Production

Environmental impacts resulting from production processes vary widely, including CO_2 emissions due to the use of energy, generation of wastes, and chemical substances to be controlled. Murata has taken every possible measure to reduce environmental impacts from our production processes.

Prevention of Global Warming

Present Condition of CO_2 Emissions

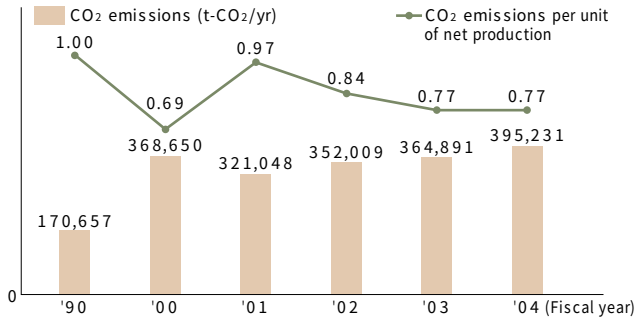
The chief culprit in global warming is the increase in greenhouse gas emissions. Murata has actively implemented initiatives to curb emissions of greenhouse gases, mainly CO_2*, emitted as a result of its business activities. In fiscal 2004, we cut back CO_2 emissions by 28,775 metric tons-CO_2 in plants and subsidiaries in Japan, achieving reduction of CO_2 emissions per unit of net production to 77% of fiscal 1990 levels.

However, the absolute value of the emissions has increased as our business operations have expanded. We will therefore redouble our efforts to further reduce greenhouse gases.

* Murata does not emit the greenhouse gases other than CO_2.

DATA **CO_2 emissions**

CO_2 emissions per unit of net production (in Japan)



Breakdown of Energy Consumptions

Of the amount of energy consumed in our plants in Japan, the energy consumed by air conditioning systems accounts for approximately 50%. This is because the number of clean rooms and the like has increased as we make our products more compact and precise.

Implementation of Energy Audits

To improve energy consumption efficiency, Murata has implemented an energy audit by its in-house specialist group. As a result, we so far have saved 1,709 metric tons-CO_2 of energy.

Themes for Energy Conservation

- Switch to high-efficiency freezers
- Use steam generated from cogeneration systems to produce hot water
- Replace lighting fixtures with high-efficiency fixtures
- Reduce consumption of compressed air
- Improve operating conditions of heat treatment furnaces

Energy Audit (Yokaichi Plant)

Future Initiatives to Be Addressed

Murata has set a goal for fiscal 2010 of reducing CO_2 emissions per unit of net production in Japan by 25% compared to fiscal 1990 levels.

To achieve this goal, we are establishing a system to horizontally promote individual initiatives that are implemented at each office and plant, through the in-house intranet, and to share existing expertise throughout the entire company. Moreover, we are promoting the introduction of additional cogeneration systems and active replacement of current equipment to ones that are more energy-efficient, so as to attain our goals.

Production

Resource Conservation and Waste Reduction

Present Condition of Waste Generation

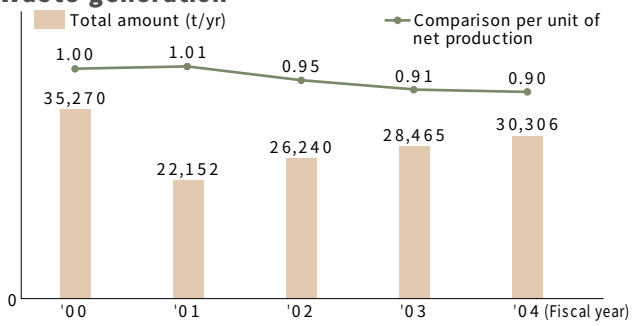
Murata has promoted initiatives for recycling wastes generated at its offices and plants. In fiscal 2003, we achieved zero emissions target* at our 21 plants and subsidiaries in Japan. In recognition that we would henceforth need to reduce waste generation itself, we organized the Resource Conservation & Waste Reduction Subcommittee in fiscal 2004 to begin such efforts.

