

Environmental Initiatives of the ULVAC Group

The ULVAC Group recognizes that environmental conservation is one of the most critical challenges facing humanity. The ULVAC Group operates with respect for the environment and offers environmentally friendly products to encourage sustainable growth and development.

ULVAC Group environmental management

Pursuit of environmental conservation through cooperation within the ULVAC Group

Each ULVAC Group company has established environmental policies based on its environmental philosophy, and practices environmental management.

ULVAC, the parent company of the Group, established its environmental policy in July 2002. In the policy, ULVAC states that its products, products manufactured from its equipment, and manufacturing processes will help conserve energy, resources and the environment. It has operated its businesses according to these policies. ULVAC holds meetings of the Environmental Management Committee each quarter to discuss ways to minimize the environmental impact of its business activities. At the Committee, environmental activities are reported and examined, and specific actions are determined.

The ULVAC Group will continue to bring environmentally friendly products to market.

Environmental philosophy

Recognizing that environmental conservation is one of the highest-priority challenges facing humanity, the ULVAC Group has committed itself to the conservation of the Earth's natural environment and is making contributions toward society's environmentally sustainable growth and development in all business activities.

Environmental policy



ULVAC developed its environmental policy in July 2002. In the policy, ULVAC refers to a focus on preserving the global environment, and to developing, manufacturing and selling products with energy, resource and environmental conservation at the forefront of its thinking. ULVAC has integrated its unique and innovative technologies to develop, produce and market environmentally friendly products such as solar cell manufacturing equipment. In addition, ULVAC carefully manages chemical substances, mainly through the total abolition hazardous substances prohibited by RoHS Directive.

Passionately advocating the conservation of the environment

Hiroyuki Yamakawa

Senior Managing Director and Environmental Management Representative

It was proposed at the Toyako Summit in 2008 to halve global CO₂ emissions by 2050. The ULVAC Group has reduced its CO₂ emissions by making its manufacturing processes more efficient. In addition, we have helped create products that can make a significant contribution to cuts in global CO₂ emissions, such as an integrated production line for TFSCs and manufacturing equipment for hybrid car devices.

For energy conservation and recycling, we have focused particularly on the more efficient use and recovery of target materials used in the FPD manufacturing processes. At Wakayama Plant in Wakayama Prefecture, which will commence operation in 2009, an environmentally conscious cleaning method will make it possible to peel and recover materials attached to guarding plates.

For chemical substances management, we have voluntarily taken steps toward the complete elimination of the substances designated in the RoHS Directive. With the cooperation of our suppliers, we have been able to eliminate around 96% of these substances from parts. We will continue working toward complete abolition.

Environmental inspectors, who have been appointed at our sites this year again, installed, inspected and improved facilities, with top priority given to preventing environmental incidents. As a result, no environmental incidents have taken place. We will continue to closely monitor the environmental aspects of our business activities.

Environmental Management System

The ULVAC Group considers the environmental management system as one of its key management tools. Starting with the 1999 acquisition by a domestic Group company of ISO14001 certification for the international standards of environmental management systems, the entire Group, including its overseas affiliates, practices active environmental management.

ULVAC Group environmental management organization

Enhancing environmental improvement activities

The ULVAC Group considers the environmental management system (EMS) based on ISO14001 as one of the key management tools for achieving environmentally conscious products and business activities with low environmental load. All of the environmental aspects of our business activities are identified, and improvement activities are continuously conducted based on the PDCA cycle. ISO14001 certification acquisition procedures are underway for the entire Group, including overseas affiliates. This commenced when a domestic Group company obtained certification in 1999.

ULVAC added Aichi Plant to the scope of its ISO14001 certification in January 2008. Among our overseas Group companies, two companies in Taiwan have recently acquired ISO14001 certification. As a result, 16 domestic and 14 overseas Group companies had obtained ISO14001 certification as of the end of June 2008.

The ULVAC Group holds an Environmental Information Committee each quarter to introduce new facilities that could have influence on the environment, and to enable the prompt reporting and sharing of environmental nonconformity and small incidents that could have led to a serious disaster or accident. Through these efforts, we have strengthened our risk management with regard to the environment.

