

Efforts are being made on a global scale to reduce the amount of chemical substances used/discharged, based upon the idea of risk management.

■ Concept

In compliance with the Strategic Approach to International Chemicals Management (SAICM)¹, the Ricoh Group has established a system to manage the risks of chemical substances by applying a risk evaluation method, aiming to minimize the risk throughout the lifecycle of chemicals and to share related information. Under this risk management system, all the chemical substances used, discharged and disposed of in the manufacturing processes of Ricoh products are assessed in two steps: (1) screening in terms of discharged and used amounts, according to the GHS hazard² level scale; (2) for substances evaluated as above a specified level, hazard and exposure assessments are conducted. Based on the results obtained, we assess the risks of the hazardous substances to the health of local residents as well as other environmental risks. Enhancing this risk assessment scheme, we will establish a global system to reduce risks related to chemical substances. In addition, the Group has a system in place to manage environmental risks. To control soil and underground water contamination, we have formulated basic principles, provided in the group management standards and other guidelines. In case of contamination, we voluntarily conduct an investigation using the group's uniform standards and promptly take steps for remediation. Regarding soil and underground water contamination, PCBs, and asbestos, the Group started to make efforts to understand environmental liabilities that could have a financial impact.

1. See page 47.

2. Harmfulness to human beings and the environment

■ Targets for Fiscal 2010

- ◎ Establish a chemical substances risk management system on a global scale.
- ◎ Reduce use of environmentally sensitive substances by more than 30% compared to the fiscal 2000 level (Rico's production sites and manufacturing subsidiaries).
- ◎ Reduce the amount of environmentally sensitive substances discharged by more than 80% compared to the fiscal 2000 level (Rico's production sites and manufacturing subsidiaries).
- ◎ The environmental liabilities of PCBs and asbestos in land owned by the consolidated Group companies can be estimated.
- ◎ The environmental liabilities are reflected in the financial accounting of the Rico Group.
- ◎ Activity to eliminate chlorine organic solvents used by the Group, including companies that become new members of the Group, has been proceeded.

■ Review of Fiscal 2010

Regarding risk management, we conducted a study aiming to develop a scheme to assess the risks of chemical substances discharged into the air. In fiscal 2010, the use and emissions of environmentally sensitive substances were reduced 72.9% and

87.9%, respectively, compared to fiscal 2000 levels (Graph ①). As part of the environmental liabilities survey, we completed a detailed investigation concerning asbestos (level 1 to 3)³ for all 22 Rico sites, allowing us to calculate liabilities with greater accuracy. We also continued a global survey of the Rico Group on PCBs and asbestos covering the consolidated companies using an updated survey manual, and calculated environmental liabilities reflecting the results. The use of chlorine organic solvents for the production of any our products was totally abandoned by fiscal 2005, but these chemicals have continued to be used by some of the affiliates that joined the Group after 2005. To remedy this, we have formulated a plan to completely eliminate the use of this type of solvent at the sites of the new Group members, and are working to achieve the goal by fiscal 2011.

3. The hazard levels of materials containing asbestos, defined in the Ordinance on Prevention of Hazard due to Asbestos, under the Industrial Safety and Health Act. Level 1: sprayed asbestos; level 2: heat insulation materials, etc.; level 3: molded plates, etc.

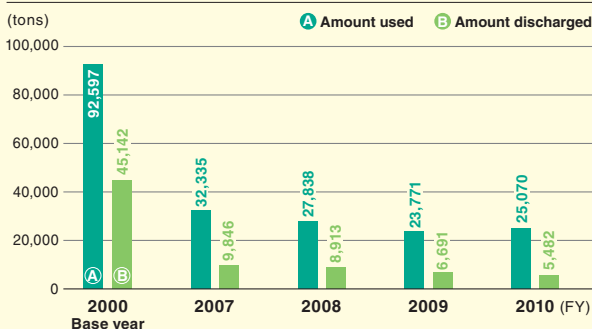
■ Future Activities

We will work to establish and upgrade a risk management system for chemical substances in terms of product lifecycle, aiming at realizing a new system of global management of chemical substances by the Rico Group.

<The Entire Rico Group>

Changes in the amount of environmentally sensitive substances used and discharged*

① The Rico Group (Production)



* Data for the substances specified in the environmental action plan, which consists mainly of the substances covered by the PRTR Law and includes other chemical substances used by the Group in large quantities.

