the Vinyl 2010 program				
	liance with the European programme for drawing up Best Available Technique (BAT) reference documents, egrated Pollution Prevention and Control (IPPC)				
Product t	argets				
Air	Fuel cell for "clean" cars: Industrial feasibility studies to be carried out				
	NEUTREC® technology for the treatment of smoke from waste incinerators: Equipping new units, and strengthening position as a reference-standard technology				
	Vehicle fuel systems, accommodating restrictions on the evaporation of volatile organic compounds in the USA, and upcoming standards in Europe: Extending the markets				
Water	Use of the oxidizing power of hydrogen peroxide: Enlarging the range of uses by reducing production costs, in bleaching, water treatment and recycling, de-inking, in the textile and paper-making industry				
	Ultrafiltration membranes for purification and potabilization of water: Developing the markets for our sulfone resins				
Waste products	Residues from smoke-cleansing at household waste incinerators: Starting up an industrial unit to reuse them				
	BICARJET® process for renovation of building façades: Developing the markets				
Soils	NOVOSOL® process to reuse contaminated dredged slurry: Launch on an industrial scale				
Health	Gentle anti-louse biocide based on sodium bicarbonate, for veterinary and human use: Developing new applications				

2008 target achieved In progress

Not achieved

Reducing

the global ecological footprint of our production and supply chain activities

Bringing

products and services preserving environment & health, enhancing global well-being and serving essential needs

Designing

new products and solutions preserving environment & health, enhancing global well-being, serving essential needs

Contributing

to education, training and employment of young people

"My driving within the 90 kilometres an hour speed limit is not the result of practising philosophy for 30 years! Three penalty points on my driving licence have produced a philosopher - who is not the worst - in obeying the law. This means that it depends on you and me as citizens, and not as moral beings, for the greenhouse effect to diminish, but this necessarily involves politics, the law and restrictions."

André Comte-Sponville, at the Sustainable Development Seminar of Solvay's European Works Council, 2005

... it depends on you and me as citizens, and not as moral beings, for the greenhouse effect to diminish....

Networking with society

In 2007, Christian Jourquin, Chairman of the Executive Committee of Solvay was invited to take part in the Council meeting in Vienna. Mr Jourquin emphasized there the importance of a dialogue with the whole of society to give direction to science, industrial activity and innovation.

With this in mind, Solvay regularly supports initiatives aimed at generating a better understanding of science: educational projects, exhibitions, etc. The "Chemistry Essential to Life" program supports players in the academic and scientific world who provide the public, governmental authorities, NGOs and consumer associations with a better knowledge and understanding of chemistry, its products and the challenges it presents. Solvay, for example also supported symposia about toxicological risk assessments organized in 2005 by Professors Giavini and Galli from the Università degli Studi di Milano and both in 2007 and 2008 by the Belgian Society of Toxicology.



Solvay is very proud that two of its employees are amongst the members of the Intergovernmental Panel on Climate Change (IPCC), which was collectively awarded the 2007 Nobel Peace Prize, jointly to Al Gore. Frans Grunchard, formerly employed in Solvay's Chemicals Sector in Brussels, and Ewald Preisegger, of Solvay Fluor in Hanover, contributed to the Panel's work through the European Fluorocarbons Technical Committee (EFCTC) and the award recognized their work.

This also presents an opportunity to stress the important scientific contribution made by James Franklin, another of the Group's former employees, and a renowned international expert in the climate field. He has, in particular, distinguished himself as part of the Alternative Fluorocarbons Environmental Acceptability Study (AFEAS), an international project that was able to eliminate speedily the use of CFCs, which were destroying the ozone layer.

Products that meet fundamental needs and economize on resources

Strategy

- Exploiting to the full our activities and skills in markets that meet fundamental needs - health and hygiene, mobility and transport, housing, etc. - or are related to protecting natural resources and the environment.
- Developing new applications serving health and the environment, in collaboration with our customers, where such applications are in line with our business strategy for the relevant markets.



Specialty products - which is a developing area for Solvay - are helping to improve sustainability in many sectors. They assist progress in the areas of safety, the environment and energy savings, through their enhanced technical performance, such as resistance to temperature, wear, pressure and corrosion.

In the Plastics Sector, Inergy Automotive Systems' fuel tanks are helping to reduce the weight of vehicles and their emissions. PipeLife's systems for the supply of drinking water and the removal of waste water are helping to manage water resources. Among recent developments related to sustainability are SOLVIVA[™]'s biomaterials for implantable medical devices, new TECHNOFLON®-range polymers for the energy, semiconductor and motor vehicle sectors, and the new HYFLON® family of resins that increase the safety and water-tightness of equipments, notably in the food processing industry.

"Essential" chemicals are also playing a part in the move to technologies that are less polluting: Hydrogen peroxide, for which Solvay is the world's largest producer, is finding increasing applications as an oxidizing agent in the removal of pollution from effluents in a number of industries, and has to a great extent replaced gaseous chlorine as a bleaching agent (notably for textiles and paper). In addition, a new hydrogen peroxide plant of very large capacity, (230 kilotonnes/year), is under construction at Antwerp (Belgium), and one of 330 kilotonnes/year is planned for Thailand, in partnership with Dow for cleaner production of propylene oxide, an intermediate in the manufacture of polyurethane insulating foams.

In fluorinated fluids, Solvay's HFCs have helped to replace rapidly CFCs and H-CFCs, which destroy the ozone layer whereas the HFCs have no effect on the ozone layer. Also, their climate-warming potential is generally lower than that of the CFCs they are replacing. HFCs are energy-efficient over the entire life cycle of their applications, and often perform better than the alternatives in the areas of climate impact, safety and health

Targets for 2012

Targets are related to a variety of products serving environmental protection (see page 30).

Solvay Pharmaceuticals' products are aimed at patients suffering from serious diseases.

They include CREON®, to treat cystic fibrosis, and DUODOPA®, for the treatment of Parkinson's disease. There is also MARINOL®, used to counter the nausea associated with anti-cancer medication and the anorexia associated with AIDS. Fenofibrate (TRICOR®) and TEVETEN® are used to treat cardiometabolic disorders while OMARCOR®, a product developed by Pronova Biocare Norway, contains high-purity, high-concentration Omega-3s, which reduce the risk of repeat myocardial infarction. In addition, hormone replacement therapies treat disorders associated with menopause such as osteoporosis, and andropause (ANDROGEL®).

The case of fuel cells

SolviCore, a joint venture between Umicore and Solvay, is concerned with the development, production and marketing of membrane-electrode assemblies and allied products for fuel-cell applications. These cells produce electrical energy by catalytic conversion of a fuel (hydrogen or methanol, etc.) which reacts with oxygen.

Four of the Solvay Pharmaceuticals' treatment categories fall within the World Health Organization's eight priority challenges

- 1. Infections and resistance to antibacterial drugs
- 2. Pandemic influenza
- 3. Smoking cessation
- 4. Cardiovascular disease (secondary prevention)
- 5. Diabetes (Types 1 and 2)
- 6. Cancer
- 7. Myocardial infarction
- 8. HIV/AIDS

Source: Essential Drugs and Medicines Policy, World Health Organization, Nov. 2004




Efficient transport of our products

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Strategy

- Locating production plants for heavy chemicals close to their raw materials, their markets or to waterways.
- Seeking realistic alternatives to road transport; making use of pipeline transport.





Targets for 2012-2020

- Reducing by 20% (in tonnes-km) the share accounted for by road among transport of our products in Europe (= achieving 50% for non-road transport) between 2006 and 2020.
- Reducing by 2020 over 30% the overall energy intensity of our vehicle fleet.

Combining a variety of production units at a single site allows optimal flows of materials to our main Chemicals and Plastics production activities, while facilitating the recycling of materials (which meets the requirements of industrial ecology) and reduced transport of hazardous substances. However, with the development of new markets involving distant locations with poor transport facilities (e.g. Russia), the transport of products is increasing.

Solvay transports large quantities of finished products – over 10 million tonnes a year in Europe alone – of which about half are products classified as hazardous. A large proportion of our raw materials (notably ethylene and brine) is supplied by pipeline networks.

Our transport policy aims to replace road transport by rail and waterways in Europe wherever this is physically possible and cost-effective. In particular, this is the case for substances that are panderous: soda ash, salt, PVC, caustic soda and peroxide products.

Alternatives to road have been adopted where feasible, classified into account constraints of cost, deadlines and timing, particularly for substances classified as hazardous. Besides, starting in 2001, 300 containers of SolVin PVC are sent by rail from France, Belgium or Germany to Italy, amounting to 90,000 tonnes a year no longer crossing the Alps by road. There is a new Solvay port on the Rhine River, serving the Rheinberg plant in Germany; this will be used primarily for transporting caustic soda, thus reducing road transport

Up for discussion

Alternatives to road for transporting our products? Not always easy !



Most of the transport is carried out by road, which has historically been, and remains, the most flexible mode of transport and the one that is most reliable for meeting our customers' requirements. Establishing local production facilities, such as our planned Rusvinyl PVC plant in Russia, is one way to limit the growing volume of goods transport.

We are, however, seeking and using alternatives to road transport wherever such possibilities are available and suitable, taking into account requirements in terms of cost, deadlines and timing. Rail

and waterway transport, for example, are alternatives worth investigating for materials regularly transported in large volumes: limestone, coal, caustic soda, sodium carbonate, etc. Unfortunately, however, these modes of transport generally perform less well, are less flexible and cannot respond as readily to changes. One alternative to road transport that is potentially very attractive is multimodal arrangements. There is certainly a bright future for such transport arrangements but they require that customers do not demand just-in-time deliveries, but choose to receive regular supplies. Even more important is that the rail and/ or waterway networks are sufficiently developed and perform to a satisfactory standard; currently, this is far from being the case.

Alain Avau,

Logistics Manager for the Chemicals Sector



Strategy

- Improving energy efficiency of our activities by realistic solutions compatible with the energy needs of a primary industry.
- Diversifying energy sources and making use of alternatives to fossil fuels wherever they are sustainable in ecological, economic, industrial and social terms.
- Helping develop arrangements for the recycling or destruction at the end of their life, for those of our products that have a potential greenhouse effect.

Energy consumption Terajoules			
	2005	2006	2007
Coal	42 952	46 300	46 388
Oil	1 379	872	512
Natural gas	41 905	38 458	40 089
Hydrogen	3 046	3 363	3 346
Waste	184	308	500
Other fuels	1 710	1 709	1 662
Electricity	27 193	26 548	27 471
Steam purchased	22 637	22 573	22 401

	Direct emission of greenhouse gases From our production units, kilotonnes CO ₂ equivalents		
	2005	2006	2007
CO2	8 683	8 550	8 548
CH ₄	380	382	539
SF ₆	239	239	123
N ₂ O	7	7	13
Other PFC	15	15	22
HFC 23	767	559	510
HFC 125	3	12	12
HFC 134a	32	13	19
HFC 227ea	19	16	22
HFC 143a	14	32	19
Other HFC	2	2	1

Total energy consumption Terajoules The stable energy consumption has occurred against a background of rising production and sales value.

2005 2006 2007





* indirect emissions : CO₂ emissions associated with the production of the purchased energy

Our energy consumption is stable, whereas our production is growing. The energy consumption – and content (polymers) - for some of our-large volume products is large by nature.

Developing long-lasting solutions regarding energy supply is a constant concern. This can be in the form of heavy investments or as partnerships or contractual arrangements extending over a long period.

Our production processes are improved by applying new technologies. As an example, the progressive introduction of new electrolysis units using membrane technology to produce chlorine and caustic soda allows electricity savings of up to 18%. This technology now accounts for 45% of our installed capacity.

A lot of very efficient steam-and-electricity cogeneration units have been established starting in the 1990s, very often in partnership with power generation companies. So far, these partnerships have enabled the electricity producers and Solvay together to avoid about 20% of CO₂ emissions.

Energy audits are in progress in those of our plants where consumption is greatest. While there remains scope for further savings, primarily by further recycling, they are limited by the thermodynamic constraints of chemical processes.

In terms of emissions of ozone-depleting substances, very large reductions have been obtained in our plants, corresponding to the requirements of the Montreal Protocol, and will ultimately lead to their total elimination.

We are also working in a number of countries to encourage the introduction of electricity production based on wind or photovoltaic generation.

Production facilities that use non-oil raw materials are being established: There is a project taking place in Brazil to use bioethanol, partially replacing ethylene as the starting material for PVC production, without competing with the food supply chain. In addition, there are plans for the construction of a second industrial unit using the new Epicerol process to produce epichlorohydrin, using residues from the biodiesel industry as raw material.

In order to treat and recycle fluorinated by-products from the manufacture of fluorocarbons (HFCs), Solvay Fluor has developed a high-temperature technology which destroys them and recycles the hydrofluoric acid stemming from this process. The process treats the by-products of our production units of Bad Wimpfen (in Germany) and Spinetta (in Italy). From 2000 onwards, this has indeed enabled the various sites to reduce their emissions of HFCs, especially HFC 23 (-7000 kilotonnes CO₂ equivalent).







CFCs and HCFCs, eliminated because of their impact on the ozone layer at the end of their use by our customers (in refrigeration units for example) can also be treated in these installations. This could be done on a larger scale if effective means of collection were established by all the stakeholders.

The SF₆-ReUse recycling program, implemented in Europe in collaboration with the companies Linde and Dilo, has now been extended to the United States for customers that use sulphur hexafluoride, a gas needed industrially for electrical insulation (see "Customers" chapter) but with a high global warming potential

Large reduction in emissions of greenhouse gases from Solvay Indupa's PVC plant at Santo André (Brazil)

The Brazilian authorities have approved a change from fuel oil to natural gas as the energy source when Solvay Indupa's PVC production at Santo André is increased.

This will make it possible to reduce dramatically not only the CO_2 emissions, by nearly 44,000 tonnes a year, but also those of sulfur, by 99%, carbon monoxide by 90%, nitrogen oxides, and particulate matter. Carbon credits equivalent to five years' emissions have been obtained in connection with this project, in application of the Kyoto Protocol.



Various new projects to improve our energy performance, often in collaboration with industrial partners

- in **Germany**: exploiting the heat content of processed and selected industrial waste products with a high biomass content;
- in *France*: a cogeneration power station fuelled by biomass, such as wood waste;
- in Spain: a plan for a cogeneration unit based on a gas turbine combined with a heat-recovery boiler;
- in **Bulgaria**: modernization of the thermal power station, with installation of the most modern generators;
- in Italy and Germany: heat-recovery projects to supply urban district-heating schemes;
- In **Argentina**: a 165 MW combined-cycle power plant is being studied to supply electricity for our Bahia Blanca plant.

Targets for 2012-2020

- Reducing by 20% (*) greenhouse gases emissions (in CO₂ equivalent), both direct and indirect (through energy purchases), associated with our manufacturing between 2006 and 2020.
- Reducing by 20% (*) our total energy consumption between 2006 and 2020.
- Establishing energy diagnosis audits at 80% of our manufacturing sites and all our administrative sites.
- Reducing by 30% the emissions of ozone depleting substances from our production sites.
- Studying upstream integration for some energy sources in certain regions, with the aim to secure our energy supply.

(*) assuming comparable activity perimeter

Up to discussion

Gaining access to renewable energy sources and raw materials



"Moving to renewable resources is an intention which it is currently difficult for us to put into practice on a large scale, given that we come up against two major limitations.

The first is that for our production to be viable from a business perspective, we must be able to see energy prices over the long term, whereas there is current-

ly still great uncertainty over the markets for renewable materials.

The second limitation is that one of the conditions for this to be acceptable industrially – and, if necessary, politically – is the availability of a regular, sufficient and assured source of the renewables. The experience we have gained shows that such a prospect is still difficult to establish, in particular in contractual terms.

In addition, we must be certain that the alternative resource (wood, bioethanol, glycerol from biodiesel, waste products, etc.) is technologically compatible with the characteristics of our production processes, and with the traditional fuels."

Michel Bande,

Manager of the International Purchasing Division

Education, training and employability of young people

Strategy

- Receiving young people in training in the Group's production plants and other establishments.
- Supporting educational initiatives about science.

Scientists in numerous occupations

Scientists come in a great variety of forms, as children have clearly seen. Some resemble Merlin, the wizard of Celtic and Arthurian legends; others are more like Tintin's inventor friend, Professor Calculus. Meanwhile, Pasteur, with his vaccines, is an inspiration from real-life. Alongside those engaged in research and invention, however, there are dozens of other technical occupations that help convert laboratory discoveries into practical applications as goods and services contributing to well-being: engineers, pharmacists, technicians, plant operators and salespeople, etc. Such people are working away every day in workshops, offices and factories, where they manufacture, monitor, test, adjust and innovate. Their efforts provide the Earth's population with food, housing, clothes, personal care products, educational facilities, means of transport and entertainment, all of which enhance our lives. The simple fact is that nature alone cannot meet the needs of all six billion people who form the world's population, and its resources are not unlimited. As chemists, we find our science often faces criticism - sometimes rightly - and we take pride in the fact that it is now providing, and will continue tomorrow to provide, new solutions assisting the world's sustainable development.