Environmental inspection and education

Organized systems for environmental inspection and education to enhance internal awareness

Since July 2007, the ULVAC Group has appointed environmental inspectors at its key domestic and overseas facilities, and at sites with high environmental load. Today, a total of 35 environmental inspectors are on duty in Japan and abroad. In addition, ULVAC has taken on a leading role in mutual and periodic inspections of the

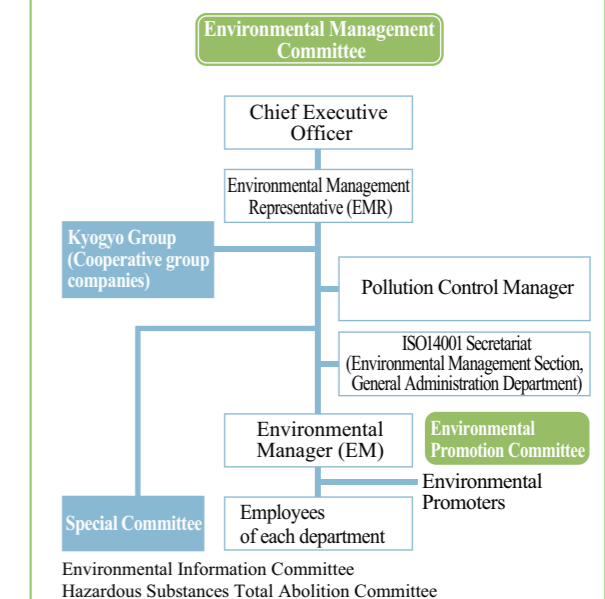
operational status of the environmental facilities of each Group company, and for the prompt detection and reduction of risks. These activities aim to prevent incidents and to enable continuous improvements.

ULVAC considers environmental education indispensable. All employees are required to attend the Environmental Awareness Education offered during the first three months of each fiscal year starting in July, to become aware of key issues.



Environmental Awareness Education

Environmental management organization diagram As of June 30, 2008



On our website Track the progress of ISO14001 certification acquisition by the ULVAC Group.

<http://www.ulvac.co.jp/>

Targets and Results

ULVAC has set activity targets each year under its environmental policy, and has approached the activities from both long-term and short-term viewpoints. In an effort to achieve the targets, at the senior management review conducted every quarter, we confirm the progress and revise the targets and activities.

ULVAC environmental activity targets and results for FY2007

Seven activity targets to reduce environmental load

ULVAC has carried out environmental activities geared toward seven activity targets.

Society today demands energy conservation and reduction of CO₂ emissions, and in response ULVAC has taken steps to standardize its products to reduce the consumption of energy in manufacturing processes. We have conducted research and development on energy conservation for our products, and have recorded good results for some products in FY2007.

As technologies that contribute to the environment, in FY2007 we launched a number of products, including the integrated production line for TFSCs and neodymium magnets

for hybrid cars. We have also sold used equipment that is still fully functional in an effort to reduce waste and utilize resources effectively.

In FY2007, the ULVAC Group manufactured products that complied with the RoHS Directive. As a result, we have achieved conformity with the RoHS Directive for around 96% of parts. We will continue working to completely eliminate the substances designated in the RoHS Directive.

With regard to waste management, we have also reduced the environmental burden imposed by our business activities. We set a target of attaining a recycling ratio of 97% or more in FY2007, in addition to achieving zero emissions as in the previous fiscal year. However, the target was not achieved because of an increase in the volume of waste that cannot be recycled. We will resolve this issue in this area in FY2008 to increase the recycling ratio.

