

**SWS Group**

# **Environmental Report 2004**

Environmental Report 2004



**Sumitomo Wiring Systems, Ltd.**

# Company Overview

## Official trade name

Sumitomo Wiring Systems, Ltd.

## Business activities

Manufacture and sales of wiring harnesses for automobiles and appliances, manufacture and sales of components for wiring harnesses and electrical appliances, manufacture and sales of electric wires for automobiles

## Established

December 1917

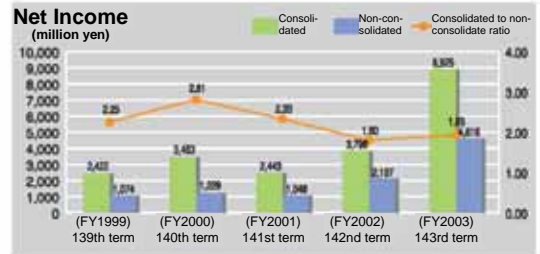
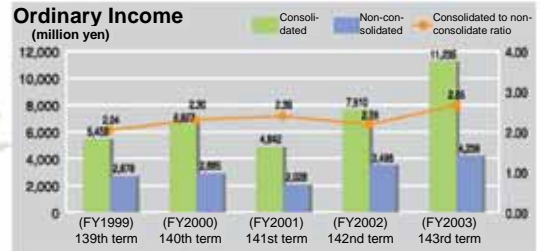
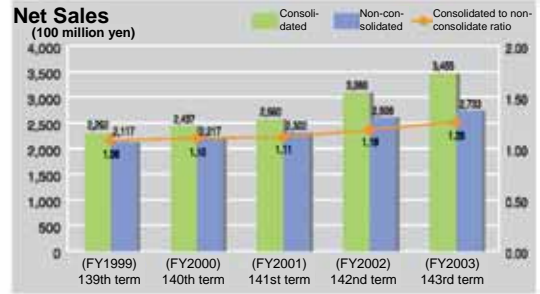
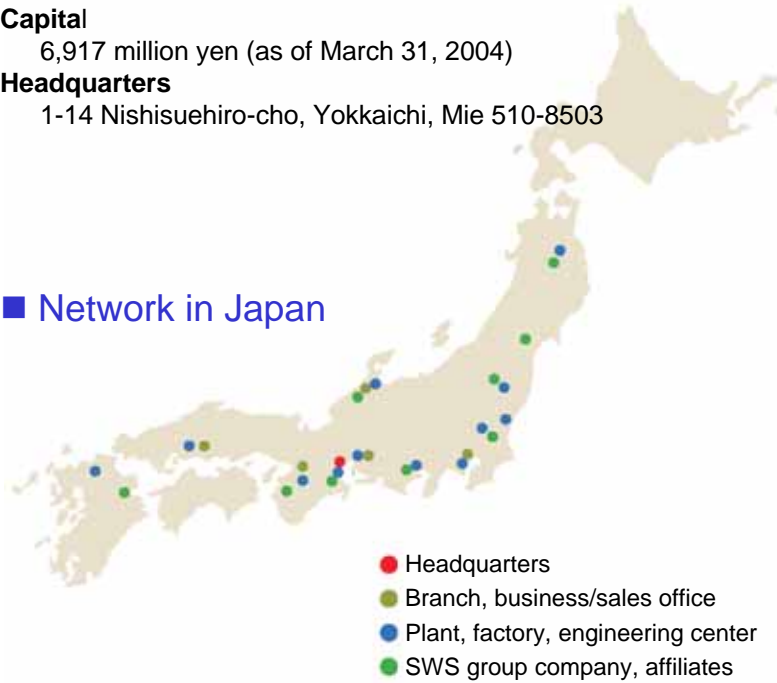
## Capital

6,917 million yen (as of March 31, 2004)

## Headquarters

1-14 Nishisuehiro-cho, Yokkaichi, Mie 510-8503

## Network in Japan



## Scope of Environmental Report 2004

This Environmental Report was prepared based on our activities from April 1, 2003 through March 31, 2004 (including some activities from fiscal 2004).

This Report covers our headquarters, factories, plants, centers, and group companies in Japan\*1), as listed in the table on the right, including affiliate companies of these site and group companies\*2).

Division	Bases and group companies in Japan	Environmental accounting	Material flow	Energy saving	Resource saving & recycling	PRTR	Observation of regulations	Acquired ISO 14001 certification	Manufacturing
SWS sites	Headquarters, Yokkaichi area	●	●	●	●	●	●	●	●
	Yokkaichi Logistics Center	●	●	●	●	●	●	●	●
	Toyota Logistics Center	●	●	●	●	●	●	●	●
	Suzuka Plant	●	●	●	●	●	●	●	●
	Misono	●	●	●	●	●	●	●	●
	Ibaraki Automotive Wire Works	●	●	●	●	●	●	●	●
	Sayama	●	●	●	●	●	●	●	●
	Yuuki	●	●	●	●	●	●	●	●
	Sayama Logistics Center	●	●	●	●	●	●	●	●
	Iruma Logistics Center	●	●	●	●	●	●	●	●
Group companies in Japan	Utsunomiya Engineering Center	●	●	●	●	●	●	●	●
	Atsugi Engineering Center	●	●	●	●	●	●	●	●
	Tohoku Sumidense, Ltd.	●	●	●	●	●	●	●	●
	Yamagata Sumidense, Ltd.	●	●	●	●	●	●	●	●
	Hokuriku Harness, Ltd.	●	●	●	●	●	●	●	●
	Toyo Harness, Ltd.	●	●	●	●	●	●	●	●
	Kyusyu Sumidense, Ltd.	●	●	●	●	●	●	●	●
	Kyoritsu Hiparts Co., Ltd.	●	●	●	●	●	●	●	●
Sumidense Platech, Ltd.	●	●	●	●	●	●	●	●	

Notes \*1) Group company in Japan: Defined as an unlisted company engaging in production, with 50% or more shares held by us.

\*2) AutoNetworks Technologies, Ltd. Sumitomo Wiring Computer Systems, Ltd. S D Engineering Co., Ltd.  
Sumidense Logistics Network Co., Ltd. Sumidense Service, Ltd. SWS Management Support, Ltd.  
SY Travel Co., Ltd. Sumiden Electronics, Ltd. Sumitomo Wiring Systems Mediatech, Ltd.

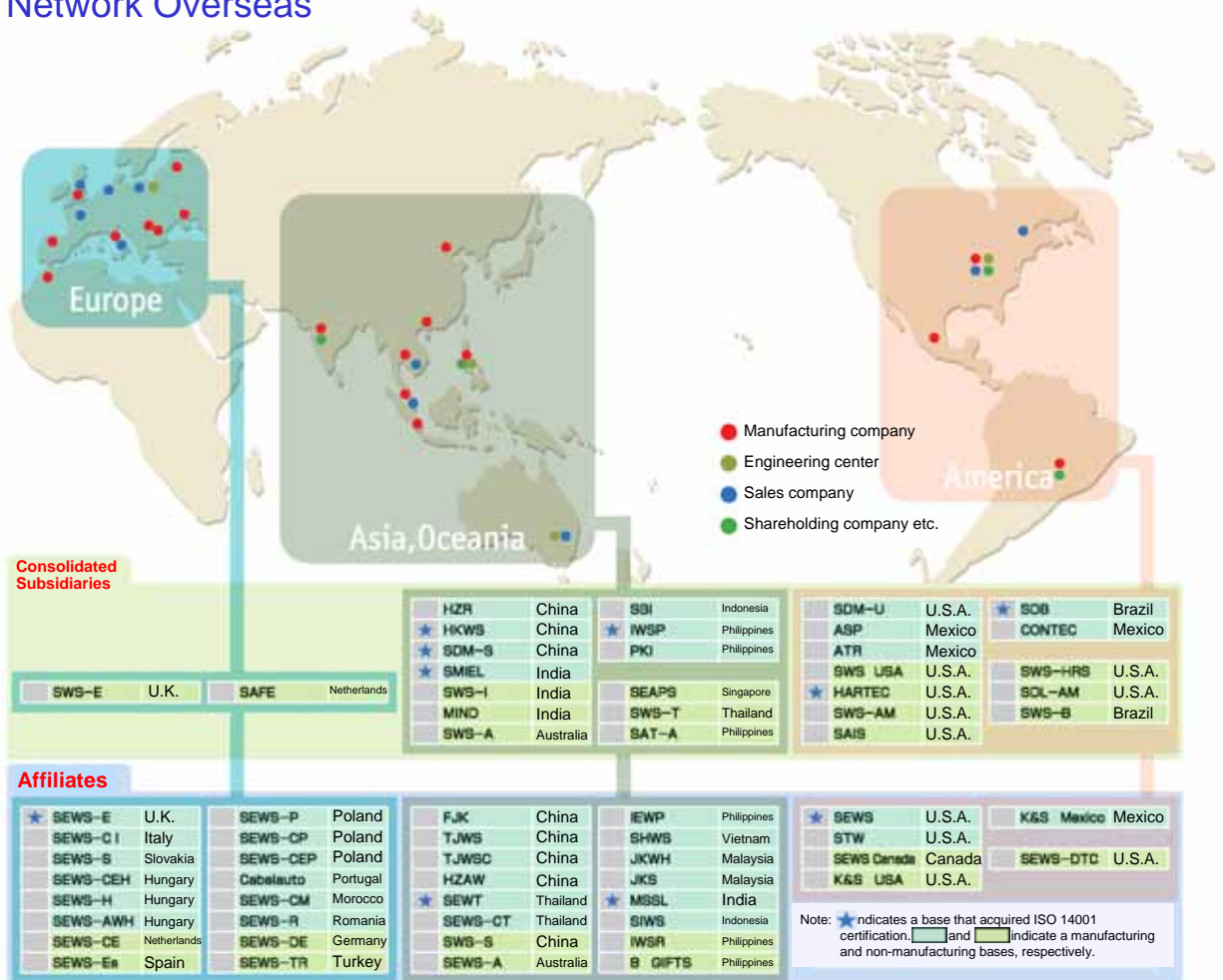
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## Product Lineup



## Network Overseas



## Message from the President

The recent environmental problems that have been caused by the emission of greenhouse gasses, waste, and harmful chemical substances, a production of economic activities by human beings, which is leading to environmental destruction so serious as to be beyond the abilities of Earth's natural purification processes that are irreplaceable. This presently jeopardizes the continued existence of many kinds of creatures, not only human beings.

