Incorporating Environmental Preservation in Business Activities

The Pollutant Release and Transfer Register (PRTR)

Utilizing databases

Murata has compiled a database that contains information on the chemical substances handled within our plants in Japan. We employ a system that enables us to obtain and manage the application situations of individual chemical substances quickly and easily.

In compliance with the Japanese Pollutant Release and Transfer Registry (PRTR) law, we use Murata's chemical database system to calculate the amount of chemicals released and transferred.

The law stipulates 354 substance groups subject to reporting. In Japan, between April 1, 2002 and March 31, 2003, Murata handled 14 substance groups for which PRTR reporting was required including toluene, xylene and lead. Detailed information on releases and transfers of each of these 14 substances is listed in the table below.

Reduction of Release

Murata has long taken steps to reduce environmental emissions, such as introducing facilities for removing hazardous substances; modifying production process; improving operations; and promoting conversion to substitute substances. In the future, will make practical use of PRTR data and, for chemical substances released in large amounts, we will assign target values and implement additional reductions.

Environmentally Hazardous Substances in Production Process

Eliminating Ozone-Depleting Chemicals (ODCs)

The "Montreal Protocol on Substances That Deplete the Ozone Layer," signed in 1987, set forth a schedule for the elimination of ODCs.

At one time, Murata used ODCs as cleansers. However, we have adopted strategies such as process modifications and the introduction of substitute cleaners. We also promoted a campaign through which our purchasing department suggested changes to our material suppliers. As a result, we were able to eliminate the use of ODCs prior to the Montreal Protocol, including among the suppliers to our material purchasing department.

Regarding specified fluorocarbons, we eliminated the use of 1,1,1-trichloroethane in March 1993 and HFCFs (a fluorocarbon substitute) in December 1995.

Elimination of Chlorinated Organic Solvents

Because chlorinated organic solvents such as trichloroethylene, tetrachloroethylene and dichloromethane are inexpensive and nonflammable, Murata has used these excellent cleaners for the removal of fats and in cleaning processes. Also, we have a history of partially adopting these substances as substitutes for ODCs.

However, we became aware that chlorinated organic solvents have a significant effect on the environment, causing air pollution, water pollution and contamination of soil and groundwater. Therefore, following the elimination of ODCs in May 1993, we adopted an independent policy to eliminate the use of chlorinated organic solvents. As a result, we eliminated use of these substances at all but one facility as of the end of 1995, and achieved complete elimination by March 1998.

Furthermore, in June 1997 we extended this policy to include raw material suppliers to our purchasing department. We sought their cooperation and adjustments toward the goal of eliminating the use of these substances as of March 1999. To date, most of our suppliers have extended their cooperation and complied with the elimination of these substances.

Domestic total amounts of pollutants released and transferred subject to the PRTR law

(metric tons / year)

Gov't-issued No.	Substance	Released				Transferred		
		Atmospheric release	Released to public bodies of water	To soil	Landfilled	Released to sewerage	Transferred to waste	Transferred to recycling
30	Bisphenol A liquid epoxy resin	0	0	0	0	0	0.5	0
63	Xylene	3.8	0	0	0	0	0.2	17.6
64	Silver and its water-soluble compounds	0	0	0	0	0	0.6	18.3
202	Tetrahydroxymethyl anhydrous phthalic acid	0	0	0	0	0	0.2	0
227	Toluene	26.5	0	0	0	0	201.1	508.0
230	Lead and its compounds	0	0.1	0	0	0	27.0	129.6
231	Nickel	0	0	0	0	0	22.9	3.7
232	Nickel compounds	0	0	0	0	0	19.7	2.1
243	Barium and its water-soluble compounds	0	0	0	0	0	374.1	70.9
253	Hydrazine	0	0	0	0	0	7.3	0
270	Di-n-butyl phthalane	0	0	0	0	0	1.6	0
272	Bis-2-ethylhexyl phthalate	0	0	0	0	0	16.7	0
310	Formaldehyde	0.5	0	0	0	0	0.1	0
311	Manganese and its compounds	0	0	0	0	0	2.3	0.5

* The above data covers the period April 1, 2002 to March 31, 2003.
* PRTR reporting is required when more than 5 metric tons of the PRTR substances are handled per year.
* Amounts of less than 100 kilograms are rounded up.