| Targets of ULVAC environmental activities and results in FY2007 | | | | | |
|---|--|---|---|--|--|
| Contribution areas | Environmental policy | Action item | ULVAC environmental activity target | Results of environmental activities in FY2007 | Evaluation |
| Environmental contribution through our products | To provide products that help save energy and resources, and protect the environment. | Distribution of environmentally friendly products/re-use of resources | Sales of environmentally friendly products | Sales activities were conducted for the integrated production line for TFSCs and other products that contribute to the environment. A solar cell manufacturer in Taiwan commenced production. | ⊙ |
| | | | Sales of used equipment | Although sales measures were actively implemented, only about 70% of the annual targets were achieved. | △ |
| | | Promotion of green procurement | Complete elimination of lead, mercury, cadmium, hexavalent chromium, PBB and PBDE | With regard to the target of completely eliminating the use of designated hazardous substances, around 96% of parts complied with the RoHS Directive. | △ |
| | | Energy conservation through manufacturing processes and products | To promote energy-saving, resource-saving and environmental protection in products (equipment and components) | Making products that conserve energy and resources | To develop equipment with a higher energy conservation ratio than our conventional products, an integrating wattmeter was installed on the development equipment in an effort to develop products that consume less electricity. |
| Energy and resources conservation in manufacturing processes | Activities were undertaken to reduce the time required from order receipt to product delivery. About 80% of the set targets were achieved. | | | ○ | |
| Environmental contribution at our plants and offices | To promote energy-saving, resource-saving and environmental protection in manufacturing processes. | Promotion of 3R | Recycling and reduction of waste | A recycling ratio of at least 95% was attained. However, the targeted recycling ratio of 97% was not achieved. At Chigasaki Plant, we began recycling of glass waste. | ○ |
| | | Promotion of energy conservation | Reduction of electricity consumption | A new building was constructed at Chigasaki Plant, which increased electricity consumption. The electricity consumption recorded per sales unit was 109% compared to the previous fiscal year. | × |

⊙ Exceeded the target ○ Met targets or progressed as planned △ Requires work × Requires substantial work

Environmentally Conscious Facilities

The ULVAC Group has installed environmentally conscious facilities at many of its sites to reduce the environmental load and prevent incidents. Efforts are also being made to recover and recycle natural resources.

ITO powder recovery equipment

At the Material Business Group of ULVAC, Inc., we manufacture indium tin oxide (ITO) target which is a transparent and conductive coating material for FPDs. The full manufacturing process is conducted at our plant, from mixing the source materials indium oxide and tin oxide to bonding.

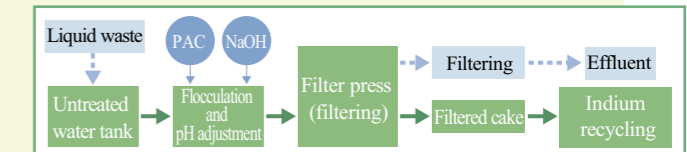
Indium is a rare metal, so we recover all waste that contains indium. Conventionally, indium was recycled by recovering the material powder, the slurry as well as the water used to wash the grinding sludge generated in machining, and evaporating the moisture content with a drier.

On constructing the plant, the ITO powder recovery equipment was developed through repeated studies into whether liquid waste can be recovered through a pipeline from all worksites in the plant that handle indium, and whether the work can be rationalized without affecting the environment.

The ITO powder recovery equipment installed at our new plant eliminates the need for workers to recover indium manually by hand, and prevents the powder from accidentally being discharged outside the plant.

Masaharu Yamada, Material Business Group, ULVAC, Inc.

Liquid waste treatment has the potential to seriously damage the environment. Double and triple safety systems have been installed in a number of sections of the ITO powder recovery equipment. In addition, we believe that increasing employee awareness is the most important aspect, so we offer educational programs to employees to raise their awareness.



ITO powder recovery equipment



New effluent treatment facility

Kazumi Zushi, Surface Treatment Center, ULVAC KYUSHU CORPORATION

ULVAC KYUSHU CORPORATION is currently constructing an effluent treatment facility for its automatic hard alumite treatment facility that carries out surface treatment and other work for vacuum pump components.

Since the introduction of the hard alumite treatment line in 2001 and its expansion, the effluent treatment facility has been comprehensively managed by expanding, restructuring, and reinforcing the interlock, etc. To deal with the aging of the current effluent treatment facility and implement comprehensive environmental conservation as well as ensure worker safety, the project team was set up by experts from each division. The team worked for over a year to establish the facility design standards and renewal plans from the perspectives of environmental conservation, safety assurance and compliance with laws.