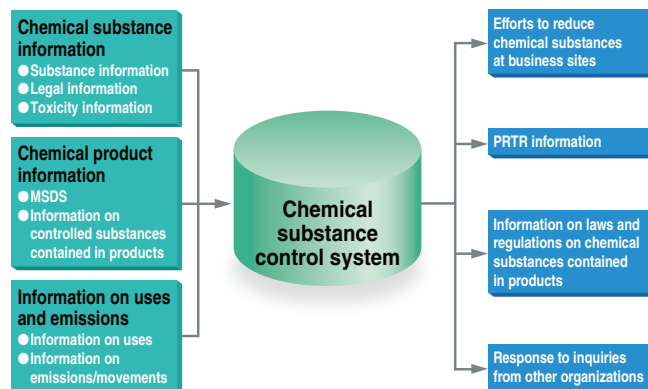
Chemical Substance Control

Chemical substance control and information disclosure

<Ricoh Group (Global)>

The Ricoh Group uses its chemical substance control system to monitor data on chemical substances used, discharged, and disposed of at business sites. The system is designed to promote the reduced use of chemical substances, to prepare materials for PRTR reporting, and to speedily respond to inquiries received from around the world.

Chemical substance control system



Establishment of a chemical substance risk management system

<Ricoh Group (Global)>

The Ricoh Group is promoting the establishment of a chemical substance risk management system across the Group based upon the concept of risk management. The Ricoh Group is seeking to establish a risk management system that will satisfy the following four requirements: (1) assure safety regarding chemical substances used in the manufacture of Ricoh products and discharged/emitted into the environment, by identifying and managing the amounts used and discharged; (2) evaluate the lifecycle risk of chemical substances that have the potential

to affect local residents and/or local ecosystems; (3) eliminate risks that exceed acceptable levels through management and reduction efforts; and (4) effectively share information on risks obtained through such evaluations with related parties. In fiscal 2010, we made a detailed assessment of risks that may impact local residents in relation to the chemical substances used in the manufacturing processes in order to fully launch our group-wide chemical substance risk management system.

Activities for establishment of a risk management system

March 2009

- Material balances of processes are made clear for chemical substances used in large quantities.

March 2010

- A risk management system covering human beings and the environment is established and put into operation.

March 2011

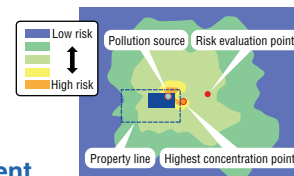
- Risk management and reduction activities are being carried out through the introduction of green and sustainable technology.
- Information on risks is shared with the related parties through good communication.

Hazard indicator	Hazard classification in GHS*
Environmental risk of chemical substances	Risk = hazard class x exposure amount
Evaluated substances	Chemical substances used for industrial (manufacturing) and/or laboratory (research) purposes
Managed group	Global (Ricoh Group)
Action	<ul style="list-style-type: none"> • Clarification of material balances (PRTR calculation method) • Registration of MSDS (including GHS hazard classification) • Establishment of risk evaluation procedures (scenario setting, hazard evaluation and setting reference value for evaluation, exposure evaluation, risk rating) • Development of a system to manage/reduce risk • Realization of risk communication

* GHS (Globally Harmonized System of Classification and Labeling of Chemicals): System to classify chemical substances in accordance with the internationally standardized rules according to types and level of hazard/danger, and to label chemicals with their classified hazard information and provide material safety data sheets. This system was recommended in a U.N. resolution in July 2003.

TOPIC

Establishing a groupwide risk management system



Introducing environmental risk management approach based on risk assessment

The Ricoh Group is developing and enhancing a groupwide chemical substance risk management system. To start with, in fiscal 2009, the Group—in cooperation with the Research Institute of Science for Safety and Sustainability, National Institute of Advanced Industrial Science and Technology (AIST)—introduced an approach for assessing environmental risks that local residents may be exposed to arising from activities conducted at its production sites.

Prior to this, the Group had for more than 10 years controlled and reduced chemical substances used or discharged in its manufacturing processes under a system in which an environmental impact coefficient¹ is set for each substance and their environmental risk levels are ranked using the set coefficients and amount used/discharged, then higher-ranked substances are given higher priority for control and elimination. By this method, we have achieved a substantial 87.9% reduction for discharged hazardous chemicals from the fiscal 2000 level across the group. We intend to raise this figure to more than 90% by fiscal 2013. As an initiative aimed at this new target, we have begun to develop a groupwide risk assessment-based chemical substance risk management system in reference to the SAICM approach.² The new system, applied to all chemical substances used, discharged and disposed of in the course of manufacturing Ricoh products, consists of two evaluation steps. First, screening is conducted for each substance in terms of amount emitted

according to the GHS hazard³ level scale. Next, the substance for which the resulting value calculated exceeds the predetermined threshold level will be subject to a diffusion simulation analysis incorporating weather information of surrounding areas of the production sites, aimed at assessing health risk to local residents. To ensure that our assessment activities have no impact to the neighboring areas, we have set hazard standards, including no observed adverse effect level, and other specific safety limits for use of assessed substances at sufficiently strict levels. By conducting simulation analysis, an approach for assessing impact risks that chemical substances can have on the environment and human health, we can manage those hazardous substances more effectively. In addition, we plan to expand this initiative to establish a methodology for assessing chemical risks for the ecosystem. In this way, the Ricoh Group is committed to developing and operating a groupwide system to manage chemical substances, employing the world's advanced risk management approach.

