# Living up to our responsibility Corporate Responsibility Report 2008





# **Reliability and Credibility**

We define corporate responsibility as how we conduct our business and how we live up to our values. The overriding principles are reliability and credibility. Because: Evonik lives up to its promises. By integrating corporate responsibility into our business activities and creating innovative solutions, we make a contribution to sustainable development. Evonik demonstrates fairness and responsibility towards its employees, customers, owners, investors, suppliers, politicians, local communities and the general public.





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# Evonik accepts responsibility—for its business, its employees, society and the environment.



Dr. Klaus Engel Chairman of the Executive Board of Evonik Industries AG

### Ladies and gentlemen:

Immediately after the launch of Evonik Industries, we started work on a corporate responsibility strategy for the new Group which was published just one year later. This CR strategy gives corporate responsibility a fundamental place in our business and defines credibility and reliability as central principles of our activities, which boosts confidence in Evonik. As the next step, this summer we joined the United Nations Global Compact and gave an undertaking that we will respect its principles.

Evonik accepts responsibility-for its business, its employees and society. For us, corporate responsibility means being a reliable, fair and responsible partner even in periods of economic difficulty. That is demonstrated by the way we treat our employees: Although Evonik has been severely affected by the global economic crisis, our aim is to avoid dismissing employees wherever possible. At the same time, we are continuing our above-average investment in vocational and further training and offering additional training opportunities, for example for employees on short-time working. Our employees are also playing their part in raising Evonik's competitiveness. Through constructive dialogue with representatives of the workforce we reached agreement on halving bonuses and similar payments in 2009. In addition, our executives will not be receiving any increase in the base salaries.

Evonik's ideas and activities are clearly focused on the future. We see that as part of our corporate responsibility. We proactively address megatrends such as Energy Efficiency, Globalization & Demographic Change and Health & Wellness as a basis for driving forward our business and moving into promising new markets. We therefore offer customers highquality products and solutions that help reduce the consumption of natural resources, make more efficient use of energy and cut CO<sub>2</sub> emissions. To make sure that does not change in the future, we invest in high-growth businesses. Although we have had to reduce our investment budget considerably in response to the present economic situation, innovation remains a core element of our strategy and has not been affected by the cutbacks. We spend around €300 million p.a. on research and development and modern innovation structures are a hallmark of Evonik. Last year, we expanded this infrastructure by opening a new Systems Integration Project House and the Eco<sup>2</sup> Science-to-Business Center.

This report invites you to read more about how Evonik puts corporate responsibility into practice.

Yours,

K Dr. Klaus Engel

#### **Profile of Evonik Industries**



Evonik Industries is a modern industrial group based in Germany, operating in the fields of chemicals, energy and real estate. Evonik is one of the world's leading specialty chemicals companies, an expert in power generation from hard coal and renewable energies and one of Germany's largest private-sector housing companies. Moreover, it is systematically strengthening its market leadership in all these areas. In 2008 Evonik had around 41,000 employees in more than one hundred countries and generated sales of around  $\in$ 15.9 billion and an operating profit (EBITDA) of  $\in$ 2.2 billion. Evonik Industries is one of the world leaders in specialty chemicals and over 80 percent of sales in this field come from products in which it is positioned at the forefront of the market. Evonik has unique technology platforms in process and applications structures and its integrated production structures ensure efficient utilization of product streams. Close cooperation with customers, often through long-term development alliances, is another key strategic factor of considerable importance. Such alliances lead to optimum products and system solutions, often tailored specifically to customers and their market needs. The spectrum of business segments where Evonik's



Evonik's activities are bundled in eight business units, which operate as entrepreneurs within the enterprise and report directly to the Executive Board. The Corporate Center in Essen (Germany) is responsible for strategic management of the Group. The business units and Corporate Center are supported by a Shared Service Center. In June 2008 the Group's sole owner RAG-Stiftung (RAG Foundation) divested 25.01 percent of its shares in Evonik to the financial investor CVC Capital Partners. Following this transaction, RAG-Stiftung holds 74.99 percent of the shares. specialty chemicals operations are present is very balanced: no single end market accounts for more than 20 percent of sales.

Evonik's chemicals business serves twelve main end markets. The most important is now lifestyle/ leisure/personal care, which accounts for nearly 20 percent of sales, closely followed by plastics and automotive. Other major segments are coatings, accounting for around 10 percent, and nutrition, construction and pharmaceuticals. The five largest customers account for just 10 percent of business volume. More than 40 percent of the Chemicals Business Area's sales are generated outside Europe.

#### A clear structure

€15.9

billion

sales in 2008

#### A strong international power supplier

The core competencies of the Energy Business Area are planning, financing, building and operating highly efficient fossil-fuel power plants. As a gridindependent power generator, Evonik operates nine coal-fired power plants and two refinery power plants in Germany. International success includes coal-fired power stations in Colombia, Turkey and the Philippines. Evonik works with local partners in these countries. Global installed capacity is over 9,600 Megawatts (MW), including around 1,700 MW outside Germany. Long-term supply and offtake agreements with major customers ensure stable cash flows. When the power plant in Duisburg-Walsum is commissioned in 2010, Evonik will become the first German operator of a 790 MW hard-coal power plant with net efficiency of over 45 percent. The company is well-positioned in the fast-growing future market for renewable energy sources and is one of the German market leaders in mine gas, biomass and geothermal energy. More than 90 percent of district heating supplied by Evonik comes from cogeneration plants. Evonik also ranks at the forefront of the German market in the disposal and reprocessing of power plant residues.

#### Sales by region<sup>1)</sup>



<sup>1)</sup> By point of sale.

#### **Employees by region**



#### High standards of housing

The Real Estate Business Area manages a portfolio of around 60,000 company-owned residential units concentrated in the federal state of North Rhine-Westphalia (NRW) in Germany and has a 50 percent stake in THS GmbH, which owns more than 75,000 residential units, predominantly in NRW. The business focuses on letting to private households. Sustainable development of the business area's high-quality housing stock is one of its priorities. That includes careful development and upgrading of streets, districts and neighborhoods. Smart concepts are used to address the entire lifecycle of properties' and tenants' requirements. That includes the modernization and creation of low-energy homes. Together with carefully planned, cost-saving management of running costs, this minimizes the utility charges paid by tenants.

# Turning challenges into opportunities.

The world is facing enormous challenges: climate change, environmental destruction, scarce resources, globalization, population growth, demographic change. The list is long. And time is short. Evonik sees problems as a source of potential. For Evonik, unresolved questions represent an opportunity. And Evonik can already offer its customers some answers. For us at Daimler, lithium-ion technology and the right partner are the key to tomorrow's electric vehicles.





#### The challenge

Daimler AG sees electric vehicles as one of the keys to sustainable mobility. Energy storage technology is the heart of all methods of electrification and thus a key component for all types of vehicle from hybrids to those powered by batteries and fuel cells. Daimler is focusing on lithium-ion batteries as the energy storage medium of the future because they meet all necessary requirements: high energy density, compact dimensions, outstanding safety and a long service life. This year, Mercedes-Benz will be launching the S400 HYBRID, its first production hybrid vehicle using innovative lithium-ion technology. The new generation of the smart fortwo electric drive and the B Class F-CELL will also be equipped with lithiumion batteries. Production of both of these models is scheduled to start this year. From 2012 Daimler AG plans to use lithium-ion batteries from Deutsche Accumotive—a joint venture of Daimler an Evonik—in all Mercedes-Benz and smart electric cars.

#### The idea

Evonik and Daimler are developing cells for tomorrow's energy storage media LiTec. Bringing together Evonik's technology and expertise in chemicals and Daimler's know-how, the two companies are driving forward research, development, production and commercialization of lithium-ion cells and battery systems. Evonik has developed SEPARION®, a flexible ceramic membrane for high-performance lithium-ion cells. SEPARION® ensures that lithium-ion batteries can provide energy safely and reliably at over 10 amp hours for electric vehicles and stationary storage media. As a system supplier, Evonik also supplies anodes and cathodes for these battery cells. Daimler expects further progress in the field of energy storage media to come from the flat-cell frame concept which it brought into this alliance. This is based on the principle of a fuel cell stack and permits standardized production within a modular system.

#### The challenge

Worldwide demand for electricity will continue to rise in the future. Estimates suggest that global demand will roughly double between 2005 and 2030. Fossil fuels remain essential. Coal is still the top fuel for energy generation, accounting for 40 percent of the global energy mix, and that will not change in the mid term. Boosting the efficiency of fossil-fueled power plants is therefore extremely important. The Austrian energy and environmental services company EVN aims to help safeguard supply yet minimize environmental impact, thus making an active contribution to sustainable energy supply and climate protection. They are planning to step up the use of renewable energy resources and are also focusing on efficient power plants.

#### The idea

Evonik is a technology leader in the planning, financing, construction and operation of hard-coal power plants. Together with EVN, it will commission Europe's most advanced coal-fired power plant with efficiency of over 45 percent in Duisburg-Walsum (Germany) in 2010. The average efficiency of hard-coal power plants is around 30 percent globally and around 38 percent in Germany. The advantages of the new 790 MW power plant are clear: lower fuel consumption and less  $CO_2$  emissions than conventional plants. Besides: If all hard-coal power stations worldwide were equally efficient, global  $CO_2$  emissions could be cut by around two billion metric tons a year.





Who can help EVN build Europe's most efficient hard-coal power plant? I expect my landlord to provide an apartment where my daughter and I are part of a supportive community.





#### The challenge

In today's world we are confronted with an aging population and the demise of traditional extended family structures, especially in industrialized countries. This trend to greater individualization is a major challenge for our social systems. At the same time, many people find themselves isolated and would like to live in surroundings that actively encourage community spirit. That is a challenge for housing providers, architects and urban planners.

#### The idea

Multi-generation housing is a new concept designed to foster a sense of security, community and social wellbeing. Evonik has recognized this trend and is paying especial attention to such needs. The aim is to create living spaces that meet the needs of all age groups. Evonik has already implemented several projects that function very well. Tenants were consulted extensively in the planning phase. Barrier-free housing, playgrounds and quiet zones are key elements in the multi-generation concept, along with communal rooms to facilitate communication. Evonik will be implementing more integrative projects of this type in the future because demand is already high.

# In Focus

Evonik's CR strategy is an expression of its overall corporate responsibility

#### CR strategy builds trust

Climate change and scarce resources, population growth and demographic change, globalization and social justice are major issues for society, politicians and the corporate sector. Through its corporate responsibility strategy, which was published in fall 2008, Evonik systematically integrates corporate responsibility into its activities as a core aspect of sustainability and thus highlights its relevance for the business.

The CR strategy shows how Evonik addresses key ecological and social challenges and develops ideas for the future. The company sees enormous potential in megatrends such as Energy Efficiency, Health & Wellness and Globalization & Demographic Change. The solutions it offers contribute to the future of its business and the sustainable development of society. Ethical conduct and a responsible attitude to people and the environment are hallmarks of Evonik. They are central elements of the CR strategy and foster confidence in the company. The CR strategy thus provides a sound basis to help Evonik surmount challenges like the present economic crisis and to emerge stronger when it is over.

Evonik's CR strategy builds on its corporate values and core competencies. The three corporate values "courage to innovate", "sparing no effort" and "responsible action" guide employees in their daily work and decisions.

The four core competencies—creativity, specialization, self-renewal and reliability—form the pillars of the Evonik brand and help employees drive forward the successful development of the Evonik Group. The CR strategy is an integral part of Evonik's corporate strategy, for which it provides support and new impetus. The three dimensions of the CR strategy the business, employees and processes—reinforce Evonik's future position.

#### Dimensions of the CR strategy

#### Contribution to the business

Evonik responds to megatrends such as Energy Efficiency, Globalization & Demographic Change and Health & Wellness as well as to new ecological and social challenges. They form the basis for the development of new business and thus support sustainable development.

#### Focus on employees

Evonik is characterized by a responsible, employeeoriented corporate culture. That includes fair treatment of employees around the world and involving them in implementation of the principles of corporate responsibility.

#### Best-in-class processes

Evonik continually aims to maximize its performance in its day-to-day business and all areas of corporate responsibility, from the environment, safety and health through human resources management to compliance.

#### Main areas of action and strategic CR objectives

Evonik continues to drive forward the strategic CR objectives defined in 2008. Its main areas of activity in the field of corporate responsibility are derived from the three dimensions defined in its CR strategy. These include establishing CR Issues Management as an "early warning system", and systematic dialogue with stakeholders to provide impetus for groupwide projects.

Other areas of activity include responsible treatment of employees and motivating and involving employees as key players in the implementation of corporate responsibility. CR performance is steadily enhanced by means of a continuous improvement process. That includes sharing experience to learn from others in order to raise efficiency and reduce costs.

Evonik is currently placing the management of aspects related to CR on a more systematic basis and defining specific targets and activities for the various areas of action for the CR strategy. In summer 2009 it issued a Global Social Policy as a key element in responsible management of the company and conducted a first worldwide survey under the motto "Responsibility for Employees and Society". This covered 85 percent of the workforce in all regions. The aim was to gain an insight into global working conditions that extended beyond established reporting structures. The results highlight major trends and form the basis for developing key performance indicators.

#### CR management and reporting

The Executive Board bears overall responsibility for CR at Evonik. An overarching CR management structure and a CR organization with a steering committee, coordination committee, CR officers in the business areas and at Shared Services, and CR partners in the business units is being established to ensure that the CR strategy and its main areas of action are put into practice. The steering committee includes a representative of the Combined Works Council. Corporate Human Resources is responsible for CR management.

#### 85 percent of employe

of employees were covered by Evonik's first worldwide survey on "Responsibility for Employees and Society"



This report marks the start of annual CR reporting at Evonik. It outlines the progress made by Evonik in 2008 towards achieving its strategic CR objectives and reports on activities within the main areas of action. The table on page 16 provides an overview. The focus of activities in the strategic CR dimensions—the business, employees and processes—is outlined in more detail on pages 17 to 25.

