Production (Pollution Prevention)

A global approach to identifying and reducing the use and transfer of chemical substances is being taken.

The Ricoh Group established the Ricoh Environmental and Chemical Safety Information System (RECSIS), which categorizes substances that fall under Japan's Pollutant Releases and Transfer Register (PRTR*) Law, as well as environmentally sensitive substances that are regulated in other parts of the world, according to whether they are to be prohibited, reduced, or controlled, in line with the Group's internal regulations, which are stricter than the legal requirements set by most countries. The Ricoh Group endeavors to control as well as reduce the amount of chemicals used, emitted, discharged, and disposed of by setting goals to reduce the dichloromethane and ozone-depleting substances used and emitted by the end of fiscal 2004. The Group is striving to establish a system that will provide prompt answers to inquiries from customers, original equipment manufacturers (OEMs), and civil organizations around the world regarding their use of chemical substances. In fiscal 2002, the Group conducted surveys on soil and groundwater contamination in Japan and reported its findings to relevant local governments. Similar surveys are underway at relevant sites in other regions than Japan.

* Under the PRTR system, the release of potentially harmful environmental pollutants into the air, water and soil; product contents; and the transfer of waste are collected by enterprises and then assessed/disclosed by third party. The results are tabulated and released by an independent organization. Member countries of the Organization for Economic Cooperation and Development (OECD), such as the United States, Canada, the U.K., the Netherlands, and Japan, have adopted this system. The PRTR Law in Japan was based on this system. In fiscal 1997, Ricoh participated in the PRTR system that the Federation of Economic Organizations (Keidanren) independently started prior to its legislation by giving a summary of the PRTR data of all Ricoh business sites. We started supplying PRTR data from all Ricoh Group companies in fiscal 1998 and began reducing the consumption and emission of PRTR substances in 1999.

* See page 19 for surveys on and remediation of soil and groundwater contamination.

Survey Results of PRTR Substances in the Ricoh Group in Fiscal 2002[1]

Reviewed by BVQI (25)

(tons/year)

Substance No.	Substance*	Environmental impact coefficient[3]	Amount	Amount emitted into air	Amount discharged into public water supply	Amount transported into sewers	Amount transported out of plants	Amount consumed	Amount treated[4]	Amount recycled
1	Zinc chloride[2]	10	31.4	0.0	–	–	–	29.6	0.0	1.7
29	4, 4-isopropylidenediphenol	1	8.5	–	–	–	–	7.9	–	0.6
43	Ethylene glycol	1	302.7	2.3	0.0	–	–	270.1	1.8	28.4
63	Xylene	10	9.9	8.5	–	–	0.0	0.1	–	1.3
101	2-ethoxyethyl acetate	100	1.4	0.1	–	–	0.5	0.2	–	0.5
144	Dichloropentafluoropropane (HCFC-225)	100	1.6	1.6	–	–	–	–	–	–
145	Dichloromethane	100	51.6	29.3	–	–	–	4.9	–	17.4
172	N, N-dimethylformamide	1	31.4	1.5	–	–	–	–	–	29.8
181	Thiourea	1	26.5	–	–	–	–	25.7	–	0.8
227	Toluene	10	1,346.6	226.4	–	–	0.0	130.1	413.6	576.4
230	Lead	100	264.4	0.0	–	–	0.0	190.6	–	73.7
232	Nickel sulfate[2]	100	5.5	–	–	–	0.0	3.2	–	2.2

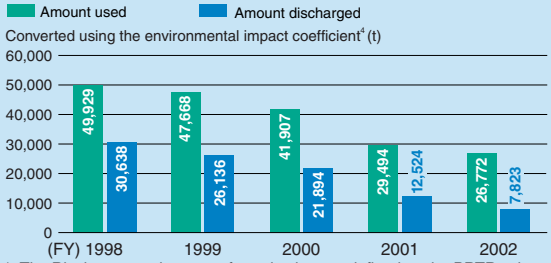
* Substances listed are those amounting to at least 1 ton per year. "–" indicates no entry.

1. Pursuant to the PRTR Law
2. The amount of metallic compounds is converted into metal.
3. The environmental impact coefficient is set by Ricoh, taking toxicity, carcinogenicity, and the possibility of ozone depletion into consideration.
4. The amount of Ricoh Group's target substances for reduction used and discharged is calculated using the following formula.

Amount used = Σ {(amount - amount consumed) × environmental impact coefficient}
Amount discharged = Σ {(amount emitted into air + amount discharged into public water supply + amount discharged into soil) × environmental impact coefficient}

Changes in the Amount of the Ricoh Target Substances for Reduction* Used and Discharged

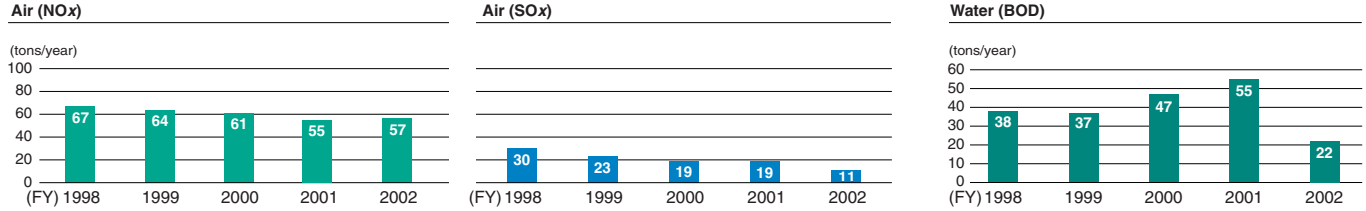
Reviewed by BVQI (26)



* The Ricoh target substances for reduction are defined as the PRTR substances designated by four Electric/Electronic Industrial Associations in Japan between fiscal 1998 and fiscal 2000. Coverage of chemical substances by Ricoh may differ slightly from those provided by the PRTR Law.