Taking the environmental issues seriously, we must restore the earth to its original state with a bountiful natural environment, and pass on the Earth restored to following generations. To achieve this, amidst corporate activities, we are required to take actions to recycle resources and prevent global warming and pollutant emission, and we recognize this is the social responsibility of a corporate, as a member of the global community.

Based on our general policy of "implementing business activities to create an affluent society with full consideration to environmental preservation," we, the Sumitomo Wiring Systems Group, are actively promoting environmental preservation activities with all employees involved under the ISO 14001 environmental management system, and are improving communication with local communities, aiming to advance sustainable management.

The main business of our group is the development, design, manufacture, and sales of automotive wiring harnesses. Miniaturization, diameter reduction, and integration have reduced the weight of a wiring harness, contributing to increasing the vehicle fuel efficiency and reducing the emissions of greenhouse gasses. In addition, we have started the actual use of wiring harnesses easily removed from disused vehicles, and halogen-free wires and components, striving to improve recycling efficiency.

In the manufacturing field, we have continued to perform activities to reduce the emissions of waste and greenhouse gasses. "Zero emission," meaning the complete elimination of landfill waste, was achieved in 24 main bases, including group companies in Japan, at the end of fiscal 2003, and we are currently gearing up activities to achieve this in 14 remaining bases by the end of fiscal 2004. We have also installed photovoltaic generation and cogeneration facilities to reduce the amount of greenhouse gasses released.

Our group will continue and expand these activities on a global scale, including our group companies overseas, in order to enhance sustainable management. We would be pleased if you would send any comments and suggestions after reading this Environmental Report 2004.



Tadashi Shimokawa,  
President, Sumitomo Wiring Systems, Ltd.

## Striving to Reduce Environmental Impact Through Activities by All Members

At the Sumitomo Wiring Systems Group, including its group companies in Japan, we have been working on environmental preservation activities with the united strength of all members, according to the environmental preservation policy group-wide.

One of our achievements is a great deal of progress in "zero emission (complete elimination of landfill waste)" activities.

Through "eco-activities by all members," such as basic activities for complete sorting by waste type, decomposition of waste, and searching for recycling points, we achieved "zero emission" in 24 main bases, including group companies in Japan, at the end of fiscal 2003, and it is forecast that 14 remaining bases will achieve this goal by the end of fiscal 2004.

As measures for reducing greenhouse gas emissions, we started operating a photovoltaic generation facility in December 2003 and a cogeneration facility in April 2004, as well as performing a variety of energy saving activities. We will actively develop measures for global warming prevention, making good use of new energies and technologies.

In fiscal 2003, we formed project teams for the purposes of reducing the environmental impact of our products and business activities and enhancing sustainable management. These teams performed organized activities for evaluating the environmental impact, setting up green purchasing guidelines, reducing waste and CO<sub>2</sub> emissions, educating the employees, contributing to society, etc.

In the research and development field, aiming to manufacture products that can reduce environmental impact, we have reduced the size and weight of, and eliminated harmful chemical substances from, wires, terminals, connectors, etc. that are components of our major product, an automotive wiring harness. In addition, we have expanded the application of halogen-free materials, and commercialized wiring harnesses that can easily be removed when vehicles are scrapped or disassembled, in order to facilitate recycling.

Our contribution to local communities is represented by monthly clean-up campaigns for the area surrounding our plants and offices, support for environmental preservation activities by NPOs, and company environmental exhibitions where our information is presented to local public bodies and associated persons. The details of these activities are described in this Environmental Report.

We will further enhance our activities and strive to reduce the environmental impact of our products by getting all members involved, placing great importance on your advice and suggestions.



Shiro Kawamura,  
Senior Managing Executive Officer and  
Corporate Environmental Administrator

# Environmental Management

## Environmental Preservation Policy

The SWS Group shall implement business activities to create an affluent society with full consideration to environmental preservation.

### Action Guidelines

1. Make efforts to develop and improve eco-technology (also known as green engineering) in every field of product planning, development, design, manufacturing methods, production, logistics, usage, and disposal, aiming at product manufacturing with consideration to influence on ecosystems and the protection of resources.
2. Determine self-imposed restrains to reduce the impact on the environment, in addition to observing environmental regulations by the government, local public bodies, and other organizations.
3. Conduct an environmental audit or similar to check the progress of environmental preservation plans and the health of job performance in order to maintain and improve the level of environmental management.
4. Improve environmental awareness in the SWS Group, including overseas sites, and promote environmental preservation activities through communication with local communities.

The above are basic rules effective from July 1, 1995.

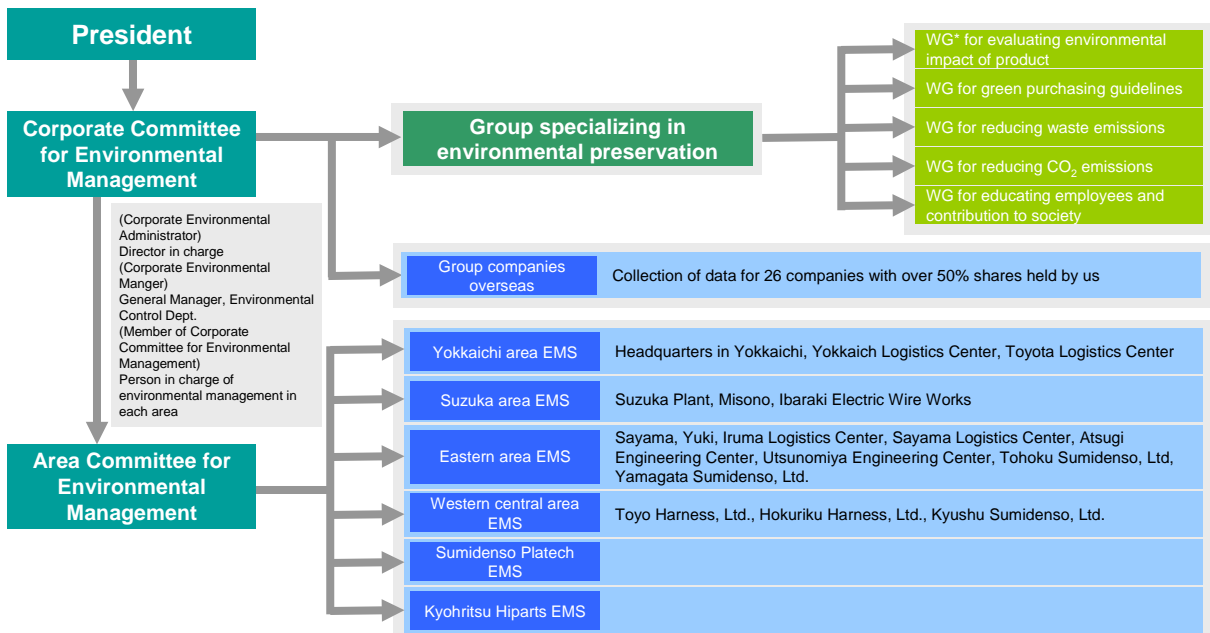
## Organization for Promoting Environmental Preservation

To collect environmental data and understand the condition of compliance with laws and regulations at the group companies in Japan and overseas, we are proceeding with the review of our promotion organization.

The Corporate Committee for Environmental Management formulates long-term visions and determines annual promotion targets with measures, and introduces environmental management projects into 12 sites and 7 group companies in Japan.

Since fiscal 2003, Kyohritsu Hiparts has joined in the Area Committee for Environmental Management.

For main overseas sites, we plan to introduce the environmental policies and collection of environmental data from fiscal 2004.



\*WG: Working Group

## Visions for Environmental Preservation

In fiscal 2003, the SWS Group formulated an environmental performance program, titled "Challenge-Eco 21," covering the period up to fiscal 2007.

This program specifies targets for actions with respect to shaping a recycling-based society and targets to be achieved for sustainable management, at the development & design, procurement, manufacturing, logistics, and usage & collection stages, respectively.



### Enlightenment and contribution to society

- Education & training, training system
- Information release, environmental report
- Participation in environmental activities in communities
- Support for environmental NPOs

### Sustainable management, control system

- Prevention of pollution risk and accidents
- Compliance with laws & regulations, PRTR
- Reduction of environmental impact and chemical substances
- Environmental impact evaluation, LCA
- Environmentally friendly products, product collection technologies
- Green procurement, support for supplier's EMS
- Transfer to overseas group companies
- Environmental accounting

### Eco-activities by all members

- Waste reduction, 3R
- Use of returnable packing materials
- Improvement of production efficiency
- Greenhouse gas reduction, energy saving

### Development & design

In order to reduce the environmental impact, design and develop environmentally friendly products as well as specifying the disuse or restricted use of chemical substances. Include LCA in evaluation items at the product development stage.

### Material procurement

Transfer green purchasing to material suppliers. Promote chemical substance investigation and use the results of it when selecting a supplier.

### Product manufacturing

Actively take actions to reduce greenhouse gas emissions in order to prevent global warming. Promote resource circulation and waste reduction, as well as working on reducing the amount of controlled chemical substances and PRTR specified substances.

### Logistics

Enhance the transportation efficiency and the modal mix to reduce CO<sub>2</sub> emissions due to transportation. Increase in reuse of packing containers to reduce the amount of waste.

### Usage / market

Reduce the diameter of wires, reduce the size and weight of components, and integrate circuits in order to produce improvements, including a decrease in fuel consumption when a vehicle is driven.

### Collection

Promote design that can improve ease of recycling, and establish a method of collection from product.

## "Challenge-Eco 21" Targets for FY2004

In fiscal 2003, the SWS Group formulated an environmental performance program covering the period from fiscal 2003 to 2007. According to SWS Group's visions for environmental preservation, this program specifies targets for reducing environmental impact and targets to be achieved for sustainable management, at the development & design, procurement, manufacturing, logistics, and usage & collection stages, respectively.