The new effluent treatment facility has been upgraded to the point where we can feel confident about environmental conservation and worker safety. The following initiatives have been taken: (1) installation of liquid guard plate; (2) installation of discharge tank; (3) enhancement of neutralization capacity; (4) installation of suspended solids (SS) removal device; and

(5) automation of chemical preparation.

To strengthen the level of risk management, untreated water tanks and discharge tanks are now equipped with double water level sensors, and responses can now be obtained when pumps are automatically changed over, and from electromagnetic valves. A discharge tank has been installed to collect the effluent treated each day, thereby enabling discharge without a pH level issue.

Along with completion of the new effluent treatment facility in October 2008, we will keep abreast of the effluent situation across the entire line, and will reduce the environmental load as well as treatment costs to achieve stable operation and reduction of excess sludge. We will also introduce measures to preserve the environment and prevent pollution to create an operating environment that is compatible with its local community.



Chemical Substances Management

The ULVAC Group has managed diverse chemical substances used in the research, development and manufacturing processes of products, parts and materials, and has sought to comprehensively reduce risk. We have also achieved safe procurement and sales in line with the green procurement standards of customers and the ULVAC Group.

Comprehensive management of chemical substances

Comprehensive management of chemical substances through the Chemical Substances Management Committee

ULVAC has established the Chemical Substances Management Committee, consisting of the chemical substances manager of each division and the research divisions. We have carefully managed the chemical substances used in our manufacturing processes to prevent environmental pollution (both local and global), detrimental effects to employees, and disasters and accidents.

We established new Risk Assessment Manuals in FY2007 for the qualitative assessment of risks and the detrimental effects of business activities that involve chemical substances, and for studying and adopting reduction action to suit risk levels. We will continue managing chemical substances properly to minimize risks.

Complete abolition of hazardous substances

Environmental activities geared toward the complete abolition of the substances designated in the RoHS Directive

The ULVAC Group has taken steps to completely abolish the six designated substances (cadmium, hexavalent chromium, mercury, lead, PBB (polybrominated biphenyls) and PBDE (polybrominated diphenyl ethers)) to make its business activities compliant with the RoHS Directive enacted in Europe in July 2006.

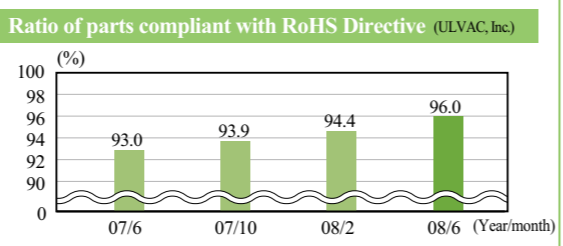
Since the RoHS Directive is intended for general home appliances, it does not apply to most of the products manufactured by the ULVAC Group. However, we have voluntarily taken steps to make our products compliant with the Directive.

As of June 30, 2008, the ratio of parts that comply with the RoHS Directive reached about 96% of all the parts used by ULVAC. We will continue taking steps toward abolition through the following two policies:

- Procuring parts that comply with the RoHS Directive
- Developing alternative parts for those that are non-compliant, if there are no substitute products available

The ULVAC Group has also taken action to make those of our products sold in China compliant with the Administration on the Control of Pollution Caused by Electronic Information Products (China RoHS), in response to the introduction of these rules in March 2007.

As exemplified by the implementation of REACH Regulations and PFOS Regulations in Europe in June 2008, the management and regulation of chemical substances look likely to intensify worldwide in the coming years. To meet the needs of our customers, the ULVAC Group aims to offer products and services that take the environment into consideration.



Waste Management

The ULVAC Group has actively taken steps to reduce and recycle waste. As a result, ULVAC achieved zero emission (zero landfill waste) this year. We have regularly visited waste treatment subcontractors for observation to reduce the risks arising from waste management.