Changes in the Amount of Substances Discharged Following the Ricoh Group's Implementation of Pollution Prevention Measures

Reviewed by BVQI (27)



* The previously inaccurate figures for NOx have been revised.

International

Ricoh Environmental and Chemical Safety Information System (RECSIS)

The Ricoh Group established RECSIS to monitor data on chemical substances used, discharged, and disposed of at business sites. RECSIS is designed to reduce use of chemical substances, to prepare materials for PRTR reporting, and to respond to inquiries from outside the Ricoh Group. RECSIS, a part of the Ricoh Group's environmental impact information system, contains data on more than 2,000 types of listed chemical substances and environmental hazards.

PCB Storage

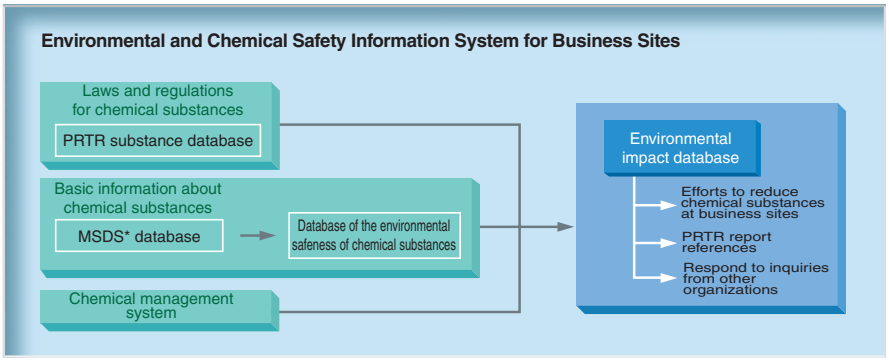
Seven Ricoh Group business sites in Japan store polychlorinated biphenyl (PCB) pursuant to the Law Concerning Special Measures for Promoting Appropriate Disposal of Waste Containing Polychlorinated Biphenyl, enforced in 2001. These facilities prevent PCB from splashing, spilling out, permeating the soil, or leaking due to mice or insects. The substances are kept in double-lined metal containers, placed on a leak-proof concrete floor, and stored in locked buildings. Appropriate disposal is expected to be completed by the end of 2010 as the infrastructure for PCB disposal is established in Japan.

Penalties and Fines

No penalties or fines have been imposed on the Ricoh Group due to insufficient environmental safeguards.

Penalties and Fines (Ricoh Group)

	FY 2000	FY 2001	FY 2002
Number of cases	0	0	0
Amount	0	0	0



* Material safety data sheet

Japan

Information Disclosure to Communities and Local Governments

In a 1999 survey, Ricoh Elemex Corporation's Ena Plant discovered the soil and groundwater had been contaminated with trichloroethylene. The plant immediately reported the contamination to the relevant government authority, conducted the appropriate clean-up measures, and gave a thorough explanation to local residents. Its efforts to establish transparency and a favorable relationship with the local community were highly appreciated. Since then, other companies have visited the Ena Plant on the recommendation of government authorities, who regard the facility as a benchmark for pollution prevention.

A groundwater purification facility at Ricoh Elemex Corporation's Ena Plant

Europe

Abolishment of Solvent-Based Paint

Ricoh Industrie France S.A. has developed a water-based paint to replace its organic solvent-based paint. The use of the water-based paint reduced emissions of volatile organic compounds into the air by 83%, resulting in total cost savings of ¤121,500, since the second half of 1998.

China

BOD Reduction at Ricoh Asia Industry (Shenzhen)

In fiscal 2001, in response to increased production and staffing at Ricoh Asia Industry (Shenzhen) Ltd. (RAI), a production base in Shenzhen, China, the company installed wastewater purification equipment to dispose of wastewater from the cafeteria and other facilities. As a result, biochemical oxygen demand (BOD) from wastewater was reduced from 36.4 tons in fiscal 2001 to 2.7 tons in fiscal 2002.

Installation of wastewater purification equipment at RAI

Costs and Effects of Water-based Cleaning of Ink-Fixing Rollers at RIF (Segment Environmental Accounting)

Costs			Effects			
			Economic benefits		Effect on environmental conservation	
Item	Main cost	Amount	Reduction	Amount	Reduction	Amount
Business area cost	Investment cost	452 EURO	Solvent cost	121,500 EURO	Amount of organic solvent used	1.32 (t)

* Effects are calculated for the period starting from the second half of fiscal 1998.