In fiscal 2004, the amount of wastes generated in our offices, plants and subsidiaries in Japan totaled 30,306 metric tons, a decrease by approximately 5,000 metric tons from fiscal 2000, thereby achieving about 10% reduction in waste matter generated per unit of net production.

* Murata's definition of zero emissions:
Defined as zero direct landfilling of waste as well as zero landfilling of waste matter remaining after intermediate treatment (i.e., 100% recycling rate). However, Murata's zero emissions and recycling rate targets exclude waste matter that the company is unable to process on its own, such as excess sludge in remediation tanks.

DATA Amount of waste generation

Waste generation



Reducing Waste Generation

Of all the types of wastes generated at Murata, waste alkali, waste plastics and sludge are particularly large in quantity. Therefore, our efforts to reduce waste generation place particular focus on these three types of wastes.

In fiscal 2004, we were able to reduce the amount of waste alkali by 25 metric tons/month at our Yasu Plant. Previously, we entrusted the disposal of all the waste alkali to specialist waste treatment companies, since waste alkali has a great impact on rivers if directly discharged into waterways. However, in conjunction with its sewage improvement, the plant newly introduced a wastewater treatment facility, through which the waste alkali can be treated. As a result, the plant achieved the above-mentioned reduction.

Also, in October 2004 Okayama Murata Manufacturing introduced a concentrator of alkaline and acid waste solutions. This equipment is capable of reducing the volume of such solutions by concentrating them by a factor of 20. The use of this equipment has enabled Okayama Murata Manufacturing to decrease the amount of waste liquids to one twentieth of previous amounts, achieving reduction of 135 metric tons/month.

DATA Recycling rate

Reducing Water Consumption

In fiscal 2004, we commenced group-wide initiatives to reduce water consumption. Previously, water consumption saving efforts were made respectively by individual plants, offices, and subsidiaries. We focused our attentions to plants and processes that consume large amounts of water, and promoted cyclic use of groundwater for these facilities and processes. Consequently, in fiscal 2004 water consumption at our offices, plants and subsidiaries in Japan amounted to 8.1 million m^3, a reduction of 1.02 million m^3 from fiscal 2000.

DATA Water consumption

Management and Reduction of Environmentally Hazardous Substances in Production Processes

Among the various chemical substances used in Murata's production processes, those with hazardous properties are strictly managed from their procurement, use, and release. We are also actively working to reduce the use of these chemical substances to ensure that we can minimize their environmental impacts during our production activities.

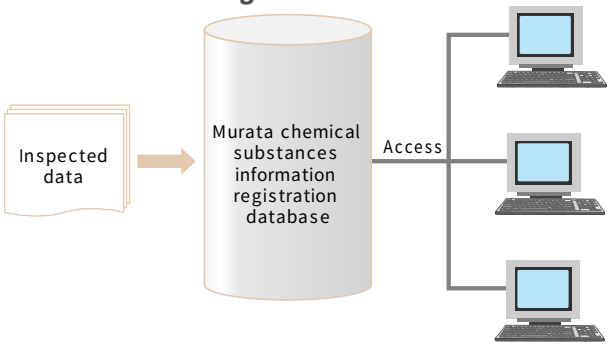
Management of Environmentally Hazardous Substances

Murata has compiled a database that contains information on chemical substances used in its mass production, and has established a system that requires prior registration of chemical substances to be used. Murata's specialists inspect the substances, from the perspective of Murata's own voluntary regulations, and take account all laws and regulations or local ordinances concerning environmental preservation, industrial health and safety, and chemical substance production in Japan and other countries. Only chemical substances that pass these inspections can be registered in our database. Each of these substances is assigned a unique number. Thus, the registered information is linked to Murata's internal material procurement system and then monitored to prevent the purchase of unregistered chemical substances. We are making use of this registered information also to ensure the proper management of chemical substances and the reduction of environmentally hazardous substances.

