

Safety, health and environmental protection

In brief

- Won the Financial Times/Citi Private Bank Environmental Award for the Greatest Improvement in Carbon Efficiency by a Large Enterprise
- Energy use per employee increased slightly by 1.1%
- Environmental footprint reduced by 5%
- Volatile organic compound emissions reduced by 15%

Respect for the environment is an important part of our wider commitment to safety, health and environmental protection (SHE) in all our activities. This commitment is embodied in our Corporate Principles and SHE Policy (see www.roche.com/sus-she).

In 2007 we invested 215 million Swiss francs in SHE infrastructure and 306 million Swiss francs in SHE operating costs, including services and personnel.

Pharmaceuticals can enter the environment in a variety of ways: through the manufacturing process, improper disposal of unused medicines, and through patients who take medicines that eventually pass through the human body. We have developed a global position on pharmaceuticals in the environment, which we will publish in 2008. Our medicines show negligible effects on the endocrine system when released to the environment, although this is an increasing concern. Here we discuss the direct SHE impacts of our operations.

SHE management

In 2007 we updated our SHE guidelines. We made them more precise so they are easier to understand and added new instructions on how the guidelines should be applied in daily business. The new guidelines are available on our internal and external websites. We ask all our employees to follow the guidelines and make SHE a normal part of our business.

Some 630 employees work full-time in SHE across the Roche Group, including a team of 16 people at our headquarters in Basel. The site manager and safety, health and environmental officer (SEO) at each of our facilities ensure the SHE policy and guidelines are implemented locally. Individual employees from each division take on the role of 'eco-delegate' in addition to their regular jobs to help to raise awareness about SHE issues.

We audit sites across the Group to make sure that our SHE policy and guidelines are implemented correctly. In 2007 we audited 27 sites. SHE performance was generally good at these sites and no major non-compliance issues were raised. Recommendations have been made to improve SHE risk management at these sites and their implementation is being supervised by the audit team.

We regularly bring together our SEOs from around the world to train them and raise awareness of our SHE goals. The SEOs take this knowledge back to their sites and use it when training local employees. Site-based training includes lectures and practical, hands-on courses. Employees who are keen to know more can take part in further education programmes about SHE. We provided 125,000 hours of SHE training to 51,500 employees in 2007.

We also train employees to use chemicals safely, and produce information sheets on how to handle particularly hazardous chemicals, to prevent harm to our employees, customers or the environment. Over the past decade we have produced more than 1,000 of these information sheets, and published those for commercialised substances internally and on our website.

We work hard to reduce SHE risks and prevent incidents. We have set up a web-based tool to help site managers to log and assess risks at their facilities. Our corporate SHE team evaluates this information to build a global risk profile and monitors risk assessments by site managers.

We set a number of global long-term SHE goals in 2005. Individual sites have since adopted local goals and developed action plans to help us meet the Group targets. These plans were reviewed and assessed by the Corporate SHE team.

SHE in our supply chain

We expect our suppliers and their subcontractors to comply with our SHE standards, our code of conduct and all applicable laws. We assess potential new business partners before we work with them, making on-site visits where necessary. We regularly inspect and audit our key suppliers to ensure they continue to comply with our SHE standards, and require them to report any incidents.

If a supplier does not meet our SHE standards we expect them to take appropriate action immediately. If they continually fail to comply, their contract with Roche will be terminated. In 2007 we audited 20 new suppliers. We conducted follow-up audits at further two suppliers to check that required action had been taken. The results were generally good.

Environmental footprint

We take environmental protection into account throughout the lifecycle of all of our products – from research and production to packaging, transport and distribution, and even during use and disposal when they are no longer in our hands.

Goal: Improve total eco-balance by 10% by 2015 from 2005 baseline (points/employee).

Performance: We calculate the environmental footprint of our business as a whole using the ‘eco-balance’ method designed by the Swiss Agency for the Environment (BAFU). The eco-balance is based on a comparison of our inputs (raw materials and energy) and outputs (emissions and waste). In 2007 our eco-balance was 5.15, down 5% from 5.42 in 2006. Lower emissions to air and reduced waste contributed to this reduction.

This global target helps to drive environmental improvements at individual sites. For example, the Roche Diagnostics North America headquarters in Indianapolis has adapted its lighting and sanitation systems to reduce energy and water consumption, and is building a new chiller plant to reduce ozone-depletion. In 2007 the National Wildlife Federation certified the park at the site as a wildlife habitat.

Our site in Boulder, Colorado, has been invited to join the EPA National Environmental Performance Track programme, which recognises facilities with strong environmental records and encourages them to go beyond their legal requirements.