SWS Group Environmental Performance Program (Challenge-Eco 21)			Target for FY2004	Target for FY2007
Manufacturing	Prevention of global warming	Reduction of CO <sub>2</sub> emissions	4% reduction compared to 1990	7% reduction compared to 1990 10% reduction compared to 2001
	Waste	Reduction of total waste Emissions	2% reduction compared to 2001	2% reduction annually
	Chemical substances	Reduction of amount of PRTR specified substances being released or transferred	4% reduction of plasticizer (bis (2-ethylhexyl) phthalate) compared to FY2003	Complete elimination of lead compounds and chromium compounds
Procurement	Green procurement	Application and establishment of procurement standards	Holding information meeting for procurement standards and application of these standards	Complete elimination of lead compounds and chromium compounds by 2005
	Reduction of chemical substances	Promotion of chemical substance investigation	Investigation of measures for controlled chemical substances	Complete application of these standards and evaluation for supplier selection by 2005
Products	Chemical substances	Elimination or restricted use of chemical substances	Disuse of lead in bulb glass and protective coating material Promote the use of a substitute for hexivalent chromium for rust proofing	Complete elimination through design control
Development, design	Product development	Formulation of certification standards for environmentally friendly products, and certification of these products	Formulation of certification standards, and implementation and sound establishment of the certification committee	Certification of 1 more environmentally friendly product every year
Usage, collection	LCA	LCA calculation and analysis	Introduction and establishment of technique for environmental assessment of product	Establishment of this as evaluation item during product development
	3R	Improvement in ease of recycling	Commercialization of easily removable W/H *1	Introduction of recycleability evaluation system by 2005
Logistics	Prevention of global warming	Reduction of CO <sub>2</sub> emissions due to transportation	Promotion of modal mix	7% reduction compared to 2003
	3R	Promotion of reuse of containers	Increase in use of plastic boxes	Ration of containers other than cardboard boxes be 70% or more in 2005

## "Challenge-Eco 21" Activity Results in FY2003

In fiscal 2003, we achieved targets for eight out of a total of 11 items. Steady progress was made in the reduction in controlled chemical substances used for manufacturing, the formulation of green procurement guidelines, the elimination of controlled substances from wiring harness components, the practical use of LCA, and the commercialization of easily removable wiring harnesses. However, we were not able to achieve targets for reducing CO<sub>2</sub> emissions directly connected to the prevention of global warming. Although aggressive investment in energy saving had lowered the environmental CO<sub>2</sub> index (CO<sub>2</sub> emissions / sales), the absolute value was increased due to an increase in production volume due to growing sales. Toward fiscal 2007, we will further promote the introduction of cogeneration systems in plants and energy saving for production equipment. Reduction in landfill waste was achieved through recycling activities being promoted, but total waste emissions were increased. By the end of fiscal 2004 we will complete the certification standards for environmentally friendly products and select certified products, although activities for this is currently behind schedule.

SWS Group Environmental Performance Program (Challenge-Eco 21)			Target for FY2003	Result of activities in FY2003	Details of activities in FY2003
Manufacturing	Prevention of global warming	Reduction of CO <sub>2</sub> emissions	4% reduction compared to 1990	1% increase	Switching to or renewal of energy-saving equipment Photovoltaic generation
	Waste	Reduction of total waste Emissions	2% reduction compared to 2001	10% increase	Use of returnable packing materials
	Chemical substances	Reduction of amount of PRTR specified substances being released or transferred	Formulation of reduction plan	Formulation of reduction plan	Increase in ratio of halogen-free wires without plasticizer (bis (2-ethylhexyl) phthalate)
Procurement	Green procurement	Attitude survey for material suppliers	Formulation of procurement standards and evaluation of suppliers	Formulation of green procurement guidelines (draft) (already issued in Aug. 2004)	Project for enhancing and establishing sustainable management Deliberation by members of design, development, and procurement work committee
	Reduction of chemical substances	Promotion of chemical substance investigation	Inclusion of data in procurement standards	Preparation of controlled substance list Inclusion in guidelines	
Product	Chemical substances	Disuse or restricted use of chemical substances	Disuse of lead and hexivalent chromium in W/H (*1) components (excl. soldering related)	Disuse for purposes other than soldering and rust proofing	Promotion of disusing lead stabilizer in protective materials and developing substitute for hexivalent chromium for rust proofing
Development, design	Product development	Formulation of certification standards for environmentally friendly products, and certification of products	Formulation of certification standards and implementation of certification committee	Preparation of plans for certification standards and certification committee	Project for enhancing and establishing sustainable management Deliberation by members of design, development, and procurement work committee
Usage, collection	LCA	LCA calculation and analysis	Test calculation for inclusion in design control activities	Implementation of test calculation for representative automotive wires, connectors, and WH Inclusion in environmental assessment of product	Project for enhancing and establishing sustainable management Deliberation and test calculation by members of design, development, and procurement work committee
	3R	Improvement in ease of recycling	Commercialization of easily removable W/H	Commercialization completed	Development of quick-release belt and ground terminal for recycling
Logistics	Prevention of global warming	Reduction of CO <sub>2</sub> emissions due to transportation	Promotion of modal mix	1% reduction	Improvement of transportation control system and mounting sensors on vehicles
	3R	Promotion of reuse of containers	Increase in use of plastic boxes	59% ratio of implementation	Switch from cardboard boxes to plastic boxes

(\*1) W/H: Wiring harness



## Environmental Accounting

In order to enhance the efficiency of sustainable management, environmental preservation costs and effects are analyzed, managed, and indicated as an environmental index, and the information is disclosed to the public as part of environmental communication activities.

Regarding environmental accounting for fiscal 2003, we calculated total environmental preservation costs and effects at eight companies, including group companies in Japan, based on the "Environmental Accounting Guideline (2002 version)" issued by the Ministry of Environment. Using the same technique, we calculated a budget for environmental costs for fiscal 2004.

### ■ Results of environmental preservation costs for FY2003

Total environmental preservation costs were increased by 16.7% compared to those spent in fiscal 2002, with a 28.0% increase in investment. The main uses were switching air conditioning systems to energy-saving type (inverter-type) at a time of renewal, which necessitates part of the global environmental preservation cost, and the installation of photovoltaic generation systems etc. to reduce the emissions of greenhouse gasses (CO<sub>2</sub>), which is included in equipment investment.

(Unit: 1,000 yen)

Category	Result of 2003		Main use
	Investment	Costs	
Pollution prevention cost	26,071	39,463	Introduction of soundproof equipment, sound insulation work, wastewater treatment maintenance & control
Global environmental preservation cost	297,372	1,421	Photovoltaic generation facilities, lighting and air conditioning systems with inverters/timers, energy-saving transformers
Resource circulation cost	24,500	167,792	Scrapped/crushed material transportation equipment, waste treatment, recycling
Cost for upstream & downstream processes	3,975	21,289	Conversion to and purchase of plastic boxes, repacking in plastic boxes
Management cost	32,312	283,049	Environmental management activities, EMS building and maintenance, utility warning/monitoring devices
R & D cost	13,000	45,397	Renewal of testing machines, implementation of LCA, control of chemical substances
Social activity cost	0	473	Participation in environmental fairs, membership fee for environmental NPOs
Cost for environmental damage	0	0	
<b>Subtotal</b>	<b>397,230</b>	<b>558,884</b>	
<b>Ground total</b>	<b>956,114</b>		

### ■ Budget for environmental preservation costs for FY2004

A budget for total environmental preservation costs has decreased by 8.6% compared to costs spent in fiscal 2003, with a 12.8 decrease in investment. The global environmental preservation cost will decrease by the completion of the renewal of air conditioning systems, but will increase due to the renewal of high-efficiency, gas absorption type water heater/cooler. A cost for placing chambers and wastewater tanks on the ground is included in the pollution prevention cost, and cost for purchasing environmental measurement devices is included in the management cost.

(Unit: 1,000 yen)

Category	Budget of 2004		Main use
	Investment	Costs	
Pollution prevention cost	130,700	33,331	Dust protection work, installation of digestion tanks, placing chambers and wastewater tanks on the ground, wastewater treatment maintenance & control
Global environmental preservation cost	133,425	1,100	Renewal of high-efficiency, gas absorption type water heater/cooler, introduction of air circulation systems and energy-saving transformers, installation of substation demand monitoring systems and ventilators, use of inverters for pumps
Resource circulation cost	22,300	143,566	Combustion device for removing water from waste lubricant discharged from wire drawing machines, waste disposal & recycling
Cost for upstream & downstream processes	638	9,969	Repacking, waste sorting & decomposition
Management cost	53,790	285,589	Installation of environmental measurement devices, environmental management activities, EMS building and maintenance, control of green zones
R & D cost	5,500	51,452	Purchase of analyzers, collection of information about regulations on chemical substances, implementation of LCA
Social activity cost	0	2,520	Participation in environmental fairs, membership fee for environmental NPOs
Cost for environmental damage	0	0	
<b>Subtotal</b>	<b>346,353</b>	<b>527,527</b>	
<b>Ground total</b>	<b>873,880</b>		

#### Notes

- Investment and costs were limited to those for activities predominantly for environmental preservation.
- Depreciation is included in investment and is therefore excluded from calculation.
- Only completely reliable data was used to calculate effects.

### ■ Effects of environmental preservation in FY2003

The total figure was increased by 26.1% compared to that of fiscal 2002. A main factor in this is an increase in the sale of recycled articles, thanks to the increased amount of, and a rise in unit price of these articles.

(Unit: 1,000 yen)

Category	Economic effect	Contents
Effect of pollution prevention cost	—	
Effect of global environmental preservation cost	29,276	Energy conservation in air conditioning and lighting systems, photovoltaic generation
Effect of resource circulation cost	386,532	Reduction in disposal cost for disused articles, sales of recycled articles
Effect of cost for upstream & downstream processes	38,516	Switching to returnable containers
Effect of management cost	—	
Effect of R & D cost	—	
Effect of social activity cost	—	
Effect of cost for environmental damage	—	
<b>Total</b>	<b>454,324</b>	

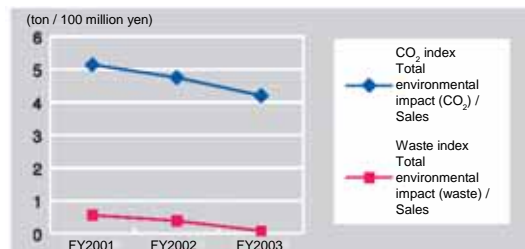
## Environmental index

Although the amount of CO<sub>2</sub> discharged in fiscal 2003 was almost the same as the previous year, an increase in sales allowed the CO<sub>2</sub> index to lower by 11.5% compared to the previous year. The waste index remarkably lowered by 79.5% compared to the previous year, thanks to waste recycling promotion in addition to an increase in sales.

Ratio of total environmental impact / sales have been evaluated as an index for environmental preservation activities.

