



Carl Zeiss AG

Report on Environmental Protection at Carl Zeiss
for the period 2005 – 2009



We make it visible.

About this Report

Carl Zeiss attaches great importance to the sparing use of resources, environmental protection and sustainability. As a company focused on optics and opto-electronics, we operate in an industry where environmentally-critical materials and production methods are not primarily used. The environment and sustainability are subjects that are firmly enshrined in the company's philosophy. Stipulations and provisions concerning environmental protection are implemented every day and their compliance is constantly monitored and documented. The development seen in the current reporting period shows that we have clearly intensified our environment protection activities, particularly at the sites outside Germany. This process will continue with the ongoing internationalization of our business.

The present summary provides current data on environmental protection at Carl Zeiss in the period from 2005 to 2009.



Dr. Hermann Gerlinger
Carl Zeiss AG
Member of the Executive Board



Dr. Uwe Hamm
Environmental Officer of the Carl Zeiss Group

Environmental Protection at Carl Zeiss

Principles and rules of environmental orientation

Carl Zeiss has defined the company's position in the basic values of its corporate vision. Here, the responsibility for society and the environment is expressly stipulated. The Carl Zeiss Code of Conduct is binding upon all employees. This contains the following statement:

Our company avows to protect the environment as a corporate objective and declares the sparing use of resources in our manufacturing processes as a pivotal production factor. The following guidelines apply to environmental protection:

- We preserve our environment, use all natural resources sparingly and avoid or reduce stress and pollution for humankind and nature.
- We incorporate the requirements of an intact environment into the development, design, manufacturing process, packaging and shipping of our products, as well as in the improvement of processes and the introduction of new systems and products.

Goals for environmental protection at Carl Zeiss

The acceptance of our products by society is of major importance to Carl Zeiss. Environmental protection and the sparing use of resources in the manufacture of our products are important production factors.

Products manufactured by the Carl Zeiss Group are safe, harmless for the user and recyclable, or can be disposed of with minimal impact on the environment.

In this way, minimum stress is placed on air, water and soil. The selection and use of materials, technologies and production processes are decisively influenced by their environmental compatibility.

Measures implemented for environmental protection are state of the art, insofar as this is economically viable.

Emissions to the air and water are minimized.

Our environmental management is geared towards the avoidance of environmental pollution. If possible, waste is avoided, recycled or disposed of in a proper and appropriate manner.

Business processes are economically and ecologically optimized so that the amount of raw materials and energy required is continually reduced.

Environmental management at Carl Zeiss firmly anchors environmental protection as an integral component of the continuous improvement process (CIP).

Environmental Management

Goals of environmental management

Carl Zeiss does not see environmental protection and economic efficiency as contradictions. Ecology is an important element of our business orientation. The production methods and materials used by the company have a very limited impact on the environment. Nonetheless, the company continually strives to further optimize processes, procedures and the selection of materials in order to totally avoid any possible environmental pollution or reduce it to the greatest possible extent. A key aspect in this is the efficiency of material and energy consumption – from the initial product idea to manufacturing, distribution and utilization by the customer.

Environmental management is focused sharply on the enhancement of plant and processes.

The main points of emphasis are:

- optimizing the management of hazardous materials
- reducing environmental impact
- minimizing the consumption of resources
- developing safer and environmentally friendlier products
- legally compliant operation of facilities
- the environmental management system/training

Accountability

The Executive Board bears overall responsibility for the environmental management system of the Carl Zeiss Group. The Environmental Officer at corporate level supports the Executive Board in the introduction, setup and implementation of the environmental protection system. The implementation of the environmental policy and the environmental directives and instructions is the responsibility of the staff in charge at the respective sites of the company and their appointed officers. They also monitor compliance with laws, provisions and stipulations and are responsible for operational environmental management.

Involvement of all employees

Environmental protection is a task to which each individual employee must make their contribution. Within the framework of environmental management, Carl Zeiss informs and trains the employees on subjects concerning environmental protection and sustainability. Practice shows that ecological and economic goals can be brought into harmony.