Recycling measures and appropriate waste management

Treating waste properly to enhance the recycling ratio

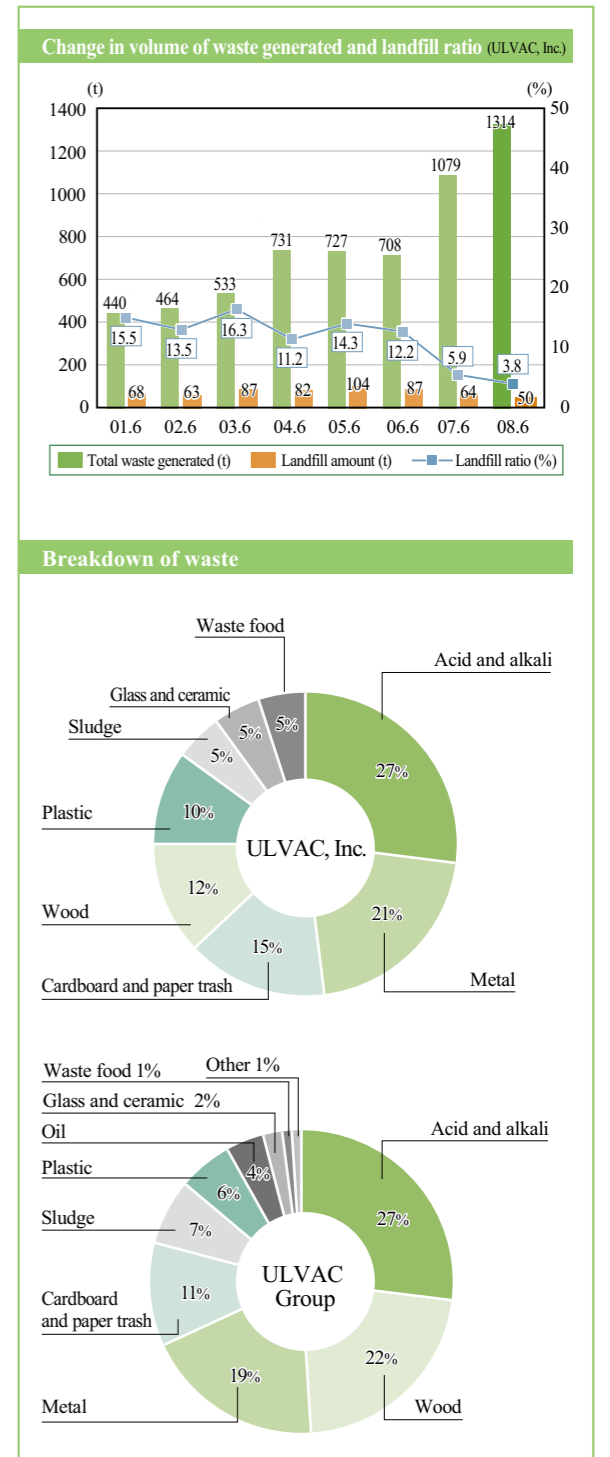
The ULVAC Group has undertaken appropriate waste management and reduction activities across the entire Group, aiming to reduce the volume of waste and the landfill ratio.

To manage waste properly and fulfill its responsibilities as a generator of waste, each Group company has regularly visits subcontractors' waste treatment facilities to confirm that waste is being properly managed and not dumped illegally. At the same time, we have been examining the introduction of an electronic manifest system to further increase the efficiency of waste management.

ULVAC defines zero emissions as keeping the volume of landfill waste below 5% of the total waste generated, and encouraging recycling. The landfill ratio of ULVAC as of June 2008 was 3.8%, which means we also achieved zero emissions this term. Although we aimed for a more demanding recycling ratio of 97% in FY2007, we were not able to achieve this. The Group will continue making efforts to further reduce the landfill ratio (Recycling ratio = 100 – landfill ratio).

The volume of waste generated increased from last year in line with business expansion. At Chigasaki Plant, the volume of waste acid, alkali and glass debris generated increased in line with the installation of the integrated production line for TFSCs. It became possible to recycle glass debris from this fiscal year, which led to an improvement in the recycling ratio.

The entire Group will continue its focus on comprehensive waste management by reducing the volume of waste generated, undertaking examinations for further recycling, and waste management risk reduction.