(Unit: ton / 1 hundred million yen)

Item	Index		
	FY2001	FY2002	FY2003
Total environmental impact (CO <sub>2</sub> ) / Sales	5.14	4.75	4.20
Total environmental impact (waste) / Sales	0.56	0.39	0.08

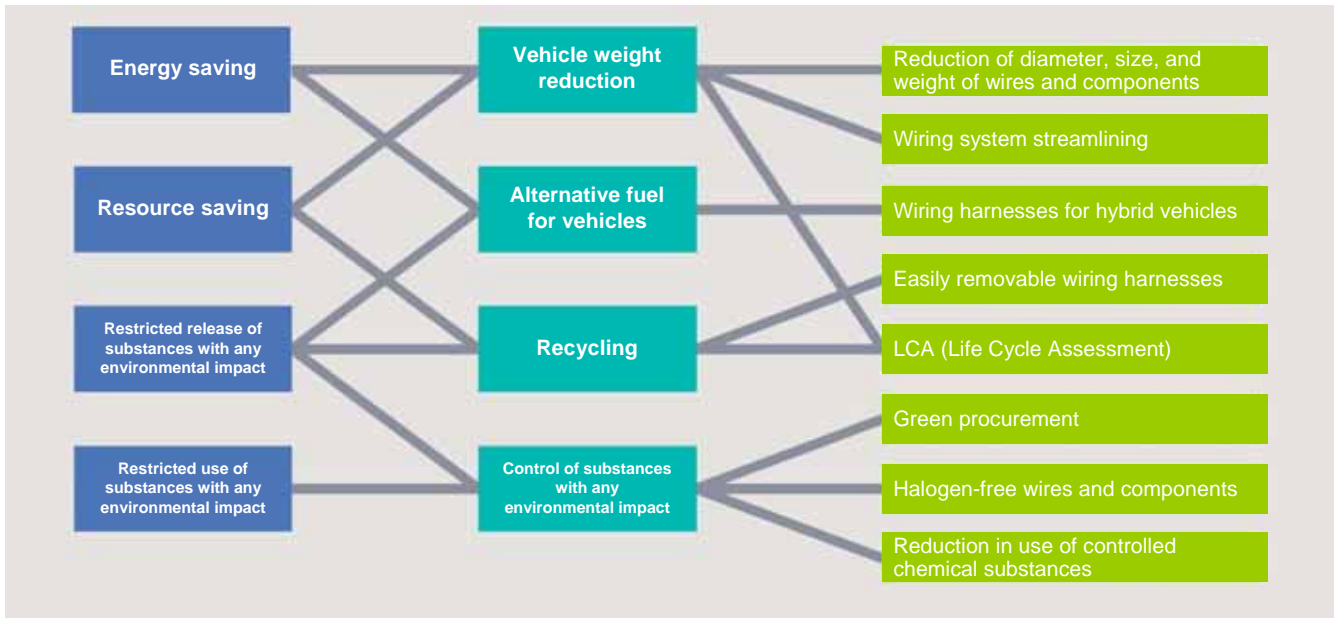


# Design and Development

## Concepts for Environmentally Friendly Design

We believe that supplying environmental friendly products to customers is a very important activity for a company that actively promotes environmental preservation.

To supply such products, environmentally friendly elements need to be incorporated in products at the design and development stage. The SWS Group will establish a "technique for environmental assessment of product," clearly define "being environmentally friendly," and is currently proceeding with commencing a "certification system for environmentally friendly products." The major products of our group are automotive wiring harnesses and electronics components. The diagram below shows the relationship between keywords and environmentally friendly actions at the design and development stage.



## Certification System for Environmentally Friendly Products

With a view to advancing global environmental preservation activities company-wide, we are promoting the development of environmentally friendly products, and we plan to commence a certification system for environmentally friendly products in October 2004 in order to furnish product-related environmental information to the market. In accordance with ISO 14021 (JIS Q 14021) "Environmental labels and declarations - Self-declared environmental claims (Type II environmental labeling)," we selected 13 environmental claims, as listed below, for certifying an environmental friendly product. In addition to this, we will set up a "Committee for Certification of Environmentally Friendly Products" headed by the Corporate Environmental Manager as chairperson.

### ■ Environmental claims

- (1) Reduction in controlled chemical substances
- (2) Ratio of inclusion of recyclable materials
- (3) Resource saving
- (4) Collection energy
- (5) Waste reduction
- (6) Energy saving
- (7) Water saving
- (8) Life extension
- (9) Being reusable
- (10) Being recyclable
- (11) Easy-to-disassemble design
- (12) Being decomposable
- (13) Possibility to become compost

When a product is certified as an environmentally friendly product by this committee, we will give our original symbol mark to this product, and clearly indicate this symbol on the product itself, catalogs, technical data, etc., in order to declare that this is an environmentally friendly product. We plan to invite suggestions from our employees for the design of this symbol.



Discussion on environmental symbol marking

## Environmental Assessment of Product

Our plan specifies that the environmental assessment of a product is a prior requirement for this product to be certified as an environmentally friendly product. The environmental assessment of a product is defined as evaluation for determining whether a product has been planned and designed so that this product has less environmental impact throughout its lifetime from raw material procurement, manufacturing, logistics, usage, and to disposal.

Nine items, described on the right, are to be applied to the product itself, container, and packing material, respectively, and the implementation of LCA is basically required. In response to this, we organized a LCA study group in June 2004, in order to improve the LCA skills of designers and enrich a database for LCA.

As for the restricted use of substances with any environmental impact, we built a system to clearly define and manage self-imposed standards for controlled chemical substances (Substance Group 103, Substance 1035).

[Evaluation items in environmental assessment of product]

- |   |   |
|---|---|
| 1. Resource saving  | 6. Ease of disassembly                                  |
| 2. Restricted use of substances with any environmental impact | 7. Reduction of environmental impact during production  |
| 3. Life extension   | 8. Reduction of environmental impact during disassembly |
| 4. Simplification of work for reusing                         | 9. Reduction of environmental impact during disposal    |
| 5. Ease of recycling  |   |

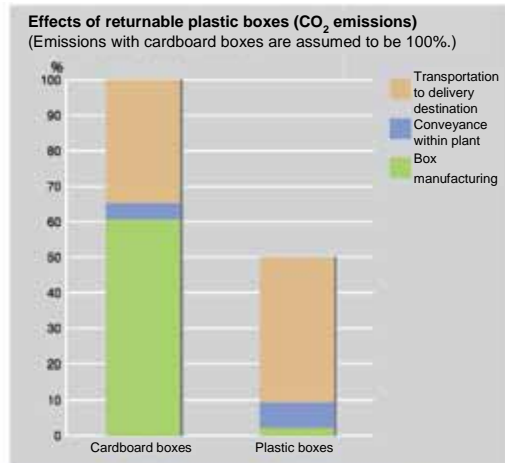
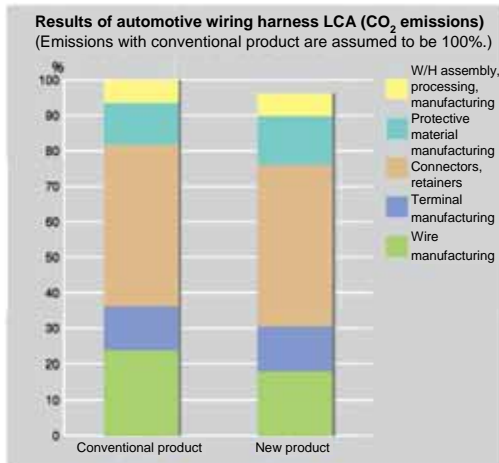
## LCA (Life Cycle Assessment)

We are conducting LCA to quantitatively evaluate the environmental impact of our products and use LCA results for product development, improvement, and design. To facilitate the dissemination and sound establishment of LCA in-house, we organized an LCA study group to provide LCA seminars and workshops for improving designers' skills, as well as progressing with database creation.

In the Environmental Report 2003, we presented you with the results of automotive wire LCA and connector housing LCA conducted using software made by the Japan Environmental Management Association for Industry. Subsequently, using a model case of automotive wiring harness, we conducted LCA (CO<sub>2</sub> emissions until manufacturing stage) through comparison between a conventional product and new product (employs ISO halogen-free wires for automotive wires, halogen-free materials for protective materials). The result of this LCA are shown in the graph below, indicating that approximately 4% reduction of CO<sub>2</sub> emission can be achieved for the entire stage up to manufacturing.

To reduce the amount of waste at the transportation stage, we are pushing ahead with replacing cardboard boxes with returnable plastic boxes. The case model for this activity was also subject to LCA (CO<sub>2</sub> emissions), and the result is described below. CO<sub>2</sub> emissions were found to be reduced to approximately half.

We will continue to promote the practical application of LCA at all business stages, including product development and improvement, in order to help further reduce the environmental impact of products, and we will take efforts to constantly provide you with LCA information.



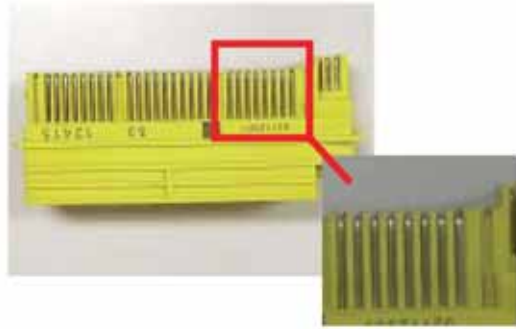
## Environmentally Friendly Products by SWS Group

As well as curtailing the use of lead, cadmium, hexivalent chromium, mercury, and bromine-based flame retardant (PBB, PBDE) controlled by the ELV Directive and RoHS Directive by EU, we are taking actions for the reduction in use of VOC (Volatile Organic Compounds: toluene, xylene, formaldehyde, etc.), plasticizer made of bis (2-ethylhexyl) phthalate that may be an endocrine disrupting chemical, and vinyl chloride resin that is a material for halogen products. We have completely disused cadmium and mercury, and basically prohibited the use of hexivalent chromium except for use in specific components.

Our conventional actions, such as the introduction of automotive halogen-free wires and elimination of hexivalent chrome and cadmium from electronic PCBs, were presented in previous environmental reports. Our new actions for environmental friendly products are described below.

### ■ Lead-free PCB connectors for airbag ECUs

We changed from solder plating that contains lead, to tinning, for the terminals (soldered to PCBs) of PCB connectors (connections to PCBs) used for airbag ECUs (in-vehicle computer), which has advanced environmentally friendly development. This technique will be applied to connectors developed in the future to reduce the amount of lead used in soldered joints.