#### Corporate Responsibility (CR) at Evonik

Dimension: The business		Status
Objective	CR plays a central role in enabling Evonik to turn megatrends into opportunities, innovations and successful business prospects.	<ul> <li>Innovative research and development (R&amp;D) in Science-to-Business Centers, project houses, and business units generates new products and processes. Examples are lithium-ion technology, plastics made from sugar and efficient processes that reduce pressure on the envi- ronment (pages 17–19).</li> <li>R&amp;D facts: 350 new patent applications submitted in 2008, posi- tioning Evonik among the leading specialty chemicals companies.</li> <li>350 cooperation agreements with universities, with annual invest- ment of €15 million.</li> </ul>
	CR Issues Management	Shaping systematic CR Issues Management will start in 2010. How- ever, continuous monitoring of global media already ensures that Evonik is aware of the topics of public debate and is able to identify and respond quickly to relevant issues. Evonik's risk management system is outlined in the Annual Report 2008, starting on page 84.
	Dialogue with stakeholders	► A megatrend forum is planned for 2010 to launch a systematic CR stakeholder dialogue. Evonik already engages in dialogue with spe- cific stakeholder groups: the media (corporate.evonik.de/en/me- dia), politicians, authorities, industry associations, scientists, the lo- cal community around its sites, employees, representatives of the workforce and students (see pages 36–37 and 39–43).
Main areas of action	Projects	<ul> <li>Eco<sup>2</sup> Science-to-Business Center (page 17)</li> <li>Plan@HR (page 23)</li> <li>Demographic Change Laboratory (page 23)</li> </ul>
Dimension: Employees		Status
	CR is integrated into vocational training and further education and into the objectives agreed with staff.	<ul> <li>Trainees receive training in the Code of Conduct (page 25).</li> <li>A special CR training module is being developed for trainees. Pilot projects are scheduled to start at two sites in 2010 at the latest.</li> </ul>
Objective	CR dominates Evonik's corporate culture, is implemented by all employees within their field of influence and fosters their creativity and innovative capacity.	Evonik has adopted a Global Social Policy. All employees now have a full and binding framework for their activities comprising the Code of Conduct, Global Social Policy and the Environment, Safety and Health Values (from page 26).
	Responsible treatment of employees	<ul> <li>Family-friendly policies (page 24)</li> <li>Guidelines and program on health protection and promotion (page 55)</li> </ul>
Main areas of action	Motivation and involvement	<ul> <li>Training on the Code of Conduct (page 25)</li> <li>Employee survey (page 37)</li> <li>Further training (page 35)</li> </ul>
Dimension: Processes		Status
Objective	All business units control and measure their contribution to CR through key performance indicators (KPI).	<ul> <li>CR performance (from page 26)</li> <li>Extensive data and targets in the areas of the environment, safety and health (from page 46)</li> <li>Identification of eight indicators to measure HR performance (page 34)</li> <li>"Responsibility for Employees and Society" survey (page 15) to compile data as a basis for defining and updating KPIs</li> </ul>
	CR performance	Performance report: from page 26. Key points include: > Code of Conduct (page 26) > High investment in R&D (page 31) > Vocational training above the German average (page 34) > Environmental protection costs (page 48) > ESH targets (page 56)
Main areas of action	Sharing experience	<ul> <li>Process improvements (page 32)</li> <li>Technology transfer (page 21)</li> <li>Lessons learned (page 54)</li> </ul>

# Innovative research to drive tomorrow's profitable growth

A growing world population increases demand for housing, energy, mobility, information, personal care products, healthy nutrition and medical treatment, despite dwindling resources. Evonik's innovative prowess, products and tailor-made solutions help identify and meet the needs of present and future generations. Research and development (R&D) and innovation, key elements of Evonik's corporate and CR strategy, play a vital role. Innovative research is a key driver of profitable future growth and sustained value creation.

Modern innovation structures and processes are therefore indispensable hallmarks of Evonik. Their purpose is to ensure that ideas are translated into marketable products and commercial success as quickly as possible, in other words, their goal is to turn ideas into profit. Evonik's strategic research is bundled at Creavis Technologies & Innovation, which operates project houses, Science-to-Business (S2B) Centers and internal start-ups as complementary approaches.

#### Working together in project houses

Evonik's project houses develop promising crossdisciplinary technologies and technology platforms to application readiness. These are then commercialized by one of the business units or an internal startup. The distinctive feature of all project houses is that work is performed by interdisciplinary teams. Moreover, each project house is established for a set three-year period.

The Functional Films & Surfaces Project House looks at the development of new and improved functional surfaces, films and semi-finished products, for example for the photovoltaics sector. A Systems Integration Project House started operating on January 1, 2009. It takes an all-round approach to developing products together with the necessary process and manufacturing technology to ensure simple and problem-free integration of solutions in customers' production processes.

#### S2B Centers: Integration along the value chain

The S2B Centers bring together R&D activities for all stages in the value-added chain under one roof from basic research through product development to pilot production. Evonik currently has three S2B Centers dedicated to future-oriented aspects of the megatrends Energy Efficiency, Health & Wellness and Globalization & Demographic Change. Many of the projects receive funding from the Federal State of North Rhine-Westphalia and are co-financed by the European Union. Evonik is investing around €50 million in each of the S2B Centers over a fiveyear period. Altogether, it expects them to generate additional annual sales of around €1 billion by 2015.

## Eco<sup>2</sup> S2B for energy efficiency and climate protection

Eco<sup>2</sup> was established in fall 2008 and is Evonik's most recent S2B Center. It brings together the expertise of the Chemicals, Energy and Real Estate Business Areas in energy efficiency and climate protection in interdisciplinary development projects. Examples:

- Carbon capture and use: partial absorption of CO<sub>2</sub> from flue gases using tailor-made absorbents so the CO<sub>2</sub> can be re-used as a starting product for chemical production.
- Energy generation: a low-cost, decentralized method of methane enrichment of biogas which can be fed into the natural gas network.
- Energy storage: control methods that make sensible use of the benefits of innovative storage technologies such as lithium-ion batteries, allowing more efficient power generation from wind and solar energy.
- Energy-efficient customer solutions: development of systems for buildings that provide a smart link between insulation and energy generation.
- Energy-efficiency for Evonik's processes: Technology to facilitate power generation from coal at 700 °C with over 50 percent efficiency.



million (approx.)

is being invested in

a five-year period.

the S2B Centers over

For further information visit www.evonik.com and www.creavis.com

#### Nanotronics S2B: printed electronics

Evonik's first S2B Center—Nanotronics—was established four years ago. Its purpose is to develop nanomaterials based on new systems solutions for the electronics industry. A focal area of its work is printed electronics. For example, scientists are working on the manufacture of printable materials for radio frequency identification (RFID) tags which can be used for rapid identification of many items. The market for RFID tags should be worth billions once the cost of producing such tags is reduced to only a few cents per unit. Another area of interest is the devel-



Ceramics off the roll: SEPARION<sup>®</sup> for lithiumion batteries. opment of printable transparent conductors for modern displays and touchscreens. Evonik's technology allows the production of fully printed components such as organic light-emitting diodes, liquid crystal displays and electroluminescent lamps.

Two projects undertaken by the Nanotronics S2B Center have now moved beyond the research stage. These are ccflex\* wallcoverings and SEPARION\*, both of which are based on technology for producing flexible ceramic membranes. Evonik has successfully implemented the sintering process required to produce ceramics, in other words, solidification and bonding of the particles, at sufficiently low temperatures on a nonwoven polymer. ccflex\* has already proven that is has sustained commercial potential and has now been licensed to the wallpaper manufacturer Marburger Tapetenfabrik. This company will be responsible for further commercialization of ccflex\*. Growing market for lithium-ion batteries SEPARION® flexible ceramic membranes are a technology developed by Evonik to increase the safety, performance and service life of large-scale lithiumion batteries. Evonik regards this project as a future business activity and has invested around €80 million in it in recent years. A pilot project led onto the production of separator membranes in Marl, manufacturing of electrodes in Kamenz and a stake in Li-Tec Battery GmbH (Li-Tec) in Kamenz. Li-Tec produces battery cells from Evonik's battery components and is currently preparing for the start of serial production.

The market for high-performance lithium-ion battery components is expected to top  $\leq 4$  billion in the coming decade, while the market for batteries is forecast to grow to  $\leq 10$  billion. Components for large-scale lithium-ion batteries are a key technology which is poised to open up a wide range of new applications: cordless power tools, the storage of wind energy and solar power and, above all, resourcesaving hybrid and electric vehicles. High-performance lithium-ion batteries could facilitate the mass market breakthrough of emissions-free electric vehicles.

At the end of 2008 Evonik and Daimler entered into a strategic alliance in the fields of research, development and production of lithium-ion battery cells and systems for the automotive industry based on Evonik's technology and Daimler's expertise. Two joint ventures are driving forward these developments: Li-Tec (Evonik's stake 51 percent, Daimler's stake 49 percent) and Deutsche Accumotive GmbH & Co KG (Evonik: 10 percent; Daimler: 90 percent). Production of batteries is scheduled to start in early 2011 and the first lithium-ion battery systems will come onto the market in Mercedes-Benz cars in 2012.

## Biotechnology S2B for sustainable products and processes

The Biotechnology S2B Center is developing new biotechnological products and processes based on renewable raw materials. Biotechnological processes such as fermentation and biocatalysis can be used as low-cost alternative methods of producing established chemical products. Investment costs tend to be lower than for chemical processes because several production steps can be undertaken by a single bacterial cell known as a microbial cell factory.

By using renewable raw materials such as sugar and plant-based residues, Evonik reduces dependence on petrochemical feedstocks and is gaining access to raw materials and sustainable technologies for the future. The Bio S2B Center is also pioneering synthesis of new bio-based materials with outstanding properties.

This S2B Center is divided into five areas of competency. Synthetic Pathways is working on the design and implementation of synthetic metabolic methods. The Fermentation team focuses on improving the efficiency of microbial cell factories by optimizing parameters such as pH and the composition of the relevant media. Development of bioproducts and bioprocesses is the task of the Bio-Product and Process Development unit while Portfolio Development is working, among other things, on filling Evonik's bio-innovation pipeline. This S2B Center's research focuses include, for example, developing high-performance polymers and the production of ingredients for cosmetic products such as anti-aging products.

#### Process and technological expertise

Evonik's innovative prowess is also reflected in the strong technological and process expertise of its business units. The operational units develop strategies that are specifically geared to manufacturing their products more economically and more efficiently or opening up attractive new markets for established products.

### Economical and efficient methylmethacrylate production

Methylmethacrylate (MMA) is a starting product for high-quality acrylic polymers and the production of coatings, lacquers and adhesives. Evonik is the world's second-largest producer of MMA with total capacity of 480,000 metric tons p.a. Its mid- to longterm objective is to manufacture MMA even more efficiently and economically and secure access to the necessary raw materials by developing new synthesis routes based on renewable raw materials.

This strategy is built on two innovative technologies: the AVENEER<sup>®</sup> process and bio-based MMA. The AVENEER<sup>®</sup> process developed by Evonik is a far more economical method of producing MMA than the conventional sulfo process and saves resources. This multi-step catalytic process achieves yields of up to 95 percent without the need for costly reprocessing of sulfuric acid. AVENEER<sup>®</sup> has already proven its feasibility in a pilot plant.

Researchers from the Performance Polymers Business Unit and scientists from Creavis are working together in the Biotechnology S2B Center to switch the raw material base for MMA to renewable resources. In bio-based MMA, bacteria generate an intermediate from sugar cane which can be integrated into the AVENEER\* process. The research scientists have already found a metabolic route to produce this intermediate and identified the necessary bacterium. They are now working to improve the performance of the cells and adapt them for industrial-scale production processes. The plan is for bio-based MMA to be available industrially by 2018.

#### New growth market for hydrogen peroxide

Evonik is the world's second-largest producer of hydrogen peroxide  $(H_2O_2)$  with total capacity of over 600,000 metric tons p.a. So far, this environmentfriendly bleaching agent has mainly been used in the paper and pulp industry. However, Evonik recently opened up a new growth market for  $H_2O_2$ . The idea was to use large amounts of hydrogen peroxide for chemical synthesis of propylene oxide.

Together with its cooperation partner, the engineering firm Uhde, Evonik has developed and licensed HPPO technology (hydrogen peroxide for propylene oxide). The process is used to generate propylene oxide from hydrogen peroxide and propylene. It is environment-friendly, energy-efficient, economical and does not generate by-products. In August 2008 the South Korean company SKC started up the world's first HPPO plant in Ulsan (South Korea). Evonik supplies the 70,000 metric tons of hydrogen peroxide required by the facility directly from an "over-the-fence" plant. SKC supplies the propylene oxide manufactured in Ulsan to the South Korean market and neighboring countries.

In parallel with these successful ventures, Evonik is working with Headwaters, Inc., South Jordan (Utah, USA) on a further milestone: direct synthesis of hydrogen peroxide (DSHP) with the aid of a catalyst. Here, hydrogen and oxygen are reacted to generate hydrogen peroxide with the aid of a special nano-catalyst developed by Headwaters. The combination of the HPPO and DSHP processes has a number of additional economic advantages compared with conventional methods of producing propylene oxide. No. 2 worldwide in methylmethacrylate and hydrogen peroxide

#### Energy supply and energy efficiency

Energy and raw materials are essential to secure the supply of food and consumer goods for the world's growing population and thus vital for the functioning and development of the global economy. That inevitably causes tension between various conflicting factors:



Construction in progress: the Duisburg-Walsum power plant in May 2009

For further information visit www.eia.doe.gov/ oiaf/ieo

- Demand for energy is increasing massively yet global resources are limited. Nevertheless, a reliable, economical and environmentally compatible energy supply must be secured in the long term.
- A perceptible reduction in products and processes that damage the climate is a necessary and challenging task. Renewable energy sources are playing a growing role in this, but will not be able to replace conventional fuel sources in the foreseeable future.

The global financial and economic crisis places additional demands on the need for careful use of capital. Germany's Federal Ministry for Economics and Technology calculates that oil reserves are sufficient for around 40 years, while reserves of natural gas will last 60 years, hard coal 130 years, lignite around 290 years and uranium just over 70 years (calculations based on reserves divided by current production). In view of this, renewable energy resources are set to gain a more prominent role in the mid to long term. The aim must therefore be to cut costs by increasing efficiency in order to ensure reliable and cost-effective energy supply in the longer term. Fuel sources need to be utilized as efficiently as possible both now and in the future.

As an industrial corporation operating in the fields of chemicals, energy and real estate, Evonik finds itself at the heart of these dilemmas and is tackling the business and social policy challenges posed by the need to make efficient use of energy. Its outstanding technology platforms and innovative prowess provide a sound basis for it to benefit from the growing need for energy efficiency. Here are some examples: Evonik builds power plants that achieve high levels of efficiency and also uses regenerative energy resources. It is intending to drive forward its activities to generate power and heat from mine gas, biogas and geothermal energy. In addition, Evonik is systematically expanding its position in the growthoriented market for solar energy.

#### **Efficient power generation**

The Energy Business Area uses highly efficient technology to generate power from hard coal, which it supplies principally to major customers through long-term supply and offtake agreements. Evonik's biggest investment project at present is the construction of a 790 MW power plant fired by hard coal in Duisburg-Walsum (Germany). The new power plant will set new international standards with over 45 percent efficiency, above the level achieved by the best-performing German hard-coal power plants at present. Providing Clean Competitive Energy from Coal (CCEC), when operating at full load this power station will use around 20 percent less fuel and emit about 20 percent less carbon dioxide than other coalfired power stations. Evonik helps raise the efficiency of power generation from hard coal through technology transfer in the modernization and construction of power plants for other energy producers. One example is a long-term master agreement which Evonik signed with MPX Energia S.A. of Brazil in May 2009 on the provision of engineering services for all of this company's power plant projects.

Alongside the operation of power plants and engineering services for construction and modernization projects, process optimization software is an effective way of raising the efficiency of coal-fired power plants. One example is a recent master agreement with India's largest plant engineering company Bharat Heavy Electrical Ltd., on the installation of Evonik's optimization software at fourteen new power plants. The statistical process control software monitors all relevant data during operation and identifies any deviations from the reference values, enabling operatives to make adjustments that reduce the cost of generating power.



The biomass power plant in Ilmenau



Heat and electricity from renewable resources Evonik is the German market leader in the use of geothermal energy to produce heat, a major operator of biomass heating plants fueled by waste timber, and leads the market in the use of mine gas to generate energy. It operates a total of ten biomass power plants, either on its own or with partners. An eleventh plant is under construction in Warndt in the Saarland region of Germany. This plant, which is scheduled to come into service at the end of 2009, will use timber from local forests. A biogas plant (Evonik's stake: 90 percent) is being built in Kirchwalsede in the federal state of Lower Saxony. It will be fueled by liquid excrement and agricultural by-products such as grass silage. This plant is also scheduled to start operating at the end of 2009. To improve the flexibility of heat generation from biomass, Evonik is investigating alternative generating processes based on biomass and biogas and driving forward the treatment of biogas for use in mine gas and natural gas grids.

In addition, Evonik is involved in the Erding I and II, Unterschleissheim and Simbach Braunau geothermal energy projects and in a European project in Soultz-sous-Forêts in eastern France which aims to extract energy from underground rock. Lünen biomass power plant

For further information see the section on "Responsibility for the climate" starting on page 44 and Evonik's brochure "21 amazing answers to the next big thing: energy efficiency".