Jacques de Gerlache - Toxicologist



Extract from the book "Dessine-moi un scientifique", 400 children's drawings of scientists, with comments. Editions Belin, 2007

Receiving young work-experience trainees and students is generally carried out in accordance with national or regional provisions. The expertise which is characteristic of the chemical and pharmaceutical industries means that these training periods provide trainees with experience that is appreciated as especially valuable.

The new Youth Employment Scheme program, introduced by Solvay and its European Works Council, is currently being established in Europe. It has the aim of encouraging the employability of young unemployed people living in the vicinity of our production sites, by offering them work experience in the Group's establishments.

With regard to educating people about science, Solvay contributes to a number of local initiatives (see "Local communities" chapter). In particular, Solvay finances a new "Science Bus" project in collaboration with the Royal Belgian Institute of Natural Sciences, and provides support for a program of the Belgian Federation for Chemistry and Life Sciences Industries (Essenscia), which provides lectures on science-related subjects for secondary schools

Targets for 2012

- Implementing and assessing the Youth Employment Scheme.
- Seeking a high quality of the training offered to students and trainees.

The Youth Employment Scheme program as an example of a local training initiative in Europe

The Executive Committee wished to give substance to the invitation extended to the members of the European Works Council in May 2006 to improving access for young people to employment in general, and particularly young people in difficulties.

The Youth Employment Scheme program of Solvay relates mainly to young people within the areas near our production sites. It also concerns the children and family of members of our staff, whether they are students, apprentices or undertaking work experience. The initiatives are aimed at compensating for the inadequate training the young people have received, or for their lack of employment experience.

The action is mainly in countries and regions where access to employment is particularly difficult. The projects are selected in agreement with the staff representatives, based on transparent and non-discriminatory criteria.

The first initiatives have been undertaken in the Iberian countries, Austria and Bulgaria.



Solvay North America supports **« essential₂life »**, a United States educational campaign devised by the American Chemical Council, showing that the chemical industry's activities are essential to the life of every individual. The importance of chemistry and the benefits that all of society gains from it are communicated by television, the Web, press articles, poster campaigns and word of mouth, from our employees.

Support the dissemination of scientific and technical knowledge

Strategy

- Giving selective support to institutions and initiatives related to scientific research, dissemination of knowledge and to making young people aware of science, technology and related occupations.
- Sharing knowledge and expertise related to control of physical and chemical risks.



Solvay contributed to the launch of GreenFacts. This is an independent association that publicize in various languages summaries for non-specialists of reports from international institutions on health and environmental matters, that are checked by independent scientists.

www.GreenFacts.org

Targets for 2012

Applying Solvay's policy on the use of laboratory animals throughout the Group and introducing ethical supervision of animal experiments by the Solvay Animal Care and Use Committee (SACUC).



Many studies are entrusted to research institutes of various countries and numerous dissertations and research papers are written in collaboration with institutes and universities. Through its employees, the Group supports or participates in initiatives such as GreenFacts, France's CNEEIC (Collège National d'Experts en Environnement de l'Industrie Chimique) and EUROTOX, the Federation of European Toxicologists and several national Societies of toxicology.

The Group has always supported the most fundamental scientific activities, in particular through the International Institutes of Physics and Chemistry founded by Ernest Solvay with, among others, in 2008 the creation of the Solvay Chair for chemistry, the guinguenal scientific prize Ernest-John Solvay, the Technological Innovation Chair at INSEAD (in Fontainebleau, France), the Francqui Chair at the Université de Bruxelles, Belgium, or the Fluor Chair at the Politecnico in Milan, Italy.

Solvay Pharmaceuticals participates in a variety of collaborative programs aimed at reducing the use of laboratory animals and, in 2007, Solvay adopted a general policy on the use of animals in this way. In this connection, an ethics committee, the Solvay Animal Care and Use Committee (SACUC), including outside members (notably university lecturers), was established to give ethical opinions on animal experiments and other scientific activities that make use of animals

For more than a century Solvay has supported international scientific projects for more than a century

These have included the study of biodiversity and rainforest canopy with the SolVin Bretzel (in Madagascar in 2001 and Panama in 2003) and with the Arbodôme (in the Santo 2006 expedition to the Vanuatu archipelago.

Solvay has also provided support to Belgium's scientific expeditions to Antarctica since 1896. We are now supporting the new Princess Elisabeth research station in Antarctica (see next page); this will be autonomous with regard to energy, with no impact on the climate («carbon-neutral»).







Helping reduce the use of laboratory animals

The "PVC rat" was created by René Remie (Laboratory animal scientist and welfare Officer of Solvay Pharmaceuticals) in the Netherlands and, with technical and financial support from the Group, is used for many years in the training of doctors and veterinarians who are learning microsurgery techniques. This has reduced this use of living animals by nearly 80%.



Dialogue with governmental authorities and contributing to regulatory developments

Strategy

- Providing our perspective, our data and our industrial and multinational expertise so as to ensure that regulatory developments are realistic, effective and balanced in three respects: economic, social and environmental.
- Promoting and protecting the Group's interests.
- Taking fuller account of the expectations of civil society and of the people who represent it, whether in politics or non-political groups.



When a plant finds itself in the spotlight...

In December 2006, a press article mentioned deaths from cancer that had occurred among retired staff who had previously worked in the electrolysis unit at Jemeppe (in Belgium) when that unit employed a process using mercury.

In particular, the article called into question exposure to that material, despite the fact that no medical authority – nor the European Union or the World Health Organization – recognizes mercury as a cause of cancer.

Solvay then held a number of meetings with employee representatives and company doctors, with the former also invited to visit another of the Group's plants, where the mercury process is still used. In addition, a dialogue was established with the health authorities.

Solvay applies a standard for exposure to mercury that is twice as strict as required by the law, and employees are subject to stringent health monitoring. As soon as a critical threshold is exceeded, corrective measures are taken. These include temporary removal of the worker(s) from that work location if necessary. At Jemeppe, the installations using mercury were replaced successively in 1992 and 2001 by equipment using a membrane technology. There are about 20 people in the Group responsible for dealings with governmental and public affairs. Some are in corporate offices and others in our regional outposts. Through their interaction with these authorities, they promote and protect the Group's interests, and help the Group understand what is expected by the regulatory bodies, governmental authorities and civil society.

Solvay has not entrusted the management of its governmental-liaison matters to an external consultancy. Such activities rely on an internal network of experts distributed among the various activity Sectors, Competence Centres and countries. These people act in accordance with their own areas of competence and knowledge; they provide information, engage in discussions, and defend the Group's interests, in accordance with transparency and compliance with regulations and ethical principles.

The Group develops and maintains relationships with the relevant governmental authorities through this network of experts and through trade federations (national, European or worldwide), also participating in various fora such as the European Roundtable and Business Europe. We assist in decision-making through the sharing of information, by making practical proposals and by insisting on the need for a long-term view to be taken, this being essential for a sustainable investment policy in heavy industry.

In addition, many of our staff take part in technical working groups, notably for commenting on draft regulation, setting up environmental best technologies, defining REACH application guidelines or safety standards for plastics materials. At the local level, Solvay's collaborators also ensure a constant dialogue with relevant public authorities.

The people responsible for governmental-liaison matters operate in accordance with the following principles:

- compliance with the Group's Values and Code of Conduct, and with the universal principles for the protection of human rights;
- transparency in all activities undertaken, the messages communicated and the reasons for them;
- a spirit of responsibility and professionalism in any action taken;
- political neutrality and courtesy;
- rejection of any action aimed at evading the application of laws or regulations

- Establishing direct and continuing discussions amounting to long-term collaboration with governmental authorities and other representatives of civil society, based on transparency, trust and mutual benefit.
- Identifying the most competent people within the Group, to ensure high-quality dialogue with the governmental authorities.
- Ensuring consistency, coordination and effectiveness of all action undertaken by everyone in the Group's governmental-liaison network.





Opinion: the Group's position on two important issues

Climate change

This is a worldwide concern, and the priority must be the introduction of a new framework for international cooperation, where all the main countries producing greenhouse gases undertake a commitment to reduce these emissions beyond 2012. In this connection, use of the "Joint Implementation" procedures and the "Clean Development Mechanisms" must be extended, while ensuring that the projects selected and monitoring of their establishment are robust.

The diversification of energy sources and of their transport are key elements.

With regard to European Union policy on climate change, Solvay supports the EU aim of taking the lead in reducing emissions of greenhouse gases and hen-

ce countering climate change. However, an industrial policy ensuring a framework compatible with a sustainable development of the European industry is crucial for maintaining its overall competitiveness. In this respect, the European Union must avoid taking decisions in isolation, when those decisions could rapidly and irreversibly threaten the very existence of industrial sectors such as chemicals, which have to be competitive worldwide. A competitive European chemical industry is an essential condition for achieving the EU's aims of social, economic and environmental progress decided in Lisbon.

Energy provision in Europe

While awaiting the internal energy market in Europe, Solvay considers it essential to introduce interim provisions to safeguard electricityintensive industries that are competing in a world market, in order to avoid compromising their future. Large consumers must be able to enter into longterm contracts with the producers, with prices close to basic production costs, even if this means contributing to the capital cost of the power stations. The EU's aim of energy efficiency must serve to encourage industry to adopt technology embodying the Best Available Techniques (BATs) while also avoiding imposing an absolute limit on consumption and thus preventing economic development.



Princess Elisabeth Polar Station: the first polar research station that will be "carbon-neutral"

Products of the future for innovative applications



Fluorinated polymers for high-performance lithium batteries

The emergence of vehicles that are less polluting depends on better performance of batteries. By 2010, some 20% of hybrid vehicles, combining an internal-combustion engine and an electric motor, will make use of lithium batteries.

The fluorinated polymers produced by Solvay Solexis are ideal compounds for some components of these new-generation batteries. They can be used to make highly adhesive binders for the electrodes, separators between the other components - increasing safety - and even additives for the electrolytes.

The development of hybrid vehicles could reduce CO₂ emissions by around 30%. All-electric vehicles could even avoid all such emissions if the upstream electricity generation also avoids them.

In addition, Solvicore (a joint venture between Solvay and Umicore) and Michelin have teamed up to power the hydrogen-fuelled Hy-Light demonstration vehicle.





Solvay Advanced Polymers products at the heart of various high-performance applications

The manufacture of "holofibres" and tubular membranes used for water treatment (notably low-pressure filtration and seawater desalination) is based on high-performance polymers produced by Solvay Advanced Polymers.

> UDEL[®] polysulfones, because of their lifespan and their stability to light, tend similarly to be used for blood dialysis and for solar furnaces and water heaters (illustration), or for dip tubes in self-cleaning commercial water heaters.

TORLON® and RADEL® products comply with all requirements for aircraft cabin interior components (illustration below) or for very large wind-driven applications. The barrier properties of products in the AMODEL® and IXEF® ranges are now used for applications aimed at reducing gas releases from fuel tanks, and in hybrid vehicles.





Developing new activities aimed at creating new materials and innovative systems : going beyond our traditional activities

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Organic compounds to produce "printed electronics" and revolutionary forms of lighting

Solvay Solexis and Thin Film Electronics ASA (Norway) are collaborating to get the best out of ferroelectric polymer materials and obtain enhanced performance from electronic memory in the form of printed thin layers.

Solvay's involvement in printed electronics and in research aimed at replacing solar cells based on crystalline silicon with organic cells, which would be cheaper, is also achieved by research contracts with Georgia Institute of Technology (USA) and by an investment in the company Plextronics.

Possible applications of printed electronics include diffuse lighting panels using organic light-emitting diodes (OLEDs), which are very energy-efficient, and flexible screens, which produce greater contrast and are thinner, opening the way to portable televisions the size of a poster and mobile phones that could be rolled up.



High-performance water-based anti-corrosion paints releasing minimal amounts of volatile organic compounds

Protecting steel structures against corrosion and thus ensuring them a long life requires coatings with very low permeability to water, that are highly resistant, and that adhere strongly.

The water-based paints used for this purpose have the advantage of better protection for the environment and for health. This is the case with paints based on nanoparticles of DIOFAN[®], a polyvinylidene chloride latex developed in collaboration with BASF. These paints have the polymer's barrier properties and its great resistance while releasing only minute amounts of volatile organic compounds when the anti-corrosion paint is applied, ensuring it complies with the requirements of EU Directives.

There are also aqueous dispersions of PVDC used in other applications, such as pharmaceutical packaging.







Partnerships to take care of product sustainability throughout their lifecycles



Long-term competitiveness and Product Stewardship Reliable products with documentation New products and services providing sustainable solutions

Products at the end of their lives; replacements for non-sustainable products

43

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As a European textile-manufacturing company specializing in tarpaulins, Ferrari Textiles should have died long ago! The fact that we are still alive today is because we were able to establish conditions that were conducive to communication between all parties along the sequence from raw material producers to end customers.

The situation as seen by a customer

It is very clear that the move is towards a systemic supplier-customer relationship embracing all players in the sequence including providers of related components. The conventional linear view – I produce and then I sell to consumers – is now out of date.

In the 1970s, we were the first to get our customers to understand that plastic tarpaulins were not to be bought by the kilo. That was hard! The focus of our image had to move from the materials to the performance. We explained that we were not there just to sell high-performing square meters, but new ideas! We were moving from performance of the material to its application. There is currently another change coming about. People do not just ask for high-performing materials; they also want ecoefficiency, reduced material flows, and arrangements for the materials to be reused, meeting the growing requirement for recycling at the end of a product's life.

This is yet another field where it is essential to see things as a whole. Even if SolVin produces good PVC and the extruder making PVC window frames also works well, if the window manufacturer does not obtain good thermal insulation, the whole value of the PVC window frame is lost.

The next revolution will therefore be one of business rather than of ideology. If you do not give your customers an opportunity to position their own products in terms of those products' values to the environment and to society, you are lost. We must be able to say: 'By buying from me, you acquire values that give you a position in the market, and which you will be able to charge for.' Why doesn't my customer buy in China? Because, beyond what he buys from Ferrari Textiles, and beyond what Ferrari Textiles buys from Solvay, there is not just the product; there are values that the customer expects. The supplier must therefore promote interaction and communication, both upstream and downstream in the customer's business. In terms of social and environmental values, the supplier underwrites the customer's values.

Let me make this clear: Ferrari Textiles has not adopted this policy by considering itself as a social benefactor, or an NGO. We are a business, and Solvay – together with its SolVin joint venture – has, by developing the VINYLOOP® and TEXYLOOP® technologies, enabled us to make progress, particularly in recycling.





Romain Ferrari, Director of Ferrari Textiles (France) and a customer of SolVin

"A supplier to my business has to be at the heart of a network, with connections both upstream and downstream"

< Bags made from recycled tarpaulins

Partnerships to take care of product sustainability throughout their lifecycles Our key activities

Customers and suppliers



Our product portfolio is moving towards products that perform better and provide higher added value. There is documentation on each, in the form of a dossier identifying characteristics that are potentially hazardous for human health and the environment; these describe risks associated with conditions in which the products may be used, in compliance with legal requirements.

All the relevant substances contained in Solvay products covered by the EU's REACH Regulation will have been pre-registered by the end of 2008, in compliance with the Regulation, which was adopted in 2006. In addition, assessments of the effects of REACH on the future availability of substances bought by Solvay are continuing, bringing together the suppliers in a large survey.

Started in 2004, our SACHEM (SAfety of CHEMicals) program ensures consistency worldwide of the product information, in the framework of the new worldwide Globally Harmonized System of classification and labeling of hazardous substances. With regard to pharmaceutical products, Solvay Pharmaceuticals has planned an environmental risk assessment for all its products, going beyond regulatory requirements.

Our concern with safety throughout the lifecycle of a product has resulted in our extending the safety audits for transport firms, applying to both road and water transport.

With regard to recycling, various solutions have been developed in response to market demand, particularly for plastics and fluorinated products, and also for treating dredged slurry (NOVOSOL®process).