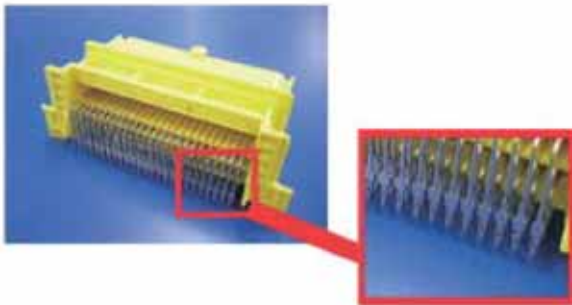


### ■ Lead-free solder for PCBs

For PCBs, we have already promoted elimination of hexivalent chrome from rustproof screws, eliminating cadmium from print ink, and employing a substitute for lead used as stabilizer. In addition to this, we adopted lead-free solder for wiring on PCBs, intending to further reduce the amount of controlled substances used.



### ■ Development of connectors not requiring solder



Although solder was conventionally required for electrical connection between PCBs and connectors, we succeeded in the development of a press-fit terminal (lead-free terminal) that enables electrical connection by being press-fitted alone in a PCB without solder, resulting in reducing the amount of solder used to zero.

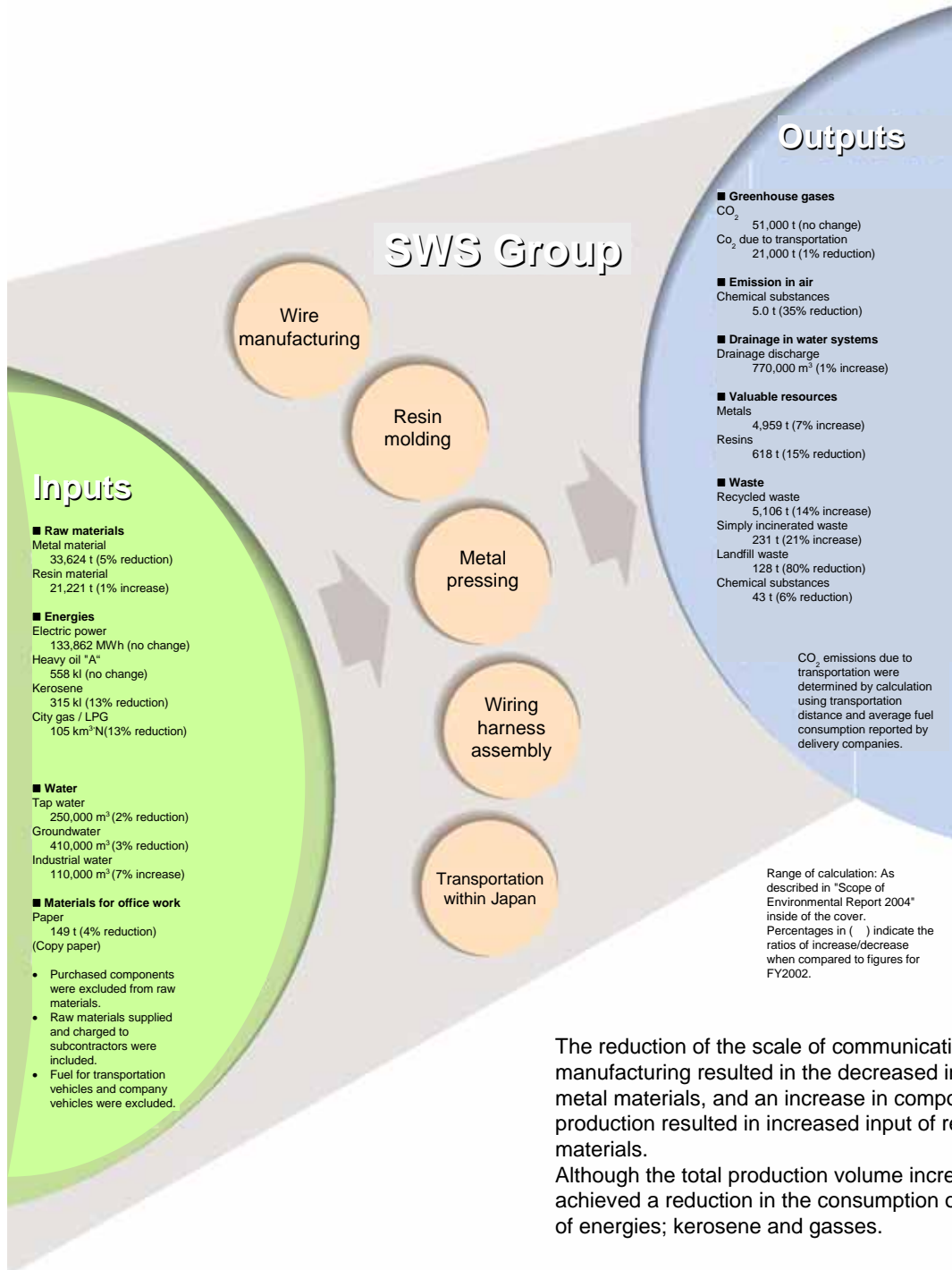
This new terminal is adopted for several vehicle models, contributing to the reduction of the amount of lead used.

# Production

## Material Flow

We are quantitatively tracing the environmental impact of SWS business activities, consisting of inputs represented by the consumption of raw materials and energies, and outputs represented by the emissions of greenhouse gases and waste. This allows us to formulate effective measures for environmental preservation activities.

In fiscal 2003, much progress in the zero emission activities enabled us to greatly reduce the amount of landfill waste, and we were able to maintain CO<sub>2</sub> emissions to a level equal to the previous year although production volume increased.

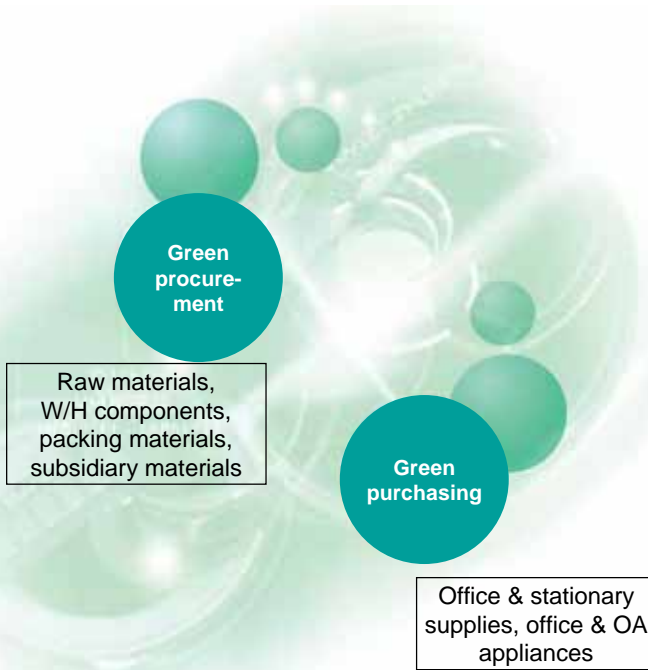


The reduction of the scale of communication wire manufacturing resulted in the decreased input of metal materials, and an increase in components production resulted in increased input of resin materials.

Although the total production volume increased, we achieved a reduction in the consumption of two types of energies; kerosene and gasses.

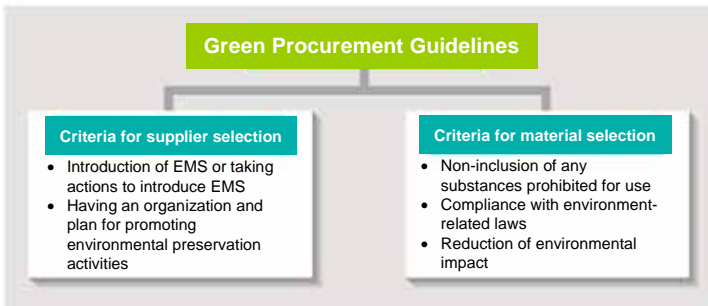
## Environmentally Friendly Actions in Material Procurement

For the procurement of indirect materials, we have thus far promoted green purchasing for office & stationery supplies etc., and we are currently pushing ahead with activities aiming at the disuse/reduction of substances with any environmental impact of raw materials and components used for our products.



### ■ Green Procurement Guidelines

We are evaluating suppliers from two viewpoints, described below, and are proceeding with preferential procurement.



### Green procurement

The ELV Directive and RoHS Directive represents laws and regulations that define the rules for disuse/reduction of substances with environmental impact used in products. To assist suppliers, we present them with the "Green Procurement Guideline (established in August 2004)" for encouraging the suppliers to enthusiastically work on environmental preservation activities, as well as requesting the suppliers to comply with the rules specifying the non-inclusion of lead, hexivalent chromium, mercury, cadmium, and bromine-based flame retardant (PBB, PBDE), which are prohibited for use according to the above directives.

Practically, we listed requirements for procuring raw materials, components, packing materials, and consumables, and these requirements include non-inclusion of any substances prohibited for use and cooperation with us to reduce the amount of substances that should be reduced. In addition, we declare preferential procurement from suppliers that acquired outside certification for their environmental management system, such as ISO 14001 certification, or from suppliers taking effective and systematic actions to promote environmental preservation activities.

### Green purchasing

To achieve the environmental preservation policy defined in the "basic rules for environmental management," in fiscal 1999 we established the green purchasing rules for office & stationery supplies, office appliances, and other articles required for general operation, and we are promoting the preferential purchase of eco-labeled products, Energy Star labeled products, and the like. We will perform activities to further advance green purchasing, for example, changing toilet paper to that recycled from waste paper released in-house.

## Energy, CO<sub>2</sub> Emissions

In fiscal 2003, we set a target of reducing the total amount of CO<sub>2</sub> discharged by the entire SWS Group in Japan, and we are currently working on energy saving actions, aiming at a 7% reduction in fiscal 2007 compared to fiscal 1990.

### ■ Greenhouse gas emissions (in Japan)

Although the target of CO<sub>2</sub> reduction we set for fiscal 2003 was a 2% reduction compared to fiscal 2002, the actual amount discharged in fiscal 2003 was 50,900 tons, the same level as the previous year, not accomplishing this target.