The Japanese Pollutant Release and Transfer Register (PRTR) Law stipulates 354 substance groups subject to reporting. Of these substance groups, the Murata Group handled more than 1 metric ton of 24 different substance groups, including toluene and xylene, in Japan in fiscal 2004.

DATA **Pollutants released and transferred subject to the PRTR Law**

Information sharing



Reduction of Environmentally Hazardous Substances

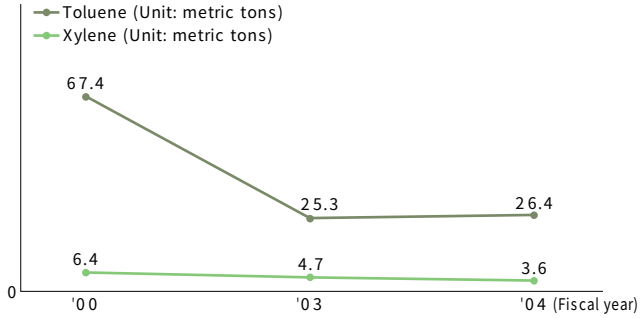
Among the chemical substances used in our production processes, those with the potential to affect the environment are subjected to Murata's unique "voluntary regulation program," which was established in 1997. We continue to target the reduction and elimination of substances specified in our voluntary regulation program. Under the voluntary regulation program, chemical substances are categorized into four ranks, according to their degree of hazard. The program stipulates prohibition or reduction of 131 substance groups in total.

DATA **Voluntary regulation program for environmentally hazardous substances to be used or released in production process**

Since Murata uses toluene and xylene in relative abundance, in 2002 we established targets for reducing the release of these substances into the atmosphere. Moreover, we have promoted the introduction of regenerative thermal oxidizers (RTOs), and thereby achieved the target value at the end of fiscal 2003. In fiscal 2004, we introduced an RTO to Izumo Murata Manufacturing in order to continue achieving the target.

Going forward, we intend to promote our initiatives to further reduce the use and release of environmentally hazardous substances, by targeting not only toluene and xylene, but also other volatile organic compounds (VOCs) as well.

Atmospheric release of toluene and xylene



Production

Dealing with Environmental Risk

We are aware that among various potential environmental risks of Murata's business activities, contamination by chemical substances is of particular concern. To prevent such risk, the Murata Group has taken countermeasures, including preparation of facilities and training for employees. Moreover, we have promoted initiatives to reduce other environmental risks, such as waste problems.

Countermeasures to Prevent Contamination by Chemical Substances

We are preparing facilities intended to eliminate any impact on the surrounding environment in order to minimize potential environmental risks of Murata's business activities, particularly in the event of accidents. With special consideration for the scale and period of impact, we have established the following four voluntary standards for storing and transporting chemical substances within plant facilities.

1. Prohibition against Underground Storage Tanks
   In principle, storage tanks for fuels, organic solvents, acids, alkalis and waste liquids; and wastewater tanks for treating wastewater shall be located above ground. If it is unavoidable that a tank be placed underground due to legal requirements, it shall be a double-walled tank.

2. Permeation Barrier Coating
   Locations where fluids such as fuels, organic solvents, acids, and alkalis as well as waste oil are handled shall be provided with a bed made of a permeation barrier coating or stainless steel.

3. Prohibition against Underground Piping
   Pipes for transporting fluids such as fuels, organic solvents, acids and alkalis as well as waste liquids shall be located overhead.

4. Emergency Containment Structure
   Workplaces where liquids are received or where waste liquids are discharged to or from tank trucks or the like shall have a structure for immediately containing any leakage should an accident occur.

Monitoring the Condition of Long-term Industrial Waste Disposal

Murata's plants and subsidiaries entrust the disposal of industrial wastes to licensed specialist companies. We visit to inspect the disposal sites at fixed intervals to ensure that proper disposal is practiced. In fiscal 2004, we visited 46 disposal sites, and confirmed that disposal was carried out without problems.