#### Solar energy for the future

Evonik's Chemicals Business Area is one of the world's leading producers of chlorosilanes and a major producer of monosilane (SiH<sub>4</sub>). It thus supplies key components required by the solar power sector. In 2007, the global market for solar power equipment grew by more than 30 percent versus 2006 to 2.4 Gigawatt peak. Experts are predicting dynamic growth in this market in the coming years.

Chlorosilanes are a key step in the production of ultrapure polycrystalline solar silicon (PCS), the



starting product for solar cells. At present PCS is normally produced using the Siemens process. Evonik has contracts with various solar silicon producers for integrated production of PCS using this process, ensuring a guaranteed long-term market for these products.

In spring 2009 PV Crystalox Solar Silicon GmbH, Bitterfeld (Germany), a member of the PV Crystalox Solar Group, opened a silicon production facility in Bitterfeld Chemical Park. This new plant uses a modified version of the Siemens process. It is expected to reach its full capacity of 1,800 metric tons p.a. in two years' time. High-quality Siridion<sup>®</sup> chlorosilane is supplied to this plant from Evonik's adjacent facility under a long-term agreement signed with PV Crystalox Solar Silicon in 2007.

In January 2009 Evonik started work on a new chlorosilane facility in Merano (Italy). The new plant is scheduled to come into service in the first quarter of 2011 at the latest and will supply the Merano site of US producer MEMC Electronic Materials Inc. on

an over-the-fence basis. The ultrapure silicone produced by MEMC in Merano is processed into wafers for the electronics and solar sectors at its site in Novara (Italy). MEMC is a leading supplier of wafers for the electronics and solar sectors.

#### Innovative technology

Evonik sees itself as an innovation driver on the photovoltaics market and is positioning itself at promising points in the value chain. Together with SolarWorld AG, Bonn (Germany), Evonik has developed a new production process for ultra-pure PCS, including innovative deposition technology based on monosilane (SiH<sub>4</sub>).

Joint Solar Silicon (JSSi), a joint venture of Evonik (51 percent) and SolarWorld (49 percent) started up a plant using this technology in Rheinfelden (Germany) in 2008. Evonik supplies monosilane as the starting material for this facility. Initial output in Rheinfelden is 850 metric tons p.a. solar silicon. Given the sustained strong growth in international demand for solar power, Evonik and SolarWorld see good opportunities for this new technology, which uses between 60 and 80 percent less power than other production processes.

In May 2009 Evonik signed an agreement to build a new integrated production facility for monosilane and AEROSIL<sup>®</sup> in Yokkaichi (Japan). This project is to be undertaken with Japanese partner Taiyo Nippon Sanso Corporation (TNSC). The process used in Yokkaichi to produce electronics-grade monosilane will enable Evonik to gain a foothold in the market for this key raw material for applications such as thin-layer photovoltaics, flat-screen displays and semiconductors. It will then have a presence in all major silicon-based photovoltaic technologies, thus strengthening and driving forward its own integrated silicon production.

#### Addressing demographic change

People form the heart of Evonik's CR strategy. Skilled and motivated employees are important for transmitting the CR message and are the key to longterm business success, especially given the challenges resulting from demographic change. In Europe, in particular, demographic trends are reducing the supply of younger workers and increasing companies' reliance on the skills of older employees. Evonik has adopted a proactive strategic approach to manage the effects of demographic change. Ensuring it is an attractive employer is one of the eight central indicators used to guide the Group's human resources strategy.

#### Responding to the challenges: the EU Demographic Change Laboratory

To tackle this problem, econsense, the forum for sustainable development of German business, and three leading companies including Evonik, play an active role in the Demographic Change Laboratory set up by the European Union's CSR Alliance. Assisted by the Rostock-based Center for Research into Demographic Change, in May 2008 this initiative published a report entitled "Mapping Regional Demographic Change and Regional Demographic Location Risk in Europe". This is an initial digest of demographic trends in 264 European regions, including an analysis of the implications for the potential labor force, the availability of skilled workers, productivity and research and development up to 2030.

Based on this report, econsense has developed a "Demographic Risk Map", an online tool comprising a database on demographic change and an index of population growth/contraction and aging in various regions. The preparatory work included meetings and workshops in Berlin, Prague, Brussels and Rome. The additional information requirements identified at these meetings have led to a follow-on project, the Demographic Risk Atlas. This contains more detailed regional and national profiles than the database and an evaluation of locational factors. It was presented to selected representatives of politics and industry in summer 2009.

#### Long-term personnel planning: Plan@HR

In response to demographic change and the findings produced by the Demographic Change Laboratory, Evonik has introduced Plan@HR, a new method of long-term human resources planning. This tool uses a networked, all-round approach to track qualitative and quantitative changes in personnel levels and future human resources requirements. Once models have been entered, it can simulate complex planning scenarios. Since this method highlights long-term company-specific trends, it can be used to answer specific management questions on aspects such as For more information visit: www.demographicrisk-map.eu

#### Age structure of the Evonik Group



the age and capacity-based risks relating to the main job families in the next five to ten years, whether the employee portfolio safeguards the implementation of corporate strategy, training requirements and how to shape recruitment policy in the light of expected demand and demographic trends. Following the successful conclusion of two pilot projects in 2008, this methodology is now being used in various units in the Evonik Group. Roll-out to North America and China is planned by the end of 2009.

### Group-wide certification to raise awareness of family commitments

Evonik is committed to a family-friendly corporate culture. In April 2008 it was one of the first signatories of the declaration on "Family – the Success Factor", an initiative launched by Germany's Federal Ministry for Family Affairs and the German Association of Chambers of Industry and Commerce. Today, more than 2,000 companies belong to this network. Family-friendly policies are a twin-track answer to demographic change: They make Evonik a more attractive employer for young people and make it easier for parents to combine raising a family with their working life.

Evonik continued its policy of fostering a healthy balance between the requirements of work and family life through its CR strategy in 2008. The company's programs embrace all modern forms of family life, with a clear focus on support for families, single parents and employees with elderly relatives, especially those requiring care.

In 2005 the non-profit Hertie Foundation awarded Evonik's headquarters its "berufandfamilie" certificate following an audit to evaluate measures to plan, develop and implement family-oriented policies. Evonik Goldschmidt GmbH and Evonik Stockhausen GmbH were awarded the certificate in April 2008. To raise its wide-ranging activities to promote a sound work-life balance to a new level, Evonik decided to apply for Group-wide validation, incorporating the certificates already awarded to individual Group companies.



The stringent audit of the business areas and administrative units started in late summer 2008 and was completed in spring 2009. Evonik's established familyfriendly programs were assessed and additional targets were set for a family-conscious human resources policy. The certificate was presented to Evonik in Berlin on June 17, 2009.

Major milestones included an evaluation of familyoriented programs ranging from childcare facilities, vacation programs, cultural exchanges and flexible working hours to free advice and assistance in finding care for relatives. Around 200 employees from all levels in the company were involved in the kick-off and audit workshops. Internally, these programs have now been placed on firm foundations through agreements with the Works Council and Senior Staff Committee on measures to foster a sound balance between working and family life.

#### Legal and ethical conduct

Fair and responsible conduct towards stakeholders is one of Evonik's central principles and thus an integral part of its corporate responsibility. Evonik has therefore issued a Code of Conduct which sets out its requirements in this field. The Code of Conduct is binding on all employees. Observance is monitored and sanctions are imposed if the principles it enshrines are violated.

To establish the principles of compliance and corporate governance even more firmly throughout the Group, on October 1, 2008 Evonik established a separate division within the Corporate Center, headed by the Chief Compliance Officer.

#### **Code of Conduct**

The Code of Conduct outlines the central principles of corporate policy and the main standards that all Evonik employees are expected to be familiar with. It provides a guide to their fundamental ethical and legal obligations and gives them a reliable basis for ensuring correct conduct at work. In this way, the Code of Conduct ensures compliance, in other words, it ensures that the company, its employees and members of its governance bodies observe statutory regulations and comply with in-house values and policies.

The Code of Conduct is a guide to conduct in a business context. That includes conduct with regard to gifts and privileges, fair and equitable treatment of business partners, avoiding conflicts of interest and the confidentiality of internal information. Other aspects include antitrust law, foreign trade, export controls and data protection. The fair and respectful treatment of colleagues in day-to-day business situations is also important.

The Code of Conduct also clearly repudiates all forms of corruption. Corruption is not a minor misdemeanor and is a criminal offense in almost all countries. Bribery prevents fair competition by favoring the party able to pay the highest bribe and thus causes enormous economic damage. Failure to comply with the ban on all forms of corruption set out in the Code of Conduct results in disciplinary action.

#### Anti-corruption measures

For its own protection, Evonik takes a proactive approach to preventing corruption. In 2008 the Compliance & Corporate Governance and Corporate Audit divisions examined all areas of the Chemical Business Area for indications of bribery. The investigation took the form of special survey, backed up by random checks on business activities in the past five years. It revealed a few isolated incidents of active corruption, which were immediately stamped out in cooperation with the relevant operating units. The anti-corruption activities initiated in the Chemicals Business Area in 2008 were extended to the Energy Business Area at the start of 2009.

#### Training in the Code of Conduct

Evonik uses a variety of tools to familiarize employees with the issues addressed by the Code of Conduct from conventional training sessions and information in employee magazines to web-based training modules. Following the anti-corruption survey in the Chemicals Business Area, employees with leadership responsibility received additional training in preventing corruption. Eastern Europe was a central focus of this project.

Seminars were also organized to familiarize trainees with the principles of Code of Conduct in 2008. Issues covered included fair and respectful treatment of others, rejecting all forms of bribery and the duty to report non-compliance. More than 200 trainees at the Marl Chemical Park attended these seminars, which are to be rolled out to other sites in Germany.

In April 2009 Evonik introduced a Code of Conduct e-learning game on its FutureZone learning platform. This has proven very popular: more than 5,000 employees accessed it in the first few weeks. The program provides detailed information on acceptable conduct, together with exercises based on various working situations.

# **CR** Performance

Evonik continually aims to maximize performance in its day-to-day business and all areas of corporate responsibility

# Values, guiding principles and management systems

Evonik's corporate values—"sparing no effort", "courage to innovate" and "responsible action" provide a general guide for employees in their daily work and decisions. Employees make a key contribution to the success of the company through their core competencies: creativity, specialization, selfrenewal and reliability, which form the heart of the Evonik brand. Binding regulations which form a sort of "corporate constitution" define basic standards that employees throughout the Group are required to live up to. The main elements are the Code of Conduct, the Global Social Policy and the Environment, Safety and Health Values. More detailed policies and guidelines are derived from these.

#### Code of Conduct

The Code of Conduct outlines Evonik's main corporate policy principles and standards. It is binding for all employees, compliance is monitored and sanctions are imposed if the principles are violated. It also provides information on employees' basic ethical and legal obligations. Where local legislation and/or normal practice go beyond these standards, supplements to the Code of Conduct are issued.

#### **Trustful collaboration**

Evonik's Global Social Policy creates the framework for effective and trustful collaboration in which performance is recognized and rights are respected. Evonik undertakes to observe basic principles, based primarily on the United Nations Declaration of Human Rights, the OECD Guidelines for Multinational Enterprises and the core standards of the International Labor Organization. The contents of the Global Social Policy are integrated into Evonik's personnel development offers, and compliance with this policy is monitored regularly.

### Evonik's stance on human rights, forced labor, child labor and equality

Evonik respects and supports the United Nations Declaration of Human Rights and the OECD Guidelines for Multinational Enterprises and does not tolerate any behavior that violates these principles. It rejects all forms of forced and compulsory labor and does not permit child labor. Evonik defines child labor in keeping with the UN regulations or local legislation and regulations, whichever are more stringent.

Evonik's Global Social Policy specifically states that the Group respects all people regardless of culture, gender, background and origin. It fosters equality of opportunity and equal treatment of all employees regardless of ethnic origin, race, gender, age, disability, religion, nationality, sexual orientation, social background and political affiliation, provided this is based on democratic principles and tolerance of different opinions.

As well as meeting ethical principles, this benefits Evonik's business: Employees are the basis for corporate success and their diverse knowledge, experience and individual attitudes and methods of working are essential for the company. The "Responsibility for Employees and Society" survey showed that Evonik is only exposed to a relatively low risk in the fields of human rights, child labor and forced labor. Nevertheless, Evonik intends to conduct a systematic survey of these areas in the future to exclude the associated risks wherever possible.

#### Environmental protection, safety and health

Evonik's Environment, Safety and Health (ESH) Values set out its commitments in these areas and provide a binding framework for corporate ESH. Together with more detailed guidelines and procedures, they form a binding set of regulations. The ESH Values define protection of people and the environment, fair treatment of partners and a clear alignment to the needs of customers as essential components of Evonik's activities. As well as complying with legal requirements and voluntary obligations, the Group strives to continuously improve its ESH performance and management systems.

Evonik selects resources such as energy and raw materials carefully and uses them sparingly. Careful and methodical action is taken to identify, evaluate and minimize potential risks, for example in the operation of facilities and handling of products. Research and development are seen as an opportunity to benefit customers and improve sustainability. The company also expects suppliers and service-providers to meet consistently high quality standards and to work safely and with respect for the environment. The environmental and safety performance of suppliers is taken into account when awarding contracts. Responsibility for the environment, safety and health is an integral part of managerial responsibility and line managers are expected to set an example. At the same time, Evonik expects all employees to be aware of the consequences of their actions and fosters safe and responsible working practices. In the Chemicals Business Area, the principles of the Responsible Care initiative and the Global Responsible Care Charter are binding throughout the world.

For further information see the section on "Legal and ethical conduct" on page 25



**95** percent of Evonik's chemicals production is validated as conforming to ISO 14001 Putting ESH regulations into practice The business areas and business units have operational responsibility for implementing the ESH principles. Compliance with the various guidelines and procedures is monitored through regular auditing of business units, regions and sites. The Corporate Center also audits systems to check that they are aligned to the demands made in the corporate regulations.

In addition, over 95 percent of production in the Chemicals Business Area is validated under ISO 14001, which includes an audit on the establishment and efficacy of environmental management systems. In the Energy Business Area, Evonik arranged for two employers' liability insurance associations to audit five of its German power plants in 2008. The result of these extensive audits was validation of their occupational safety systems.

The audit system and ESH indicators (see page 46) form the basis for the annual management review which gives the Executive Board a full insight into Evonik's ESH performance. The purpose is to evaluate Evonik's ESH performance and identify scope for optimization.

#### Other regulations

In addition to the Code of Conduct, Global Social Policy and Environment, Safety and Health Values, Evonik has issued a number of other guidelines to ensure that internal workflows meet the principles of good corporate governance. Where necessary, these are supplemented by more detailed regulations for specific business areas.

Through its corporate guidelines on compliance with global trade regulations and the internal management system based on them, Evonik ensures that the applicable trade controls are observed. This ensures support for worldwide efforts to prevent the manufacture and proliferation of chemical, biological and nuclear weapons and delivery technologies for such weapons.

The internal trade compliance organization comprises a central department responsible for trade compliance throughout the Group, a special IT system and a global network of around 80 trade compliance officers, who are direct contact points in the operating units. Their role is to provide on-site support for employees and act as the extended arm of the central Trade Compliance department.

The due diligence performed when acquiring companies or business operations looks at environmental and social aspects as well as profitability, growth and the attractiveness of markets. When divesting operations, job security for the employees affected is one of the criteria used to select the new owner. ESH aspects are also taken into account when making investments.