Voice Employees' voices Conducting an emergency drill



Shunsuke Yamabe
Environmental Management Section,
General Administration Department

In February 2008, we held a drill for emergency personnel that assumed effluent had leaked from our plant. The object of the drill was to acquire the skills necessary for recovery work and cleansing pollutants from victims' bodies. Speed and accuracy are vital when dealing with environmental accidents. We will continue undertaking regular drills in an effort to prevent environmental accidents.



Scenes from the emergency drill

Environmental Performance

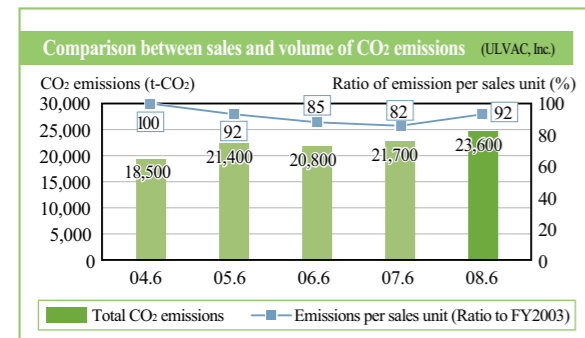
The ULVAC Group operates with a commitment to reducing the burden on the environment and manufactures environmentally conscious products, using information on the impacts of its activities. Each of our facilities and Group companies manages and evaluates data that is used to guide its business activities.

CO2 emissions

Measuring CO2 emission as a first step to reducing them

In the course of its energy conservation activities, the ULVAC Group has taken steps to reduce energy-derived CO2 emissions.

In FY2007, ULVAC's CO2 emissions increased by about 10% from the previous year in terms of emissions per sales unit compared to FY2003. For the entire ULVAC Group, total emissions increased by 9% from the previous fiscal year. The major causes of the increase were the construction of new company buildings such as ULVAC Chigasaki Plant, as well as expanded development and manufacturing activities. However, a number of energy-conserving facilities have been introduced into the new buildings, thereby minimizing the increase. Growth in energy consumption is also anticipated in FY2008, given the construction of new company buildings and business expansion/diversification. On the other hand, the first period for fulfilling the Kyoto Protocol agreement starts this year, and society is likely to demand that businesses make even greater efforts to reduce CO2 emissions. As a result, the ULVAC Group is committed to making further cuts.



Air pollutant management

Undertaking stringent management based on numeric values obtained from atmospheric measurements

The ULVAC Group regularly measures the air quality at

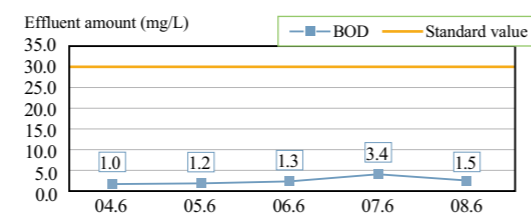
each of its sites, and complies with the Air Pollution Control Law and bylaws. In FY2007, the statutory standards were met for both NOx and SOx at all sites. We will continue to help prevent environmental pollution by carrying out management based on numeric values.

Water quality management

Conserving the environment by managing drainage at each of our sites

The ULVAC Group owns production and development sites and research institutes at many locations. At these sites, effluent is managed in compliance with applicable laws. The standards required by the Water Pollution Control Law and bylaws were met during FY2007 at each of the sites. We will continue comprehensive data management to make the environmental load of our business activities even smaller.

Water quality measurement for effluent from Susono Plant, Shizuoka Prefecture (Average for the year)



PRTR substances

Reduced the use of PRTR designated substances by 36% from the previous year

The ULVAC Group has reduced the use of substances designated by the RoHS Directive, and other hazardous chemical substances.