There is compliance with the commitment undertaken by European PVC producers, and known as Vinyl 2010, to improve the whole lifecycle for PVC. This operates through annual programs, monitored by a committee that includes representatives of the European Commission (www.vinyl2010.org).

elop able ervices is and their

r	fuel tanks	
	Continue implementing the voluntary Vinyl 2010 program for recycling of PVC	
	In collaboration with partners, establish new VINYLOOP® units	
	Validate the application of VINYLOOP® technology to the recycling of industrial plastic sheets	
	In collaboration with other producers and users, complete and discuss the risk assessments for products falling within the scope of various international programs, such as the ICCA's High Production Volumes, REACH, and sectoral initiatives (e.g. CEFIC's)	
	Prepare for application of the new EU regulatory framework (REACH), including registration dossiers for all of our relevant chemical products	
	Establish a comprehensive computerized pharmacovigilance system for medicinal products marketed by Solvay Pharmaceuticals in the United States and Europe	
	2008 target achieved In progress Not achieved	Ł

Co-develop

Aiming

at long-term

Stewardship

Propose

quality, efficient, reliable, documented

and services

and validated products

competitiveness

and ensuring Product

new sustainable products, services and solutions and their related markets

Active

management of product end-of-life and anticipating substitution of unsustainable products "Your customers do not come to you out of generosity but because it is in their interest. This means that if you count on their generosity, you are finished. If, instead, you count on people's self-interest, you have a good chance of emerging successfully, so long as you are able to create situations where the interests of the various stakeholders employees, shareholders and customers – coincide. This makes it a mutually beneficial activity, a solidarity."

André Comte-Sponville, at the Sustainable Development Seminar of Solvay's European Works Council, 2005

of the various stakeholders coincide. 55

Networking with customers and suppliers

Making progress in accordance with the WBCSD eco-efficiency criteria for products and services requires networking. Thus, increasing interaction with our customers and our markets is a condition that is essential for finding solutions that are more sustainable, within industrial systems that are increasingly integrated upstream and downstream.

Our "Innovation Trophy" prizes provide a special opportunity to mark stages in such collaboration on sustainable development challenges with our customers. SolVin, for example organizes every three year an innovation award that rewards customers for innovative and sustainable applications of vinyl products.



SolVin innovation prize.



The World Business Council for Sustainable Development's seven eco-efficiency criteria

- 1. Reduce material intensity
- 2. Reduce energy intensity
- 3. Reduce dispersion of toxic substances
- 4. Enhance recyclability
- 5. Maximize use of renewables
- 6. Extend product durability
- 7. Increase service intensity

www.wbcsd.org

Improving products in collaboration with customers, so as to meet new sustainability requirements

Strategy

Assisting customers in our main markets where there are rapidly changing requirements relating to sustainability and energy efficiency, particularly the automotive and construction sectors.

Anti-flu vaccines: innovative and sustainable packaging receives recognition

In 2007, Solvay Pharmaceuticals in Olst (Netherlands) was awarded a silver medal for its new packaging for the anti-flu vaccine INFLUVAC[®]. The jury rewarded a new syringe-packaging technology that is quick and efficient.

The packaging is completely recyclable and its reduced size saves space and energy, while reducing the CO_2 emissions associated with transport and with having to be kept in cold storage. Opening the packaging is easy, and it is possible to detect whether it has already been opened.



Our product mix has changed in recent years, enabling new requirements to be met in relation to performance and sustainability. As an example, the products of Solvay Advanced Polymers and Solvay Solexis meet stringent requirements relating to thermal, electrical and mechanical resistance.

In more conventional plastics, the emphasis has mainly been on the additives used (with some of the plasticizers and stabilizers in PVC applications being replaced) on developments in production processes (e.g. reducing releases of PFOA, a detergent used in polytetrafluoroethylene manufacture), and on the expected lifetime of formulations for water-supply plastic pipes and window frames. Other improvements have been obtained to prevent releases of gasoline vapor from vehicle tanks, and to extend the lifetime of metallic components by polymer coating, such as in boat paints containing PVDC.

In our Chemicals Sector, new fluorinated gases have gone into industrial production. A notable example is HFC 365mfc, used for high-performance thermal insulation foams.

In the Pharmaceutical Sector, methods of drug administration have been developed to improve both the efficacy of medication and patient comfort, especially for drugs to treat serious disorders. Notable among these developments are CREON® microspheres of pancreatic enzymes to treat cystic fibrosis, innovative systems to administer the anti-flu vaccine INFLUVAC®, and DUODOPA® to treat Parkinson's disease. Also, it has recently been possible to improve the production processes. These developments have related to extraction of natural raw materials (e.g. pancreatic enzymes), organic syntheses that are more eco-efficient, and production of anti-flu vaccines on cell cultures that avoid using millions of eggs as a substrate.

Apart from the internal innovation programs (see "Investors" chapter), fora on sustainable development have been started with some of our customers, notably plastics converters. The idea is to assess together the desirability of pursuing certain potential developments. SolVin holds a competition every three years to award Innovation prizes rewarding innovative and sustainable applications for vinyl products. The 2007 prizes awarded by SolVin, a Solvay-BASF joint venture producing vinyl products, provided special recognition of four advances: the new extrusion technology of Technoplast Kunststofftechnik of Austria, resulting in energy savings of up to 80%; the very large window frames offered by Inoutic of Germany, allowing integration of complex insulation technologies; a system using PVC components, developed by Mario Scheichenbauer, which, following installation on a construction site, enables the steel framework to be put in place and then injected with concrete; and the special recycling prize, awarded to Ceplastik of Spain, recognizing the use of PVC recycled through use of the Vinyloop process as floor-covering products

- Organizing, with representatives from our markets, fora to share information on the challenges presented by sustainability and, in the pharmaceutical field, holding a meeting each year that brings together stakeholders from both Europe and the United States.
- Developing partnerships with our customers and our markets, to anticipate developments relating to sustainability.

2

Product quality serving eco-efficiency in their applications

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Strategy

- Meeting the needs of our stakeholders regarding quality, through the Solvay Performance Model.
- Using a high-performing quality assurance system that meets benchmark standards (EFQM, ISO...).
- Ensuring pharmacovigilance and rigorous monitoring of pharmaceutical specialties on the market.

The commitment to quality and high performance implied by the Solvay Performance Model reference applies to all the Group's activities, apart from joint ventures, whether the activities are carried out by Strategic Business Units, Competence Centres or production units. It has been validated at the highest level of the Group and is characterized by a drive for continuous improvement, based on self-assessment and sharing of good practice, meaning the comparison of existing practices with the best ("benchmarking").

Our performance-analysis procedures are aimed at providing products and services that meet our customers' expectations, doing it efficiently and by introducing improvements to our management systems. This involves continuous improvement of our policies, targets, procedures and organizational arrangements, from manufacture all the way to sale of the products. PipeLife and Inergy Automotive Systems joint ventures have their own approaches for ensuring quality.

All the products are manufactured in plants meeting relevant standards and the requirements of regulations. They also comply with rules applying to the particular market: ISO 9001, Hazard Analysis and Critical Control Point (HACCP), and in the case of medicinal products Good Manufacturing Practice (GMP).

The great majority of our plants (> 95 %) have received certification or accreditation relating to quality from independent and recognized bodies. When the latest acquired plants – those of Solvay Advanced Polymers, Solexis and ex-Fournier – were integrated into the Group, they were made the subject of action programs for quality. The Devnya (Bulgaria) soda ash production plant, acquired in 1997, has now received ISO 9001 certification

Targets for 2012

- Bringing operations acquired by the Group up to Solvay standards of excellence.
- Seeking further progress in longevity of plastic products by incorporating higherperforming additives.
- Developing an approach that describes the quality of our products particularly in terms of energy efficiency.



The pharmacovigilance program to ensure a swift reaction to help patients in the event of a pharmaceutical safety problem

The USA's Food and Drug Administration (FDA) has awarded Solvay Pharmaceuticals recognition for the company's "exceptional performance in implementing the portal for electronic submission to FDA via the Internet" of statutory information. This provides confirmation of the progress that Solvay Pharmaceuticals has made in submitting reports on the adverse side-effects indicated by patients when they have taken medicinal products.

The result is less paperwork, improvements in safety and security, and improved compliance with procedures. Back in 2004, Solvay Pharmaceuticals was one of the first to move to electronic reporting of pharmacovigilance information to the FDA in the United States and to the European Medicines Agency (EMEA). Pharmacovigilance is the monitoring of safety data to ensure ideal use of medicinal products. It depends on recording, evaluating and reporting on possible side-effects associated with taking medicines. In order to meet the growing requirements in relation to pharmacovigilance, Solvay Pharmaceuticals has entered into a strategic partnership with an external organization. 3

Products that are well documented and that comply with regulations

Strategy

- Managing centrally the Group's information and knowledge on the products and their uses, and ensuring compliance with regulations.
- Sharing our expertise and pooling our data within assessment programs coordinated by trade associations.

Nearly 600 chemicals, 4 000 polymers, and pharmaceutical products manufactured by the Group are covered by Solvay's policy on product knowledge and risk control in relation to their applications. The policy takes account of the results from international risk-evaluation programs and relevant legislation.

The High Product Volume (HPV) worldwide voluntary assessment program of the International Chamber of Chemical Associations (ICCA) relates to 60 substances produced by Solvay. The program covers some 1 000 substances in total, whose worldwide production exceeds 1 000 tonnes a year. Solvay is coordinating studies for 16 of them.

There are also 19 substances produced by Solvay – either new or existing products, notably biocides – that have been studied in relation to EU regulations. In addition, associations such as AISE (for detergents in Europe), CEFIC (for the European chemical sector), PlasticEurope and Euro Chlor (for chlorine and derivatives, and caustic soda) carry out assessments of risks associated with the use of relevant products.

Over 300 pre-registration dossiers have been submitted for the Group, in connection with the European Union's REACH Regulation. The REACH Regulation also covers "articles" (finished products) when they contain hazardous substances above specific threshold concentrations. In that case, notification to the European Agency of those substances is required. Products manufactured outside the EU exclusively for non EU markets are not covered by the REACH regulation.

The Group has established a worldwide organization in order to fulfil each of the REACH obligations for all the products and their applications, and for all the activities relating to production, import, marketing and use. The arrangements will also check on the future availability of products that are bought in. There is, indeed, the risk of a supplier choosing not to register a substance that is essential to one of our production activities, for example, simply because of the cost of the procedure relative to the income obtained from selling the substance



Targets for 2012

- Communicating product information of Ecoprofile types(*) to customers for:
 any existing major product
 - any product with critical characteristics (in relation to sustainability)
 any new product
- Fulfilling all the obligations associated with implementation of the EU's REACH Regulation on chemicals.
- Obtaining supplementary knowledge of the conditions under which our products are used, so as to assess any associated risks.
- Assessing the environmental risks associated with their excretion by patients in domestic wastewater, for all of our pharmaceutical products.

(*) Ecoprofile : inventory of emissions into the envirronment associated with raw materials and manufacturing

The EU's REACH (Registration, Evaluation and Authorisation of Chemicals) Regulation

The Regulation was adopted by the European Union in late 2006 and it introduced a new system for managing chemicals. This will, by the end of a transitional period, supplement or replace the previous 40 or so directives and regulations that relate to chemicals.

There are internal global organization to manage the Solvay program in this area, relating to both our own products that need to be documented and registered, and bought-in materials for which future availability depends on registration by their producers.

By the end of 2008, our products will have been pre-registered, in compliance with the new requirements for all substances marketed within the EU before 1981 and of which over one tonne a year is either manufactured or imported. A comprehensive registration dossier including an assessment of risks to health or to the environment, together with production data and a list of the various conditions in which the substance is used, will then be submitted to the European Chemicals Agency in accordance with a timetable related to the substances' intrinsic properties and the volumes marketed. Some substances, because of their particularly hazardous intrinsic properties (carcinogens, mutagens and substances that are toxic to reproduction), or because of major risks associated with their use, may require authorization. In order to obtain an authorization, the applicant will have to show that the substance has significant social or economic advantages, or that its use is limited to specific professional uses, and that the risks associated with the substance's production and uses are sufficiently controlled. Replacements for these substances will progressively have to be found wherever this is technically and economically possible.

Environmental impact assessments now required for new pharmaceutical products

Pharmaceutical products taken by patients tend to end up in domestic waste water. While urban sewage works eliminate the largest part, very low concentrations of some drugs are found in surface water, and they have been detected in drinking water in some regions. This question of environmental impact is complex, and both the United States and the European Union now impose obligations relating to the procedures for putting new medicinal products on the market. Guidance documents have been published, and new recommendations are expected.

Going beyond what is prescribed by the regulations, Solvay Pharmaceuticals is going to carry out assessments of environmental impact for all the company's products, including those already on the market, and has planned appropriate studies for the coming years.



Risk analyses for chlorinated chemicals - Euro Chlor program total number of compounds assessed

Programs transferred to REACH



Within Euro Chlor, the European association of chlorinated products producers, a program to assess risks to health and to the environment that are associated with 29 chlorinated organic compounds is currently being finalized. www.eurochlor.org

REACH and our customers in the plastics industry



For **Walter Claes**, Health and Safety Director of EuPC*, the EU's REACH Regulation for chemicals needs to be demystified; this is a perfectly manageable challenge. The 50,000 plastics-converting firms represented by his organization, most of which

are SMEs, have up a list of substances they use at any stage in the production sequence.

"The spirit of REACH then requires that they communicate effectively both within each firm and outside, including both customers and suppliers. All the departments involved need to be properly informed about what they have to do, and they need to act in a coordinated manner," he says. Walter Claes is convinced that ensuring better health protection and limiting the environmental impact of the substances and preparations manufactured or imported will, in the long term, benefit the whole European industry.

(*) EuPC is the European association of plastics converters, bringing together national and sectoral federations in that industry.

4

Informing users and providing knowledge about the products, associated risks, and precautions to take in use

Strategy

- Developing an integrated system to compile dossiers on properties and risks and draw up comprehensive and reliable safety data sheets.
- Ensuring consistency worldwide in the information about our products.
- Establishing programs providing support to users of hazardous products: informing and training users in conditions for safe usage.

One or more safety documents accompany deliveries of all our products, especially those classified as hazardous, in compliance with national and international regulations relating to use and transport, whether by road, sea or air.

These documents are supplied automatically with the first delivery and following an update. Solvay also supplies a safety data sheet for many products that are not classified as hazardous, such as our polymer resins.

SACHEM (SAfety of ChEMicals) is an integrated information system project for our products.

It is based on a central database assisting compliance with the regulations. The system ensures consistency worldwide of the information on our products, notably through the production of safety data sheets according with legal requirements, bringing together systematically all the legally required information on each product's hazardous properties and the risks associated with its use. This covers the requirements as from 2007 for transport, then for installations involving major risks (called "Seveso" in the EU), for worker protection, and for waste products. SACHEM will meet the requirements of the Globally Harmonized System of classification and labeling of chemicals, which will progressively result worldwide in changes to all the relevant existing laws.

Solvay has a program operating worldwide to provide support to our customers for hazardous products, aimed at achieving product safety at every stage, and going beyond the information strictly required by the regulations. Product Stewardship involves the players at all stages along the sequence, including transport firms, distributors and users. For some products that are particularly difficult to use, and for which risk control is essential to avoid a dangerous situation, specific training or advice is provided. Such collaborative action between producers and users gives concrete expression to the shared responsibility for complete safety.

For pharmaceuticals, the information on products and their risks and how this is communicated is covererd by specific regulation and is strictly controlled.

Laws now increasingly require environmental impact statements for new medicinal products, and this will influence the risk/benefit ratio attributed to them (see box). Compliance with future regulations, and the transparency demanded of clinical trials, will necessitate increased communication with patient groups, governmental authorities and the healthcare bodies

- Improve the knowledge about risks associated with the use of our products in their various applications, within the scope of REACH.
- Extending the SACHEM (Information on the safety of our products) project worldwide, including in it the new requirements of the Globally Harmonized System (GHS) of classification and labeling of chemicals.





Transport safety and the transport of hazardous products

Strategy

- Establishing specific systems for the management of the transport of hazardous materials, and rigorous audit systems.
- Seeking alternatives to road transport for hazardous substances.





During the period 2004-2007, there were, regrettably, nine significant transport accidents.

Four were classified »serious» (having resulted in serious injuries, closure of a major communication route, evacuation of premises, or significant loss of the product transported):

- derailment of a train carrying hydrofluoric acid (USA);
- leakage of hydrofluoric acid from a tank that had deteriorated (USA);
- splitting of a plastic tank containing hydrochloric acid, following a road accident (Spain);
- collision between a train and a lorry carrying sodium carbonate (Italy).

The large-volume production of « essential » chemicals is usually located close to the source of raw materials, apart from oil-derived raw materials. The largest industrial complexes are also often highly integrated, which avoids the need for transport, with recycling for materials such as water and by-products, and energy conservation measures, in a perspective of industrial ecology.

In addition, a significant part of the raw materials that we use in large quantities – notably ethylene, and salt in the form of brine – are supplied by pipelines.