Rules on data privacy, reliable processing of personal data and the related obligations to inform employees are set out in separate data protection guidelines.

#### **Economic performance**

Economically, 2008 started well for Evonik. However, from November there was a massive drop in demand in key end-markets for the Chemicals Business Area, which accounts for 75 percent of the Group. Thanks to its successful business performance in the first ten months of the year, Evonik was nevertheless able to report sales of around €15.9 billion in 2008, with foreign business accounting for 60 percent. EBITDA (earnings before interest, taxes, depreciation and amortization) slipped just 3 percent year-onyear to €2.2 billion. Net income plummeted roughly 67 percent to €285 million due to high one-off expenses in connection with the economic crisis and the high proceeds from the divestment of business operations recorded in 2007.

The global economic crisis continued to have a major impact on Evonik's operating business in the first quarter of 2009. The company reported a net loss of €46 million in the first three months of 2009. Although there were signs of a recovery in some areas of the chemicals business in March, the outlook for 2009 is still dominated by major uncertainty. In view of the Chemical Business Area's dominant position within the Group's operations, Evonik still anticipates that sales and earnings will be considerably lower in 2009 than in 2008.

#### "On Track" efficiency drive

Evonik has therefore introduced "On Track", an efficiency improvement drive based on three main modules: active portfolio management, streamlining administrative structures and leveraging short-term and For further information see Evonik's annual report for 2008

#### Evonik Group: Key figures

in€million	2006	2007	2008
Sales	14,125	14,444	15,873
EBITDA <sup>1)</sup>	2,157	2,236	2,171
EBITDA margin in %	15.3	15.5	13.7
EBIT <sup>2)</sup>	1,179	1,363	1,304
ROCE <sup>3)</sup> in %	8.4	9.7	9.1
Net income	1,046	876	285
Total assets as of December 31	20,953	19,800	20,099
Equity ratio as of December 31 in $\%$	20.6	25.7	25.8
Cash flow from operating activities	1,142	1,215	388
Capital expenditures <sup>4)</sup>	935	1,032	1,160
Depreciation and amortization <sup>4)</sup>	943	862	842
Net financial debt as of December 31	5,434	3,924	4,583
Employees as of December 31	46,430	43,057	40,767

Figures for 2006 as reported; figures for 2007 restated.

<sup>1)</sup> Earnings before interest, taxes, depreciation, amortization and non-operating result.

<sup>2)</sup> Earnings before interest, taxes and non-operating result.

<sup>3)</sup> Return on capital employed.

<sup>4)</sup> Intangible assets, property, plant, equipment and investment property.



sustained earnings potential. An extensive costcutting program is designed to generate sustained global savings of around  $\in$  500 million p.a. by 2012. This year the Group intends to reduce costs by  $\in$  300 million, although some of these savings will be oneoff and thus temporary.

Around two-thirds of this drive comprises reducing outsourcing, travel expenses and other operating costs. The other third comes from employees who thus make a major contribution. An agreement concluded by the Executive Board, Combined Works Council, Group Senior Staff Committee and German Mining, Chemical and Energy Industrial Union (IG BCE) in March 2009 sets out action to reduce personnel expense at all consolidated companies in the Evonik Group. Evonik has also introduced short-time working at various chemical production facilities in Germany due to persistently low capacity utilization. Around 2,700 employees were affected by this on June 30, 2009.

#### Value added

Value added is calculated from sales and other revenues less the cost of materials, depreciation and amortization and other expenses. In 2008 value added declined by  $\in$ 551 million to  $\in$ 3,962 million, principally as a result of higher raw material costs. The highest proportion (71 percent) related to human resources: Personnel expense increased slightly year-on-year to  $\notin$ 2,810 million. A further 15 percent related to interest expense. 5 percent was paid to the state in income and other taxes. The proportion of value added paid out to the shareholders of Evonik Industries AG in 2008 declined significantly to 7 percent as a result of high one-off expenses caused by the economic crisis.

#### Breakdown of value added

in€million	2008	2007	
Total value added	3,962	4,513	
Split:			
Employees	2,810	2,773	
State	191	206	
Lenders	606	563	
Other shareholders	70	95	
Net income	285	876	

#### Major projects completed or virtually completed in 2008

Business area	Location	Project
Chemicals	Chongqing (China)	New cyanuric chloride plant
	Barra do Riacho (Brazil)	Expansion of hydrogen peroxide capacity
	Rheinfelden (Germany)	Construction of a monosilane production plant and a plant to precipitate polycrystalline silicon
	Rheinmünster (Germany)	Modernization of a superabsorbents plant
	Singapore	New oil additives plant
	Shanghai (China)	Partial start-up of PMMA complex
Energy	lskenderun (Turkey)	Construction of a protected harbor for unloading coal
Real Estate	Essen, Recklinghausen (Germany)	Purchase of residential units
	North Rhine-Westphalia (Germany)	Modernization to improve energy efficiency and construction of new residential units

#### **Capital expenditures**

Capital expenditures on property, plant and equipment increased 12 percent to  $\in$ 1,160 million in 2008. The Chemicals Business Area once again received the largest proportion of this—61 percent—and 30 percent was invested in the Energy Business Area. Regionally, the focus was on Germany, which accounted for 66 percent of the total. The largest single project is the erection of a 790 MW coal-fired power plant in Duisburg-Walsum (Germany).

7 percent of capital spending was allocated to other European countries and 8 percent to North America. Evonik invested 19 percent of the total in Asia. Its most important single project in this region is the construction of an integrated production complex for methacrylates and their derivatives in Shanghai (China). In the present economic crisis, priority is being given to measures designed to secure the company's liquidity and earnings. Evonik has therefore significantly reduced its investment plans for 2009.



#### **R&D** facts and figures

Innovation is a key element of Evonik's corporate strategy and is not affected by cutbacks in the face of the economic crisis. Through R&D Evonik aims to continue to improve on its strong position in specialty chemicals and power plant technology. The Group spent €311 million on R&D in 2008. The vast majority was allocated to the Chemicals Business Area. 85 percent of the chemical research budget goes to projects in the business units which are geared to strengthening and driving forward established business. The remaining 15 percent is invested in strategic research to build new high-tech activities outside the Group's present business portfolio. Worldwide, Evonik has around 2,300 R&D staff at over thirty-five sites. In the Chemicals Business Area, products, processes and applications developed in the past five years account for over 20 percent of sales. Research in the Energy Business Area focuses on safe, economical and environmentally compatible energy supply. Key topics are efficiency and dynamics, emissions reduction and carbon capture, the availability and improved efficiency of processes at power plants, and renewable energies.

Evonik has more than 20,000 patents and patent applications and over 7,500 registered and pending brand names.

# **85** percent

of R&D spending in the Chemicals Business Area is allocated to projects in the business units For further information see "Innovative research for tomorrow's profitable growth" on page 17 In 2008 the company submitted around 350 new patent applications, placing it at the forefront of the specialty chemicals sector. Evonik has around 350 cooperation agreements with universities and invests more than €15 million a year in these. The aim is to ensure rapid transfer of the results of top-level research in the fields of chemistry, biology and physics to the company. The European Union and the German state provided funding of €16 million to support promising innovation projects in 2008.

#### Improved chemical production processes

Evonik is also steadily improving its chemical production processes. Processes are constantly reviewed in a bid to cut costs, safeguard competitiveness and reduce environmental impact. Since the start of 2008 a thirty-member Operational Excellence team has been optimizing all production processes in the Chemicals Business Area. In addition, efficient energy management (EEM) has been established for energy generation, distribution and use. So far, Evonik has analyzed thirty of its more than one hundred chemicals sites using the EEM process and identified scope to reduce annual energy costs by between 5 and 25 percent, bringing total savings of €21 million. 90 of the 250 optimization measures have been implemented to date. Evonik's EEM process was rewarded by third place in the international Energy Efficiency Award 2009. This award is presented by the German Energy Agency (dena) in collaboration with Deutsche Messe and the German Federal Ministry for Economics and Technology.

# 800,000

of renewable raw materials are used in Evonik's chemical production processes every year

#### Renewable resources

Since fossil-based raw materials will not last for ever, Evonik sees especial potential in broadening its raw material base to include renewables as well as petrochemical feedstocks. To secure the long-term supply of raw materials, Evonik's Biotechnology S2B Center is developing new products and processes based on renewable raw materials. The Chemicals Business Unit already uses nearly 800,000 metric tons of renewable raw materials such as fats, oils, sugar and bioethanol. That is 8 percent of total production inputs. By far the highest proportion is for fermentation processes to produce the amino acids lysine, threonine and tryptophan and for products for the cosmetics industry. Around 80 percent of Evonik's products for the cosmetics industry are based on renewable raw materials and more than 50 of its products for this market are certified by Ecocert, currently the largest environmental certification organization.

Evonik's Consumer Specialties Business Unit is working with the Sabinsa Group (India) to add plant extracts to Evonik's range of products for the cosmetics industry. Evonik has launched four products based on plant extracts. These include a turmeric root extract that smoothes skin and acts as an antioxidant, a sugar cane extract to counter greasy skin, and an essence produced from sand ginger (kencur) that protects hair from UV radiation and bleaching. The fourth product is an extract of myrobalan bark, a moisturizing agent that prevents wrinkles.



#### Responsibility along the supply chain

Evonik spent more than €7 billion on raw materials, technical equipment and services in 2008. The Shared Service Center bundles key procurement activities for the Group. Raw materials account for around 60 percent of total procurement volume. Of especial importance for the Evonik Group are petrochemical feedstocks, particularly steam cracker products and their derivatives, which comprise the largest single group and make up around 30 percent of procurement volume. Silicon and silicone compounds and renewable raw materials are also very important.

The majority of goods and services are sourced from OECD countries where it can be assumed that suppliers meet at least the minimum social and ecological standards. Most of the coal used in the Energy Business Area's German power plants comes from Germany. Further, coal is sourced from Colombia, South Africa, the USA and Poland, mainly from suppliers with which Evonik has had a business relationship for many years.

Suppliers and service-providers are selected by the procurement organization using a set procedure based on clear and objective criteria. When selecting suppliers, Evonik ensures that they comply with the principles of its Code of Conduct. Violation of human rights by suppliers and substantial shortcomings in the areas of environmental protection, protection of employees and plant safety result in immediate exclusion from further orders. This procedure will be integrated into a Group-wide procurement policy in the future.

Evonik expects its suppliers to observe the OECD guidelines and the core principles of the ILO and incorporate them in their policy. Special requirements are placed on logistics providers to guarantee safe and environmentally compatible transportation in accordance with all applicable legislation and Evonik's standards.



Evonik's Code of Conduct specifies fair and respectful treatment of all business partners. This mutual trust forms the basis for many close working relationships, including the alliance with Daimler on the production of lithium-ion batteries for electric vehicles and the Joint Solar Silicon joint venture with SolarWorld AG for energy-saving production of solar silicon. Procter & Gamble honored Evonik as one of its top global suppliers by presenting it with its Excellence Award 2008.

#### **Employees**

Evonik's HR strategy is geared to the global challenges faced by the Group and its business operations and determines the content and focus of its human resources work. By setting strategic goals, HR sets the framework for responsible treatment of employees and makes a major contribution to attaining the strategic CR objectives. The goals of the HR strategy are to:

- design a corporate culture geared to building value and sharing values
- manage change
- manage human resources

HR management model

- develop skills
- position Evonik as a preferred employer.



<sup>1)</sup> Top HR performance measurement indicators

41 is the average age of Evonik's workforce The introduction of a new HR management model includes the development of indicators to track attainment of the HR goals. Eight top indicators have been defined at Group level to measure and manage HR performance. These are the commitment index, leadership quality, innovation and renewability, planning validity, performance rate, talent rate, employer ranking and talent retention rate. Targets for all of these indicators will be set by the end of 2009.

#### Employees by business area

	2008	2007
	2008	2007
Chemicals	31,728	32,285
Energy	4,702	4,629
Real Estate	443	457
Other operations	3,894	4,179
Continuing operations	40,767	41,550
Discontinued operations	0	1,507
Evonik	40,767	43,057

#### Headcount

The Evonik Group had 40,767 employees at year-end 2008, a reduction of 2,290 compared with 2007. 21 percent of employees were female. Executives and managers accounted for around 15 percent of the global workforce, while severely disabled people made up around 5 percent of the workforce in Germany. The average age of the workforce was 41.

#### Vocational training

In the light of demographic change, it is important to adopt an aggressive policy on recruiting trainees and offering them employment when they complete their training. Evonik's investment in vocational training is above the industry average to ensure it has access to well-trained staff both now and in the future. Evonik spends around €57 million p.a. on vocational training and trainees account for around 9 percent of the German workforce. Its commitment to training youngsters in 2008 was thus well above the German average of 6.5 percent. Group companies in Germany had 2,460 young people on 40 different training courses in 2008. 566 of them successfully completed their training in 2008. 453 have been given temporary employment contracts and 113 were taken on in permanent positions.

Despite the difficult economic conditions, Evonik is continuing its practice of offering employment to young people at the end of their training. In 2009 trainees who demonstrate they are performanceoriented and prepared to be mobile will be offered at least temporary employment so they can gain the practical experience needed to reinforce their vocational training. Under certain circumstances they may be offered a permanent position.
## Further training of employees<sup>1)</sup>

in hours	Total
Region	
Germany	42.8
Other European countries	43.6
NAFTA	2)
South America	46.5
China	41.8
Other Asian countries	21.6

<sup>1)</sup> Based on the survey "Responsibility for Employees and Society"

Average number of hours further training (internal and external) per employee in 2008.

<sup>2)</sup>No data provided

Evonik is committed to providing sound vocational training at foreign sites as well. One example is China. Since 2005 companies in the Chemicals Business Area have collaborated with Shanghai Petrochemical Academy, a leading vocational training institution for the chemical industry. Around 80 percent of students who completed their trained at this academy have been taken on at Evonik's operations in Shanghai.

## Ongoing education and training

Evonik offers employees a wide range of further training and education opportunities to help them steadily broaden and upgrade their skills.

## Skills enhancement drive

Evonik introduced a Group-wide skills enhancement drive in 2008. This encourages and supports employees who are prepared to undertake training to further their own professional development and secure their employability. This program comprises four elements: seminars, self-study media, on-thejob training and retraining alongside normal work. Evonik bears the cost of the training activities. In return, it expects employees to show commitment, including using a certain amount of their leisure time such as vacation and worktime credits for training and study. The skills enhancement drive is initially focused on Germany. Strategies for a rollout to international sites will be developed in the course of 2009.

#### Development landscape

Evonik has created a development landscape for its employees on the basis of its competency model. This specifically addresses the different target groups and outlines what the company expects of its staff.

A special in-house training program has been introduced to foster experience and achievement. All new employees receive the Evonik Starting Kit which gives them an overview of the Evonik Group, its business units and central tools, while the companywide Evonik Development Programs and Evonik Peer Exchanges give employees a deeper insight into the company as a whole.

The development programs focus principally on Evonik's competencies whereas the peer exchange forums are used to discuss issues of strategic relevance. The "Go for Leadership Excellence" program is based on the philosophy that first-class leadership is essential for first-class results.



#### **Business Academy**

The Business Academy established by the Executive Board is a communication and discussion platform for executives and talented employees. The Academy comprises two types of event. Firstly, forums for dialogue, such as the Management Dialogue forum which is targeted at executives and Talent Dialogue. Secondly, a range of programs including the present management development program Grow@Evonik, and two different seminar offerings: the Evonik Leadership Program 2009 for managers and Leadership for Evonik Talents. The central aspects of the Grow@Evonik management development program are capital market-oriented business management skills and external and internal customer focus. The "Evonik Leadership Program 2009 – Leadership for the Future" introduces new ways of thinking and new approaches to knowledge. The aim is to help managers understand the complexity of current change processes and provide more effective leadership for their staff. Since these are issues that need to be addressed as early as possible, the "Leadership for Evonik Talents" program has been established specifically for upcoming leaders. Building on 360° feedback, coaching and mentoring, this new program is designed to help them become better managers.