1. Ratings of individual substances on a scale of 1 to 1,000 in reference to a number of environmental indicators, including those for carcinogenicity, acceptable concentration level, LD50, global warming potential, ozone depletion potential
2. Strategic Approach to International Chemicals Management (SAICM): a policy framework to promote the sound management of chemicals adopted in February 2006 by the International Conference on Chemicals Management (ICCM) and endorsed by the United Nations Environment Programme (UNEP)
3. An international indicator of harmfulness to human beings and the environment (See the table "Activities for establishment of risk management system" on [page 46](#)).

Environmental Risk Management

Understanding environmental liabilities

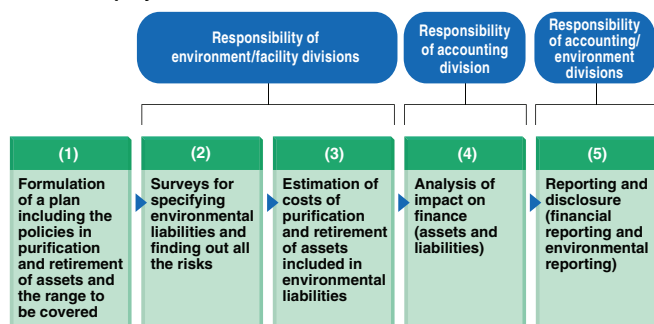
<Ricoh Group (Global)>

Companies are responsible for environmental contamination and anything that can lead to environmental contamination, whether caused by their past, current, or future business activities, and they must therefore make efforts into the future to prevent contamination or its expansion. They must also take all necessary measures such as purification and repair if and when contamination occurs. In fiscal 2007, the Ricoh Group began to examine its sites for possible soil/ underground water contamination, asbestos and PCBs-related hazard, as well as recognizing the obligation to return sites to their original state, in order to appropriately reflect the impact on corporate performance of the cost of fulfilling that responsibility (environmental liabilities) in financial accounting. Based on the assessments of our

facilities, conducted jointly by the accounting, environment, and facility divisions, the Group estimated (1) the amount of asset retirement obligations¹ calculated in compliance with the accounting standards, (2) the amount that could become liabilities in financial accounting in the future in compliance with laws or contracts, and (3) the costs of purification the Ricoh Group will carry out according to its own policies, although such purification is not required by laws or contracts. The estimated future expenditure for asset retirement obligations of the Ricoh Group to dispose of asbestos and PCBs and to return buildings and land to their original state was ¥2,950 million² as of the end of fiscal 2010. In addition, the Group provided ¥860 million in reserves for soil purification.

1. Payment obligation required by laws or contracts concerning the future retirement of fixed assets. This obligation includes that for the retirement of harmful substances contained in fixed assets. In Japan, the Accounting Standard for Asset Retirement Obligations was introduced in fiscal 2010.
2. Asbestos: ¥1,603 million; other hazardous substances: ¥205.77 million; restoring buildings and land to their original state: ¥1,140 million

Implementation flow and roles of the environmental liabilities calculation project

Environmental Risk Management with Respect to Assets
<Ricoh Group (Global)>

The Ricoh Group established and enforced the Standard on Environmental Risk Management with Respect to Assets in fiscal 2009, and has been evaluating environmental risks according to the standard. The purpose of this standard is to identify major risks entailed in the acquisition/sale/ lease of property and minimize their impact on business. The standard applies to all acquisitions, sales, and lease of property within the Ricoh Group (all the group companies subject to the consolidated accounting). Our environmental risk management conducted under this standard follows three key principles: (1) to identify significant environmental

risks and the related health risks when acquiring, selling and/or leasing property, including cases involved in M&A; (2) to develop plans to manage and reduce the identified risks and implement appropriate measures according to the plan; (3) to provide relevant parties with important information on the identified environmental/health risks at the time of acquiring, selling and/or signing a lease contract for property. If risks concerning contaminated soil, PCBs, asbestos or other substances subject to environmental regulations are identified, the division in charge and the Environment Division will discuss the matter before deciding whether to finalize the property transaction under negotiation.