Our new integrated industrial complexes established close to locations where the finished products are used by our customers are helping to further limit the transport of hazardous materials: the new hydrogen peroxide plants in Antwerp (Belgium) – with a capacity of 230kt/y - and in Thailand – 330kt/y, are both immediately adjacent to customers' installations, the future PVC plants in Russia – with a capacity of 330kt/y - will produce its own vinyl chloride.

Solvay transports large quantities of finished products – over 10 million tonnes a year in Europe – of which about half are classified by transport regulations as hazardous: mainly hydrogen peroxide, caustic soda, sodium hypochlorite, peracetic acid, hydrogen fluoride, chlorinated solvents, allyl chloride, epichlorohydrin, etc.

Following the significant reduction in the transport of chlorine and vinyl chloride in recent years, new programs are under way to further improve the safety of hydrogen peroxide transport, and to reduce the transport of anhydrous hydrogen fluoride by a further 30%.

Most of the transport of raw materials and finished products is subcontracted. SQAS (Safety & Quality Assessment System) audits for logistics service providers and chemical distributors are being developed rapidly in Europe for road transport, storage and distribution suppliers. They are now being extended to China, through the Association of International Chemical Manufacturers (AICM).

There is an international service – Carechem24 – usable from any country for obtaining telephone assistance in the event of an accident or other incident with our products. The service's experts can provide advice without delay in the appropriate language, saying what action should be taken, based on Solvay documents. Our initial agreement with Carechem 24 (2001) covered 34 countries, and recent developments including collaboration with the United States'Chemtrec system have enabled the service to provide worldwide coverage. In addition, our plants participate in the various countries' plans for handling chemical emergencies. Such plans are operational in Austria, Belgium, Finland, France, Germany, Italy, the Netherlands, Spain, Sweden, Thailand, Great Britain and the United States

- Applying audit and selection systems to 100% of providers of logistical services for the dangerous products to the Group.
- Monitoring to ensure the application of the most rigorous standards and wherever possible reducing the transport of very hazardous substances.
- Providing to the Group the drivers with specific training in the case of self-loading.
- Generalizing the reporting of distribution accident and of corrective actions throughout the Group, and introducing a Solvay indicator for transport accidents.

Recycling, and management of product lifecycles

Strategy

- Developing recycling processes, particularly for plastic products and fluorinated gases.
- Encouraging the establishment of regional and national arrangements for collection and recycling.

Lifecycle for PVC – long-term commitments, and involvement of stakeholders

Solvay is a driving force in the Vinyl 2010 voluntary commitment, which brings together all the players involved in European PVC manufacture, and aims at control of the product's whole lifecycle, from its "cradle" to "grave". The Vinyl 2010 annual reports show that the targets set for the year 2010 are being achieved:

- compliance with the charter commiting to reduce emissions and releases into the environment from PVC production;
- replacing stabilisers that are either cadmium-based (target achieved) or lead-based: by 15% in 2005 (achieved), 50% in 2010 and 100% in 2015;
- recycling of 200 000 tonnes a year of PVC, at the end of the PVC products' life, independent of the recycling targets imposed by other EU Directives (on electronic waste or packaging): 149 000 tonnes recycled in 2007;
- Stakeholder dialogue and the promotion of good practices in less-developed countries form part of the voluntary commitment; there is a monitoring committee to check on progress. This committee includes representatives of the European Parliament and the Commission, NGOs and independent experts.

www.vinyl2010.org

The Ferrara (Italy) industrial recycling unit for PVC, using the VINYLOOP $^\circ$ process developed by Solvay, has been operating since 2001, and has a capacity of 10,000 tonnes a year. It makes use of PVC-based composites, and recycles the PVC by separating it from the other constituents by a process of selective dissolution. There is a second unit under construction at the same site, built with Ferrari Textiles, and intended for recycling of PVC-coated textiles, using the TEXYLOOP® process. Another unit with an annual capacity of 20,000 tonnes has recently been built at Kobe (Japan).

At Frankfurt (Germany), Solvay has a unit for reprocessing CFCs and HCFCs, of which tens of thousands of tonnes are still in use in the world, when they come to the end of their life. The hydrofluoric and hydrochloric acids recovered are recycled. Operating licences for the technology to destroy HFCs (see page 34), which was developed with SGL Carbon, have been granted for sites in India and Argentina. These two projects could reduce emissions by the equivalent of 5 million tonnes of CO₂ per year.

The SF₂-ReUse recycling programme implemented in Europe in collaboration with the companies Linde and Dilo has been extended to the United States. The high potential greenhouse effect of sulphur hexafluoride (SF_a), an insulating gas essential to the safety of high- and medium-voltage electrical installations, make this another substance that must be recovered and recycled at the end of its life, and it is sent to our recycling plant at Bad Wimpfen, in Germany. A similar programme is under consideration for Asia. The SF₆-ReUse concept forms part of a voluntary programme enabling the industry concerned to reduce emissions to an absolute minimum.

A process for recycling polyethylene fuel tanks, which now account for over 50% of vehicle tanks worldwide, has been developed by Inergy Automotive Systems, a joint venture between Solvay and Plastic Omnium, supported by a vehicle manufacturer and the European Union. Following recovery of the polymer, it can be used as the starting material for new fuel tanks. However, the establishment of industrial arrangements to collect the old tanks faces competition from other possible arrangements for the disposal of vehicle parts - landfill and incineration - which



Via notably the www.figaroo.org website, Solvay Fluor is tightly associated with the initiatives aiming at helping the customers to respect the European Regulation adopted in 2006 to minimize the emissions of HFC which behave as greenhouse gases when they are emitted.

A refrigeration application among the others subjected to these constraints: the wine industry which uses coolers to control the temperature of fermentation in wine making vats.

- Helping achieve the Vinyl 2010 target for PVC recycling in Europe (200,000 tonnes a year).
- Developing a partnership with a major customer for recycling of the polymer PVDC, based on VINYLOOP® recycling technology.
- Offering an SF, recycling service also to our customers in the Asian market.



Up for discussion

Recycling is no easy matter: having sophisticated technology is not enough.



"Solvay has already contributed to numerous highperforming industrial recycling solutions, but it is never a simple matter. In order for viable industrial schemes to be established, a variety of interdependent conditions must be fulfilled, starting with the existence of a "raw material" source formed by effective collection of material at the end of its useful life.

Another essential condition is that holders of the nowuseless material must be faced with high costs for its disposal in landfill, or very simply a prohibition on such disposal, as in Germany. Unfortunately, it is still possible

to dispose of materials in certain landfills in Europe at 50 euros a tonne! This makes it difficult to operate recycling arrangements worthy of the name.

We must add that large quantities of plastics waste are sent to countries where the costs of labor – and of sorting – are low. This is the case in China and the Philippines with, for instance, electrical cables being taken apart by hand in China. From our perspective, these exports result in a dearth of material to recycle.

When it comes to recycling, we could be faced with another problem. If applied literally, the REACH Directive on chemicals requires each substance

20 %

Primary energy (non renewable)

[GI]

Nitrification

[Kg PO₄

Equiv.1

in a mixture to be identified. When you are trying to recycle materials designed and sold years ago, there is simply no cost-effective way of doing that.

In addition, each player in a recycling sequence entirely depends on whomever is buying the recycled material. That is why our technology for recycling vehicle fuel tanks has been on the back burner for five years. The European motor-vehicle industry is for the moment in the reverse situation: crushing whole cars and then sorting out what can be recycled, rather than separating out each major component by dismantling. The industry has good reasons, of course: nowadays, vehicles being disposed of were in many cases built in the early 1990s, when people did not contemplate dismantling. We will therefore have to wait. In 2015, the EU will require 85% recycling – and including the recycling of plastics will be the only way to achieve that.

We should remember that a producer of tarpaulins, cables or other somewhat technical equipment tends to require recycled resins to meet specifications as tight as for virgin resins. That is, inevitably, impossible. The necessary adjustments and the changes in mindset are not things we can attack alone."

Helmuth Leitner

Acidification [kg SO₂ Equiv.]

Global warming [kg CO₂ Equiv. 1]

Environment Manager for the Plastics Sector





Photosmog

[Kg C₂H₄ Equiv.]

PVC for roofing application

(R-PVC recovered comes from old roofing)

Comparison of environmental impacts of one tonne of recycled PVC via the VINYLOOP® process

00 % 80 % 60 % 40 % 20 % 0 % Primary energy Nitrification (non renewable) [Kg PO₂ [GJ] Photosmog [Kg CJ, a Equiv.] [Kg SO, a Equiv.] Equiv.]

Virgin PVC

PVC for electric cable sheath (R-PVC recovered from old electric cables)

Innovation and environmental technologies





STORMBOX[®], a strong modular system for retention and detention of runwater

Storm water detention is important in urbanized areas in order to avoid the overload of the sewage system and to prevent flooding

The easiest and cheapest way of overcoming this problem is to install individual retention and storage systems such as the STORMBOX[®] system, a family of innovative rainwater detention/retention products developed by PipeLife.

Wrapped with a polyethylene foil, made of recycled materials, the STORMBOX[®] permits the storage and recycling of the collected water for other uses.



Products to disinfect urban waste water without producing undesirable by-products

The reuse of urban waste water often comes up against the problem of bacteriological contamination, which either limits or completely prevents recycling of the water for agricultural irrigation. The issue is all the more acute in that water shortages affect regions where the high temperatures in certain seasons encourage bacterial proliferation.

For a number of years, treatment with peracetic acid OXYSTRONG® has been carried out in the city of Milan, opening the way to effective disinfection. The process is based on a chemical treatment that does not leave any residues, as the product rapidly decomposes.

The US Environmental Protection Agency (EPA) recently gave approval for peracetic acid to be used for such purposes. This "gentle" disinfection technique is already used widely in the agricultural and food processing industries, in dairy and in fish farming, particularly in the Scandinavian countries.





The products of Solvay are at the root of technological innovation and services directly helping to reduce the ecological footprint of human activities. A few examples are proposed.





55

Our Inergy Automotive Systems joint venture is working on technologies for a clean diesel engine that does not release particulate matter, nor produce emissions of nitrogen oxides.

Compared with a gasoline engine, a diesel engine releases little CO_2 , but produces fine particles and nitrogen oxides (NO_x), which are harmful to health and environment. Inergy Automotive Systems has developed the DINOX system, involving on-board storage and injection into the exhaust gases of a urea-based additive which ensures the selective reduction of NO_x.

Also, the particle filter that stops fine dust can be regenerated by combustion in the filter itself once an additive, produced by Rhodia, is added to the fuel. Inergy has developed a storage system, and a high-pressure pump able to automatically inject minute quantities of the concentrated additive each time the tank is filled with diesel fuel.



A process for treating contaminated sediments, from the banks of the Meuse river to the industrial port in Venice's lagoon

NOVOSOL[®], a process recently developed by Solvay for stabilizing contaminated sediments, provides a way of reusing the material, providing an incentive to dredge waterways that have been contaminated, and hence encouraging river transport.

When waterways and port areas silt up, this hinders river traffic and can increase the risk of flooding at times of high water, even endangering reserves of drinking water. Dredging the sediment is practical only if it can be reused or if it can be put into landfill. Often, however, the sediment's load of pollutants - from industrial, urban and agricultural effluents - makes both those possibilities impractical. Treating the contamination requires appropriate techniques, which up to now have been too costly.

The Venice Region and the Wallon (Belgium) waterways will be the first to take benefit from this technology.







Respecting our employees and developing their skills



Common ethical commitment, based on shared values Safe and fair working conditions Multidisciplinarity, partnerships, skills relevant to Sustainable Development Creativity and innovation Control of risks

SOLVAY



"It is important for the same view of Sustainable Development to be shared by the European Works Council, the management and employees at all levels." 57

The situation as seen by an employee

"

Each staff member must have sustainable development in mind in his daily life. My role as a union representative is to emphasise practical means of ensuring sustainability for the workers: by giving contractual recognition to the value of each employee's occupational attainments, ensuring working conditions free of health risks, etc.

What I expect of Solvay is that its initiatives in this area are really implemented. Everyone must be involved: management, employees, Competence Centres, Business Support Centres, production sites, etc. The long term must be at the heart of the employee behavior in everyday activities. The management, meanwhile, must adopt a new attitude, not concentrating solely on costs and having a short-term perspective.

The workers and the employees have many skills, but not enough use is made of them for the purposes of sustainable development. It is therefore important for the same view to be shared by the European Works Council, management and employees at all levels.

People will act from personal conviction, that's certain, but a structure is needed: it is important that we are given a structured framework, and that the fear of contact with other people on these matters is overcome. In the beginning, a sustainable development initiative involves a domino effect. Thus, you can start with fora, that create awareness, and then progressively ensuring a wider attention and a joint understanding. Communication is therefore absolutely essential.

Our European Works Council is an excellent means of getting to grips with issues of sustainable development in various countries. As a member of that council, I stand up for the idea that everyone should be able to obtain a high-quality job with long-term occupational prospects. Up to now, there has not really been an integrated policy to manage these issues, relating to each member of the employees, their skills and their long-term employment. It would be useful for sustainable development to become part of Human Resources' activities. Human resources development and sustainable development should, for instance, be studied together, in a process where the staff participate at each site.





Gabriele Zielke, employee of Solvay Deutschland, member of the European Works Council

Employees and subcontractors

Building

a common ethical commitment based on shared values

Guaranteeing

fair labour conditions, safe working conditions,

empowerment and

career management



Emphasis is currently being put in particular on protection of workers and in particular on subcontracted workers. We want them to reach a safety level comparable to that of Solvay employees. The Occupational Health and Safety Assessment Series 18001 management system has been established at 14 of our sites, and there are plans for it to become general. Health-protection action is being continued, with an intention to detect earlier any problems: before any pathological signs manifest themselves. We are also taking action on the causes of the main pathological conditions that still occur: musculo-skeletal disorders and hearing loss.

As part of the reorganization of the Human Resources management, the careers management is aimed at providing each employee with development experiences aimed at maximizing everyone's productive potential, satisfaction and engagement. Employability is a fundamental aim, and the establishment of the Solvay Corporate University is aimed at contributing to this goal.

Solvay is pursuing the outsourcing of less strategic activities, as for example, clinical trials in the Pharmaceuticals Sector. This implies new abilities internally in building the necessary partnerships and co-development of projects.

There is an increasing number of initiatives encouraging creativity, innovation and the involvement of employees in tackling the challenges presented by sustainable development: fora with the personnel on such development, Science Innovation Days, idea boxes, and Innovation Trophees events and annual staff appraisals.

E	Employees driving development
Ν	/lultiply the actions the Group's "Values" in widespread use and, in particular, developing teamwork
0	Dissemination of the updated Code of Conduct
5	Dissemination of the updated Code of Conduct Strengthening the social dialogue between management and workers, through joint consultative bodies
l	mproving continuous training and establishing a global view of personnel management throughout the business units
C	Continuing the triennial Solvay People Survey (attaining 85% participation), and implementing subsequent action programs
E	Continuing the triennial Solvay People Survey (attaining 85% participation), and implementing subsequent action programs Establishing reference "families" of functions, and conducting career interviews based on the "skills dictionaries"
l	ncreasing employees' knowledge of pension financing, encouraging them to make supplementary provisions
F	Protection against risks, and promoting wellbeing
A	Action to promote behavioral safety at all sites
A	Applying all eight chapters of the safety Charter adopted by the Chemicals Sector in 2002
C	Communicating information on exposure to electromagnetic fields, and follow-up action
1	100% of workstations to be assessed using the Exposure Assessment (EA) Tool
l	mplementation of the Good Practice guides relating to exposure to asbestos and protecting against Legionella disease
5	Solvay employees
A	Accident frequency rate involving stopping work to be brought down to 2.3 (in 2005) and then to 1.8 (in 2008)
E	Establishing arrangements, where appropriate, to ensure good compatibility between work and home life: teleworking, nodification of working hours, provision for recognition of reduced working hours, part-time working, nurseries, etc
A	Action to prevent stress at 30% of sites, and measures to be taken against drug addiction
C	Occupational illnesses: strengthened measures to prevent musculo-skeletal and hearing disorders
A	Adherence to risk prevention and safety targets always to be considered during individual employee appraisal interviews
5	Subcontractors' employees
A	Accident prevention measures to be stepped up, with 80% of sites carrying out specific training programs
(Obligations regarding safety training to be included in all contracts
F	Accident frequency rate involving stopping work to be brought down to 4.0 in 2008

Expanding

multidisciplinarity, diversity, network / partnership practices and competencies in Sustainable development

Facilitating

creativity and innovation

Minimizing

critical risks and related human impacts : accidents, occupational diseases, layoffs, loss of expertise



"Does our life have direction and purpose? It is not for Solvay to reply! It's fine with me if there are corporate values in Solvay, but I would not like to think that the walls of the Group's premises state what the purpose of life is. That has nothing to do with the company; it is the concern of each of you as individuals."