At Carl Zeiss, a special focal point of environmental protection includes sensitizing the employees to the following subjects:

- sparing use of resources
- reducing consumption of raw materials, energy and water
- creating largely recyclable products and products that can be disposed of without harm to the environment
- utilizing recycling and closed-loop recycling management
- using low emission and low waste technologies
- preventing the release of environmentally harmful materials

Documentation status of environmentally relevant information

The production areas of the company are recorded in an overview that classifies processes, products and activities and describes their environmental impact. The consequences of possible technical disruptions are also taken into account. At the same time, the relevant legal stipulations and provisions are documented and assigned to the respective processes for all sites. The regulatory approvals required in each case are chronicled along with the respective status in the register.

Corporate-wide implementation

In recent years Carl Zeiss has certified sites in Germany and abroad on a step-by-step basis and has incorporated them in the environmental management system. Therefore, 11 manufacturing sites (with a total of 17 companies) of the Carl Zeiss Group were certified to ISO 14001 by the end of 2009. This is approximately 85 percent of the company's manufacturing sites.

Projects 2005–2009

Expenditure and projects related to environmental protection

In the period from 2005 to 2009 Carl Zeiss provided around 10 million euros for investments in environmental protection in addition to current expenditure of 30 million euros. The focal points were:

2005

- Implementation of new legal provisions governing hazardous substances in the business processes (RoHS – restriction of the use of certain hazardous substances) at Carl Zeiss
- Introduction of the EU-wide system for the return of waste electric and electronic equipment (WEEE)
- Recertification (ISO 14001) of a German site (Jena) and a business group (Carl Zeiss Industrielle Messtechnik GmbH and subsidiaries)
- Switch from chromate-based electroplating baths to environmentally friendly processes in Oberkochen, Jena and Calmbach, and the introduction of lead-free soldering processes
- Preparation of the ISO-14001 certification for the Göttingen site and the subsidiary Hensoldt AG, now Carl Zeiss Sports Optics GmbH

2006

- Initial certification (ISO 14001) of the Microscopy Group (Carl Zeiss Microlmaging GmbH and subsidiaries), Carl Zeiss Optronics GmbH and Prontor GmbH
- Certification (ISO 14001) of Carl Zeiss AG (corporate level) using matrix methods
- Corporate-wide rollout of project for implementation of the RoHS provisions
- Launch of project for corporate-wide phase-out of the cooling agent R22
- Recertification (ISO 14001) of the production and service areas in Oberkochen and two subsidiaries in Mexico and the USA

2007

- Initial certification (ISO 14001) of Carl Zeiss Laser Optics GmbH and Carl Zeiss Nano Technology Systems GmbH
- New waste water treatment systems at Carl Zeiss SMT AG and Carl Zeiss Sports Optics GmbH
- Thermographic measurements on equipment to reveal possible energy losses
- New facade with improved thermal insulation for the high-rise building at headquarters in Oberkochen
- Recertification of Carl Zeiss Jena GmbH and Carl Zeiss Industrielle Messtechnik GmbH

2008

- Initial certification (ISO 14001) of Carl Zeiss SMT AG, Lithography Systems Division, Carl Zeiss SMS GmbH and Sports Optics GmbH
- Initial certification (ISO 14001) of the sites in Mateszalka (Hungary) and Suzhou (China)
- Implementation of the REACH ordinance for the handling of chemicals at the EU sites
- Corporate-wide recording of environmental indicators from 1993 (Germany) and 2003 (internationally)
- Recertification (ISO 14001) of Carl Zeiss Microlmaging GmbH

2009

- Conversion of cleaning equipment in the Oberkochen production area to avoid the use of volatile organic compounds (VOC)
- Corporate-wide implementation of the new packaging directives
- Setup of an energy data acquisition system in Oberkochen and Wetzlar
- Corporate-wide implementation of regulations concerning the obligation to furnish proof for the recycling and disposal of waste
- Recertification (ISO 14001) of Carl Zeiss SMT Ltd. in Cambridge (UK), Carl Zeiss Optronics GmbH and of the production and service areas in Jena und Oberkochen

Environmental Indicators

Carl Zeiss has currently introduced an environmental indicator system for 34 sites worldwide. The sales organizations with no manufacturing and development activities are not included.