We use a measurement called the ‘Eco-Efficiency Rate’ (EER) to indicate the effectiveness of our environmental expenditure in relation to sales and the environmental damage caused by our operations. The EER uses data on energy use, emissions, and air and water quality – as well as expenditure and sales – to calculate impacts. We use this information to help us create products with more value and less impact on the environment. A full explanation of the EER can be found on our website. In 2007 our EER was 67.19, an increase of more than 30% from last year. This significant improvement is the result of growth in sales and decreasing environmental expenditure as well as reduced environmental damage.

Eco-efficiency rate

	2007	2006	2005
Sales (in millions of CHF)	46,133	42,041	35,511
Environmental expenditure (in millions of CHF)	232	255	242
Environmental damage (in millions of environmental damage units)	2.96	3.30	6.02
EER	67.19	49.97	24.39

In 2007 we ran our fourth ECompetition – a contest for employees that takes place every three years. The ECompetition encourages employees to think about how they can improve environmental protection at their facilities. Also this year the Roche Responsible Care Network Awards were presented to sites with the best energy-saving initiatives.

Winning for the environment

The ECOpetition contest, organised every three years by eco-delegates at our Pharmaceuticals and Diagnostics Divisions, invites Roche employees to suggest how they can improve environmental protection at their facility and reduce costs at the same time. This year, 22 of the 130 proposals submitted were chosen as winners. All winners – 44 staff from 9 countries – were invited to attend a celebratory weekend, held in Switzerland in September.

Many of the winning submissions focused on saving energy and raw materials. In Basel, three employees proposed a way to save 4,000 MWh of energy a year – equivalent to 300,000 Swiss francs – by connecting the air conditioning and heat recovery systems of two buildings to make use of waste heat from water used for cooling.

At the Roche Diagnostics facility in Penzberg, Germany, staff proposed adapting the way they clean manufacturing equipment to save raw materials and energy worth some 1.3 million Swiss francs.

Other proposals looked at ways of reducing waste. Two employees at our affiliate company's facility in Toluca, Mexico, found that by installing a composting system they could reduce organic waste by 40%, while generating new soil to be used to fertilise the surrounding land. The project could also save some 3,600 Swiss francs a year.

All winning proposals will be put into practice with the help of site managers and our corporate SHE team.

per employee was relatively stable compared with last year. This energy use, together with our other greenhouse gas emissions, resulted in 1,052 million tonnes of CO₂ equivalent emissions. This is an increase of 7.4% from our total emissions in 2006, in line with increased energy use. However, greenhouse gas emissions per million Swiss francs of sales reduced by 2.1%.

Energy use (terajoules)

	2007	2006	2005
Total energy use	13,664	12,467	12,515
Total energy use per million CHF of sales	0.296	0.297	0.352
Total energy use per employee	0.179	0.177	0.190

Greenhouse gas emissions (tonnes CO₂ equivalent)

	2007	2006	2005
Total emissions	1,052,407	980,008	1,078,445
Total emissions per million CHF of sales	22.81	23.31	30.37

Local initiatives at sites and businesses within the Group are helping us make progress towards our global target. For example, our US affiliates belong to the US Environmental Protection Agency's Climate Leaders Programme. As part of this programme, Roche set a target to reduce greenhouse gas emissions at its US sites by 10% from the 2001 baseline by the end of 2008. We have met this target two years early – cutting our emissions by 10.8% by the end of 2006 – through a range of initiatives at sites across the country. These include installing more efficient equipment at manufacturing facilities, reducing energy used by buildings and introducing more hybrid and electric vehicles to our fleet. Our US operations have set a new target to further cut their emissions to achieve a total reduction of 15% by 2010 from the 2001 baseline.

Several of our facilities use solar energy to reduce their reliance on fossil fuels. Photovoltaic solar power panels have been installed on the roofs of Roche buildings in Leganes (Spain), Branchburg (New Jersey) and Pleasanton (California). The solar panels will prevent more than 900 tonnes of CO₂ emissions each year. Our R&D facility in Palo Alto, California, has begun building a solar power plant on-site and is purchasing wind power.