André Comte-Sponville, at the Sustainable Development Seminar of Solvay's European Works Council, 2005

of each of you as individuals. 55

Networking with the employees and subcontractors

Each member of the company has his or her own vision regarding Sustainable Development. These views will contribute to company's progress. Starting from a forum of Solvay's European Works Council held in 2005, a structured process has been launched to encourage discussion, raise awareness and get the employee to participate in relation to Sustainable Development. That participative approach is one element defined in the strategy of the Solvay Group adopted in this area in 2007. Internal fora with employees of all levels are now starting up.

The intention is to extend them to all countries. They have two purposes: to gradually establish increased awareness of the challenges facing Solvay, and to encourage the emergence of proposals for action, both locally and Group-wide, by associating people from all levels of responsibility and representing the various functions.

The eight concluding points from the Solvay European Works Council seminar on Sustainable Development, 2005

- Sustainable development, a major challenge for the Solvay group
- Communicating and providing training relating to Sustainable development in the Group
- Dealing more actively with the challenges presented by sustainable development
- Devoting more time to employees: a priority for the managers
- Continuous training for all employees, giving thought to "the future", "sustainability" and "innovation"
- Innovative approaches for the end period of a person's working life
- Solvay Values incorporated into all processes
- Societal responsibility towards local communities



Strategy

- Complying with laws and Solvay guideline values for chemical, physical and ergonomic risks.
- Protecting against risks at their source.
- Assessing risks for each workstation, using a reliable standardized method that allows comparisons between workstations and between sites.

 Protecting against chemical exposure at workstations

 % of Solvay sites making use of the EATool assessment at workstations

 6%
 59%
 35%

 All workstations assessed
 In progress
 Planned by the end of 2008

 Inclusion of occupational-hygiene data in the Medexis information system

 % of workstations (worldwide, excluding joint ventures)







The follow-up of the professional diseases is consolidated at the level of the Group on an annual base. The qualification as occupational disease refers to medical and administrative criteria that vary from a country to the other one. If the data relative to the recognized professional diseases indeed allow to guide a health policy, they only reflect partially and often retroactively, thus late, a sanitary situation.

For occupational hygiene, Solvay applies the internationally recognized Threshold Limit Values (TLVs) devised by the American Conference of Governmental Industrial Hygienists, for all hazardous substances not covered by laws, or for which the legal limit is less stringent than the reference TLV, or is outdated. In cases where these external reference values do not exist, Solvay carries out studies in order to decide on a Solvay Acceptable Exposure Limit (SAEL).

To ensure compliance with these standards, the emphasis is now put on general adoption in all entities of a standardized method, the Exposure Assessment Tool (EA Tool), for assessing all chemical risks at workstations. The EA Tool incorporates the latest international standards, the chemicals' characteristics, the quantities used in each workstation, the operating procedures and the exposure levels. The information on occupational-hygiene conditions is progressively being incorporated into the Hygiene module of the new Medexis global information system developed by Solvay.

Two new management indicators relating to compliance of workstations with occupationalhygiene limits have been introduced recently, making it possible to monitor compliance both locally and worldwide, thus providing better management of worker protection

Medexis : the way to achieving better health protection

Medexis is a single computerized system that will bring together data on industrial hygiene and medical monitoring in all of Solvay's sites. It is currently at the pilot stage. When combining data, collected in each individual site, it will become possible, while respecting the rules of protection of personal data to exploit this information in order

- to better identify situations needing improvement,
- to better communicate the situation and progress

In each country, implementation of the Medexis system will depend on receiving approval from the public authorities, and on the way in which the national system for health at work is organized.

Policies and management tools for health and industrial hygiene (see page 88)

- Applying the Hygiene module of Solvay's Medexis information system to 80% of the workstations in the Group (not including joint-ventures), in view of a uniform prevention of health risks.
- Using the standardized Exposure Assessment (EA) Tool for hazardous chemicals at all sites and for all the workstations (2008); Introducing the new occupationalhygiene indicators into practice, and examining them as part of management reviews.
- Making ergonomic assessment of workstations routine, including for administrative functions, in order to provide better protection against musculo-skeletal disorders.
- Getting the management of safety, health and hygiene at work certified according to the OHSAS 18001 reference systems at 30 production sites.



Health protection

Strategy

- Ensuring a uniform level of health protection by applying a consistent system of medical monitoring for employees throughout the Group.
- Protecting against occupational diseases that are still observed: primarily musculo-skeletal and auditory disorders. Prevent stress.
- Ensuring medical monitoring of employees adapted to the individual risk profile of each workstation.



Determination of risk profiles

Medical surveillance throughout the working lives and afterwards is important from epidemiological and legal standpoints. We therefore consider it vital to ensure tracing of data related to health at work for each employee.

We aim to introduce, for each employee, a personal logbook recording exposure to occupational risks, to be included in his/her "health at work" file. Traceability of exposure to risk situations will be constructed on the basis of homogeneous groups exposed to the same work situations, and will be managed using our EA-Tool. It is based on a collective approach constructed on job types (Work area). On this basis, company doctors, by combining this information with other data, will get a better view of the diverse situations encountered by different workers.

Targets for 2012

- Applying the Health module of Solvay's Medexis information system to 70% of the personnel (not including the United States) with the aim of ensuring a uniform prevention against health risks and a uniform medical monitoring throughout the Group.
- Taking account in medical monitoring of all the occupational risk factors, including those in the past, and applying the same health-monitoring procedures worldwide for each risk profile.
- Improving traceability of each individual's medical monitoring throughout the person's working life.
- Applying the Group's preparedness plan for a human pandemic originating from avian influenza.

 ${f S}$ olvay looks at employee health in its widest sense, that is to say embracing a high degree of physical, mental and social wellbeing, in accordance with the definition of the World Health Organization. In particular, this implies preventing stress and all forms of harassment at work. The application of the rules and principles of occupational hygiene at the workplace form the fundamentals of our action. Raising individual awareness and organizing training about health risks are key elements of prevention.

Every member of staff exposed to risks has access to a medical monitoring by an occupational physician. The Group tries permanently to unify the protocols of medical surveillance at the world level to ensure an equivalent follow-up in all the entities and concerned countries.

In the event of a health problem being observed that could be of occupational origin, an investigation is carried out, looking at both the working conditions and the characteristics of the person affected, leading if necessary to corrective measures being taken.

The protection against the chemical risk is ensured by the earliest possible detection of any clinical disturbance. Biological analyses are used so as to detect and measure either the possible penetration of the substance in the body, or its possible biological effects, at a moment where they are not yet pathological. The emphasis will be put on new ways of identifying health disturbances even earlier, before there are any manifestations of disease and at the stage where the disturbances are reversible.

With regard to protection against risks, the emphasis is on the main occupational illnesses still observed : musculo-skeletal disorders and hearing losses. The prevention of hearing disorders is improving, thanks to action to raise awareness, to the more systematic bearing of the protection equipments, and the search for comfortable and effective equipment. The campaigns of noise measurement will be reinforced. Programmes defined to better prevent musculo-skeletal disorders include technical and organizational improvements.

A Solvay policy to prevent stress and protect against drug addiction has been worked out, and pilot application of the measures is being undertaken at certain sites.

In some cases, the medical action taken can go further than what is strictly work-related medicine applying to our employees. Such action also contributes to the general overall wellbeing at work, which the Group considers an important factor for the quality of its activities. Healthpromotion campaigns relating to the environment outside work are carried out regularly. Recent examples were in Spain, on protecting against cardiovascular risk, on vaccinating against influenza and viral hepatitis in Thailand and in Brazil, or on general medical check-ups, guarding against consuming alcohol at work, or organizing a programme against AIDS in Namibia



Personnel safety at our production sites

Strategy

- Implementing a culture of safety and pursuing on objective of zero working accidents.
- Aiming at the same level of safety for the Solvay employees or subcontractors, and systematically including them in safety initiatives, while favoring direct subcontracting.
- Carrying out an analysis of each accident, disseminating knowledge obtained from the investigation and undertaking corrective measures in all comparable units.



accidents involving stopping work, per million hours worked
 Solvay employees – TF1: accidents involving stopping work, per million hours worked

Fatal accidents which occurred in 2004-2007 on our sites – Solvay personnel and subcontracting firms:

2004 : 4 persons (in India, Italy, Spain and United States): falling from height, falling object, traffic accident

2005 : 1 person (in France): accident involving mechanical equipment

2006 : 3 persons (in Bulgaria, Germany and France): falling from height, electrocution

2007 : no fatality

n 2007, the overall accident frequency rate involving stopping work is 2.4 per million hours worked (2.1 for the Group's employees). Performance in regard to workers safety is generally high at the Group's sites, as compared to the sector average.

Measures taken to prevent accidents currently concentrate on risky behavior. From 2003 onwards, action relating to behavioral safety has been taken at a large number of sites. Each year, additional plants adopt this approach, recent examples being Tavaux (France), Martorell (Spain), Santo André (Brazil) and Povoa (Portugal). The aim is to achieve continuous reductions in the personal accident frequency rate (TF1) and in the gravity rate, towards zero-accident. Every month, the Executive Committee ascertains the number of personal accidents for all of the sites.

The information on accidents is now held centrally, facilitating analysis and monitoring, and making it easier to introduce corrective measures. This system allows for a more formalized and explicit use of the returns recording experience, recommendations to the plant and business managers, and regular information through bulletins and the Group's Intranet. The recommendations take also the form of presentations aimed at particular employee groups, of plant inspection checklists and of guides of good practice. The recommendations are to be applied at each site, with the support of the supervisory management of the relevant Strategic Business Units.

Group auditors carry out specific internal audits of health and safety, supplementing the "risk engineering" audits, and they result in recommendations for improvement. The sites having these specific audits in 2007 were Tver (Russia), Juarez (Mexico), Chevigny, Daix, Fontaine and Giraud (France), Künsebeck (Germany) and Torrelavega (Spain).

A significant improvement has been obtained for the safety of subcontracting firms' employees working on our sites, with the accident frequency rate having been reduced from 6.0 per million hours worked in 2005 to 3.4 per million hours in 2007. This followed Group recommendations covering selection, analysis of tasks and of how they are carried out, contracts, assessments and reporting back to the service-providers.





When selecting subcontractors, increasing attention is given to their professionalism and their performance in the area of health and safety. All new contracts entered into by the International Purchasing Network include requirements in this area. Compliance with Solvay rules and instructions is demanded, and is checked on. Already, 80% of the contracts require such compliance and include a clause relating to the subcontractor's suitability for carrying out the tasks. Also, 45% of our production sites have a program aimed at ensuring that the subcontracting firms have a policy on health, safety and the environment that is comparable to Solvay's.

The Occupational Health and Safety Assessment Series OHSAS 18001 management system has now been established at 19 of the production sites. Various other management systems are being used in the area of safety: Responsible Care, International Safety Rating System, etc.

There is also a new information system allowing centralized monitoring and sharing of accident follow-up for the whole Group, with descriptions of the accidents and of corrective measures taken, with a cross-fertilization of actions between sites

Targets for 2012

- Introducing structured programs to protect the employees against risks at all sites, ensuring the programs extend to subcontractors.
- In pursuit of our objective to achieve a zero rate for accidents, attaining a frequency rate for personal accidents involving stopping work (TF1) of 1.2, and including also the frequency rate for personal accidents not involving stopping work (TF0) in the Management reviews.
- Carrying out structured behavioral safety programs at 50% of the sites.
- Making the safety programs for subcontractors general, checking that the Group's recommendations on the safety of subcontractors are applied, and making the training and safety clauses general in their contracts, with verification of compliance.
- Obtaining OHSAS 18001 certification for safety-management systems at 30 of our production sites.

The five levels of health protection at work

design, emission and leak prevention



2 control and monitoring or workplace atmospheres (ventilation, noise...)





follow-up of rules and regulation, workstation analysis tools (EA-tool)





5 individual health monitoring : medical surveillance, biomonitoring

At Solvay Pharmaceuticals in the United States, the rate of occupational injury incident and illness required by OSHA is very below the average of the American pharmaceutical sector (3.0).



Safety training programs for subcontracting firmsnumber of sites that have carried out training programs during
the past two years41751424







Strategy

- Ensuring that relationships between employees are founded on trust, courtesy and mutual respect, with application of the five Solvay Group Values: ethical behavior, empowerment, respect for people, customer care and teamwork.
- Shaping work relationships in accordance with the new Code of Conduct.



The Group's five Values underlie all of the processes for Human Resources management, in recruitment and annual employee appraisals, for example. In late 2007, 80% of the employees in Europe, NAFTA, Mercosur and Asia had taken part in the internal "Living the Values" seminar aimed at encouraging application of the Values and ensuring they are completely adopted by each person, with interactive workshops in each local language. The participants reacted positively, as is evidenced by the responses to feedback requests. In the previous year, the internal Solvay People Survey had shown 80% of the respondents saying they were familiar with the Group's five Values, and 56% considered that the Values really "lived", 13% holding the opposite opinion.

The new Code of Conduct is being applied to relationships at work. It was updated in 2006 in close collaboration with the employees' representatives, and is based on respect for the law, humanity, loyalty, equity and responsibility. It draws on documents of international renown, such as the Universal Declaration of Human Rights, the Convention on the Rights of the Child and various other agreements.

The new Code of Conduct lays down practical and precise rules, and applies to all aspects of work relationships, including respect for private life, equal opportunities and non-discrimination. It includes relationships with suppliers and customers, human rights, rights of children and commercial ethics. Training is provided for each person, to encourage all employees to apply the Code of Conduct, and violations of the Code can lead to the application of penalties

Targets for 2012

- Completing (by 2008) the "Living the Values" training program.
- Applying the Code of Conduct systematically.
- Strengthening the legal training of all relevant employees.



Solvay Quimica's program "Direção em Boas Mãos" awards the best truck drivers.



In 2007, the Executive Committee adopted a plan ("One Group, One Code, One Path") for all members of the personnel to be trained in the Code of Conduct.

Anti-competitive practices: learning from the past as a basis for the future

"Solvay activities must comply strictly with the laws in force regarding competition. The Group expects its employees to scrupulously respect this policy and also the accompanying recommendations." (excerpt from the Code of Conduct)

The Solvay Group has been punished heavily a number of times for participating in the past in agreements on prices. In 2006, the European Commission ordered seven European producers of hydrogen peroxide, including Solvay, to pay fines with a total value of 388 million euros. Quite separately, Solvay had to pay a fine of 35 million euros in the United States. Such situations are unacceptable and must not, in any circumstances, be allowed to recur. A legal training program (Online Competition Awareness Program) on the Intranet gives Group employees access to practical lines of behavior in order to avoid engaging in illegal practices. The Legal Affairs Competence Centres has designated "Compliance Sponsors" in each of the Regions.



Equity, diversity and non-discrimination



Strategy

- Throughout the Group, fixing remuneration based on objective and fair systems (such as the Hay system), thus ensuring the total payment is related to the content of each job.
- Ensuring equitable career development for each occupational category, based on a "skills dictionary" and clearly described "families" of jobs.
- Applying rules set by the Code of Conduct for non-discrimination and equitable treatment.
- Appraise how the employees perceive the policy of non-discrimination and equitable treatment.



he Group applies its non-discrimination policy - covering race, sex, religious convictions, nationality and opinions - universally. Recruitment is on the basis of the candidates' skills and abilities.

Each employee is remunerated according to that person's responsibilities and conditions in the local market. For supervisory staff, there has been a comprehensive classification into job "families" since 2004. Use of these "families" enables a more focused management of human resources. This approach makes clear the functions involved in each occupation by relating it to its key tasks and responsibilities, and also to the skills and abilities required. The existence of career ladders linked to job "families" ensures transparency for all the supervisory staff, and greater internal equity. These career ladders are validated using the Hay method of job evaluation, which makes possible comparisons with the market. These systems apply to all Solvay staff members, including those in joint ventures where Solvay owns the controlling majority.

In addition, comparative studies (benchmarks) are carried out in the employment markets to ensure that the Group is an attractive employer, while remaining competitive. The comparative studies relate to both the levels of the jobs and the total remuneration associated with them.

Female employees account for 10% of the total personnel in the Group. The proportion of managerial posts ("supervisory staff") held by women is also 10%.

Solvay takes care to ensure that all employees have access to possibilities for lifelong education and training, whatever their age

Career management

Solvay undertakes to offer everyone a sequence of development experiences that will maximize their potential in terms of productivity, satisfaction and engagement. This approach applies even when development does not necessarily mean promotion, to ensure that each employee is motivated, encouraged and given every opportunity to use his or her talents.