Total CO<sub>2</sub> reduction achieved reached approximately 700 tons, including the amount reduced in fiscal 2003. However, an increase in production volume, resulting in a 4.9% increase in sales compared to the previous year, cancelled out the effects of energy saving.

- \* An increase of CO<sub>2</sub> emissions since fiscal 2002 was due to the inclusion of Kyohritsu Hiparts Co., Ltd. in our group companies.

### ■ Energy consumption

The ratio of purchased electric power in total energy consumption was increased from 87% in fiscal 1995 to 93% in fiscal 2003, significantly reducing the ratio of fuel consumed.

We examined and determined energy saving items for production facility, lighting facility, air conditioning facility, power operated appliances, and gas/oil operated appliances, respectively. At each site, the group specializing in energy saving implemented measures with a fundamental rule "Stop, Change, Reduce," resulting in CO<sub>2</sub> reduction of 700 tons a year. Including the effects of continued activities, we have achieved CO<sub>2</sub> reduction of 2,000 tons or more.

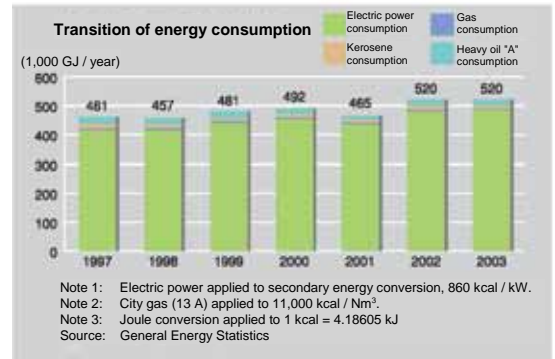
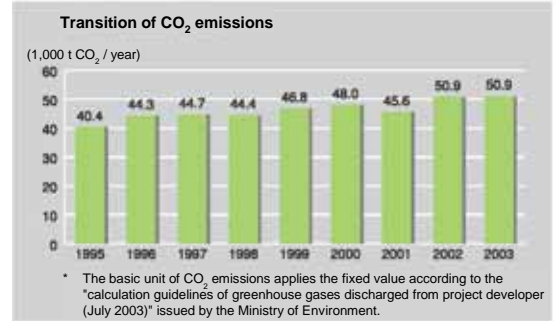
### ■ Energy saving example 1 <<Measures for air conditioning>>

Air conditioning consumes a large part of electric power used in an office. We have promoted a variety of measures for saving energy for air conditioning systems, such as introduction of inverter types, keeping set temperature within optimum range for cooling/heating, intermittent operation using a timer, and automatic control of air conditioner operation using the upper limit of contracted demand, which is called demand control. In addition to these, we adopted "Eco-Ice (ice-thermal storage air-conditioner)" for some sections for further energy conservation.

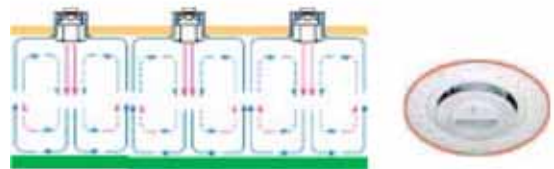
Since there is variation in room temperatures depending on the place, we installed circulation fans on the ceiling for further efficient operation.

### ■ Energy saving example 2 <<Measures for lighting>>

To save energy for lighting facilities in our offices and plants, we have implemented measures, including the introduction of inverter lighting systems, employment of high intensity fluorescent tubes, reduction of the number of lights in unpeopled places, use of dummy fluorescent tubes, installation of sensors in restrooms and locker rooms for automatic lighting control. In addition, energy saving patrols are conducted after regular working hours to check for unnecessary lighting.



Ceiling fan arrangement and forced circulation system (in-room image)



## CO<sub>2</sub> Reduction Measures Examples

### ■ Introduction of cogeneration facility

The Ibaraki Electric Wire Works introduced a cogeneration facility that uses a diesel engine generator (power: 2,880 kW), and began operating this facility from April 2004. This enables a private power generator to supply electric energy totaling 65% of power consumption at the premises.

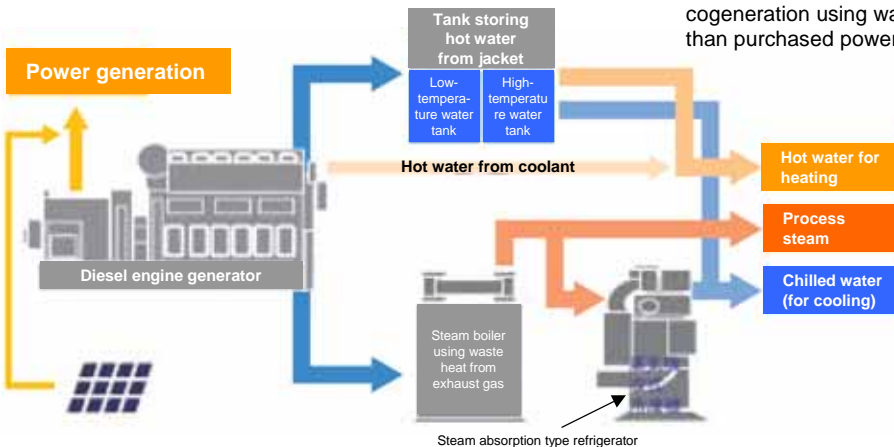
This facility is a photovoltaic hybrid cogeneration system with 3kW solar panels, and features the capability to purify exhaust gases using a diesel engine generator fueled by low-sulfur heavy oil "A."

This cogeneration facility, expected to generate electric energy of 14,300 megawatts a year, is equipped with an absorption type refrigerator that effectively uses waste heat from exhaust gases and coolant to air-condition areas of the plant. It is also equipped with an exhaust gas boiler that uses low-pressure steam and hot water.



### ■ Energy efficiency when cogeneration is introduced

The usual efficiency of power purchased from a power company is approximately 35%. The energy efficiency of power produced by cogeneration using waste heat is approximately 70%, much higher than purchased power, promising a substantial CO<sub>2</sub> reduction.



This flow chart of our cogeneration system demonstrates that waste heat is used for steaming and air conditioning (chilled & hot water) at the plant, which increases energy efficiency to the fullest, resulting in CO<sub>2</sub> reduction.

The high performance of using waste heat (total efficiency) was intensely evaluated and, as a result of the examination, we were selected as a company to be subsidized under the FY2003 project for the introduction of environmentally friendly high-efficiency cogeneration systems.

### ■ Introduction of photovoltaic generation facilities

In January 2004, we installed photovoltaic generation panels (approximately 3 m x 16 m) having a 10 kW rated power at the headquarters in Yokkaichi, and launched power generation.

Via an inverter unit, power is distributed to a part of the lighting and air conditioning systems and OA appliances used on each floor. Because the proposal and adoption of this new facility was a joint development project\*1 with NEDO (New Energy and Industrial Technology Development Organization, a national institute), it was decided that part of the equipment investment would be compensated from the national budget.

In addition to the above example, three compact solar panels were installed at the Sayama site. These panels charge batteries with power generated during daytime and this power is used for street lighting at night. With these improvements, we estimate an approximate 9-ton reduction in CO<sub>2</sub> annually.

\*1 A project designed to encourage companies to introduce new systems.

Government subsidies are available for part of the costs of introducing these systems. The intention is to contribute to the high-efficiency use of oil, resulting in a saving in energy and the reduction of carbon dioxide discharge.



Solar panels on the roof of the headquarters building, and a board indicating the panel operation state



Solar panels at Sayama site and light



## Logistic Streamlining Actions

The amount of greenhouse gases at the logistics stage has been increasing significantly over recent years. We are confronting environmental issues while promoting the enhancement of transportation efficiency, reduction of CO<sub>2</sub> emissions, and reuse of packing materials.

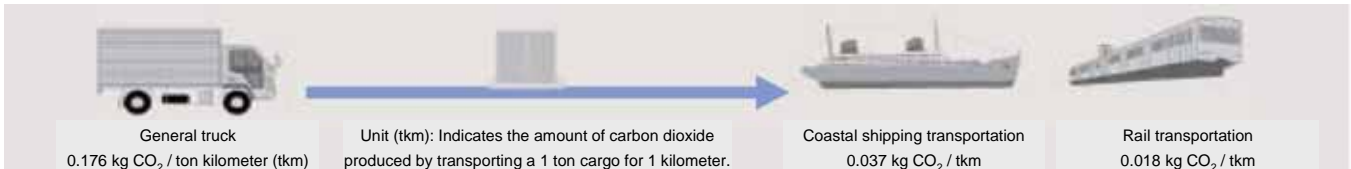
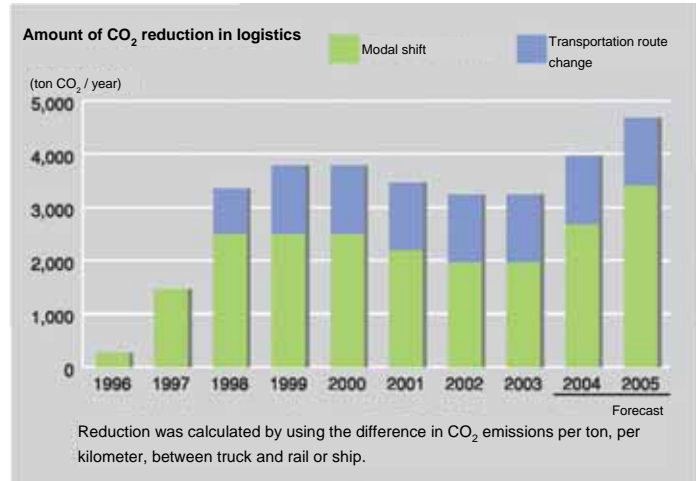
### ■ Modal shift

From 1996 we began taking actions for a modal shift regarding the long-distance transportation of products. Until the end of fiscal 2003, we replaced the means of transportation with rail or shipping for some deliveries, mainly to the Kyushu district, contributing to a reduction in CO<sub>2</sub> emissions.

In fiscal 2004, we plan to make a change to rail transportation for delivery to the Tohoku district, aiming at the further reduction of CO<sub>2</sub> emissions.

### ■ Review of transportation route

Previously, finished products and work-in-process products that were imported were first amassed at the Yokkaichi site, and then delivered to group companies and customers. Establishing a logistics center in Toyota allowed us to greatly shorten the transportation route, again contributing to the reduction of CO<sub>2</sub> emissions.