Energy and climate change

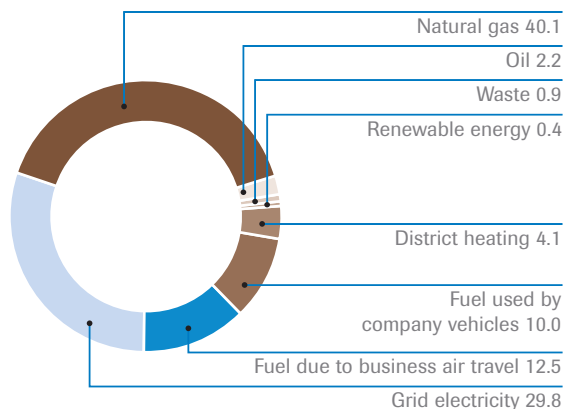
We support international targets to reduce global emissions of greenhouse gases such as carbon dioxide.

Goals:

- Reduce total energy consumption by 10% by 2010 from 2005 baseline (GJ/employee)
- Reduce greenhouse gas emissions by 10% by 2008 from 2003 baseline (CO₂ equivalent unit/sales)

Performance: In 2007 Roche used 13,664 terajoules of energy, up 9.6% from 2006. This increase is lower than business growth, with two new biotechnology manufacturing sites included in the data this year. Despite the increase in absolute terms, energy use

Energy use by type (%)



Geothermal energy – heat from the earth – is providing power to heat and cool a new building at our facility in Rotkreuz, Switzerland, reducing the site’s energy use by a third and saving around 25,000 Swiss francs each year. Our plant in Graz, Austria, has set up a free-cooling system that uses cold air from outside during winter. This cut energy use by 4% over the winter of 2006–2007. It also reduces the amount of water needed for cooling.

Our company car fleet and business travel are responsible for 10% and 12.5% of our total energy use/emissions respectively. This is included in our Group Directive on energy saving, introduced in 2007. Individual parts of the business have introduced a number of measures to reduce these emissions. In the US, for example, some 500 low-emission hybrid cars make up 25% of our sales fleet, while Chugai has more than 150. More than a dozen employees in Australia have taken up an offer to use hybrid vehicles as company cars.

We reduce the amount our employees need to travel for business by consolidating several meetings or destinations into a single trip. In some regions we promote the use of high-speed trains if available. Where possible, we use conference calls and video-conferencing to avoid travel completely.

In 2007 we won the Financial Times/Citi Private Bank Environmental Award for the ‘greatest improvement in carbon efficiency achieved by a

large enterprise’ at the European and global level. Since 1996 we have reduced our CO₂ emissions by more than 70% relative to our total turnover. This year, we reduced our emissions per million Swiss francs of sales by 0.6% from 2006.

Ozone depletion

Halogenated hydrocarbons are substances that damage the ozone layer and/or affect the climate, or are persistent in the atmosphere. They are used at some of our sites in cooling systems and fire extinguishers. The systems are sealed but some leakage does occur.

Goal: Progressively phase out all halogenated hydrocarbons from our cooling systems and fire extinguishing systems by 2015.

Performance: In 2007 our holdings of halogenated hydrocarbons increased by 5% from 2006 to 148.2 tonnes. Releases of halogenated hydrocarbons decreased by 39% to 4.7 tonnes despite the increase in holdings. We continue to invest in cooling systems that do not require halogenated hydrocarbons. A new chiller plant at the Roche Diagnostics site in Indianapolis, US, will almost completely remove ozone-depleting refrigerants when it becomes operational in 2010.

Ozone-depleting chemicals

	2007	2006	2005
Halogenated hydrocarbons holdings (tonnes)	148.2	141.2	148.9
Halogenated hydrocarbons emissions (tonnes)	4.7	7.7	7.2

Emissions to air

Our manufacturing and combustion plants emit certain substances that can harm the environment. Volatile organic compounds (VOCs) and particulates contribute to air pollution and smog. When we burn fossil fuels, nitrogen oxides (NO_x) and sulphur dioxide (SO₂) are produced. These gases can contribute to acid rain. Roche is committed to reducing its contribution to atmospheric pollution.

Goal: Reduce VOC emissions by 10% by 2008 from 2003 baseline (tonnes VOC/unit sales).

Performance: In 2007 our manufacturing processes and combustion plants emitted 240 tonnes of Volatile Organic Compounds (VOCs), down 14.6% from 2006. We also emitted 25 tonnes of particulates, down 7%, 169 tonnes of NO_x and 12 tonnes of SO₂ – a decrease of 22% and 20% respectively from last year.

Emissions to air

	2007	2006	2005
VOCs	240	281	604
Particulates	25	27	50
Nitrogen oxides	169	219	363
Sulphur dioxide	12	15	151

Waste

Safe disposal of chemical waste is essential to prevent damage to the environment and human health. In 2007 Roche activities resulted in the generation of 38,167 tonnes of chemical waste, down 25.4% from the previous year. This decrease is in line with a reduction in production volumes this year. The majority of this waste (97.5%) was incinerated and the rest – mainly inert materials from combustion such as ash or slag – went to landfill.