The environmental indicators are structured into

- operational environmental performance indicators such as water and energy consumption
- environmental performance indicators such as the number of environmental training courses
- environmental status indicators

Development of important indicators related to environmental management

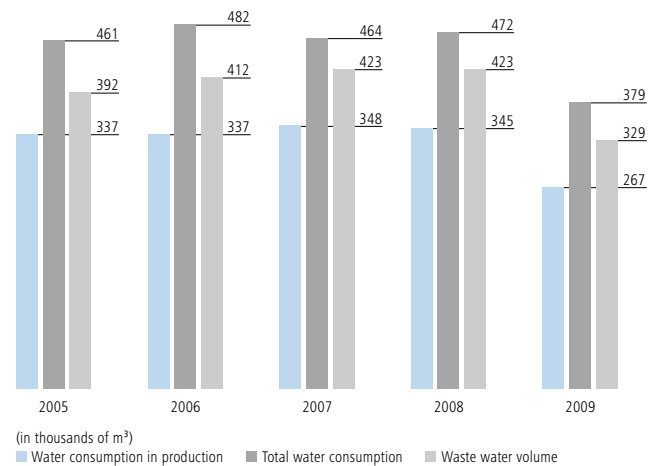
As the following tables show, important environmental indicators, e.g. for water and waste water, showed a favorable development in the period from 2005 to 2009. However, changes in high-tech manufacturing processes, especially the growing use of cleanroom production with constantly rising energy requirements, entailed the increased utilization of resources.

Water and waste water

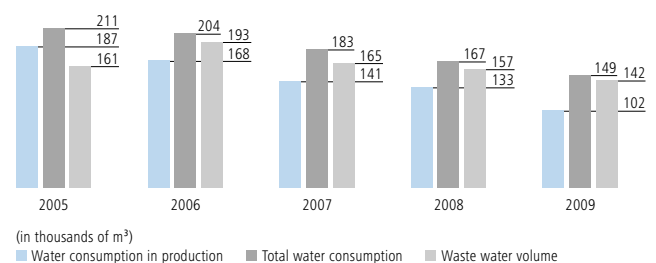
Water consumption was substantially reduced by the consistent multiple use of water in rinsing processes and by internal circulation in production, cleaning and cooling installations. Waste water is generally processed by in-house waste water treatment systems and then discharged into the municipal sewage system.

In the period from 1993 to 2009 water consumption in the Carl Zeiss Group in Germany was reduced by around 50 percent; in absolute terms, this corresponds to a quantity of 433,000 cubic meters.

Outside Germany water consumption decreased by 62,000 cubic meters.



Water consumption and waste water volume of the Carl Zeiss Group in Germany

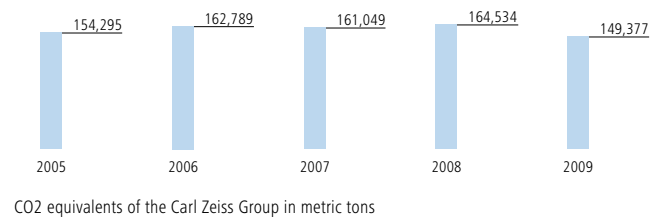
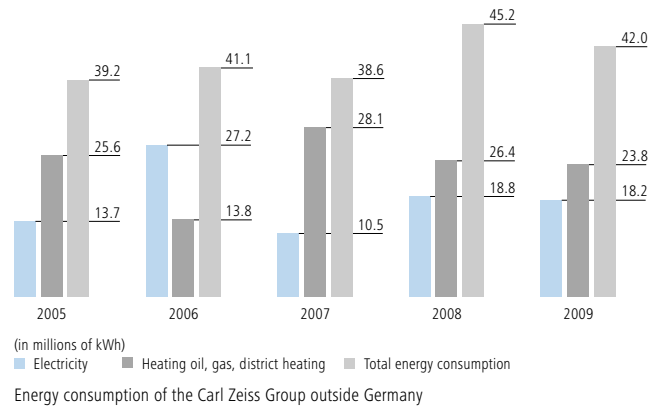
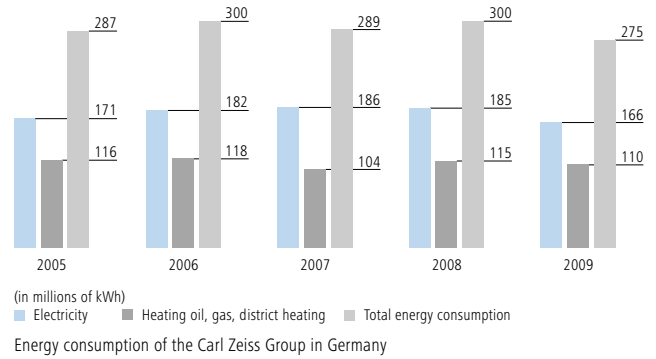


Water consumption and waste water volume of the Carl Zeiss Group outside Germany

Energy

Constantly increasing ecological and economic energy efficiency is the goal of facility management. In the period from 2005 to 2009 energy consumption generally remained constant despite an increase in manpower and growing revenues, and even decreased considerably in some individual plants.