Career management includes consideration of the present and future needs for Solvay activities, and also of the employees' aspirations. This is done through two distinct procedures: succession planning and career development.

Career management is linked with workforce planning, performance and development appraisal, training, development of key competencies and adherence to the Group Values.

Employability is another fundamental objective in the policy for training and development. This is aimed at facilitating internal or external redeployment in the event of a business upheaval, and avoiding the need for early retirement.



- Providing each employee with information on his or her total remuneration package and on his or her position relative to the relevant market.
- Increasing cultural diversity wherever possible in recruitment, and in the levels with greatest responsibility.
- **■** Encouraging the employment of older employees, following a detailed study.

Human Resources policy

Strategy

- Applying policies on Human Resources similar in all our management units.
- Applying the general policy of «Growing our People to Grow our Group», through six specific policies.

Growing our People to Grow our Group: Six priority policies

- 1. Taking account of the Group's five values.
- Identifying Human Resources (HR) needs, in terms of both quality and quantity.
- **3.** Providing all supervisory staff with training through the Solvay Corporate University.
- Ensuring all the supervisory staff use the HR "tools" and models.
- Managing HR processes and using a single information-management system.
- 6. Ensuring excellent performance in HR departments.



YES ! This is a program that encourages the children of employees to visit a foreign country, staying with the family of another Group employee. The child will learn something of

another culture and of a new language. YES ! is intended to give practical effect to the Group's multicultural character in an occupational and family setting.

Human Resources management has embarked on an episode of major transformation gui-

ded by the simple principle of Growing our People to Grow our Group. This perspective is underscored by formal policies in the areas of:

organizational performance management;
personnel and competence planning;

- recruitment;

- training and development;

- career management;

- individual performance management;

- international mobility;

- job "families" and career ladders;
- total remuneration package;
- social management-worker relationships.

The Renaissance plan aims at enabling this transformation to be carried out efficiently and cost-effectively, and the process will last until 2010. It will implement all the above mentioned policies and ensure they are compatible, drawing on an integrated management system, and the Connect IT system will be common to all.

With regard to organizational performance management, the Group is making use of a network of experts (Business Performance Improvement Managers) who provide their expertise as facilitators. It is also supplying appropriate methods to help the managers improve management processes at all levels (sites, Strategic Business Units, Sectors, Functional Directions, etc.)



Targets for 2012

- Strengthening employee engagement to the company and the way it operates at its current high level (≥ 75%) as measured by Solvay People Surveys.
- Carrying out the program to reorganize the main Human Resources management processes (« Renaissance »), and establishing an integrated data-management system (2010).
- Introducing indicators regarding the development of employee skills.
- Making use of the job "families" throughout the Group.
- Identifying staff skills and abilities, and the forecasted needs.
- Strengthening the employee training and development programs.

66

Industrial relations and the management of restructuring

Strategy

- Seeking dialogue with the employees, and being honest and transparent in discussions with personnel representatives.
- When activities are being restructured, encouraging internal reallocation; carrying out mass redundancies only when accompanied by a compensation plan; making use of early retirement as a last resort.
- In our dealings with subcontractors, complying with the Code of Conduct and the Charter in this area.





With respect to industrial and social relations, dialogue comes within the scope of the collective employee representations, wherever such representation exists as a response to national laws, and where our employees have designated their representatives. While such dialogue is considered fundamental, particularly with regard to thoughts on the company's continued existence and performance in the context of overall Sustainable Development, it is not Solvay's role to organize collective employee representation going beyond legal prescriptions. It should be noted that, up to now, Solvay is not involved in any dispute relating to the right of association. Freedom of association is intrinsic to the Group's Values. It may be mentioned that the employee turnover rate in the Solvay Group is particularly low.

A very active European Works Council has been operating since 1996, in application of a European Union Directive. In collaboration with the Group's Management, this drew up a first Charter relating to employee health and safety, a second Charter concerning guidelines on social policy in joint ventures, and a third Charter defining rules of practice in relation to subcontracting.

The European Works Council's permanent working group on Sustainable Development started operating in 2005. It enters into discussions with Group management on such matters. At the request of customers, the pharmaceutical production sites at Weesp and Olst (in the Netherlands) carried out their own assessments in 2004, using a social responsibility schedule reflecting guidelines (OECD, UNO and ILO) recommending how multinational companies should conduct themselves.

Solvay devotes considerable resources to managing restructuring. There is financial compensation, accompanied by internal mobility programs, outplacement services and retraining courses.

In recent years, restructuring has mainly concerned the 2005 sale of our polyolefins activities in Europe and of the industrial (plastic) sheets business to Renolit, closure and conversion of the production facilities at Ebensee (in Austria) and acquisition of the pharmaceutical company Fournier in 2006. There has also been the recent restructuring of our fluorinated products activities, as a response to competition from emerging countries and regulatory restrictions on these products. Everything possible is done to minimize adverse social effects, including early retirements and reassignments of staff to different jobs or different sites. Each situation is handled on an individual basis

Solvay People Survey: a worldwide opinion survey carried out among all the employees

In November 2006, the third Solvay People Survey was carried out, assessing employees (all personnel in consolidated Group companies) opinions on working conditions, to create the basis for a continuous improvement process.

Over 20,000 members of staff (nearly 78%) replied, which is six percentage points higher than in 2003. The response rate exceeded 90% at over 40 sites, which constitutes much higher participation than found in similar international surveys. All the management units communicated the results to their own personnel and worked out their own improvement plans. The improvement proposals were consolidated, and their implementation is being monitored.

- Strengthening the quality of social dialogue with the employees and their representatives.
- Monitoring the improvements decided on following the 2006 Solvay People Survey. and carrying out another survey in 2008-2009.



Th de

The employees as actors of Sustainable development: skills and creativity

Strategy

- Encouraging the development of skills relating to Sustainable development, and getting the Competence Centres involved.
- Including sustainability criteria in innovation processes.
- Encouraging the emergence, at each level of the Group, of a view of Sustainable development derived from discussions with the various stakeholders, and encouraging a creative approach through fora to share views.



Assessing innovative approaches: the Score Card used in each entity

This card brings together the key indicators that provide an overview of achievements in meeting innovation objectives. In particular, the Score Card takes account of the extent of employee participation in innovation projects and the proportion of projects carried out in collaboration with external partners, which is a key component of the Sustainable Development strategy.

Innoplace, managing creativity through a set of 127 interconnected ideas boxes

Innoplace, Solvay's tool for managing innovative ideas from all over the world, won the best Intranet prize in 2006 in France, in the e-Learning and Knowledge Management category, against 46 competing initiatives presented by large companies and other organizations such as Airbus, EADS, BNP and Caisse des Dépôts. The October 2006 Prize ceremony was organized by CEGOS, Entreprises & Carrières and Les Echos (France).

Innoplace in the beginning of 2008 contained about 50 000 ideas.



he program to make aware of the growing requirements in relation to products and practices that are more sustainable will shape the innovation programs. The Group's managers and employees, together with external stakeholders, are those who drive innovation. Line managers, are responsible for ensuring that the challenges of sustainable development are taken into account, and that attitudes and behavior develop accordingly.

There is a Sustainable Development Steering Committee to support this process, suggesting methods and encouraging implementation. The first internal fora to raise awareness of sustainable development were convened in 2007, following the first seminar on this subject organized in 2005 by the European Works Council (see page 59). They aimed at establishing a shared view that has long-term validity in these areas.

Internal abilities relating to social, economic and environmental management will provide the foundations for the new Sustainable Development strategy. There are 250 people coordinating the management of health, safety and environment issues, liaising with the relevant Competence Center on these questions. We rely also on the internal abilities in process engineering, to develop safer and more (eco)efficient production processes. This has produced processes that are more sustainable, with production accompanied by recycling (for PVC and fluorinated products, etc.), heat-and-electricity cogeneration units, the use of biomass, and environmentally friendly technologies such as the NOVOSOL[®] process for treating polluted sediments (see page 55).

The Solvay Corporate University, created in 2007, is aimed at providing the skills and abilities needed to develop supervisory careers, involving for example management of teams and of people from a variety of cultural backgrounds, and serving a shared long-term view for the Group's

Targets for 2012

- Establishing a discussion forum at each site, bringing together employees and management of all levels, to initiate and provide support to the Sustainable Development projects of each site.
- Including Sustainable Development in the training of employees at all levels.
- Developing multidisciplinarity and networks, and encouraging employees to establish imaginative collaboration with outside people and organizations.
- Strengthening dialogue and coordination between installation designers, production supervisors and specialists in risk management and sustainability.
- Developing an internal network of people to take over Sustainable Development responsibilities.
- Ensuring 100% participation of the supervisory staff in at least one session (by 2010).

Third Solvay «Science for Innovation» conference

One of the fundamental aims of Science for Innovation is to increase the number of contacts and opportunities for synergy between Solvay's internal and external scientists, and to develop networks of InnoCentive-type involving all the Group's Sectors. The 2007 conference was devoted to "Building up complex materials: from nanoscale to end-use properties", with Professor Jean-Marie Lehn, Nobel laureate in Chemistry 1987, and Robert B. Laughlin, Nobel laureate in Physics 1998. The conference drew over 150 high-level experts and researchers working for the Group in Europe, the United States and Asia, together with about 30 representatives of the international scientific community. The Science for Innovation program stresses the interactive nature of science, using numerous practical exercises linked to a specific problem or more general issue.


Solvay Corporate University

Linking across the various organizational structures or regions, the Solvay Corporate University is a new institution aimed at supervisory staff training and development throughout the Group. The Solvay Corporate University aims at reinforcing the key skills and abilities that are necessary at a given stage of a career, reinforcing the competence in strategic areas, and assisting a shared approach to the Group's strategy, Vision and Values.

Ultimately, there will be a new instrument to monitor and quantify the effectiveness of this lifelong-learning initiative.

The Corporate University's Leadership Pipeline is a fundamental stimulant to Solvay's corporate culture; it is based on the idea that there are latent managerial capabilities within the Group that can be exploited provided that the individuals are given appropriate preparation to develop their skills. The Leadership Pipeline comprises five levels of training – Applying, Implementing, Developing, Integrating and Changing – corresponding to the fundamental stages in a manager's career. Another important function of the Solvay Corporate University will be to familiarize new recruits to the Group, and executives in companies acquired, with Solvay's managerial practices and leadership style. It will be an important factor in attracting and recruiting new employees, and retaining them over the long term.

Up for discussion

Innovation as a break with the past... and a taste for risk!



"Our markets will be different tomorrow. We will be familiar with sources of motive power that are much more efficient than the internal combustion engine, and with revolutionary forms of lighting and printed display screens. Technological firms can no longer content themselves with just being suppliers of materials. Solvay cannot restrict itself to the products that made its fortune in the past and that are still doing so today. We need to make some clean breaks, get out of our old habits, reorganize our internal sources of expertise, and supplement them with contributions from outside. We can therefore no longer just occupy our own niches in a

logistical sequence, however well it is performing.

"All of this calls for a change of direction. It is for each employee to feed into the system at that person's own level; to get involved by acquiring training and information. In other words, each person needs to think, and to be prepared to act differently, changing habits, becoming committed, and being prepared to take more risks – calculated ones! - in the course of work. This has already happened in the pharmaceutical sphere, being the price to pay for added value. And it is a narrow road, where we need to turn more in the direction of our customers, discover their unvarying needs over the long term, and provide usable technological solutions.

"Agreeing to test 10 ideas and then, with no implication of failure, selecting just one, constitutes another cultural revolution. This innovation culture demands more than a flabby consensus based on habits. It requires that we are ready for a clean technological break, and it requires leaders. In this sense, present circumstances are definitely inviting us to be part of a revolution. It is also a positive and fascinating challenge."

Léopold Demiddeleer,

Manager of the Future Businesses Competence Centre.



Achievements of social utility

A revolutionary treatment that improves the quality of life for Parkinson's patients

DUODOPA® is a levodopa-carbidopa combination making it possible to treat Parkinson's disease at a late stage

A unique delivery system, with a programmable pump allows both the physician and the patient to individually fine-tune the delivery of active ingredients, suspended in a stable gel, from a cassette worn outside the body.

Parkinson's affects both men and women and, among the neurodegenerative disorders, is second only to Alzheimer's disease in the number of cases, with more than 1 million patients suffering from it in each of the most major countries.

"I was busy all day keeping track of which pill I had to take when. Some I had to take every four hours, others every two hours. I am getting some freedom back into my life!"

Simon Hulzebos (aged 66) from Sittard suffers from Parkinson's disease.





PVC has undoubted physical and sanitary qualities. This pair of observations has produced shelters, called Shelt'Easy, for crisis situations.

A team led by Philippe Bourgain of the Build Valley company, together with Solvay and SolVin, and the plastics processing company Maine Plastiques developed these lightweight emergency shelters for use in difficult climatic conditions. Their design means they can be used for longer, meeting needs for which tents, the usual shelters in emergencies, are not well suited, to house family groups of four to six people, and providing them with latrines and showers. They are lightweight, easy to erect and dismantle, come at an acceptable cost, and have the further advantage of being self-supporting. The Shelt'UP (19m²) and the sanitary cabin easyCAB (1m²), have been tested in realworld conditions, in the Sudan and Chad by renowned NGOs. The industrial production is in place, and marketing started in July 2008.

www.easy-shelt.com







The Solvay group's activities present opportunities to improve living or working conditions, to help people in difficulty or to contribute to initiatives that benefit the environment. Here are some examples.







With a floor area of 2,760 m² on three floors, and including offices, meeting rooms and a roof garden, the new building makes use of a range of cutting-edge technologies. The aesthetics mirrors its energy-conscious design.

The building has a steel-based construction using a "blue wall" system: double glazing combined with a vinyl "skin" positioned 80 cm from the outside wall; this ensures the cooling by convection in the summer and the heating by a greenhouse effect in winter. Its compact size keeps heat losses to a minimum, while the central light-well stimulates natural internal ventilation. Photovoltaic cells in the roofing will produce 60% of the building's electrical needs.

Cristofani, the architect, paints the picture:

"By exploiting the quality of the glass, the whole suggests a giant crystal, set in a mineral matrix. What I see there is material being transformed or reinvented by the magic of Solvay's chemistry. The two parts are having a dialogue with each other, bringing the surprising building to life, as if springing up from making a discovery, like a mineral emerging when the earth is removed."



Regeneration of corals in Thailand by using PVC pipes

Vinythai – the joint venture between Solvay and Charoen Pokphand In Thailand – is supporting a project to promote the regrowth of corals by using PVC pipes.

The first experiment with cultivating and regenerating coral fragments by means of a method respecting its natural growth process is meeting success.

Damaged fragments of coral are placed in tubes made from PVC piping to form a framework. Divers then lay these on the seabed, which is the coral's natural environment, and the plastic has been found perfectly suitable for the marine environment.

The local Thai population, including the children, can themselves make the plastic frameworks. Support from Vinythai relates to cultivation of the coral, and also to research activities. A youth camp, meanwhile, offers the young people practical experience of marine sciences.



Living in harmony with the local communities and respecting their environment



Dialogue, with participation in the life of the community Continuous improvement of environmental performance Creation of local wealth Development of the local economy

Protecting local residents

The situation as seen by a neighbor of one of one of one of our plants

"

For nearly 10 years now I have been observing the action taken by Solvay Indupa in relation to social responsibilities. During the past six years, we have seen action being taken on a more ad-hoc basis. I have been particularly impressed by two projects: Curta Química e Natureza and Fibras da Serra. Both are being carried out in collaboration with the local community in the relevant district of Rio Grande da Serra city, in the immediate neighborhood of Solvay's Santo André site.

Even though both of those initiatives are very good, they are temporary projects. I would therefore like to suggest something to Solvay Indupa. A firm of this size should be able to establish a sustainable and lasting project in Rio Grande da Serra, where most of the residents are really very poor.

The employment available in the town is insufficient for the resident population, and government statistics show that, over time, it is falling. In addition, as our town is considered a nature protection area, it can no longer accept any new industry, from any sector.

Therefore, developing such long term projects are necessary to provide stable incomes for families. This would very probably get them to understand that a social project should not be confused with social or welfare assistance. I wholly agree that a good social program should teach people to fish and not to spend their life waiting for fish to drop from the sky.

Having said that, I would like to stress that we are all very grateful for Solvay's social initiatives and for the help they are providing to all the charitable organizations in Rio Grande da Serra.

"



Jucilene Aciole Silva, resident in the vicinity of our Santo André plant, Brazil Administration Coordinator of Sagrada Família, Brazil

Sagrada Família is a philanthropic organization that provides families with a temporary home, and assists their social reintegration.