We are committed to reducing the amount of chemical waste we produce during manufacturing. We recycle waste where possible and look for companies who could use Roche waste products as a raw material for creating something else. A total of 3,584 tonnes of waste was sold to other companies for use as raw materials in 2007.

In 2007 we produced 17,480 tonnes of general waste, 15.6% less than the previous year. Of this, 28% was incinerated and 72% went to landfill. Another 31,697 tonnes were recycled, up by 25% this year.

We monitor our landfill sites containing chemical waste to make sure they do not pose a human or environmental health risk, and take preventative action where necessary. This year we began remediation work on a large landfill site in south

Germany in cooperation with an NGO. The site was used more than 40 years ago for the disposal of chemical and household waste.

In Brazil, we are reducing waste and saving around 32,000 Swiss francs a year by reusing waste cardboard for packaging instead of using new plastic bubble-wrap.

Waste

	2007	2006	2005
General waste produced (tonnes)	17,480	20,719	17,604
General waste per million CHF of sales (tonnes)	0.38	0.58	0.59
Chemical waste produced (tonnes)	38,167	51,155	38,380
Chemical waste per million CHF of sales (tonnes)	0.83	1.21	1.08

Water

We need clean water to manufacture our pharmaceuticals and diagnostic products. In 2007 we withdrew 21.0 million m³ of water from different sources, a decrease of 5.1% from last year. Actual consumption as defined by the Global Reporting Initiative (i.e. going into products, used in cooling and air conditioning systems or used for irrigation) reduced by 45% to 2.3 million m³. Much of the water we use is for cleaning because our manufacturing processes require strict levels of cleanliness. We are working to reduce our water consumption. For example, a team at our site in Penzberg, Germany, has developed a new cleaning process that is reducing water use by around 1,600 cubic metres a year. This suggestion was one of the winning entries in the 2006 ECOcompetition.

Water

	2007	2006	2005
Water withdrawn (million cubic metres)	21.0	22.1	20.9
Water used (million cubic metres)	2.3	4.3	3.9
Wastewater discharged to treatment plant (million cubic metres)	7.1	5.1	7.1
Organic matter discharged to watercourses after treatment (tonnes)	641	313	1,830
Heavy metals discharged to watercourses after treatment (kilograms)	605	1,086	1,463

Contaminated wastewater is a common by-product of manufacturing. We make every effort to ensure this water is safe for release into public treatment plants and watercourses, and process it where necessary at our on-site pre-treatment plants. For example, we have included an ozonolysis wastewater pre-treatment system in the setup of a new plant in Toluca, Mexico, where high potency compounds will be produced. This technique will break down stable molecules and make them biodegradable. This year, we discharged 641 tonnes of organic material into watercourses after treatment. This amount has doubled compared with 2006 because of increased production of biotechnology products, and the inclusion of two new biotechnology plants.

We minimise the amounts of heavy metals – such as chromium, copper and zinc – that are leached from piping by acidic wastewater and can cause environmental damage. This year we emitted 605 kilograms of heavy metals, down by 40% from last year. This significant decrease is due to one of our sites over-reporting in previous years by including emissions of iron.

Our research into trace chemicals in watercourses has found that the majority come from use and disposal of our products by consumers, not as a result of pollution from our manufacturing sites.

Compliance and incidents

We comply with all relevant laws and regulations in the countries where we operate. Often, our own SHE global standards exceed local regulations.

Goal: Have no relevant SHE-related fines.

Performance: We received no significant SHE-related fines in 2007. One severe incident was reported. A violent explosion occurred when a bleach solution was being deactivated. Nine operators were affected, one of them seriously. There was also considerable damage to buildings and equipment. Regrettably, an employee died in a road accident while at work.

We recognise the potential for some substances involved in pharmaceutical manufacturing to be misused, for example in narcotics, toxins or chemical weapons. We keep regulated chemicals in small quantities, under rigorous control, and in compliance with all applicable legislation.

More on the web:

- Progress and goals: www.roche.com/sus-progress_goals
- SHE Policy, Guidelines and organisational structure: www.roche.com/sus-she
- Position papers: www.roche.com/sus-she_policies_positions
- Policy on regulated chemicals: www.roche.com/sus-chemicals
- Responsible care: www.roche.com/sus-responsible_care
- Performance data, long-term trends and definitions: www.roche.com/sus-she_performance