#### Talent and succession management

Evonik prefers to fill key positions with internal candidates wherever possible. The aim of talent and succession management is to identify employees who could move into the circle of roughly 200 Group executives. Alongside a top performance in their present role, to be classified as a talent, employees need to be ranked as being potential executive material through a positive forecast of their potential.

To reflect the differing background and experience of both young and experienced managers, talent and succession management at Evonik is divided into different talent groups, classified as Advanced, Developing or Emerging Leaders depending on whether the members are considered suitable for management positions in the short, medium or long term. Specially tailored development formats are used for the various target groups.

#### **Employer branding**

Evonik uses employer branding to gain, integrate and retain able employees for the Group. A special image campaign was introduced in Germany in 2008 to attract talent. This was specifically aimed at potential trainees, students, graduates and young professionals. Market research and direct contact to the talented youngsters and professionals targeted by Evonik highlight the effectiveness of this campaign, to which all recruitment tools were tailored. Evonik also aims to attract highly qualified young people through direct contact, for example at recruitment events such as ChemTogether and graduate recruitment fairs such as konaktiva at relevant universities.

Close contact is also maintained to student initiatives and organizations. Examples include MTP, an initiative to give students a practical insight into marketing, and UNITECH international, a network of leading European technical universities and multinational companies. Another example is the young chemists forum.

Evonik offers professional orientation internships and applies the fair company rules, an initiative established by the German journal "Junge Karriere" to ensure that graduates are offered internships on fair terms and given a genuine opportunity to explore career opportunities. Evonik Perspectives is a special program to maintain contact to former trainees and interns identified as potential talents.

Evonik received the Employer Branding Award 2009 in the category "most striking image transformation" for its exemplary development in this field. This award is presented by trendence, the leading European institute for personnel marketing.

For further information visit the career section of our website www.evonik.com

## **Employee rights**

The "Responsibility for Employees and Society" survey shows that almost all employees in the Evonik Group have the opportunity to join a labor union. Methods of employee representation vary: all sites in Germany and China have bodies representing the workforce but such organizations are less widespread in other regions.

In Germany, the role of Works Councils as representatives of the workforce is defined by law. Evonik Industries has always regarded working with employee representatives as very important and sees close cooperation between the company and representatives of the workforce is a key element in corporate success.

The top representative body in Germany is the Combined Works Council which currently represents around 27,000 employees. It has 20 members delegated from the 55 Works Councils in the Chemicals, Energy and Real Estate Business Areas, Corporate Center and Shared Services. Following the restructuring of the Group in 2007, integration was the dominant issue in 2008.

All Evonik employees in Europe have been represented on the Europa Forum since the end of 2008. Originally established as a European Works Council at the former Degussa Group in 2005, the Europa Forum has proven an effective way of assuring and shaping the rights of various national representative bodies in Europe. Meetings bring together delegates representing employees and the management. The total number of delegates varies according to the size of the workforce.

In 2008 the Europa Forum was attended by 23 delegates from 11 countries. The central issues at this annual meeting are European perspectives on subjects such as cross-border changes in corporate organization, investment projects, employment, occupational safety, health and vocational and further training.

## **Employee satisfaction**

Around 76 percent of the 39,000 employees surveyed in 51 countries responded to the biennial employee survey in 2008. The response rate was about 2 percent higher than in 2006, showing that the majority of employees around the world are interested in putting forward their views and contributing to the development of the Evonik Group. Further evidence comes from the fact that 5,700 comments and suggestions were put forward by employees in the special section at the end of the multiple choice questionnaire.



The commitment index—one of the top indicators used in the new HR management model—is 61 points, a clear improvement since the previous employee survey in 2006. Good scores were achieved, among other things, for customer focus and entrepreneurial approach. Employees still see potential for improvement in the organization of their tasks and communication. The detailed analysis of the results from around 2,500 organizational units around the world should result in concrete action from mid-2009. The aim is not only to generate new activities but to build on those derived from the previous survey.

76 percent participation rate in the employee survey

#### Diversity

At year-end 2008, 4.1 percent of Evonik's employees in Germany were non-German nationals. The workforce included people from 68 nations, with employees of Turkish and Italian nationality forming the largest groups.

## Working hours

In Germany flextime or trust time is commonly used for administrative and office employees. The opportunity to offer flextime arrangements in production facilities is restricted. However, flexible shift models are used for most employees on alternating shift rosters. At least 50 percent of Evonik's employees in Europe benefit from flexible worktime models such as flextime, flexible shifts and part-time working. Around 4.5 percent of employees work part-time. Evonik's first global survey on "Responsibility for Employees and Society" revealed a wide range of different worktime models. Although the Group uses a five day working week around the world, daily working hours vary from 7 to 10.5 hours. Employees in South America and China are not offered opportunities to shape their working hours flexibly. Elsewhere in Asia, around 30 percent of employees are offered flextime systems.

Rules on vacation and other types of leave also vary greatly. Employees in Asia have between 10 and 26 days vacation a year, although the legal minimum is less than ten days. Unpaid leave is available to over 80 percent of employees in Europe and NAFTA but no similar arrangements exist in Asia and South America.

The opportunity to allocate salary and time components to a lifetime work account was extended to employees at the Corporate Center, Shared Service Center and the Real Estate Business Area in April 2008. This tool had already been introduced in the Chemicals and Energy Business Areas, so employees throughout Germany can now build up credits on lifetime work accounts regardless which unit they work for. At the end of 2008 more than 6,000 employees in Germany were utilizing this tool.

#### **Remuneration policy**

Evonik offers its employees worldwide performanceoriented remuneration based on market rates. Its remuneration systems support the achievement of strategic objectives and include long-term incentive components based on those objectives. In Germany, pay rises are generally agreed by collective bargaining. A uniform remuneration system applies for all Group executives. In addition to a bonus system based on the attainment of annual objectives, a longterm incentive program was introduced in 2008. This is based on the increase in Evonik's equity value over a three-year period.

By contrast, for most other managerial and other exempt employees in the Group there is no uniform remuneration system. A program was established in 2008 to enable employees in Germany to participate in the company's success: Employees can purchase participation rights that earn a return based on the Group's return on capital employed (ROCE). In the first year of this program, more than 4,200 employees utilized this opportunity and purchased participation rights for a total of €3.7 million.

#### Personnel expense

Personnel expense totaled  $\leq 2.8$  billion in 2008, around  $\leq 37$  million (1.3 percent) more than in 2007. Wages and salaries accounted for nearly 83 percent of total personnel expense and were  $\leq 63$  million higher than in the previous year.

Expenses for social security contributions (12 percent of personnel expense) were around  $\in 5$  million lower than in 2007. Other personnel expense increased by around  $\in 2$  million year-on-year to nearly  $\in 18$  million in 2008. Germany accounted for around 95.5 percent (2007: 98.6 percent) and thus the vast majority of provisions for pensions on the reporting date.

#### Personnel expense

in€million	2008	2007
Wages and salaries	2,320	2,257
Social security expenses	336	342
Pension expense	136	158
Other personnel expense	18	16
Total personnel expense	2,810	2,773

## Social responsibility

## Supporting regional economic strength

Evonik regards itself as a corporate citizen, with all the related rights and obligations. It is a substantial economic factor in many areas in which it operates. Employees' wages and salaries and their social security and pension contributions make an important contribution to purchasing power and social security. The regions where Evonik has sites also benefit indirectly from its operations—transactions with suppliers help create jobs and Evonik's procurement volume is often an important factor in the development of the local economy. Similarly, the taxes paid by the Group benefit social and economic development and infrastructure in the surrounding area.

## China

In September 2007 Evonik embarked on the construction of an integrated production site, which is scheduled for completion in 2009. Known as MATCH—Methacrylates to China—this is currently Evonik's largest investment project in China, involving capital expenditures of around €250 million. It is also the second largest investment ever undertaken by the Chemicals Business Area. Through this project Evonik is creating local jobs, including 250 at the facility itself.

MATCH is being developed in collaboration with a Chinese engineering firm and involves the employment of 300 Chinese engineers in the eighteenmonth construction phase. Evonik is also using various local construction contractors. At the peak, there were over 2,000 people working on the project. Moreover, more than 70 percent of the machinery and equipment comes from China.

#### **Cultural and social projects**

Evonik is a reliable partner for social and educational projects, for example, through sponsorship of sports and the arts. The company makes donations to support the work of non-profit organizations, the churches, scientific institutions and political parties.

## Experiencing sports and the arts

People should be able to experience the arts directly. The Ruhr Festival in Recklinghausen (Germany) provides a good platform for that. Evonik has supported both this internationally renowned theater festival and the Ruhr Piano Festival for many years. From the outset, the company supported the City of Essen's successful application for the title European Capital of Culture 2010. Evonik's support for the arts includes providing funding for the extension of the Küppersmühle modern art museum in Duisburg (Germany). It is also the main sponsor of the German league soccer team Borussia Dortmund (BVB). Fans are deliberately included in its activities, for example by asking fans for donations for charity at matches.

## Generating interest—creating perspectives

Young people are a central element of Evonik's social commitment. In Germany, the company offers vocational training places to far more young people than the industrial average. It also regularly takes part in projects to build bridges between schools and industry, such as the "Dialogue with Youth" initiative in Germany's Ruhr district.

School students from this region gain an insight into what Evonik does and tips on career perspectives through discussion with member's of Evonik's Executive Board. On Germany's annual Girls' Day, Evonik showcases the exciting opportunities offered by careers in science. In April 2009 more than 400 girls were given an insight into a wide range of scientific and technical occupations, ranging from work in a power plant to employment in a chemical laboratory at various German sites.

The Young Spirit initiative is another example: It aims to interest children and young people in science as early as possible and at the same time counter the anticipated shortage of skilled employees. More than 140 employees are involved in this project. They visit children in nurseries, kindergartens and schools to give them a playful introduction to the natural sciences.



girls spent Girls' Day at Evonik

## Local and global assistance

Evonik's social commitment extends to its sites around the world. In the village of San Roque, near its power plant in Mindanao (Philippines), Evonik provides childcare facilities. Around two dozen preschool children are looked after in a daycare center while their parents work. Other projects include helping local inhabitants gain the skills needed to support themselves, one of which is a project to teach them farming.

The company also runs social projects in the vicinity of the Barra do Riacho site in Brazil, where the Chemicals Business Area produces hydrogen peroxide, to improve local inhabitants' ability to earn a living, and provides homework help for children with learning difficulties.

## Bringing industry into the classroom

As well as organizing projects, Evonik maintains partnerships with many schools near its sites in Germany and abroad. The aim is to give lessons a more practical basis geared to professional and business requirements. At the end of 2008, Evonik's ten-year collaboration with the Freiherr-vom-Stein School in Krefeld (Germany) was honored for its exemplary work by a special award presented by the government of the federal state of North Rhine-Westphalia and the foundation "Partners for Schools in NRW". Evonik and the school run up to 15 different work-oriented projects every year.

### Fostering science and research

The Evonik Foundation specifically encourages upcoming scientists and research workers and awards annual scholarships, mainly in the field of chemistry. The foundation's objectives also include fostering environmental protection and sustainable development, as well as support for cultural projects.

Evonik's European Science-to-Business Award encourages young researchers to move from their laboratory into the world of business. The €100,000 award was presented for the second time in November 2008. This time the chosen field was white biotechnology. The award is made to outstanding young research scientists with business acumen and is designed to foster fast and efficient translation of new research findings into successful products. The international jury presented the 2008 award to Dr. Paul Dalby of University College London for his project "Biocatalysis for chiral amino diols" for the production of new medicines and new classes of substances.

## Advocacy

A team comprising members of the Public Affairs department and experts from the Corporate Center and business areas provides input on political issues of relevance to Evonik in Berlin, Brussels and internationally. This team also maintains close contact to a variety of industry associations and similar organizations. Focal areas of its work in 2009 are trading in emissions allowances, chemicals regulation, electromobility, biofuels, nanotechnology and research policy. Evonik is included in the European Commission's list of lobbyists as required by the European Directive on transparency in lobbying.

Evonik is a member "econsense", the forum for sustainable development of German business. The Chemicals Business Area belongs to the World Business Council for Sustainable Development and is committed to the global Responsible Care initiative. It signed the Global Charter on Responsible Care at the start of 2006.

Evonik is also active in the German Energy Agency (dena), the Competence Center for Energy Efficiency and Regenerative Energies and the Forum for Future Energy, a politically independent, cross-sector institution promoting the use of renewable energy sources. In addition, the Evonik Group and its business areas are members of national, European and worldwide interest groups, and play an active role in shaping national, European and international standards.

For further information, visit www.econsense.de, www.wbcsd.org, www.dena.de/en

# Responsible handling of chemicals

Safe handling and use of substances is one of the most important requirements placed on the chemical industry by its stakeholders. In its ESH Values, Evonik states that it is committed to protecting people and the environment and to product stewardship as defined by the chemical industry's Responsible Care initiative.

## Systematic product evaluation

Since 2001 the Chemicals Business Area has used a Chemicals Management System to evaluate products. The central elements are hazard assessment and estimating human and environmental exposure resulting from the use or handling of substances. This information forms the basis for product risk assessment , which in turn permits conclusions to be drawn about whether present safety practices are adequate or whether improvements are required. In some cases, such analyses can even result in restrictions on the use of Evonik's products.

As a member of ECETOC (European Centre of Ecotoxicology and Toxicology of Chemicals) Evonik is working on toxicological issues and the development of methods of assessing the risk of chemicals. It is also an active partner for the OECD in matters relating to the toxicological evaluation of chemicals.

## **REACH—the EU Chemicals Regulation**

Evonik supports the aim of the REACH regulation (Registration, Evaluation, Authorisation and Restriction of Chemicals) of improving the protection of health and the environment in the handling of chemicals at all stages in the value chain. The heart of the Regulation is the registration of substances produced, imported or placed on the market in the EU in quantities of over 1 metric ton per year. While new substances have to be registered immediately using a detailed procedure, transition periods have been set for phase-in substances (mainly existing chemicals), providing they were pre-registered by December 1, 2008.

Evonik successfully submitted around 13,600 preregistrations for nearly 50 legal entities and almost 4,000 substances. To be on the safe side, pre-registrations included some critical raw materials. The EU has prescribed a three-step registration procedure with substances to be registered by 2010, 2013 or 2018 depending on volume. For further information on the Chemicals Management System visit www.evonik.com, Chemicals, Product Stewardship For further information visit www.ecetoc.org

**13,600** pre-registrations for 4,000 substances



#### Schematic lifecycle of a product

So far Evonik has successfully registered nine substances with the European Chemicals Agency in Helsinki (Finland). At the start of 2009 it became the first producer to register synthetic amorphous silica, i.e. precipitated silica (e.g. ULTRASIL® and SIPER-NAT®) and fumed silicas (AEROSIL®). Registration took the form of a joint submission by order of the relevant REACH consortia. As the lead registrant, Evonik has thus paved the way for other chemicals companies in the group to have these substances registered.