Growing electricity requirements are resulting from the increasingly energy-intensive production in cleanrooms with advanced air conditioning systems.

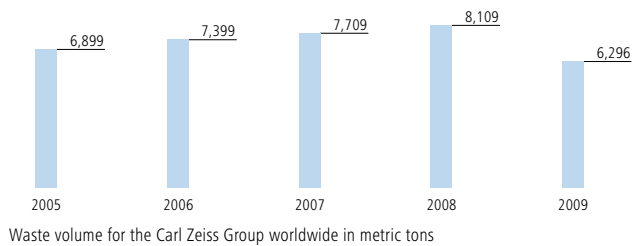
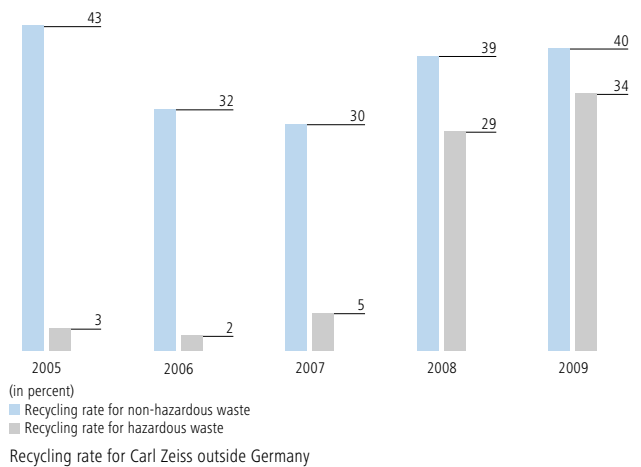
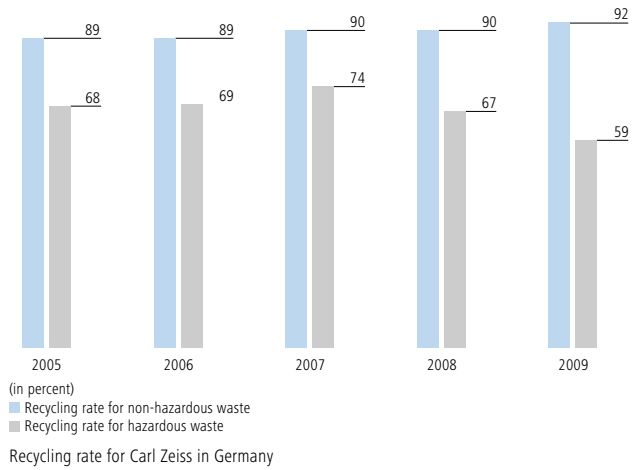


Waste

High priority is given to consistent waste avoidance at Carl Zeiss – not least for economic reasons.

The graphic presentation of the indicators follows the general distinction made between waste for recycling and waste for disposal.

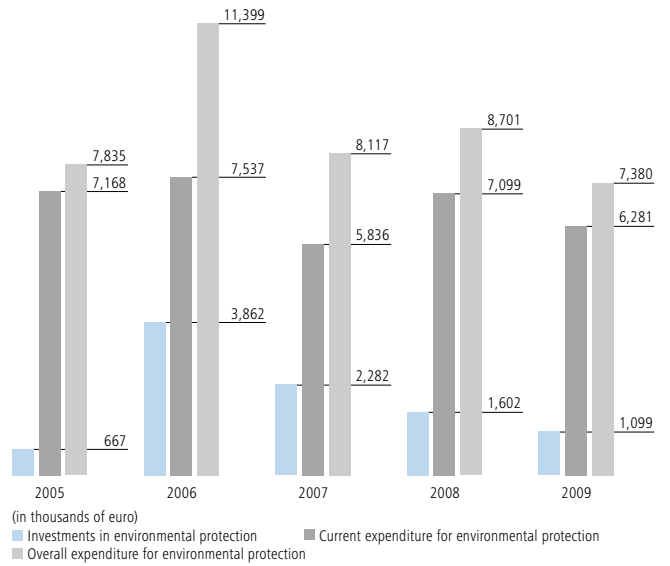
With non-hazardous waste the Carl Zeiss Group currently attains a recycling rate of around 90 percent, and of between 60 and 70 percent for hazardous waste.