Inspection at a waste disposal company in China

Training for Proper Emergency Measures in the Event of an Accident

To minimize environmental risks in the event of a natural disaster or serious accident, we regularly implement training for employees to deal with such emergencies.

Environmental Accidents and Complaints

Should a serious environmental accident or complaint arise, employees are mandated to immediately address it and report to the Head Office of Murata Manufacturing, so that we can share the reported information and implement horizontal countermeasures to prevent similar accidents from occurring at subsidiaries. In fiscal 2004, there were no significant accidents or complaints related to environmental issues.

Remediation of Soil and Groundwater Contamination

To clean up soil and groundwater contamination generated by Murata's past business activities, Murata has undertaken surveys and countermeasures ahead of other companies. We are actively implementing measures targeting early-stage completion of the remediation (decontamination), by taking steps toward eliminating the use of chlorinated organic solvents such as trichloroethylene. To be more specific, by the time groundwater permeation was prohibited according to the terms of the 1989 Water Pollution Prevention Law, 17 of Murata's 22 production plants and subsidiaries had already ceased using trichloroethylene. Furthermore, by 1998, use of the five specified types of chlorinated organic solvents including trichloroethylene had been eliminated throughout the company.

In 1991, Murata introduced up-to-date technology to voluntarily undertake detailed surveys of soil and groundwater contamination in all plants and subsidiaries. As a result of this effort, it was concluded that 14 of the Company's 36 plants and subsidiaries had to institute remediation measures to remove contamination by chlorinated organic solvents.

Our Efforts to Promote Remediation

Aiming to complete the remediation of soil and water contamination at the earliest possible date, our plants and subsidiaries with relatively high pollution densities have introduced new technologies, in addition to their existing remediation measures. They are also aggressively implementing new remediation measures. In fiscal 2004 we conducted measures to promote remediation at five sites. For each site, we employ one of three different remediation methods-On-site Bio Method, On-site Iron Powder Method, or On-site Oxidation and Decomposition Method-depending on the soil properties, and the density and source location of the contamination.

■ On-site Bio Method

This method decomposes chlorinated organic solvents by injecting nutrients into the groundwater, in order to cultivate microbes present in the soil under anaerobic conditions.

■ On-site Iron Powder Method

Soil and iron powder are mixed on-site. The reducing power of metallic iron deoxidizes, decomposes, and renders harmless chlorinated organic solvents in soil.

■ On-site Oxidation and Decomposition Method

This is an oxidation and decomposition method using potassium permanganate. This method entails the direct injection of hydrogen peroxide into the groundwater, which directly oxidizes, decomposes and renders harmless various chlorinated organic solvents.

State of Groundwater Remediation

At 14 polluted sites that were deemed in need of remediation as a result of Murata's own survey, we drilled wells along the borders of the sites so as to measure data on trichloroethylene and cis-1,2-dichloroethylene. By fiscal 2004, we completed cleanup on two plants, and stopped operation of the remediation equipment at one plant, which is now in the stage of confirming the cleanup completion. Although there are still fluctuations within the allowable range at some plants and subsidiaries, the pollution level has been on a downward trend in general, and our cleanup efforts are progressing.

DATA **State of groundwater remediation**

Allocating Reserves to Cover All Remediation Costs

Completion of all remediation (decontamination) measures entails very high countermeasure costs. For business accounting purposes, Murata has carried out a trial calculation of the full cost of remediation measures to ensure that all contamination has been removed. As a result, we have appropriated a reserve as a credit. The total cumulative amount for remediation until fiscal 2004 is calculated to be 7,113 million yen, and the costs required to complete all remediation measures are estimated at 11,409 million yen.

Cost of Soil and Groundwater Remediation (Unit: Millions of yen)

	Non-consolidated	Consolidated
Total for FY 1991 to FY 2004	982	7,113
Estimate for FY 2005 and after*	667	4,296
Total	1,648	11,409

* Note: The amount allocated as a reserve credit is the result of a trial calculation of the full cost of remediation measures, up to completion of the contamination cleanup.