4 4 31 3

Local communities

Raising

community dialogue and participation in local life (neighbours, authorities, associations...)

Improving

environmental

performance



We have a rigorous program for the regular verification of the control of technological risks associated with our activities. In particular, there are special programs to bring recently acquired plants up to the required standard. There are also about 40 sites with installations classified as involving "major risks"; in all these cases, there are specific systems to protect against the hazards.

There are a great many initiatives being taken to reduce the environmental impact of our activities. New investments in this area are planned for more than 80% of our sites, with the emphasis on water economies at the sites where this resource is most scarce. In addition, there are specific programs at 33 sites for management of historic pollution of the soil. Hand in hand with these forms of action are the last stages in establishing an environmental management system of ISO-type (or equivalent) for relevant sites throughout the Group.

Dialogue and trusting relationships – together with safety and the control of environmental impact and other adverse effects from our activities – constitute the leitmotif of our local initiatives. They determine what policy we adopt and the action we take to meet expectations, while addressing the issues and meeting the specific needs of communities adjacent to our sites. All the sites are keen to extend this dialogue.

We see our ability to monitor our environmental performance and communicate the results as an important aspect of our Responsible Care[®] commitment and policy.

Contributing

to local wealth : employment, salaries, purchase of local goods and services

Strengthening

local development : clusters of economic activities, infrastructures and equipment, competencies

Protecting

neighbours and their living environment : health, environment, employment, major risks prevention

Progress in meeting 2005-2008 targets

2008 target achieved

in progress

"The truth behind the precautionary principle can, I think, be expressed simply: Do not wait for a risk to materialize so that you can calculate its impact precisely and then take action to reduce or eliminate it. The idea is not at all 'If in doubt, hands off' but, on the contrary, 'If in doubt, take action.' If well understood, the precautionary principle is not a principle to proscribe, it is a principle prescribing action."

André Comte-Sponville, philosopher, at the Sustainable Development Seminar of Solvay's European Works Council, 2005

CA The idea is not at all 'If in doubt, hands off' but, on the contrary 'If in doubt, take action'. **J**J

Networking with the local communities

As part of a policy for long-term relationships and continued existence of our production sites, we envisage extending our opinion surveys and, whenever necessary, strengthening direct communication with local residents and their representatives. This relates particularly to environmental issues, accident prevention and means to reduce nuisances produced by our activities.

Numerous forms of dialogue have been applied over many years: open days at the plants, regular communication with the local authorities, information on major risks, and involvement in social, business and educational projects, depending on specific local factors. Another type of interaction, contributing to a shared vision of the world in which we live, comes from providing young people with occupational training, and additional financing will be allocated for this.



In 2008, His Majesty King Juan Carlos visited the facilities of the plant of Torrelavega (Spain) to commemorate its centenary.

Preventing accidents and preparing for emergency situations

Strategy

- Designing, building, operating and maintaining our installations with a view to minimizing the risks and aiming at "zero accident".
- Giving priority to intrinsic safety for substances, processes and equipment.
- Using safety management systems reflecting the principle of continuous improvement, and periodically having their performance assessed by auditors from outside the site.
- Deciding on local action plans that include the Group's targets.

Sites complying with the risk engineering audit programme of the Group

100% % of sites

An environmental incident that could have had more serious consequences

One of the main environmental accidents to have occurred recently was close to the Bernburg plant in Germany, which produces sodium carbonate. One of the embankments enclosing a sedimentation basin collapsed, over a length of 200 metres, causing an outflow of slurry onto a road adjacent to the site. The sedimentation basin is used to separate suspended inorganic matter from the aqueous effluent arising from the production of soda ash.

The accident was linked to a change in the drainage conditions from the sedimentation basin, leading to excessive pressure on the containing walls. Using infra-red cameras, the police were able to confirm very quickly that nobody had been caught up in the collapse. We then recovered the residues and subsequently installed additional equipment to detect any abnormal increase in pressure on the embankments. The accident had no lasting impact on the environment.



Adopting reference "tools" throughout the Group, together with appropriate management systems and verification, is helping produce a common approach to protecting against risks and harmonizing performance Group-wide (*). The "tools" used to identify and assess the potential hazards include the Safety Integrity Level (SIL) method for the design of instrument-controlled safety arrangements and HAZOP (Hazard & Operability) studies for all proposed new or modified installations. Risk-based Inspections are used as the basis for programs to inspect physical integrity, and these are fine-tuned to suit the risk level of the installations and equipment being considered.

There are ad hoc safety management systems in operation at all the major-risk sites (referred to in Europe as "Seveso sites"), of which there are about 40. The verification of systems are both internal and external. In these classified sites, specific safety management systems and risk prevention systems are in place. Emergency preparedness and public information plans have been developed in compliance with regulatory requirements. Exercises and simulations are held periodically, to check on and improve the plans and their practical application.

All the industrial sites undergo periodic "risk engineering" audits, with input from external experts. These audits are carried out at intervals of three to five years; they monitor the physical and functional integrity of installations, looking also at management systems designed to protect against incidents and various forms of deterioration, damage and loss. The observations made in the course of these audits serve as a basis for drawing up improvement plans. Such plans are monitored using an information system covering all the Group's management units.

Safety management is supervised by the Health, Safety and Environment Competence Centre

(*) See Systems and tools, page 88

Targets for 2012

- Extending the risk-based Inspection system for predictive examination of the physical integrity of installations to all the Group's major-risk sites.
- Obtaining OHSAS 18001 (**) or equivalent certification for safety management systems at 30 sites.
- Introducing new performance indicators relating to control of technological risks (technical safety).
- Harmonizing the reporting of technical incidents, and improving the use made of feedback from experience.

(**) OHSAS 18001: Occupational Health and Safety Assessment Series 18001: standard compatible with ISO 9000 and ISO 14001.

See also the Targets for 2012 regarding the safety of persons, in the "Employees and subcontractors" chapter, page 63.

Health, safety and environment management in newly acquired plants

Strategy

- Drawing up an in-depth inventory for the situation at sites which have been acquired.
- Working out improvement programs to bring those sites up to the level of comparable Solvay sites.
- Including the plants in the Group's reporting covering safety, the environment and employees' health, within two years following the acquisition.



The Group's safety standards have been implemented at the production facilities taken over from the Fournier pharmaceutical company (in France and Ireland) following acquisition of that company in 2005. This involved inclusion in the Group's programs, in the OHSAS 18001 audits, and in initiatives in the areas of ergonomics and accident monitoring. These activities have led to a very significant reduction in accidents (see figures).

At the Panoli site (in India, devoted to the production of specialty polymers), which was acquired in 2006, the action plan focussed on the health and safety of employees, and the environment. From the time of acquisition, safety results were included in the Group's overall reporting system, and a "risk engineering" audit, bringing together local managers and Group representatives, was conducted. There was already a formal policy and a continuous-improvement process operating on the site, and it merely had to give increased emphasis to the management of chemical hazards and to safety during maintenance. An in-depth diagnosis of environmental performance led to improvement of the biological treatment plant and addition of a very modern unit that will make it possible to treat the water effluents from production of polyether-ether-ketone (now planned), and to comply with standards for the water receiving the effluent.

At Devnya (in Bulgaria), the production of soda ash has been brought up to standard, with an IPPC operating licence obtained. The two units – for energy production and the soda ash production unit – forming the industrial complex can expect, very soon, to reach the level of environmental performance specified as European Best Available Technique (BAT)

Seven years' progress at the Deven (Bulgaria) Solvay Sodi plant

The Devnya industrial complex, acquired in 1997 and coupled with a dedicated power station, has a capacity to produce 1.2 million tonnes a year of sodium carbonate. Stages in this process are:

- 2003: modernization of boilers, with dramatic reductions in emissions of nitrogen oxides (NO_) and carbon monoxide;
- \bullet 2006: emissions of ${\rm SO_2}$ reduced by 50% through changes in the type of coal used;
- 2006: the power station producing the energy needed on the site received a new operating license, indicating compliance with the EU's Integrated Pollution Prevention and Control (IPPC) Directive. This license requires monitoring of emissions into the air and releases into water, in compliance with the Directive, and continued upgrading of environmental performance to reach a level meeting the EU's Best Available Technique (BAT);
- 2002-2007: program for the protection of employees at their workstations, notably in respect of asbestos and Legionnaires' disease;
- 2008: further reductions in emissions of NO_x and CO₂, through installation of fluidized-bed combustion equipment;
- 2009: creation of a dedicated landfill facility, with recourse to the local dump for power-station ash ceasing.

- Continuing to bring the acquired sites within the scope of Solvay standards.
- Applying this policy when developing activities in countries with stronger growth, in the framework of the Group's geographical expansion strategy.



Management and control over local environmental impact

Strategy

- Progressively bringing all the production plants up to the environmental performance level of the best.
- Continuing to reduce emissions into the air and into water for targeted parameters: both in total and per tonne of output.
- Reducing as much as possible the final waste products, and establishing sorting and recycling arranaements.
- Providing all relevant sites with improvement plans reviewed by the site management, and the main aspects of which have been discussed with the Group's Health, Safety & Environment Competence Centre.



here are plans in progress for improved environmental management at 80% of the sites. At 28 of those sites, these plans will result in very specific, but significant improvements effluent quality and will be implemented rapidly.

This relates, in particular, to controlling the emissions of substances that are classed as priority substances in relation to their potential environmental impact. The improvements for these substances generally have only a small visibility in the Group's overall indicators. The objective is to comply strictly with environmental quality standards for the receiving environment and, of course, with the environmental permits.

Consumption of drinking-quality water and of underground water have fallen significantly since 2003 (by 29% and 16% respectively). The quantities of waste products treated or put into landfill, whether or not classed as toxic, are unchanged from the 2003 level.

The performance improvements that are now in progress generally fall into one of the following five categories.

- 1. Alignment of environmental performance with Best Available Techniques (BAT) : these are set in accordance with the EU's IPPC framework Directive, and are the reference standards for authorization to operate within the European Union, and in some cases outside the EU. All the relevant Solvay plants worldwide are progressively aligning their performance with these BATs.
- 2. Compliance with European producers federations commitments, notably the Euro Chlor charter (relating to chlorine and derivatives production) and the ECVM charter (for PVC production), supplementing or going further than the BATs.
- 3. Reducing the use of organic solvents in pharmaceutical production, and seeking synthesis routes that are more direct, involving fewer stages. Our policy also involves making use of raw materials in a preferred list, particularly for the synthesis of new pharmaceutical compounds. However, regulatory requirements for registration sometimes make it difficult to change manufacturing processes.

Significant progress has been made since 2004, notably in relation to releases of priority toxic substances (especially heavy metals) into water. The indicators for global emission into water and air have fallen significantly. Relative to the Group's volume of business (+37% as indicated by the sales value), the changes since 1995 in global indicators for releases into the air (-45%) and into water (-32%) amount to reductions of -64% and -52% respectively.



Data on emissions related to energy production are presented in the "Society" chapter page 34. Reporting of comprehensive environmental data, with yearly updates, see solvaysustainable.com

- 4. Seeking enhanced performance in new production plants, particularly the new PVC units planned for RusVinyl, which will be one of the best-performing in the world (see box), and the hydrogen peroxide plant in Belgium, to be operated in partnership with BASF and Dow. The latter will, for the first time, make use of new pre-treatment processes for effluents, allowing them subsequently to go to biological treatment plants shared by a number of urban or industrial entities.
- 5. Restoring sites where limestone quarries were operated and those with settling ponds for mineral residues, following shut-down of those facilities: hundreds of hectares have been reforested and, in some cases, converted into nature reserves (notably in Santa Lucia in Italy, and Couillet in Belgium)

Targets for 2012

- Reducing the Global Air Emission Index by 20% (*) between 2006 and 2020.
- Reducing the Global Water Emission Index by 20% (*) between 2006 and 2020.
- Getting membrane technology for electrolysis to produce chlorine and caustic soda up to 75% of the total production capacity, and progressively converting the mercury electrolysis units.
- (*) assuming comparable activity perimeter

The large PVC plant in Russia will be wholly compliant with EU BAT standards

The PVC plant now being designed will have an annual capacity of 330,000 tonnes and be among the best performing in the world, complying fully with the EU's Best Available Techniques (BAT) standards. A unit is scheduled to treat all of the chlorinated organic by-product residues, recycling them into hydrochloric acid. Performance will be particularly high in terms of recycling salts (chlorides).

Moreover, all the PVC production plants worldwide comply with the terms in the charter adopted in 1995 by the European Council of Vinyl Manufacturers (ECVM), particularly the strict limits on emissions into the atmosphere and releases into water from units producing either suspension PVC (85% of output) or emulsion PVC. The limits are in line with those resulting from the international OSPAR Convention on protection of the north-east Atlantic.



Rusvinyl project in Nizhniy Novgorod: new PVC manufacturing plant.

Outstanding performance by Solvay Flúor México

Solvay Flúor México performed outstandingly in terms of environmental compliance in 2006. It was able to complete an internal audit, without any observation. The plant had already been awarded the "Clean Industry" certification by Mexico's Federal Agency for Environmental Protection.



Best Available Techniques (BATs): European industrial reference standards in relation to the environmental performance

Dealing together with all types of pollution – of air, water and waste products – is replacing separate regulatory requirements for each environmental compartment, which was the earlier approach. The resulting BREFs (BAT reference documents) specify the Best Available Techniques from a technological and environmental perspective, and these now constitute the framework within which operating permits are granted in the EU.

Solvay has helped set some of these reference standards, notably for PVC and sodium carbonate production, two of the Group's main products.

The program to introduce new production units for chlorine and caustic soda, moving from electrolysis using mercury to membrane technology, is continuing. The new unit at Rosignano (Italy) was inaugurated in late 2007, bringing the proportion of our installed capacity using this technology up to 45%. The new units have environmental advantages, other than just getting rid of mercury: up to 18% saving in electricity usage when compared to the old process. On the other hand, all our mercury units still operating comply with the most strict environmental regulations in place.

Changing production technology for chlorine and caustic soda % of Solvay's total production capacity



Systems for environmental management and compliance with regulations

Strategy

- Applying Solvay's Responsible Care® policy and the Guidelines specifying how that policy must be applied.
- At the sites where there is a significant risk of adverse environmental effects, establishing environmental management systems of ISO 14001-type (or equivalent) and getting them certified.
- Using these systems to characterize the risks and ensure they are controlled.
- Verifying and ensuring compliance with the regulations and operating licenses.



Our production plants for plastics, chemicals and pharmaceutical products, and those producing vehicle fuel systems (Inergy Automotive Systems), in view of their nature and the production volumes, present potential risks of adverse environmental effects. At such sites, environmental management systems (*) are used, generally of ISO 14000-type in Europe, with similar systems elsewhere. In the United States and Argentina, for example, the management systems generally stem from the national Responsible Care® program, while in Australia and the United Kingdom other systems, such as British Standard 7750, co-exist.

In 2007, these environmental management systems were in operation at 87 of the 97 relevant sites (43 chemical, 4 mixed chemical and plastics, 24 plastics, 24 lnergy and 2 pharmaceutical), and 63 had certification. Most sites involved in plastic processing that produce pipes and fittings (those of our joint Venture PipeLife) or in pharmaceutical production do not require such complex management systems.

These systems include verification of compliance with laws and performance documentation. In addition, they require regular Management reviews, and application of the continuous-improvement procedure "Decide, Plan, Implement and Verify"

(*) See Systems and Tools, page 88





- Obtaining ISO, EMAS(*) or equivalent environmental certification for all relevant sites(**).
- Ensuring that all the sites operated by Solvay or Inergy have an integrated system to verify compliance with the regulations.

(*) EMAS : European voluntary Eco-Management and Audit Scheme

(**) Manufacturing sites for plastics and chemicals, and main pharmaceutical production sites, but excluding activities in plastic processing to produce pipes and fittings (PipeLife).



The Map Ta Phut site (Thailand), producing PVC and hydrogen peroxide, certified ISO 14001

5

Management of contaminated soil and historic pollution

Strategy

- Protecting underground water resources and surface water, and the health of local residents, through a program, at all relevant sites and following indepth diagnosis, for control of risks due to historic contamination of the soil.
- Making such programs a permanent feature of the environmental management.

Tavaux: management of a soil liability through close collaboration with the local authorities

Pollution of the water table under the plant at Tavaux (France) was identified and, in 1987, subjected to an order from the local authority. A hydro-geological containment has been installed, in order to prevent the pollution from migrating elsewhere. In 2004, an independent body carried out an in-depth analysis of the health risks which, despite the containment measures, revealed a need for the authorities to restrict certain uses of the groundwater resources. It should be noted that the area within which use of the groundwater was restricted had never been used to feed into the public supply of drinking-quality water.