Asbestos and PCBs

<Ricoh Group (Global)>

A survey of asbestos used at Ricoh's business sites and facilities, concerning content in materials (level 1 to 3)* was completed in fiscal 2010. Measures to prevent dispersal have been taken at all relevant sites and the substance has been confirmed at a level that will not negatively affect human beings, whether in adjacent neighborhoods or at the facility. We will continue our systematic efforts for improvement and removal of asbestos. In the meantime, Ricoh has surveyed all the PCB-containing products held by the Group, and has managed them and completed notification in compliance with the relevant laws and regulations. In fiscal 2010, we began to conduct a group-wide survey of PCB micro-contamination of waste electric components and other equipment. Including this micro level content in waste, the Group plans to complete disposal of PCBs held at its sites by fiscal 2016.

* See page 45.

Management of the contamination risk of soil and underground water

<Ricoh Global (Global)>

The Ricoh Group addresses the issue of soil and underground water contamination from the three viewpoints of social responsibility, environmental risks, and financial risks. With this recognition, the

The Ricoh Group's Basic Policies Concerning Soil and Underground Water Contamination

- (1) Top priority is given to preventing health hazards.
- (2) Efforts will be made to carry out surveys and measures to cope with contamination caused by the Ricoh Group's business activities.
- (3) Laws, regulations, and ordinances set by national and local governments shall be observed.
- (4) Efforts will be made to establish risk communication with local governments and residents.
- (5) Soil is checked for contamination when land is purchased/ transferred or rented/returned.

Group established the Standards for the Management of Risks Related to Soil and Underground Water Contamination and has been working in conformity with basic policies set under the standards. We began an investigation of the soil and underground water at our sites in Japan in the early 1990s. Since then the investigation has expanded globally to cover all sites of the Group, including non-production facilities and offices, and improvements have been made as necessary. At sites where contamination has been detected, appropriate measures have been taken according to the specific scenario that each site has drawn up for complete remediation, based on the group standards and in compliance with the applicable regulations of each country. These activities have been completed at all the related sites except a number of facilities, where improvements are progressing steadily. Therefore, we have reduced soil/underground water contamination risks sufficiently to secure a certain level of safety as an entire group (see the table below). Pollution cleanups are often costly. As a measure to deal with this risk, Ricoh sets aside adequate reserves for possible future losses from the cleanup of environmental damage based on reasonable cost estimates, upon determining that there is a good likelihood that a cleanup may involve the incurring of significant costs.

Survey results for underground water pollution and purification efforts at Ricoh Group production sites (average for fiscal 2010)

Business site		Survey (voluntary/mandatory)	Target substance	Highest yearly-averaged density recorded at monitored spots (mg/ℓ)	Reference standard & value	
					Reference standard	Reference value (mg/ℓ)
Japan	Ricoh Elemex Corporation, Okazaki Plant	Voluntary*	1,1-dichloroethylene	0.04	Environmental quality standards for groundwater (Specified based on Basic Environment Act)	0.02
			Trichloroethylene	1.0		0.03
			Cadmium	0.14		0.01
			Hexavalent chromium	3.4		0.05
	Ricoh Elemex Corporation, Ena Plant	Voluntary*	1,2-dichloroethylene	0.33	Environmental quality standards for groundwater (Specified based on Basic Environment Act)	0.04
			Trichloroethylene	0.51		0.03
			Carbon tetrachloride	0.006		0.002
			Hexavalent chromium	1.3		0.05
	Ohmori Office	Voluntary*	Fluorine and its compounds	7.4	Environmental quality standards for groundwater (Specified based on Basic Environment Act)	0.8
			Trichloroethylene	0.04		0.03
	Ricoh Optical Industries Co., Ltd.	Voluntary*	1,2-dichloroethylene	0.10	Environmental quality standards for groundwater (Specified based on Basic Environment Act)	0.04
			Trichloroethylene	0.58		0.03
			Tetrachloroethylene	0.79		0.01
	Ricoh Keiki Co., Ltd.	Voluntary*	Vinyl chloride monomer	0.022	Environmental quality standards for groundwater (Specified based on Basic Environment Act)	0.002
Outside of Japan	Ricoh UK Products Ltd. (U.K.)	Voluntary*	Tetrachloroethylene	23.00	Environment protection Act (Target based on Environment Agency process)	5.69
	Ricoh Industrie France S.A.S. (France)	Voluntary*	Tetrachloroethylene	0.207	Each master plan for improvement and water management	0.01
	Ricoh Electronics Inc., Irvine Plant (U.S.A.)	Mandatory	Tetrachloroethylene	1.2	EPA Regulation	0.1

* Investigated by Ricoh