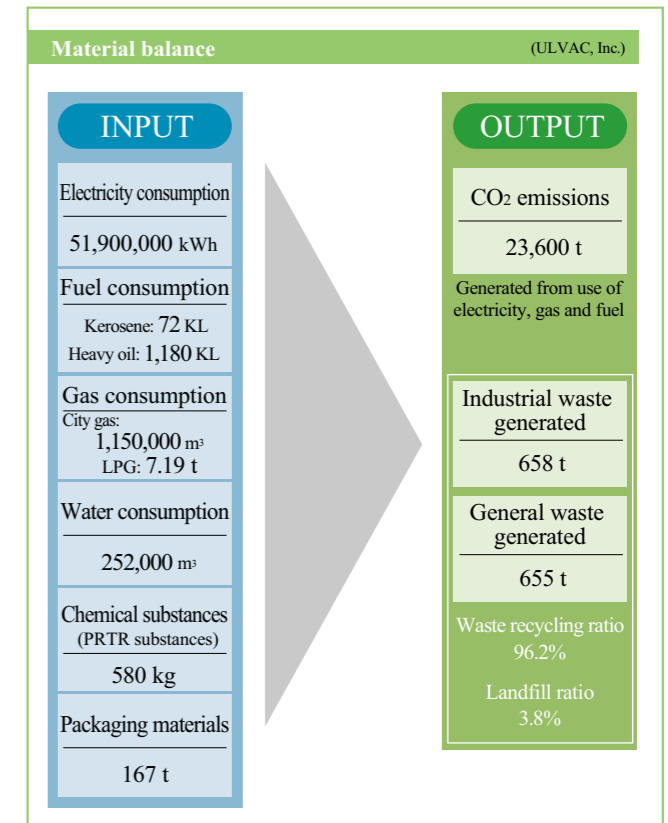
In FY2007, ULVAC reduced the amount of PRTR substances used by 36% from the previous fiscal year. This is a

result of switching the air conditioning system from a kerosene boiler to a high-efficiency chilled and heated water generator powered by city gas. We will continue our commitment to reducing the amount of chemical substances used.

Material balance

Preserving the global environment with strict organizational management

The ULVAC Group has reduced its environmental footprint by managing the use of electricity, water, chemical substances and other materials at each of its sites, and reducing CO2 emissions, effluent and waste generated as a result of its operations. In particular, we have used an Environmental Management Program to manage our progress towards reducing energy consumption and the volume of waste generated.



Environmental performance data for FY2007

Each of the ULVAC Group companies manages environmental performance data systematically.

| Item | Unit | ULVAC, Inc. | Group companies | | | | | Total |
|---------------------|-----------|---|--|--|--|---|---|----------|
| | | Head office/Chigasaki Plant Fuji Susono Plant Institute for Semiconductor Technologies Aichi Plant Chiba Institute for Super Materials Tsukuba Institute for Super Materials | Hachinohe area ULVAC TOHOKU, Inc. ULVAC Materials, Inc. Hachinohe Factory | Chigasaki area ULVAC TECHNO, Ltd. ULVAC CRYOGENICS INCORPORATED ULVAC-PHI, Inc. | Chiba area ULVAC Materials, Inc. Head office, Chiba Tomisato works Chiba Summu Factory TIGOLD CO., Ltd. | Kagoshima/ Miyazaki area ULVAC KYUSHU CORPORATION ULVAC SEKI COMPANY, LIMED ULVAC Materials, Inc. Kagoshima Factory ULVAC KIKO, Inc. | Other area ULVAC-RIKO, Inc. Reliance Electric Limited | |
| Electricity | 1,000 kWh | 51,900 | 11,300 | 6,890 | 12,800 | 29,200 | 1,460 | 113,550 |
| Kerosene | KL | 72.0 | 23.6 | 3.83 | 6.99 | 2.54 | 0 | 108.96 |
| Heavy oil (type A) | KL | 1,180 | 89.9 | 5.90 | 0 | 494 | 0 | 1,769.80 |
| Light oil | KL | 0 | 22.0 | 16.0 | 3.32 | 24.8 | 0 | 66.12 |
| City gas | 1,000 m³ | 1,150 | 0 | 164 | 24.1 | 0.16 | 17.2 | 1,355.46 |
| LPG | t | 7.19 | 9.02 | 0.66 | 30.1 | 224 | 0.80 | 271.77 |
| Total CO2 emissions | t-CO2 | 23,600 | 4,220 | 2,780 | 4,510 | 11,900 | 536 | 47,546 |
| Water | m³ | 252,000 | 41,800 | 64,000 | 52,700 | 236,000 | 5,300 | 651,800 |