Adoption of Voluntary Standards for Environmentally Hazardous Substances in Production Process

Among the chemical substances used in processing, those that have the possibility of imparting an environmental impact have been subject to Murata's own voluntary regulation standards, which were established in November 1997. We are targeting the reduction and elimination of substances specified in our product regulation program.

As for existing processes, we are implementing reduced use and release based on our voluntary regulation program. As for environmentally hazardous substances used in new processes, we are studying reduced usage and release of these substances.

Moreover, in May 2002, we adjusted our voluntary regulation program following an examination of the laws and regulations and the trends toward voluntary response within the electrical and electronics industry.

As part of these revisions, and especially because Murata uses toluene and xylene in relative abundance, we have established targets for reducing the emission of these substances into the atmosphere.

Reduction targets for the release of toluene and xylene into the atmosphere

Toluene	Reduction of release to not less 50% of 2000 level as of the end of fiscal 2003
Xylene	Reduction of release to not less 20% of 2000 level as of the end of fiscal 2003

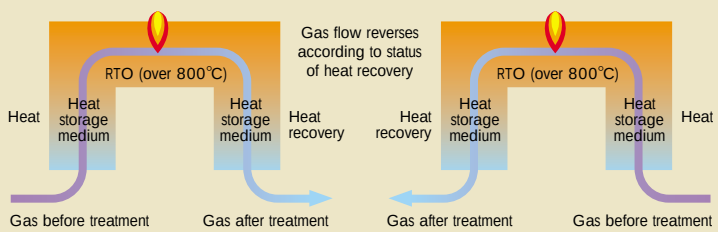
Voluntary Regulation Program for environmentally hazardous substances in production process

Ranking		Target Substance		
A	Prohibited (41 substance groups) Any application prohibited	• Asbestos • Cadmium and its compounds (limited to resins) • Dioxins • White lead	• Trichloroethylene • Halon • Benzene • CFCs • HCFCs	etc.
B	Application prohibited within a specified period (23 substance groups) Prohibited after a specified period	• Acrylonitrile • Cadmium and its compounds (excluding resins) • Mercury and its compounds	• Arsenic and its compounds (excluding semiconductors) • Organic lead • Hexavalant chromium compounds	etc.
C	Reduce emissions (22 substance groups) Reduced emissions planned	• Acetaldehyde • Chloroform • Cyanide compounds • Formaldehyde • Nickel sulfate	• Lead and its compounds (used in some ceramics, solder, etc.) • Toluene • Xylene • PFCs	etc.
D	Prepare to reduce emissions (45 substance groups) Control emissions and voluntarily prepare to reduce emission	• Zinc and its compounds • Chrome and its compounds • Copper and its compounds • Nickel powder • Methyl ethyl ketone	• Lead and its compounds (used in some ceramics, glass, alloys, etc.) • Arsenic and its compounds (application limited to semiconductors)	etc.

Introduction of Regenerative Thermal Oxidizers (RTO)*

In an effort to curtail the atmospheric release of volatile organic compounds (VOCs), Murata is introducing regenerative thermal oxidizers (RTO). So far, seven such units have been introduced in Japan and overseas, resulting in significant benefits.

*Incinerating VOCs at temperatures above 800°C breaks down more than 98% of these compounds, rendering them nontoxic. The RTO uses heat stored in a ceramic thermal storage medium to preheat gas before treatment (with a thermal efficiency exceeding 95%). As a result, VOCs undergo autogeneous combustion, greatly reducing the cost of fuel.



Operation Flow of RTO

Regenerative Thermal Oxidizer (Fukui Murata Manufacturing Co., Ltd.)