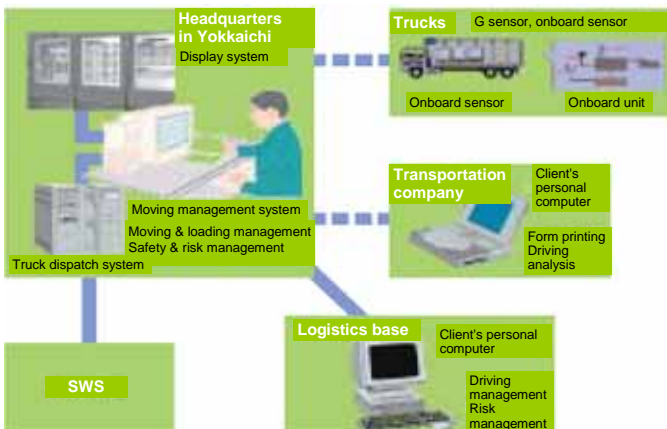


### ■ Truck transportation management system in Japan

A transportation management system, named "clear-at-a-glance system," is a tool for tracing the current position and driving condition of every truck. G sensors and GPS units are mounted on the trucks, making it possible to obtain data for the number of jack-rabbit starts and sudden braking, and data for idling time.

Managing this data makes any wasteful consumption of fuel clear at a glance and we are feeding these results back to the transportation company to improve fuel efficiency.

This system was mounted on 110 trucks in fiscal 2003 and there are plans to have them mounted on further 40 trucks this year.



Onboard unit



## Waste, Recycled Products

Aiming to form a recycling-based society, we are implementing procedures for reducing the amount of landfill waste to zero, enlarging the range of recycled products and cutting down the amount of simply incinerated articles and reducing the total amount of waste.

### Waste emissions

With company-wide efforts taken to reduce the amount of landfill waste, we were able to drastically reduce landfill waste from 52% in 1998 to 2% in fiscal 2003.

This resulted from our efforts to achieve a target of "zero emission," at all of our sites in Japan by the end of fiscal 2004. Thirty-two out of 38 sites, including group companies in Japan, have already achieved this target, with six remaining sites expected to achieve it by the end of the year.

With this improvement it is forecast that the original amount of landfill waste, which was as much as 3,000 tons, will be reduced to zero.

The disposal of general waste (combustibles) is being changed from simply incinerating to disposal in a facility that uses waste heat effectively.

### Waste plastic recycling examples

At the Suzuka Plant, waste plastics that are difficult to sort are used as fuel to generate power (thermal recycling).

Forecasting that a future increase in production volume will be accompanied by an increased amount of waste plastics, we have examined changing to more advanced recycling (reusing and material recycling). For some types of waste plastics, such as wire insulation material, we instructed the departments that discharge this waste to ensure the accurate sorting of waste plastics. This resulted in more material recycling.

Currently, waste plastics are recycled into square block that are substitutes for conventional wooden block, and are recycled into raw materials used in protective materials for the transportation of electrical products.



Wire insulation material



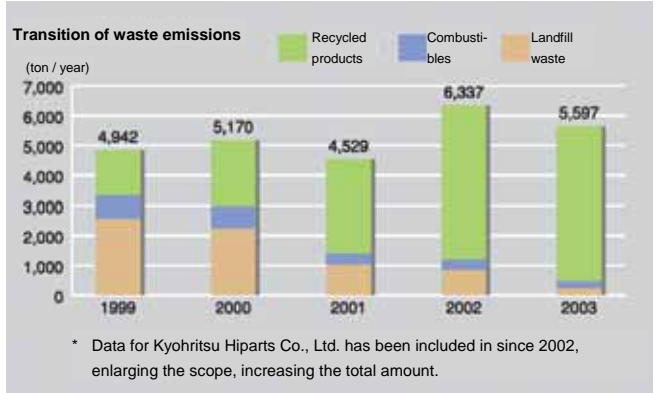
Plastic square block



Protective materials for transporting electrical products

### Reuse of overseas packing materials

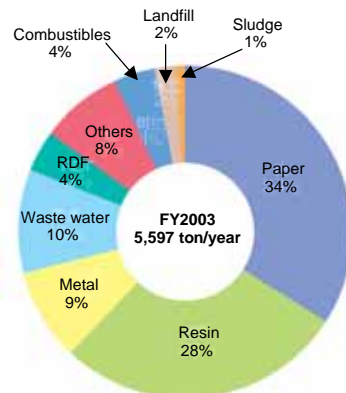
An effective use of resources is made by reusing packing materials used for finished and work-in-process products shipped from overseas. We have sent packed products with extra empty packaging when delivering overseas so that it can be used for delivering products back to Japan. The promotion of local procurement, however, does not require sending empty packaging to some areas, resulting in the enhancement of transportation efficiency and reduction of CO<sub>2</sub> emissions.



### Waste reduction actions

The graph below shows the ratios of waste discharge in fiscal 2003, with paper discharge accounting for 34% — the largest. Although the ratio of articles unable to be recycled is approximately 7%, we intend to decrease this figure close to zero through zero emission activities and sludge treatment promotion. In fiscal 2004, we are striving to achieve a target of reducing the total amount of waste by 2% compared to the previous year.

### Ratios of waste discharge



## Other Improvement Examples

At the time we acquired ISO 14001 certification, we implemented environmental measures primarily for paper and waste reduction and electric power saving. Considering our primary approach, and requiring of ourselves further sustainable methods, we are working on environmental preservation activities in accordance with our group policies; starting from what we can do, doing it speedily, making the change, and producing a better result.

### ■ Fuel from waste food oil (bio diesel fuel)

It is reported that the amount of food oil we consume yearly is approximately 2,000,000 tons in Japan. Waste food oil released from restaurants and food-related companies are collected and then recycled into animal feed, soap, paint, etc. In addition, waste food oil can be remanufactured as BDF (bio diesel fuel), a new fuel for vehicles. The Suzuka Plant and Yamagata Sumidenso took the initiative to use BDF as fuel for minibuses, commencing the service of these minibuses from fiscal 2004.



- Usable in diesel internal combustion engines without being processed.
- Has almost the same consumption as light oil.
- Causes no extreme diminishing of power.
- Keeps the inside of the engine and cylinders clean.
- No adverse effect on the engine even when mixed with light oil.
- Capable of reducing sulfur content to 80 ppm or less.
- Reduces black smoke emissions to 1/5 (one fifth) to 1/3 (one third).
- Cost per liter is less expensive than light oil.

### ■ Water resource conservation

In 2004, we introduced water-saving urinals, made in Denmark. These were installed in the gentlemen's rest rooms at the headquarters building with the purpose of water resource conservation and global environmental preservation.

These urinals are named "Uridan," and are provided with a urine drain filled with a special blue liquid "Urilock." "Urilock" consistently floats on the top of urine, completely preventing urine odor from being released into the air. This is a mechanism unique to this product called "waste trap" that prevents odor release without the use of water.



### ■ Paper recycling example (toilet paper)

Toilet rolls generally use recycled paper so we have had the idea of using articles recycled from waste produced in-house, with a house brand attached to these articles. This is expected to increase the employees' awareness of waste sorting. With this idea, the Suzuka and Misono Plants decided to transport waste paper that is produced during their OA work, to a paper manufacturing company and to use the toilet rolls recycled from our own waste paper.



## Eco-Activities at Suzuka Plant

### ■ Principles for Suzuka Eco Club's activities

1. Reduce the amount of waste by thorough sorting and collection of waste, take appropriate measures to prevent waste from being released, and increase the recycling ratio.
2. Patrol each workplace to make employees aware of wasteful consumption of electric power.
3. Provide employees in each workplace with environmental training and instruction for correct waste sorting and collection, and take actions to increase their environmental knowledge.

This club is subject to a change in members each year, and presently consists of 28 members after male members joined.



### ■ Revision of waste sorting sheet

The old waste sorting sheet was written by hand. The Eco Club word processed this sheet and added a lot of illustrations, making it easier to understand.



### ■ "Challenging Improvement Presentation Convention"

The Eco Club's activities were announced at the "Challenging Improvement Presentation Convention" sponsored by the Suzuka Industry Club and was participated in by 21 organizations, including companies and university-associated bodies in Suzuka City. Ms. Hanayo Omachi made a presentation at this convention, which was reported by local media.



### ■ Instructions on boxes and 5S rule for storage places

The Eco Club standardized all instructions (including illustrations) on sorting boxes to ensure correct sorting in all departments.



### ■ Tours to other companies

The Eco Club tours other companies to study environmental activities at these companies as good models for their activities.



At Suzuka Fuji Zerox



At Honda Motor



At Yono PET Bottle Recycling



At Mie Tyuou Kaihatsu

# Group Company Actions

This section presents summaries of environmental preservation actions taken by the 7 group companies in Japan and 2 group companies overseas, in fiscal 2003.

## Acquisition of ISO 14001 certification

Kyushu Sumidenso, Ltd.	November 2000
Hokuriku Harness, Ltd.	November 2000
Toyo Harness, Ltd.	November 2000
Sumidenso Platech, Ltd.	September 2000
Kyohritsu Hiparts Co., Ltd.	December 2003
Yamagata Sumidenso, Ltd.	November 2001
Tohoku Sumidenso, Ltd.	November 2001
Sumi Motherson Innovative Engineering, Ltd. (India)	March 2000
International Wiring Systems (Phils.) Corporation (Philippines)	July 2000

## Kyushu Sumidenso, Ltd.

### Headquarters location

968-5 Aza-Nakanose, Oaza-Ishii, Hita, Oita

At Kyushu Sumidenso, Ltd. we started promoting full-scale environmental preservation activities from October 1999 and acquired ISO 14001 certification in November 2000. Since then, we have continuously enhanced our environmental activities, with the involvement of all employees, by promoting the reduction of electricity consumption, amount of waste, manufacturing loss, and quantity of purchased paper in both plants and offices.

In February 2004 our headquarters and Oita Plant were accredited with achieving the "zero emission" of waste, and our Shimane and Kumamoto Plants are expected to achieve "zero emission" by the end of the first half of the same year. With a view to raising environmental awareness, in July 2004 we held the first environmental exhibition at an outside facility (not in-house), in Hita City, Oita Prefecture, where our headquarters and Oita Plant are located. This exhibition was designed to share awareness of environmental preservation with local people, not only among our employees, by presenting our environmental preservation actions to visitors. With these activities, we aim to become a better company that maintains a close relationship with the community.