## **GPS: Global Product Strategy**

The International Council of Chemical Associations (ICCA) has initiated the Global Product Strategy (GPS) to facilitate safe and appropriate management of chemicals around the world. Evonik explicitly supports this initiative, which grew out of the First International Conference on Chemicals Management (ICCM-1) held by the United Nations Environment Program (UNEP) in Dubai in 2006. At this summit a Strategic Approach to International Chemicals Management (SAICM) was adopted. More than 170 environmental and health ministers outlined their expectations on the safe handling of chemicals. Progress was reported at the Second International Conference on Chemicals Management (ICCM-2) in Geneva in May 2009.

The GPS sets out to define global standards for product stewardship and make information on safe handling and use of chemical substances widely available to enhance chemical safety. This means increasing transparency and improving communications along the product chain and requires a willingness to provide understandable information for the general public. Evonik has already published relevant information on the internet in the USA and other regions are to follow suit.

#### GHS: A new system of labeling chemicals

In January 2009 the European Union introduced a new Regulation on the classification, labeling and packaging of substances and mixtures (CLP Regulation). This introduces the Global Harmonized System (GHS) of classifying and labeling chemicals and replaces all previous regulations. The Regulation has to be implemented for substances by December 1, 2010 and for mixtures by June 1, 2015. A further twoyear transition period is permitted for substances and mixtures already on the shelves. To implement the European GHS rules, Evonik has set up a central project team to support the working groups in the business units. It provides a network to share information on national GHS requirements which remain in force alongside the new EU Regulation.

In the course of 2009 Evonik will be undertaking the necessary technical changes and adjustments to provide the hardware and software basis required for GHS-compliant classification, labeling and packaging of products. Employees are being trained to comply with the new Regulation through a special training module adapted to Evonik's needs in UWEB2000, an internal instruction system that reaches around 18,000 employees in ten countries.

#### Minimizing animal testing

Evonik's Chemicals Business Area conducts tests on animals where they are necessary to comply with national and international legislation. The purpose of such tests is to generate the toxicological data required to assess chemicals. Wherever possible, Evonik uses data that have already been published. To minimize animal testing it also teams up with other producers to carry out joint tests on identical substances.

Evonik supports and promotes the development of alternative test methods, for example, through its membership of the European Partnership for Alternative Approaches to Animal Testing (EPAA). It already uses a variety of in-vitro methods in its laboratories, including the hen's egg test (HET-CAM) and its environmental test methods include the use of fish embryos.

For further details visit www.icca-chem.org and www.saicm.org Moreover, for many years Evonik has successfully used custom-tailored in-vitro test methods based on simulated human skin, such as the EPISKIN, EpiDerm, SkinEtkic and EST-1000 models, to test the efficacy of cosmetic products and active substances. In-vitro analyses of this type have a firm place in test routines for skin protection products in the Personal Care Business Line. Evonik is actively campaigning for the registration authorities to accept alternatives to animal tests.

## New technologies

Evonik believes that new technologies are essential to find solutions for pressing future problems. Biotechnology, genetic engineering and nanotechnology can play a major role in increasing the use of renewable raw materials and more efficient use of energy resources. Evonik therefore sees such technologies as a driving force in its strategy of sustainable innovation.

Social acceptance is vital for the long-term viability of products based on these technologies. Evonik is committed to responsible use of nanotechnology and genetic engineering in dialogue with society. It only markets or uses such projects if safety and environmental compatibility comply with latest state of the art and scientific findings.

Evonik places strict limits on research and use of new technologies. These are derived from ethical values and, in particular, respect for human life and dignity. The Chemicals Business Area has therefore issued guidelines on the responsible handling of nanotechnology and genetic engineering.

#### NanoCare expands knowledge base

The NanoCare research project ended in summer 2009. The goal of this three-year project was to improve knowledge of the health impact of industrially produced nano-particles. Fifteen companies including Evonik, universities and research institutes contributed expertise to this project, which was supported by the German Federal Ministry for Education and Research.



NanoCare has helped provide a far broader knowledge base for the evaluation of nano materials. The project has established methods that can be used to measure the biological impact of nano materials and their entrainment in the workplace. NanoCare is providing its findings to organizations such as the OECD to improve internationally recognized test strategies.

Evonik encourages public discussion of nanotechnology. It therefore endorsed the findings of the NanoCare project being openly communicated and discussed with stakeholders at five meetings. Representatives of the Evonik Group are also taking part in the German government's Nano Dialogue, where experts from industry, science, authorities and industry associations discuss the opportunities offered by nanotechnology and ways of avoiding the possible risks. Nano Grand Canyon: photo entered in the Nano & Art competition in 2007

For further information, visit www.evonik.com/ nanotechnology and www.nanopartikel.info

## Responsibility for the climate

## Kyoto and Copenhagen climate conferences

In view of the current public debate at about climate protection, reducing products and processes that damage the climate is a necessary yet challenging task. The Climate Conference in Copenhagen in December 2009 will be negotiating an extensive climate protection agreement as a follow-on to the 1997 Kyoto Protocol.

The industrialized nations that signed the Kyoto Protocol gave an undertaking that between 2008 and 2012 they would reduce emissions of greenhouse gases by an average of 5.2 percent, taking 1990 as the reference base. The average target for the EU15 was set at 8 percent and the target for Germany was 21 percent.

The Kyoto Protocol covers six greenhouse gases  $(CO_2, CH_4, HFCs, PFCs, N_2O, SF_6)$ . In the European Union, strategies to achieve these goals are set out in national allocation plans (NAP) which cover the energy and industrial sectors, transportation, private households and the retail, commerce and service sectors.

The energy and industrial sectors in which Evonik operates are subject to the EU rules on trading in emissions allowances. This system is included in the Kyoto Protocol as a tool to reduce emissions of greenhouse gases. The German government aims to achieve the goal for the household sector, which is of relevance for Evonik's Real Estate Business Area, through special subsidized programs, advice and administrative measures, including the introduction of an energy saving ordinance and energy passes.

## Trading in emissions allowances

Many facilities operated by Evonik's Energy and Chemicals Business Areas fall directly within the remit of the European regulations on trading in  $CO_2$ emissions allowances. In 2008 these facilities emitted around 26 million metric tons of  $CO_2$ . The Energy Business Area accounted for around 21.5 million metric tons and the Chemicals Business Area for around 4.5 million metric tons. The framework for trading  $CO_2$  emissions allowances in Europe after 2012 was adopted at the end of 2008. From 2013 the necessary  $CO_2$  allowances will have to be obtained primarily by auction. The new regulations are relevant for Evonik's Energy and Chemicals Business Areas.

## Innovative products and technologies avoid CO<sub>2</sub> emissions

Initial estimates confirm that efficient production processes and new products and system solutions from the **Chemicals Business Area** make a significant contribution to cutting  $CO_2$  emissions. To ensure systematic evaluation of the potential to cut  $CO_2$  emissions over the entire lifecycle of existing business operations and research and development projects, Evonik's Eco<sup>2</sup> Science-to-Business Center is working on the introduction of a Group-wide standard for lifecycle assessments.

The importance of the chemical industry in the endeavors to cut CO<sub>2</sub> has been estimated by the International Council of Chemical Associations (ICCA):



Global CO<sub>2</sub> emissions 1991–2007

Source: Federal Ministry of Economics and Technology, BP

Calculation based on consumption of primary energy sources (BP Statistics Review of World Energy); emissions factors based on data from the Jülich research center. Differences compared with other statistics are due to differences in calculation methods, data sources and emissions factors. August 2008

For details of Evonik's total CO<sub>2</sub> emission see

In 2005 the chemical industry emitted 3.3 billion metric tons of  $CO_2$  but its products helped cut  $CO_2$ emissions by 9.1 billion metric tons. The resultant net saving is 5.8 billion metric tons. To put it another way: for every metric ton of  $CO_2$  generated, 3 metric tons were saved. Evonik took part in this worldwide study with the following products: DL-methionine, silicas, polyamide 12 and solar silicon.

The Energy Business Area makes a perceptible contribution to reducing global  $CO_2$  emissions through technology transfer and through the construction and modernization of power plants. If the average global efficiency of coal-fired power plants were raised to 45 percent,  $CO_2$  emissions could be reduced by up to 2 billion metric tons a year.

Together with combined cycle plants, the energy efficiency of coal can even be raised to around 60 percent. However, this requires economically feasible demand for process heat and district heating for industrial and public use. Evonik also generates electricity and heat from mine gas, thus preventing it being released into the atmosphere. Mine gas contains methane  $(CH_4)$ which is 21 times more harmful to the climate than  $CO_2$ .

The **Real Estate Business Area** optimizes the energy consumption of apartments and equips new residential units with advanced and efficient energy technologies such as geothermal or solar energy. Smart concepts cover the entire lifecycle of a property. These include optimizing energy efficiency by modernizing properties using energy-saving concepts such as the "three-liter house". Together with carefully planned, cost-saving running cost strategies, this minimizes the utility charges paid by tenants. Every year, Evonik modernizes around one thousand residential units to the standard defined in the latest version of the German Energy Saving Ordinance.

## Carbon capture and storage (CCS)

Evonik believes that a significant amount of development work is still required before carbon capture and storage (CCS) is ready for widespread use. CCS comprises separating off CO<sub>2</sub> at power plants and converting it into a liquid gas. This greatly reduces the efficiency of power plants and increases the amount of primary fuel sources required to generate a given amount of power. In other words, the CCS technology currently under discussion conflicts with principles of efficiency and sparing use of resources. In addition, the cost of equipping power stations for CCS would make them far more expensive than more efficient modern plants. Moreover, social acceptance of a CO<sub>2</sub> transport network and storage of CO<sub>2</sub> in geological formations would be essential for widespread use.

Evonik is therefore monitoring the development of CCS with great interest but has opted for the following technical and ecological solution: construction of new power plants with efficient coal consumption which reduce  $CO_2$  emissions while stepping up research into applications that use  $CO_2$  as a starting point for chemical production processes.



## Environment, safety and health

Environmental protection, safety and health protection are cornerstones of corporate responsibility and prudent business activity. Protecting people and the environment is therefore of fundamental importance to Evonik. The emissions and consumption data for the Chemicals and Energy Business Areas are particularly significant for an assessment of the environmental impact of Evonik's business activities.

## Basis of reporting and companies included

The ecological data for the Chemicals Business Area in 2008 comprise emissions and consumption at 108 production sites in 28 countries and thus cover 95 percent of this business area's total output. The corresponding data for the Energy Business Area relate to Evonik Steag GmbH, Evonik Fernwärme GmbH, RKB GmbH, Evonik Power Saar GmbH, Evonik New Energies GmbH, Evonik Power Minerals GmbH, Minegas-/Mingas-Power GmbH and the foreign power plants in Turkey, Colombia and the Philippines.

The data are updated annually, but the prior-year figures are not adjusted for changes in the portfolio of companies consolidated. The figures for each

#### Production volumes and inputs

company are included in full, without adjustment to reflect Evonik's stake in them. The figures for the Chemicals Business Area for 2008 are based on this full-consolidation principle for the first time. The previous year's figures have therefore been restated to take account of the change from the pro rata consolidation approach used in the past.

The items selected and basis of reporting are derived predominantly from international legal principles. Sector recommendations, guidelines and comments on corporate sustainability reporting have also been taken into account.

## Production and energy generation Output in the Chemicals Business Area was

10.65 million metric tons in 2008, 1.5 percent lower than in 2007 due to a reduction in demand. This was principally attributable to the economic crisis, which resulted in a massive drop in demand from key end markets from November 2008. Around 10.27 million metric tons of raw materials were required for the synthesis of products. Renewable raw materials made up around 8 percent of total inputs. The majority of these are used in fermentation processes to produce amino acids.

2006	2007	2008
10.31	10.81	10.65
9.79	10.55	10.27
0.68	0.71	0.79
	10.31 9.79	10.31         10.81           9.79         10.55

## Volume sales of energy

		2006	2007	2008
Energy Business Area				
Power	in Gigawatt hours <sup>1)</sup>	42,881	47,554	39,492
Renewable Energies (heat)	in Gigawatt hours thermal energy	2)	1,856	2,038
Renewable Energies (electricity)	in Gigawatt hours electricity	2)	1,783	1,883
Trading	in million metric tons coal	41.2	39.2	35.7

<sup>1)</sup> Energy sales comprise both electric and thermal energy; thermal energy has been converted into the equivalent amount of electric power. <sup>2)</sup> No data available

## **Power plant residues**

in thousand metric tons	2006	2007	2008
Energy Business Area			
Power plant residues	2,652	3,004	2,528
of which fly ash	1,465	1,764	1,471
of which FGD gypsum	607	738	658
of which furnace bottom ash/slag-tap granulate	580	502	399

In the Energy Business Area, the Power Business Line sold 17 percent less energy than in 2007. Demand for energy dropped perceptibly from November 2008 as a result of the economic crisis. By contrast, the Renewable Energies Business Line increased the volume of heat supplied by 10 percent and the volume of electricity by 6 percent. The volume of coal traded by the Trading Business Line declined by 9 percent due to lower demand, particularly from power plant operators and the steel industry. Hard coal is Evonik's most important fuel source, accounting for 90 percent of this business unit's total fuel inputs. The Group intends to step up the operations of the Renewable Energies Business Line.

## Power plant residues

In 2008 the Energy Business Area generated around 2.5 million metric tons of power plant residues. The 16 percent year-on-year decline was principally attributable to a reduction in fuel inputs. Power plant residues comprise gypsum from flue gas desulfurization (FGD gypsum), fly ash, slag-tap granulate and furnace bottom ash. Evonik markets these to the construction industry as high-quality building materials. Almost all residues from Evonik's German power plants were returned to the economic cycle. Evonik also markets power plant residues from foreign power plants where there is demand.

### Environmental protection costs

in € million	2006	2007	2008
Chemicals Business Area			
Operating costs for environmental protection	236	252	259
Investment in environmental protection	56	49	44

#### **Environmental protection costs**

Operating costs for environmental protection in the **Chemicals Business Area** increased by 3 percent to €259 million due to the start-up of new plants.

This business area invested  $\in$  44 million in environmental protection in 2008 (2007:  $\in$  49 million). The trend in such investment is away from expensive additive end-of-pipe technologies to efficient measures integrated into plants and processes. As a result, investment in integrated environmental protection measures increased by roughly half in 2008 while investment in end-of-pipe technology declined by nearly a third.

For example, in Weissenstein (Austria) Evonik invested in improvements to condensate recycling and modernized three in-house hydraulic power plants, which increased energy yields by around 15 percent. In Yingkou (China) an ultrafiltration plant came into service to separate sulfates from electrolysis brine. This has greatly reduced inorganic waste. In addition, new wastewater treatment facilities were built in both Yingkou and Chongqing (China).

Various noise reduction measures were implemented at the gas blacks facility in Kalscheuren (Germany). In Rheinfelden (Germany) a new heat exchanger cycle utilizes exhaust heat from the AEROSIL® production process to preheat air for percarbonate drying, thus saving valuable fossil fuels. In Hart (Germany), measures were introduced to reduce emissions and the network was extended to utilize the energy content of residual gases from carbide production. Other measures included the installation of new exhaust gas collector systems in Steinau (Germany) and projects in Rheinmünster (Germany) for thermal processing of exhaust air streams contaminated with organic substances so they can be used to supply steam for production purposes.

In the Energy Business Area, investment in environmental protection principally comprises the construction of new power plants and improving the efficiency of existing power plants. Flue gas desulfurization units, electric particulate filters and equipment to reduce nitrogen oxides are installed to reduce air pollution. Noise protection and wastewater treatment facilities are also classified as investment in environmental protection.

Environmental protection generally accounts for around one-third of the capital expenditures incurred for new power plants. The Energy Business Area's biggest project at present is the erection of Europe's most advanced hard-coal power plant in Duisburg-Walsum (Germany), which will have efficiency of over 45 percent. Total investment is around €820 million. Another key area of investment in 2008 was expanding business with renewable energies. Construction work has started on a further biomass heating plant and a biogas plant.