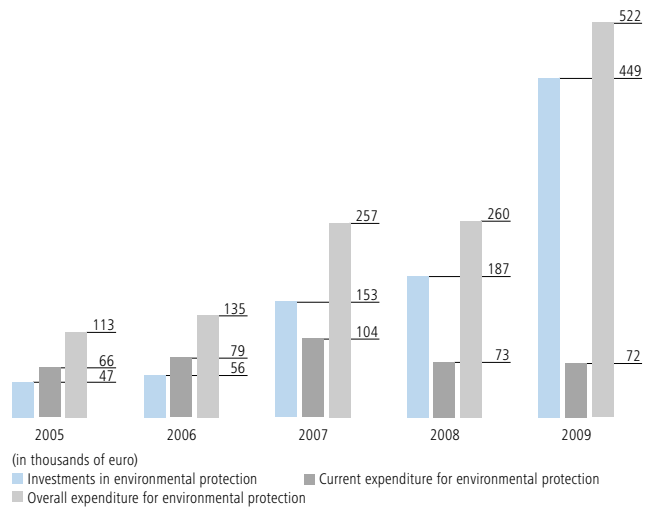
Investments and expenditure for environmental protection

Carl Zeiss spends considerable sums of money for environmental protection every year. They are partly channeled into current expenditure, partly into new measures for environmental protection. In the period from 2005 to 2009 the economic crisis led to a considerable drop in the total expenditure in Germany. Outside Germany, investments continued to rise, with relatively minor changes to current costs.

In addition to investments in systems engineering, product-integrated environmental protection is becoming increasingly important at Carl Zeiss. Integrated measures for environmental protection in product design and development help to avoid pollution from the outset.



Expenditure for environmental protection in the Carl Zeiss Group in Germany



Expenditure for environmental protection in the Carl Zeiss Group outside Germany

Training/Future Focal Points

Training on environmental protection – environmental management for employees

The employees and managers of the Carl Zeiss Group are receiving regular training on all matters relating to environmental protection. The main focal points include the issues of waste, water pollution control, immission control, hazardous substances and materials, environmental management and product-integrated environmental protection. Employees from other companies performing activities with potential environmental impact at the sites (e.g. transport, maintenance or utilities) are trained on an ongoing basis.

With its training course on environmental protection Carl Zeiss reaches 5 to 10 percent of the workforce at the sites every year.

Focal points of future need for action

- Product-integrated environmental protection:
Continuation of the already initiated activities in the area of restricted hazardous substances with an emphasis on the EU, China, Korea, the USA and other regions; intensified collaboration with industry federations in the implementation and further structuring of the RoHS directive
- ISO 14001 certifications:
Continuation of ISO-14001 certifications so that all relevant manufacturing sites of the Carl Zeiss Group are covered.
- GHS (globally harmonized system for classification and labeling of chemicals):
Switch of classification and labeling of chemicals from the current system in accordance with 67/548/EEC and 1999/45/EC to the GHS system (in the mid term by 2010 for substances, and by 2015 for preparations)

Appendix

Guiding principles for environmental protection

In coordination with the Executive Board, the Environmental Officers at Carl Zeiss have defined the following principles for environmental protection:

The acceptance of our products by society is of major importance to us. To achieve this objective, we view environmental protection and the sparing use of resources in the manufacture of our products as a mandatory production factor in operational activities.

Our environmental management is geared towards the avoidance of environmental pollution. When eliminating the environmental influences we have caused, we select the most environmentally friendly disposal method that is also economically viable.

When new equipment is introduced, we seek energy-saving solutions that also ensure the sparing use of resources. Simultaneously, we set ourselves the goal of guaranteeing the best possible safety standards. The use of state-of-the-art technology is always our objective.

All management personnel set an example for employees and behave in as environmentally friendly a manner as possible. This includes protection of our employees from influences detrimental to the environment. Seminars on all environmental issues are an integral part of our training program for employees.

Within the scope of our environmental management system, we adhere to the environmentally related laws and regulations as well as to internal directives of Carl Zeiss. We expect the same from our business partners who are in direct contact with us and our sites in their roles as suppliers or service providers.

In reports and communications, we publicly announce that environmentally sound action is a key element of our corporate culture.