In the area affected, the restriction relates to the use of individual wells as a source of drinking water. Over a more limited area, the restriction extends to bathing water (for private swimming pools). Other uses, such as watering gardens and crops, or watering livestock, do not present any particular risk, and are therefore not subject to any restrictions.

Cooperation with the local authorities (town councils, and health and environmental authorities) has been close, and characterized by transparency. **I** he Group has developed skills and internal know-how relating to management of historic soil contamination. To begin with, there is a hydro-geological diagnosis and characterization of the contamination, making it possible to assess risks to the ground water and, if necessary, work out plans for containment or remediation. These plans are discussed with the authorities.

After the soils and underground water resources had been characterized at 50 currently active sites, programs for continuous monitoring of the underground water were established.

This action has been taken over the past 15 years, with measures to confine soil contamination at 23 sites where active protection of the ground water was needed. In addition, Solvay teams also undertake monitoring at a other sites that have been sold, or where the Group no longer undertakes industrial production.

The solutions vary greatly. At Onsan (South Korea) for example, when the production of barium and strontium carbonates – used among others in cathodic television tubes - ceased in 2005, and in addition to partial recycling of the effluents to produce a road-construction material, 140,000 tonnes of semi-liquid wastes were transferred to an approved disposal site. Soil remediation and monitoring are expected to continue for a few more years.

At Martorell (Spain), where solvents had penetrated to the water table below the Group's site, a combination of measures has been applied, starting in the 1990s, to protect the groundwater resources that extend outside our site: hydraulic confinement of the water, biological remediation and air cleansing of the water extracted from underground. These measures are backed up by a network of 20 or so monitoring wells.

The plants at Bussi sul Tirino and at Spinetta Marengo (Italy), taken over from Montedison in 2002, have since then been subjected to a thorough investigation and environmental monitoring, beginning with a detailed characterization of the soil and underground water. This led to a hydro-geological model being drawn up and technical intervention being implemented in close collaboration with the relevant authorities, the aim being to confine and remediate the site's historic contamination.

As knowledge-sharing is a key factor for managing soil contamination, Solvay participates in the European NICOLE network, where the rapidly growing experience and knowledge in this area of risk management is shared. Data from monitoring the groundwater at Solvay sites are steadily being collected in a central Geographical Information System (GIS) database



Units to treat contaminated underground water at Bussi sul Tirino (Italy)

The technical solutions for protecting underground and surface water resources vary considerably. Düsseldorf (Germany) provides a good example of a project that is soon to be completed. The site has been acquired in 1965 and has ceased activity in 1998. Soil remediation began there in 1996. The good results obtained and precise monitoring of what was happening in the subsoil made it possible to hand over the land with authorization for it to be built on.

- Completing the program to characterize soil and underground-water contamination, and to assess risks.
- Applying securing containment measures for underground water when justified by new results from risk assessments.
- Testing new remediation techniques, such as in situ heat treatment.

6

Verifying and publishing data on emissions into the environment

Strategy

- Monitoring emissions at all the sites and ensuring the accuracy of data reported to the authorities, in accordance with obligations to give public access to environmental data.
- Internally reporting on emissions into the environment from all the sites, consolidating the data using a single standardized system, and making inter-site comparisons.



http://eper.eea.europa.eu/eper/

Environmental data published in a variety of media

solvaysustainable.com : Data for all sites (112) according to CEFIC (*) classification types	air	Particulate matter; sulfur oxides; nitrogen oxides; volatile organic compounds; volatile inorganic compounds; metals
	water	Chemical oxygen demand; priority substances; metals
	waste products	Non-hazardous; hazardous
	impact indicators	Substances with ozone-depleting potential; substances with a potential greenhouse effect; $\mathrm{CO}_{\rm 2}$
	natural resources	Consumption of water; consumption of energy
Local reports and public registers PRTR and TRI: (**) parameters specific to each production site		Over 30 sites included by the authorities in PRTR or TRI reporting for their emissions; data then accessible via the Internet. Most of our main sites publish local environmental reports.
Reports relating to the voluntary multi-firm commitments: parameters specific for those commitments	Euro Chlor (***)	Emissions of chlorine, chlorinated organic compounds and mercury. Production methods. Consumption of water and of energy. Consumption of hydrogen as a raw material; as a fuel. Transport of chlorine (quantities and methods); transport accidents. Accident frequency rates involving stopping work; accidents invol- ving processes, and product losses.
	ECVM (****)	Emissions of vinyl chloride, 1,2-dichloroethane, hydrochloric acid, ethylene, dioxin-type compounds, and copper.

(*) CEFIC: European Chemical Industry Federation (**) PRTR: Pollutant Release and Transfer Register. TRI: Toxic Release Inventory (***) Euro Chlor: European Association of chlorine and caustic soda producers (****) ECVM: European Council of Vinyl Manufacturers

Monitoring of emissions into the air and of releases into water is handled locally, generally looking at the concentration (in grams per liter of air and water) in the substances released into the environment. The limits specified by operating licenses vary, depending on the medium into which the release is made. The licenses also specify, for the relevant site, what analysis methods are to be used for assessing the quality of aqueous effluents or of emissions into the air, and the locations where sampling is to take place. In order to ensure that uniform and valid measurement methods are used, a major international comparative study is being undertaken in the Group, aimed at establishing the quality of the methods and upgrading to the level of the best.

This involves 112 sites, and their data on emissions into the environment are fed into the SERF (Solvay Environmental Releases File) information system, where they are consolidated for Group monitoring in terms of annual quantities (tonnes/year). This represents all the production plants, including those of joint ventures where there are significant emissions into the environment (the activities of PipeLife – the manufacture of pipes and fittings – are thus not included in SERF). SERF covers 250 parameters relating to emissions and releases, and to energy consumption.

In accordance with their licenses, each plant also has to make public its emission data to the relevant local authorities. In addition, the relevant sites in the United States and Europe (currently over 30), submit reports to public-access systems: the European Pollutant Release and Transfer Register (PRTR, ex EPER - data available on the site www.eper.cec.eu.int/ or visualized on www. cec.org/naatlas/prtr) in Europe, and the Toxic Release Inventory (TRI – www.epa.gov/triexplorer/ statefactsheet.htm) in the USA.

Our environmental data are published in a variety of media, according with the spirit of the Aarhus Convention on public access to information on the environment (see table). In particular, detailed consolidated data for the 112 relevant sites, updated annually, can be accessed via the Internet (solvaysustainable.com)

- Making available by sites with potential significant environmental impacts, annual data on emissions and releases, along the criteria of public databases of PRTR or TRI-type (**), and in accordance with the Responsible Care[®] Global Charter.
- Progressively harmonizing methods for monitoring effluents.
- More systematically check the emissions as compared to the environment quality standards of the receiving medium.
- Developing for our main product ranges the use as management tools of specific emission indicators – emissions per tonne of output manufactured and environmental impact indicators.



Local communities

Dialogue with local communities, contributing to local life and prosperity

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Strategy

- Opening up the plants to people and organizations in the vicinity and maintaining a constant dialogue and longterm relationships with the neighboring communities.
- Monitoring the changing expectations of local residents.
- Taking part to the local economy and society, through appropriate contribution to their needs.





Solvay has always participated fully in the communities where it operates. In the 19th century, the company was already taking responsibility for local social and medical assistance and setting up schools at a time when national governments had not yet fully taken charge of those functions. From that time onwards, corporate social responsibility has evolved, and now requires increased dialogue and networking with the local communities and responses to evolving concerns: local economy, employment, education, training of young people received on work-experience schemes, management of nuisances and risks, and work opportunities for disabled people, etc.

Forms of action initiated by our production sites vary tremendously. In 2006 for example, over 30,000 people living adjacent to our sites were welcomed at site "open days". These events provide special opportunities to establish links and identify new possibilities for communication and collaboration.

Proper integration of local subcontractors, together with the provision of training for them, assists the local economy, as does the inward movement of other firms, which settle at our sites and benefit from the use of shared infrastructure. There have recently been examples of this at our sites at Tavaux (France), Rosignano (Italy), and Jemeppe and Neder-over-Heembeek (Belgium). In certain cases also, safety teams from our sites provide support for local civil protection services.

The Group's new Youth Employment Scheme aims to offer young people living in the vicinity of our sites training and work experience that will enhance their skills and employability (see "Society" chapter, page 36)



Example of infrastructure sharing: The young company Artelis has moved to Solvay's Research and Technology centre in Brussels, Belgium. It specializes in new components for cell cultures, the focus being on disposable solutions, with a higher biological safety.

- Establishing projects at all sites that encourage employee participation in the life of the local community.
- Regularly conducting opinion surveys about our activities among the communities living in the vicinity of our large production sites.
- Increasing the consistency of Group initiatives relating to dialogue with the neighboring communities and reconciling them with our internal channels of communication, involving Strategic Business Units, Competence Centres, the Solvay regional structure and individual sites, etc.
- Extending the use of electronic means of communication: websites, blogs, text messaging, etc.
- Increasing local residents' preparedness for crisis situations in the case of sites classified as involving a major risk.

Some illustrations of our involvement in society at the local level



2006 was marked in particular by Solvay Indupa's sponsorship of the *Curta Química* e *Natureza* project, in which students from Rio Grande da Serra produced short films on chemistry and nature, with practical assistance from *Estúdio Brasileiro*. The project involved 11 schools, thus allowing a disadvantaged community to find a new means of expression, in the form of the cinema. The films have been screened at a number of film festivals.



In the USA

Solvay Pharmaceuticals is providing medicinal products to destitute patients, and helps students that have cystic fibrosis. The former initiative comes within the scope of of the Patient Assistance Program (PAP), which the United States introduced in 1993. Solvay is making medication available to impoverished patients who meet the criteria laid down for the USA's Medicare program. The telephone centre that deals with patient registrations started operating in April 2005, and by the end of 2006 had already been contacted by 4 million potential beneficiaries. During that period, the PAP accounted for a total of 20 million USD.

In 2007, Solvay Pharmaceuticals also provided 100 two-year study grants for students living with cystic fibrosis. This is a life-long disease which is very disabling, involving heavy expenditure for the families of those affected. Since the arrangements began, about 15 years ago, some 400 grants have been provided, with a total value of more than one and a half million dollars.



In Hanover (Germany)

There is a Solvay day nursery offering chemical investigations for children aged five to seven. The emphasis is on experiments that the children can carry out and explain themselves, using domestic objects: yeast, vinegar, balloons and bottles. Such ingredients allow the "SOLkids" to explore the world of natural sciences.



In Povoa (Portugal)

The Solvay Chemicals plant at Povoa regularly welcomes young mentally disabled people, to give them an opportunity to develop their abilities and sense of responsibility, under the direction of a specialist occupational therapist. This involves accomplishing a variety of simple tasks, such as washing the company's vehicles.







In the People's Republic of China

Solvay Employees from all over the world collected 1.4 million renminbi, or CNY, (equivalent to 130 000 EUR) to provide assistance for victims of the earthquake that struck the Sichuan region in May 2008.

The enormous demonstration of solidarity involved Solvay employees in China organizing a collection that amassed more than 110.000 CNY, with the Group's Chinese subsidiaries then tripling this value, to help finance the Red Cross operations in the stricken territory. Then, early in June, Christian Jourquin, the Chairman of Solvay's Executive Committee, was able, on behalf of the Group, to give Ms Qiyue Zhang, ambassador in Belgium for the Chinese People's Republic, the sum of 100 000 EUR that had been collected from employees all over the world to help finance the rescue efforts.



In the USA

The employees at Solvay's Houston sites are proud of taking part each year in the national Bring Your Child to Work Day. Parents are invited to bring one or more of their children into their workplace.



In Sri Lanka

A high-dependency unit specially designed to treat children has been built at Galle, in the region hit by the tsunami. Half of the 40,000 euros donated came from Solvay in Germany, and the other half directly from the staff of our production sites in that country.



In Thailand

The Siam Solvay Foundation has given 2.8 million baht (62 000 euros) to a local association that looks after children orphaned by the tsunami. The Foundation established support structures to deal with the emergency immediately following the disaster. Then, on a more permanent basis, the local association embarked on a particularly innovative and effective venture, planned with support from Solvay, to bolster the emotional stability of children harmed by the disaster. This is the "Puppet Project for Hearts and Minds", built around the world of puppets. About 100 teachers have been trained in storytelling, and mothers with their own families have received assistance to make the puppets. By the time it ends, a tour of 260 day-care centres and schools will have reached 30 000 children.





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*: example(s) or partial information relating to the GRI guidelines,
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Gaps in numbering are due to indicators that are not included, because they are irrelevant for our activities or not available..

olvay Policies, Management Tools and Reference Systems

General Policies

- Mission, Vision and Values Solvav
- Corporate Governance Solvay/Belgian Commission Corporate Governance
- Policy, strategy and operational framework (Matrix 5x5) in relation to Sustainable Development Solvay
- Code of Conduct relating to employees, customers & suppliers, competitors, shareholders, governmental authorities and the public - Solvav
- Responsible Care® Policy and Guidelines Solvay

Personnel and Subcontractors

Human Resources Management

- Recruitment policy Solvay
 - Classification of jobs, and remuneration-Hay System
 - Training policy Solvay
 - Career management policy (succession planning, career development, Talent Round Table, management of high-flying executives) Solvay
 - Employee performance management policy Solvay
 - Long-term benefits (pensions) Solvay
 - Sharing expertise: X-fert Solvay
 - Charter "health & safety of employees" Solvay/European Works Council
 - Charter "social policy in joint ventures" Solvay/European Works Council

 - Charter "practices for subcontracting" Solvay/European Works Council
 - Measurement of employee commitment Solvay People Survey - Solvay

Health & Safety

- Management of employee health and safety Occupational Health & Safety Assessment Series: OHSAS 18001 BSI
- Health at work: Good Practices Solvay
- Occupational hygiene standards: TLVs and BEIs American Conference of Governmental Industrial Hygienists;
- Solvay Acceptable Exposure Limits (SAEL) internal standards Solvay
- Assessment of occupational exposure to hazardous substances at the workstation: EA-tool Solvay
- Specific health policies: stress, Legionella, asbestos, etc. Solvay
- Information system on accident follow-up Solvay
- Information system on accident statistics SISAS Solvay Information system on medical and occupational hygiene – Medexis - Solvay
- Safety clauses in subcontracting Solvay

Environment

- Environmental management system: ISO 14001 ISO
- Best Available Techniques from an environmental perspective BAT - UE
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- Characterization of soils Solvay
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- Analysis and assay methods for effluents Solvay
- Monitoring aquifers Solvay
- Information system on releases into the environment SERF Solvav
- Information system on the state of soils SIG Solvay
- Animal care Solvay
- Policy on travelling and videoconferences Solvay

Safety at production plants

- Process Safety Management PSM OSHA/Solvay
- HAZOP hazard analyses International Electro-technical Commission IEC 61882/European Process Safety Centre/Solvav
- Safety in the design, construction and operation of manufacturing installations Solvay
 Safety audits of installations PSM OSHA/Solvay
- Risk-Based Inspections of the physical integrity of installations Solvav
- Safety Instrumented Systems IEC 61511 standard -Solvav
- Information system on safety recommendations from Property Insurance Program and from risk engineering audits - Solvay

Products

- Quality : Solvay Performance Model Solvay, ISO 9001 ; Hazard Analysis and Critical Control Point (HACCP); Good Manufacturing Practice (GMP); EFQM excellence model / Baldridge model European Federation for Quality Management/Baldridge
- Solvay Sustainability Screening (S³) to assess the sustainability of activities Solvay
- Lifecycle analyses (LCAs) Umberto® IFEU Heidelberg
- Product safety data sheets Solvay/UE/OSHA
- Safety data sheets for suppliers' products NCEC/Solvay
- Risk assessments of chemical substances US-EPA/ICCA
- Information system on product safety: SACHEM -Solvav
- Pharmacovigilance system for pharmaceutical products Solvay

Distribution

- Safety policy for distributors Solvay
- Policy on transport by road Solvay Chemicals sector
- Level1 assistance in the event of an accident during
- distribution: Carechem24 NCEC
- Safety data sheets for transport: Tremcards NCEC/CEFIC
- Audits for loading and unloading hazardous materials Solvay Audits for sea transport firms – Chemical Distribution
- Institute
- Audits for road hauliers and distributors: SQAS CEFIC

Other policies

- Public reporting on sustainable development and societal responsibility: Global Reporting Initiative GRI - PNUE
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 Trade and the Environment ICCA
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This assessment and review results from a continuous dialogue with our stakeholders. We invite you to contribute comments and share your ideas on how the Solvay group can make further improvements, by post or e-mail.

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