## **Environmental data**

## Emissions of greenhouse gases

Total emissions of greenhouse gases by the **Chemicals Business Area** declined by nearly 4 percent in 2008 to 8.37 million metric tons  $CO_2$  equivalents. Relative to output, emissions declined by 2 percent. 40 percent of  $CO_2$  emissions are process-related. Process-related emissions contracted by 6 percent year-on-year in 2008 to 3.33 million metric tons and decreased 5 percent relative to output.

Energy-related  $CO_2$  emissions were 2 percent lower than in 2007 at 4.95 million metric tons. Specific emissions (i.e. emissions relative to output) declined by 1 percent. Improved efficiency in the generation and supply of energy was partially offset by strong growth in output of energy-intensive products. In the Energy Business Area  $CO_2$  emissions were 16 percent lower than in 2007, mainly because lower generation of electricity and heat reduced fuel inputs in power plants.

In the **Real Estate Business Area**, heating-related CO<sub>2</sub> emissions for residential units let by Evonik declined to 299,000 metric tons in 2008, a drop of 1 percent compared with 2007. This is a theoretical calculation based on the assumption of constant living space. It takes account of insulation of outdoor walls to reduce energy consumption, the demolition of older buildings and the construction of new properties. Modernization, demolition and construction of new units have cut heating-related CO<sub>2</sub> emissions by more than 10 percent in the past ten years. Every year, Evonik modernizes around one thousand residential units to the standard defined in the latest version of the German Energy Saving Ordinance.

#### Emissions of greenhouse gases

in million metric tons	2006	2007	2008
Chemicals Business Area			
CO <sub>2</sub> emissions			
Energy-related $CO_2$ emissions (from energy inputs, net )	5.03	5.07	4.95
Process-related CO <sub>2</sub> emissions	3.40	3.54	3.33
$CO_2$ emissions from other Kyoto gases (CH <sub>4</sub> , N <sub>2</sub> O)	0.06	0.07	0.09
Total	8.49	8.68	8.37
Energy Business Area			
CO <sub>2</sub> emissions <sup>1)</sup>			
Total	32.55	37.50	31.50

<sup>1)</sup> From power plants for which the Energy Business Area is responsible and which are subject to EU emissions trading rules, and from foreign power plants

## Emissions into the air

in metric tons	2006	2007	2008
Chemicals Business Area			
Sulfur oxides (SOx/SO2)	34,492	35,791	35,029
Nitrogen oxides (NOx/NO <sub>2</sub> )	12,126	12,527	11,639
Particulates	1,311	1,328	1,273
VOC (excluding methane)	2,648	1,760	1,567
Energy Business Area			
Sulfur dioxide (SO <sub>2</sub> )	34,940	36,672	31,326
Nitrogen oxides (NOx)	30,820	36,800	30,423
Particulates	1,260	1,204	1,000

## Emissions into the air

Alongside energy and process-related  $CO_2$  emissions, Evonik's main emissions into the air comprise sulfur oxides, nitrogen oxides and particulates.

In the **Chemicals Business Area**, the majority of emissions into the air are dependent on the characteristics of the fuel mix used for energy generation, capacity utilization at generating plants, the properties of raw materials, and production volumes. In 2008 emissions of sulfur oxides were 2 percent lower than in 2007, while emissions of nitrogen oxides decreased by 7 percent. Particulate emissions fell by 4 percent and emissions of non-methane volatile organic compounds (NMVOC) declined by 11 percent. Reasons include a mixture of measures to reduce air pollution, lower capacity utilization, shutdowns and divestments. In line with the output-related drop in fuel inputs, there was a perceptible reduction in emissions into the air by the **Energy Business Area** in 2008 versus 2007. Emissions of sulfur dioxide were 15 percent lower, while emissions of nitrogen oxides and particulates were both 17 percent lower.

## Waste

In the **Chemicals Business Area**, total waste was 7 percent lower in 2008 than in 2007. In 2008, as in 2007, 63 percent of waste was recycled and 37 percent was disposed of.

Hazardous production waste was 6 percent lower than 2007 while non-hazardous production waste declined by 7 percent. The substantial reduction in non-hazardous production waste was chiefly due to

in metric tons	2006	2007	2008
Chemicals Business Area			
Incineration with recycling of heat energy	107,505	126,897	79,635
Disposal by incineration	91,222	81,784	89,529
Recycling (including composting)	225,209	205,719	225,277
Landfill	89,479	99,423	74,678
Chemical/physical/biological treatment	59,542	25,593	30,477
Other	7,175	36,938	35,151

### Waste management

the start-up of a new filter press in Antwerp (Belgium), which has greatly reduced the water content and thus volume of sludge from wastewater treatment facilities.

Construction and demolition waste can fluctuate considerably because it depends on specific projects. Total hazardous and non-hazardous construction and demolition waste was considerably lower than in the previous year (-10 percent). 69 percent (2007: 57 percent) was reprocessed and 31 percent (2007: 43 percent) was disposed of.

Waste management comprised the following activities in 2008: recycling, including composting (42.1 percent), incineration (16.7 percent), incineration with re-use of heat energy (14.9 percent), disposal in landfills (14.0 percent), chemical/physical/ biological treatment (5.7 percent) other reprocessing methods (5.7 percent) and other disposal methods (0.9 percent). Total waste in the **Energy Business Area** increased to 210,660 metric tons in 2008. Most of this was "non-hazardous waste for reprocessing", which was 83,660 metric tons higher than in 2007. Coal mining was halted in the Saarland region of Germany following an earthquake in February 2008 and only restarted at far lower volume in the second quarter of 2008. Some of the fly ash resulting from combustion of a different quality of coal had to be declared as non-hazardous waste for reprocessing.

## Waste data

in metric tons	2006	2007	2008
Chemicals Business Area			
Hazardous production waste	214,304	201,755	189,465
of which reprocessed	120,281	114,802	94,884
of which disposed of	94,023	86,953	94,581
Non-hazardous production waste	247,955	254,959	237,226
of which reprocessed	153,290	178,609	165,660
of which disposed of	94,665	76,350	71,566
Hazardous building and demolition rubble	15,842	37,177	19,613
of which reprocessed	484	6,400	6,674
of which disposed of	15,358	30,777	12,939
Non-hazardous building and demolition rubble	102,031	82,463	88,443
of which reprocessed	59,665	61,359	68,186
of which disposed of	42,366	21,104	20,257
Total	580,132	576,354	534,747
Energy Business Area			
Hazardous waste for reprocessing	1)	18,100	30,300
Hazardous waste for disposal	1)	13,640	7,560
Non-hazardous for reprocessing	1)	85,840	169,500
Non-hazardous waste for reprocessing	1)	6,500	3,300
Total	63,000 <sup>2)</sup>	124,080	210,66

<sup>1)</sup> No data available

<sup>2)</sup> Germany only

## Wastewater loads

in metric tons	2006	2007	2008
Chemicals Business Area			
COD	5,908	7,403	7,293
Ν	656	543	523
Ρ	72	62	66
AOX	3.0	3.0	2.0
Heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn)	4.7	4.3	4.3

## Wastewater loads

## Water consumption

COD loads in the **Chemicals Business Area** declined by 1 percent in 2008 while the total nitrogen load was 4 percent lower. This essentially reflects the change in production volume. AOX loads—AOX stands for adsorbable organic halogen compounds—declined by a significant 33 percent as a result of targeted optimization of production processes. The total phosphorus load (phosphates stated as phosphorus) fluctuated at a low level. Overall, heavy metal loads in wastewater were unchanged from the previous year.

In the Energy Business Area, wastewater loads are not generally relevant in relation to other emissions.

At the production sites in the **Chemicals Business Area**, water is mainly used for cooling and process purposes in production facilities, to generate steam in power plants and for sanitary requirements. The efficiency of water consumption is continuously being improved, for example, through integrated systems with graduated water qualities and recycling of water through the use of recooling plants. Total water consumption was 395 million cubic meters in 2008, 3 percent lower than in 2007. That was partly due to a decline in output and partly due to processrelated measures in the treatment of hydrochloric acid in Wesseling (Germany) and carbon black production in Botlek (Netherlands).

The Energy Business Area uses cooling and process water principally in the desulfurization of flue gas at its power plants. Consumption dropped 5 percent in 2008 due to a reduction in energy generation.

#### Water consumption

in million m <sup>3</sup>	2006	2007	2008
Chemicals Business Area			
Water consumption	413	406	395
of which drinking water	19	19	19
Energy Business Area			
Water consumption	2,580	2,930	2,790

## Energy inputs (net)

in terajoules	2006	2007	2008
Chemicals Business Area			
Gas	31,891	32,282	31,060
Coal	26,145	26,450	26,442
Fuel oil	954	1,344	938
Power sourced from/supplied to third parties	8,203	8,630	9,031
Steam sourced from/supplied to third parties	-6,732	-7,685	-8,770
Total	60,461	61,021	58,701

#### **Energy inputs**

Energy inputs in the **Chemicals Business Area** were 4 percent lower in 2008 than in 2007 while specific energy inputs (i.e. inputs relative to output) were 2 percent lower. The main fuel sources are still natural gas and coal.

## **Biodiversity**

Evonik avoids damaging biodiversity at its sites and through its business activities, in keeping with the United Nations Convention on Biological Diversity. Maintaining biodiversity is a basic prerequisite for industrial production and the environment in which we live because the continued availability of properly functioning ecosystems is of fundamental importance to our society, politics and business. Evonik therefore takes part in specific projects geared to maintaining biological diversity at its sites.

The undeveloped coniferous and broadleaved woodland areas at the site operated by the **Chemicals Business Area** in Mobile (Alabama, USA) provide an optimal habitat for a wide range of valuable animals and plants that are typical for coastal wetlands. Protecting these sensitive biotopes and the species of animals and plants that live there is part of the site's sustainability policy. Evonik also supports environmental projects, such as a project by Auburn University to control invasive cogon grass, which is not native to the area. In Germany, the Energy Business Area protects and fosters ecodiversity in the river meadowlands near its Voerde and Walsum power plants. Ecologically, this 500 hectare area is one of the most valuable biotopes in this region of Germany. There are now once again more than 100 different species of nesting bird there, around one third of which are on the Red List of endangered species.

The **Real Estate Business Area** has returned one kilometer of meadowland along the river Lippe in the northern Ruhr district to its natural state. This project is part of a broader nature conservation project for the area between the Lippe and Stever rivers and is specifically designed to help preserve endangered species such as storks and kingfishers.

## Safety

Evonik gives top priority to safety in the operation of its facilities, during transportation and in the workplace. Systematic and planned risk reduction is achieved through the use of technical equipment and organizational measures. The company actively promotes risk awareness and employees are required to act in a manner that does not put themselves or others in danger. This is supported by appropriate training.

Despite wide-ranging precautions, accidents cannot be ruled out entirely. Contingency plans set out action, exercises and training to ensure the correct response to the aftermath of accidents. Similarly, the decision-making powers, communication channels and coordination teams required to deal with an emergency are carefully defined. There were no significant accidents with environmental implications at Evonik's sites in 2008.

## Occupational safety

Accident frequency (the number of accidents per million hours worked by Evonik employees) was 3.3 in 2008, down from 3.4 in the previous year. Regrettably, three fatal accidents occurred in 2008. A company employee, an employee supplied by a staffing agency and a contractor died while working at sites operated by Evonik's Chemicals Business Area.

To prevent such serious accidents in the future and further reduce the frequency of accidents, the **Chemicals Business Area** is stepping up measures to enhance its safety culture. That includes improving management of contractors. Challenges for this business area include raising management awareness of safety issues, the role of supervisors in setting an example and safe working practices by employees. Facilitated safety training is used to sharpen employees' awareness of safe conduct and their personal responsibility. Exercises are used to foster constructive communication and encourage superiors to set an example. Evonik's internal safety award honors sites and plants with a particularly long track record in accident-free working. In the Energy Business Area, Evonik arranged for two employers' liability insurance associations to audit five of its power plants in Germany. The result of these extensive audits was validation of their occupational safety systems, providing evidence that occupational safety and health protection have systematically been integrated into the organization of these plants and are actively applied. The five power plants certified in 2008 were the Fenne, Lünen, Voerde and Weiher facilities and the Leuna refinery power plant. In addition, the Walsum heating plant received an award from the employer's liability insurance association for accident-free working practices.

The **Real Estate Business Area** consistently applies its systematic occupational safety system. On the basis of a risk evaluation and the action derived from this, occupational safety improved in 2008 and there was a considerable reduction in the number of accidents.

Anonymized reports of the causes of accidents are used throughout the Group as "lessons learned" to share knowledge and experience between sites and business areas.

## Accident frequency<sup>1)</sup> by business area

	2008	2007
Chemicals	1.7	1.8
Energy	7.7	8.9
Real Estate	2.3	12.7
Evonik	3.3	3.4

<sup>1)</sup> Number of accidents at work per million hours worked by Evonik employees

## Transportation safety

A coordination committee in the Chemicals Business Area is responsible for defining uniform global standards of transportation safety and monitoring their internal use. The guidelines issued by this coordination committee provide organizational support and define accountability. As a result, Evonik was one of the first companies in the world to meet the stringent transportation safety requirements of the US customs authorities.

The Chemicals Business Area shipped 10.55 million metric tons of goods in 2008. 55 percent comprised hazardous goods and 45 percent comprised other goods (same percentage split in 2007).

## Outgoing shipments of hazardous goods

in thousand metric tons	2008
Chemicals Business Area	
Air	0.5
Ocean	478
Inland waterway	1,004
Rail	1,094
Pipeline	1,627
Road	1,629
Road	1,6

## Outgoing shipments of other goods

in thousand metric tons	2008
Chemicals Business Area	
Air	3
Ocean	842
Inland waterway	11
Rail	425
Pipeline	31
Road	3,407

## Protecting and promoting health

Evonik adopted guidelines and a program on health protection and promotion at the start of 2009. The aim of this program is to actively promote health in the workplace. The overriding goal is to protect employees from work-related injuries and illnesses. An essential element at all facilities comprises contingency plans including an effective chain of emergency services to minimize the impact of acute illness and accidents. To this end, Evonik has established a special medical emergency management plan for employees on business trips and those deployed in foreign countries. Preventive measures can avoid occupational health risks and work-related illnesses.

Evonik aspires to go even further: It aims to offer all employees special programs to encourage personal health management. In view of the aging workforce, it is particularly important for employees to maintain and improve their health. The programs will vary by region and will be based on an evaluation of local risk factors and needs. Clearly defined and measurable long-term targets will be set. Ultimately this should benefit both the company and its employees. Model programs at Evonik sites include measures to reduce the risk of heart disease and cancer, screening for diabetes and weight-reduction programs.

## Evonik-Mainz glaucoma study

Glaucoma is the second most common cause of blindness in the over-40s in industrialized countries. Between June 2007 and April 2008 Evonik conducted a glaucoma study in collaboration with the ophthalmology clinic at Mainz University. The aim was to investigate the frequency of eye disease in a relatively young population and assess which, if any, examination methods are suitable for screening and early identification of glaucoma. 4,234 of Evonik's 13,037 employees in Germany aged between 40 and 65 were examined by ophthalmic specialists from Mainz University. Suspected glaucoma was detected in 101 cases. Overall, the findings highlight the benefit of glaucoma screening from age 40, for example through workplace programs.

Progress towards the ESH of	toals set by the	Chemicals Business	Area for 2014	: reference base 2004
Trogress towards the Ebri	gould bee by the			

Environmental targets: change in % compared with 2004 <sup>1)</sup>	2004	2005	2006	2007	2008	2014
Specific emissions of greenhouse gases (excluding process-related $CO_2$ )	100	96	89	86	86	80
Specific water consumption	100	93	91	85	85	80
Specific production waste	100	95	95	95	91	80
Safety: accidents per million working hours <sup>2)</sup>						
Accident frequency	3.8	2.9	2.2	1.8	1.7	1.5

2014 = Targets

<sup>1)</sup> continuing operations

<sup>2)</sup> continuing and discontinued operations

#### **ESH** targets

Evonik's ESH Values specify that the company sets itself ambitious and quantifiable ESH targets. To contribute to meeting the targets set out in the Kyoto protocol and improve its ESH performance, in fall 2005 the **Chemicals Business Area** defined ten-year target reductions for key ESH areas (2004-2014). Monitoring fulfillment of these targets is integrated into management processes and is supported by audits at the business area's global sites.

Between 2004 and 2008 the development of the environmental indicators relative to output was within the target range (92 percent, taking 2004 as the reference base). This indicates a declining correlation between growth and environmental impact, in line with sustainable development. In particular, considerable progress has already been made in reducing greenhouse gas emissions and water consumption in the Chemicals Business Area.

The target for the Energy Business Area is to reduce the frequency of accidents by 60 percent between 2004 and 2014. This business area's accident frequency rate was 13.8 in 2004, giving a target of 5.5 for 2014. The current accident frequency rate of 7.7 is well on track to achieve this target.

Two targets have been set for the **Real Estate Business Area.** One is to reduce heating-related  $CO_2$ emissions (based on constant living space) by 12 percent between 2006 and 2014. They are on track to meet this goal: Emissions are currently 299,000 metric tons compared with around 307,000 in 2006 and a target of roughly 270,000 in 2014. Secondly, in the field of safety the goal is to reduce the accident frequency rate by more than 45 percent in the same period. The accident frequency rate was 3.6 in 2006 and the target for 2014 is 2. The current accident frequency rate of 2.3 in this business area is well within the target range.

Evonik regularly reviews its targets and will adjust them if necessary.

## Annex

## **Corporate Governance**

Good corporate governance—in other words, responsible and targeted management and oversight strengthens confidence in a company and enables it to create lasting value. It also enhances transparency for all stakeholders and firmly anchors responsible conduct in the company. That is why good corporate governance forms an integral part of business processes at Evonik.

During 2008, the Supervisory Board of Evonik Industries AG once again performed the obligations imposed on it by law and the Articles of Incorporation. It maintained an ongoing dialogue with the Executive Board of Evonik Industries AG, continuously monitored its management of the company and provided regular advice. The Executive Board provided full and timely information on all relevant aspects of business policy, corporate planning and strategic development, profitability, business performance, the situation of the Group, compliance, occupational safety and environmental protection.

## The Supervisory Board and its committees

In keeping with the recommendations of the German Corporate Governance Code and its own Rules of Procedure, Evonik's Supervisory Board has established various committees. Alongside the Mediation Committee required by law, it has an Executive Committee, a Finance and Investment Committee and an Audit Committee. The Supervisory Board and its committees held regular meetings in 2008. The Supervisory Board examined all issues of relevance to the company at five meetings and in one written circulation procedure. The Executive Board also submitted regular written reports outside meetings on business trends and matters of particular importance for Evonik. Further, the Chairman of the Supervisory Board was kept constantly informed of all significant business developments.

## **Employee representation**

In line with German legislation, employees elect representatives to the Supervisory Board. The representatives of the workforce also include three delegates from the responsible labor union. The Rules of Procedure of the Supervisory Board specify that all decisions are taken on the principle of a majority vote.

## Independence of the Supervisory Board and Executive Board

Members of the Supervisory Board may not have a seat on the Executive Board and vice versa. In a declaration submitted in conjunction with the annual financial statements, the Chairman of the Supervisory Board, all members of the Executive Board and senior executives declare that their independence is not affected by conflicts of interest.

## Annual Shareholders' Meeting

Since Evonik is not listed on a stock exchange, its Annual Shareholders' Meeting is currently attended by its two owners: RAG-Stiftung and CVC Capital Partners. At the time of the Annual Shareholders' Meeting in April 2008, the company's sole owner was RAG-Stiftung, which sold a 25.01 percent stake in the company to the financial investor CVC Capital Partners in June 2008.

## Performance-oriented remuneration of senior management

Under the Rules of Procedure of the Supervisory Board, the Executive Committee is responsible for concluding employment contracts with the members of the Executive Board. Their contracts set out the total remuneration package for each member, comprising fixed salary, profit participation, long-term performance-oriented components, reimbursement of expenses, insurance policies, commission payments and fringe benefits. The contracts with members of the Executive Board and all Group executives include remuneration elements based on personal performance and the overall performance of the Group.

	Equity <sup>1)</sup>		uding shareholdings n 16 German Stock AktG)	5
	in€million	Direct%	Indirect %	%
I. Consolidated subsidiaries				
Chemicals Business Area				
Germany				
Evonik Degussa GmbH, Essen	2,739	94.90	5.10	100.00
Evonik Goldschmidt GmbH, Essen	127		100.00	100.00
Evonik Röhm GmbH, Darmstadt	168		100.00	100.00
Evonik Stockhausen GmbH, Krefeld	127		100.00	100.00
Other countries				
Degussa Amalgamation Ltd., Milton Keynes (UK)	438		100.00	100.00
Evonik Degussa (China) Co. Ltd., Bejing (CN)	100		100.00	100.00
Evonik Degussa Antwerpen N.V., Antwerp (BE)	150		99.99	99.99
Evonik Degussa Brasil Ltda., São Paulo (BR)	94		100.00	100.00
Evonik Degussa Corporation, Parsippany (NJ, US)	1,356		100.00	100.00
Evonik Degussa Japan Co., Ltd., Tokyo (JP)	82		100.00	100.00
Evonik Degussa UK Holdings Ltd., London (UK)	487		100.00	100.00
Laporte Speciality Organics Limited, Milton Keynes (UK)	331		100.00	100.00
Energy Business Area				
Germany				
Evonik Steag GmbH, Essen	674	5.10	94.90	100.00
Evonik New Energies GmbH, Saarbrücken	62		100.00	100.00
Evonik Power Minerals GmbH, Dinslaken	34		100.00	100.00
Evonik Trading GmbH, Essen	35		100.00	100.00
Evonik Energy Services GmbH, Essen	277		100.00	100.00
Evonik-EVN Walsum 10 Kraftwerksgesellschaft mbH (formerly STEAG-EVN Walsum 10 Kraftwerksgesellschaft mbH), Essen	113		51.00	51.00
Other countries				
Compañia Eléctrica de Sochagota S.A.E.S.P., Tunja (CO)	62		51.00	51.00
lskenderun Enerji Üretim ve Ticaret Anonim Sirketi, Ankara (TR)	1,000		51.00	51.00
STEAG State Power, Inc., Makati City (PH)	112		51.00	51.00
Real Estate Business Area				
Germany				
Evonik Immobilien GmbH, Essen	150	100.00		100.00
EBV GmbH, Hückelhoven	32		100.00	100.00
Lünener Wohnungs- und Siedlungsgesellschaft mbH, Lünen	38		100.00	100.00
Rhein Lippe Wohnen GmbH, Duisburg	195		100.00	100.00
Siedlung Niederrhein GmbH, Dinslaken	57		100.00	100.00
Wohnbau Auguste Victoria GmbH, Marl	35		100.00	100.00
Wohnbau Westfalen GmbH, Dortmund	170		100.00	100.0
Wohnungsbaugesellschaft mbH "Glückauf", Moers	52		100.00	100.00
II. Joint ventures (recognized at equity)				
Real Estate Business Area				
THS GmbH (formerly Treuhandstelle für Bergmannswohnstätten im rheinisch-westfälischen Steinkohlenbezirk GmbH), Essen	110		50.00	50.0
III. Associated companies (recognized at equity)				
Energy Business Area				
Fernwärmeversorgung Niederrhein GmbH, Dinslaken	38		26.00	26.00

## Global sites (selected)<sup>1)</sup>

## Germany

No. of employees	
Marl	6,680
Essen	3,278
Wolfgang	2,474
Darmstadt	1,520
Wesseling	1,209
Rheinfelden	1,107
Worms	980
Frankfurt am Main	919
Trostberg	896
Krefeld	681
Herne	662
Weiterstadt	581
Lülsdorf	580
Saarbrücken	462
Kalscheuren	457
Voerde	422
Duisburg	333
Lünen	268
Gladbeck	264
Hart	253
Witten	233
Steinau	204
Datteln	182
Gelsenkirchen	181
Quierschied	179
Völklingen	172
Münchsmünster	162

## Asia

Dalian CN	846
Dalian, CN	840
Shanghai, CN	718
Yingkou, CN	675
Nanping, CN	389
Nanning, CN	332
Iskenderun, TR	307
Qingdao, CN	212
Mindanao, PH	176
Chongqing, CN	167
Taipei, TW	150
Yokkaichi, JP	135

## North America

No. of employees			
Mobile, AL			692
Parsippany, NJ			450
Greensboro, NC			294
Hopewell, VA			245
Sanford, ME			239
Mapleton, IL			186
Osceola, AR			132
Galena, KS			99

## Latin America

No. of employees			
São Paulo, BR			153
Sochagota, CO			130
Barra do Riacho, BR			54
Americana, BR			42
Paulínia, BR			38
Buenos Aires, AR			30

## Other

No. of employees		
Port Elizabeth, ZA		84
Dandenong, AU		69
Umbogintwini, ZA		30
Morrinsville, NZ		26

## Europe excluding Germany

No. of employees	
Antwerp, BE	1,006
Ham, FR	259
Slovenská Lupča, SK	245
Zurich, CH	200
Gramatneusiedl, AT	170
Kaba, HU	130
Zdunska Wola, PL	103
Maastricht, NL	101
Weissenstein, AT	96
Moscow, RU	84
Jaslo, PL	83

<sup>1)</sup> As of January 2009

## Leading market positions

Product	Application	Global ranking	Capacity in metric tons p.a	
Industrial Chemicals				
Alcoholates	Catalysts for biodiesel, pharmaceuticals, agrochemicals and other applications	1	>100,000	
Cyanuric chloride	Crop protection and industrial applications (e.g. optical brighteners)	1	123,000	
Hydrogen peroxide	Bleaching of pulp and textiles, oxidation agent for the chemical industry	2	600,000	
1-butene	Co-monomer for polyolefins	1 <sup>1)</sup>	200,000	
Isononanol	Plasticizers	2	340,000	
Organosilanes, chlorosilanes	Rubber, silicone rubber, paints and coatings, adhesives and sealants, building protection materials, pharmaceuticals, cosmetics, optical fibers, photovoltaics	12)	270,000	
Organosilanes, chlorosilanes	sealants, building protection materials, pharmaceuticals,	12)	270,000	
Fumed silicas, fumed metal oxides	Silicone rubber, paints and coatings, adhesives, sealants and plastics, pharmaceuticals, cosmetics, high-temperature insulation, electronics	1	470,000	
Precipitated silicas	Reinforcement of rubber, consumer products	1		
Matting agents	Additives for the coatings and printing inks industry	2		
Carbon blacks	Tires, rubber goods, pigments	2	1,400,000	
Health & Nutrition				
Exclusive synthesis of fine chemicals	Intermediates and active substances for pharmaceutical and adrochemical applications	3	3)	

fine chemicals	and agrochemical applications	3	3)
Precious metal powder			3)
catalysts	Life sciences and fine chemicals	1	
Amino acids	Pharmaceutical intermediates and infusion solutions	3	3)
DL-methionine	Animal nutrition	1	350,000
Threonine	Animal nutrition	2	30,000
Tryptophan	Animal nutrition	2	3)

Consumer Specialties			
Superabsorbents	Diapers, feminine hygiene products, incontinence products	1	440,000
Organically modified silicones	Additives for polyurethane foams, coatings and inks, cosmetics; radiation-cured separation coatings	1–2	80,000
Fat chemistry, quaternary derivatives	Fabric softeners	1	3)
Amphoteric surfactants	Shampoos, shower gels	1	3)
Ceramides, phytosphingosines	Cosmetics	1	3)
Skin cremes	Professional skin protection	2–3	3)

## Leading market positions (continued)

Product	Application	Global ranking	Capacity in metric tons p.a
Coatings & Additives			
Colorants			
(pigment dispersions)	Decorative and industrial colorants	1–2	3)
Polyester resins	Can and coil coating	1	24,000
	Environment-friendly coating systems,		
Isophorone chemistry	high-performance composites	1	3)
Pharmaceutical polymers	Coatings for drugs	2	3)
Oil additives	Viscosity index improvers	2	3)
Thermoplastic and reactive			
methacrylate resins	Binders for paints and coatings	1	3)

Polyamide 12	High-performance specialty polymer applications (e.g. automotive, medical, sport)	1	3)
Methylmethacrylate (MMA)	Dispersions, coatings, plastics	2	480,000
Methacrylate specialty momomers	Dispersions, coatings, additives, adhesives, optical lenses	1	3)
Methacrylate polymers (PMMA molding compounds)	Construction materials for the automotive and electrical/ electronics industries, medical technology	2	240,000
Acrylic glass	Construction industry, illuminated signboards, aviation/aerospace applications	1	150,000

Energy Business Area		
Activity	Ranking	Annual volume
Power Germany	Germany	
		Electricity: 21,337 GWh <sub>e</sub> , Heat:
Energy generation from fossil fuels (hard coal)	5	11,720 TJ

Renewables		
Energy generation from renewable resources (biomass, geothermal energy, mine gas) and contracting	1-3	Electricity: 1,443 GWh <sub>el</sub> Heat: 820 GWh <sub>th</sub>
Power Minerals		
Disposal and reprocessing of power plant residues such as fly ash, gypsum,		3,000,000
slag-tap granulate and furnace bottom ash	1	metric tons
Power other countries	Other countries	
Power generation in		
▶ Colombia	9	828 GWh
Mindanao (Philippines)	3	1,497 GWh
▶ Turkey	3	10,066 GWh
Real Estate Business Area		
Activity	Ranking in Germany	No. of residential units
Letting of residential units, mainly to private households	7	арргох. 60,000

Status: December 31, 2008

 <sup>&</sup>lt;sup>1</sup> Freely traded volumes
 <sup>2)</sup> Chlorosilanes: freely traded volumes
 <sup>3)</sup> No data available

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<sup>1)</sup> Status quo: media, politicians, authorities, industry associations, scientists, local community around the company's sites, employees, representatives of the workforce and students
 <sup>2)</sup> Stakeholder dialogue is a main area of action defined in Evonik's CR strategy. Customers and employees have been identified as major stakeholders within the business and employees dimensions of the CR strategy.

<sup>3)</sup> First steps: survey on CR report (2009), megatrend forum (2010)

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Evonik intends to obtain an external third-party review (assurance) of its CR reporting in the medium term. The GRI checked our adherence to its sustainability reporting guidelines and confirmed their successful application at B-Level throughout this report. More information can be found at www.globalreporting.org

Evonik joined the United Nations Global Compact in summer 2009. The next corporate responsibility report will contain details of progress in implementing the principles of the UN Global Compact.

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This report contains forward-looking statements based on the present expectations, assumptions and forecasts made by the Executive Board and the information available to it. These forward-looking statements do not constitute a guarantee of future developments and earnings expectations. Future performance and developments depend on a wide variety of factors which contain a number of risks and unforeseeable factors and are based on assumptions that may prove incorrect.



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