Hita Central Community Center



Special lecture presentation at hall



Environmental exhibition (sciences in hall)



Environmental exhibition (exhibits)



## Hokuriku Harness, Ltd.

### Headquarters location

6-10 Yoneizumi-cho, Kanazawa, Ishikawa

Hokuriku Harness, Ltd. engages in the wiring harness business in Ishikawa Prefecture, a place blessed with plentiful water, sourced from a sacred mountain, Mt. Hakusan, and having Noto Peninsula rich in fresh seafood. With its abundance of nature, Ishikawa Prefecture focuses on tourism, and is actively taking actions for global environmental preservation. For example, Ishikawa Prefectural Government acquired ISO 14001 certification for its building on February 23, 2004. Our ISO 14001 activities are very important to prevent the degrading of the environmentally friendly image of Ishikawa Prefecture, so the employees fully understand this situation and voluntarily participate in these activities.

In the fourth year after acquiring ISO 14001 certification in November 2000, global environmental preservation activities have been soundly established among the employees, and we are intending to further promote these activities. From July 17 to 18, 2004, our first environmental exhibition was held at the headquarters in Kanazawa, further fostering employees' understanding about environmental preservation. Although this exhibition was relatively small and held on weekdays, we had many visitors from outside organizations, which has greatly encouraged our employees.

"Zero emission," a target maintained since last year, is envisioned to be achieved by the end of the first half of 2004, and we are presently moving into the final stage. Achieving this target will definitely contribute to the "enhancement of sustainable management" at the SWS Group, so we are very eager to work towards this achievement.

Through the activities of four years, we have learnt that global environmental preservation cannot be implemented until we ourselves become involved. With the all employees involved, we will continue improvement for ourselves and for posterity.



Environmental exhibition held in-house

## Toyo Harness, Ltd.

### Headquarters location

25-2 Tuskada, Otsuka-cho, Matsusaka, Mie

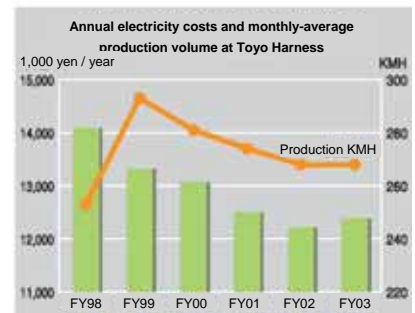
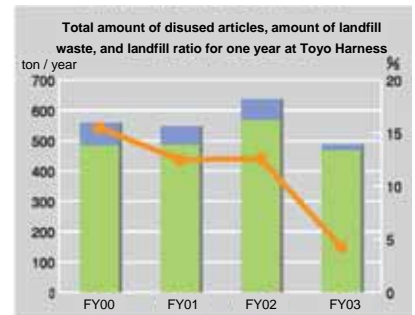
At Toyo Harness Ltd., we started promoting full-scale environmental preservation activities from October 1999, acquired ISO 14001 certification in November 2000 and have continued these activities since then. Last year we performed activities, aiming to achieve "zero emission," which was the core of our environmental preservation activities that year. As a result, the Kameyama Plant was accredited with achieving "zero emission" as of March 1, followed by the accreditation of six remaining sites in June, which means that "zero emission" has been achieved at all our plants.

Our main activities include thorough waste sorting for recycling promotion, changing our disposal company and recycling waste by delivering it to a city disposal field, not to a disposal company that landfills waste. Through TPS activities, we have endeavored to reduce the amount of articles unnecessarily disposed of, and promoted the disuse of cardboard boxes.

In addition to continuing the "zero emission" activities, we will take efforts to reduce the total amount of disused articles. As shown in the graph in the lower-right section, activities to cut down power consumption resulted in a steady reduction in electricity costs since fiscal 1998. Major actions we have taken are compressor improvements (inverter introduction, miniaturization, pipe enlargement) and timer installation in air conditioning systems.

Not only improving equipment, we will promote increasing production efficiency, which is a mission for the manufacturing industry, and shortening equipment operation time in order to further reduce power consumption.

In the future, we intend to promote activities focusing on the policy "Reduction, Reuse" to reduce the amount of waste itself, as well as confronting the priority challenge, which is the early implementation of material recycling for cut wire scraps using a strand separation device currently under trial operation.



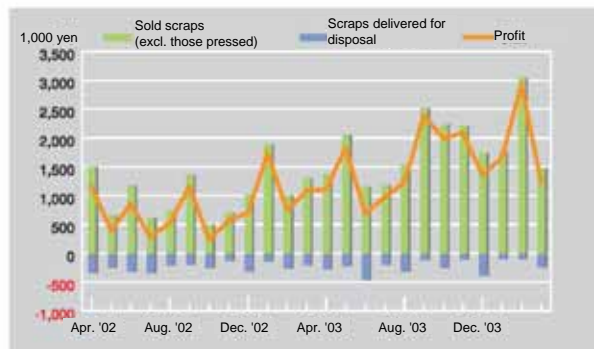
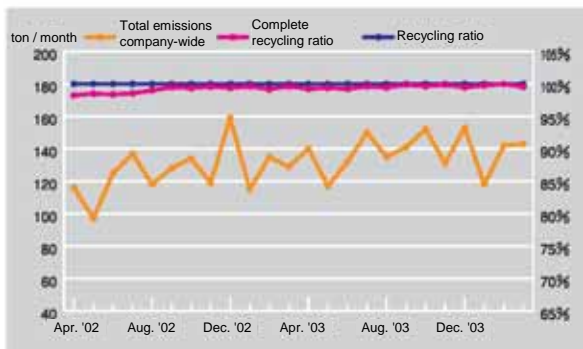
## Sumidense Platech, Ltd.

**Headquarters location**  
127 Nakashimizu, Gotenba, Shizuoka

In fiscal 2003, we implemented actions targeted at reducing the ratio of material loss and improving the sorting accuracy, aiming at increasing the ratio of complete recycling (no indirect landfill waste) to 99.8% (indirect landfill: 0.2% or less). This target was achieved by the average figures in the second half of the year. In addition, we continued actions to reduce the emissions of direct landfill waste from April 2001, and were finally accredited as a "zero emission" company as of March 1, 2004.



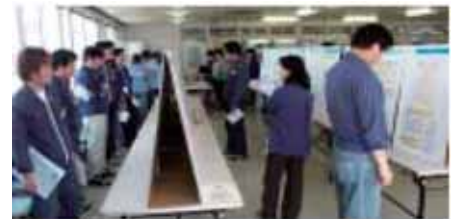
For building F, which has been in use from fiscal 2004, we are aggressively introducing green energy saving equipment. These include Hf fluorescent lights, air conditioning systems with ventilators, thermal storage air-conditioners for offices and chiller units for molding coolant tanks.



## Kyohritsu Hiparts Co., Ltd

**Headquarters location**  
3-137 Nisshin-cho, Kita-ku, Saitama, Saitama

At Kyohritsu Hiparts Co., Ltd., we produce wiring harnesses and components such as terminals and connectors. Our headquarters are in Saitama Prefecture, with production bases in the Kyushu and Tohoku districts and The Philippines.



In-house environmental exhibition

In January 2003 we launched the introduction of the ISO 14001 environmental management system at headquarters and sites in Iwate area, and we acquired ISO certification in December of the same year. Giving high priority to "zero emission" (elimination of landfill waste), we entered into a contract with a disposal company that supports thermal recycling. This resulted in a reduction of the landfill ratio from 26.3% in April to 0 (zero) % in December, as well as a reduction in disposal costs.



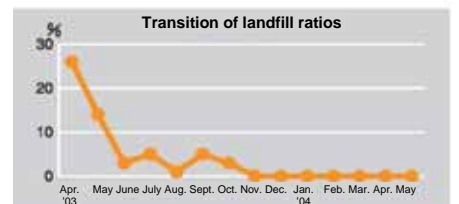
Clean-up activity for area surrounding the premises

It is forecast that the transfer of the external parts business to us will be accompanied with increased waste emissions and increased power consumption. We will take actions, including:

- (1) Improvement of the ratio of molding material recycling
- (2) Introduction of an inverter-type lighting system and private power generators (180 kW, 4 generators) in the molding plant, which operates day and night.

These actions aim at cutting down the amount of waste produced, saving electric power and reduction of costs.

In 2004 we plan to emphasize education activities about environmental preservation, holding a first environmental exhibition for example. We will strive to acquire ISO 14001 certification for the Kyushu Plant, expanding the application of ISO 14001 certification throughout the company.



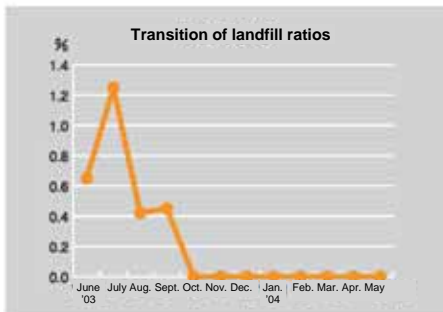
## Yamagata Sumidenso, Ltd.

**Headquarters location**  
1182 Ikeguro, Nanyo, Yamagata

At Yamagata Sumidenso, Ltd., we have continued with environmental activities since acquiring ISO certification in November 2001, maintaining the slogan "all members involved in the continuous improvement of environmental activities."

Top priority action in fiscal 2003 was the correct sorting of disused articles to promote "zero emission." We selected a disposal company that can recycle a mixture of metal and resin still buried in the ground, which enabled us to recycle all of the waste discharged, resulting in "Certification for Achievement of Zero Emission," first in the SWS group of companies.

At the second environmental exhibition held at the external public facility, we presented the results of the activities promoted by all members, and this exhibition ended in success. Environmental preservation will benefit corporate management. The primary target is not to produce any waste. Following this direction will reduce the ratio of loss, leading to the improvement of production efficiency. This is our president's belief and we bear this in mind while implementing the activities with the involvement of all of our employees. From the viewpoint of coexistence with the local community, we will give thought to what we can contribute to the community and the environment as a corporate citizen, and take appropriate action.



Certification for Achievement of Zero Emission, awarded first in group companies



Environmental exhibition in public facility

## Tohoku Sumidenso, Ltd.

**Headquarters location**  
23-3 Dai8-Chiwari, Oaza-Kubo, Iwate-cho, Iwate-gun, Iwate

### Aiming to reduce environmental impact

Tohoku Sumidenso, Ltd., with four business sites in Iwate Prefecture, is the northernmost site among the SWS group of companies in Japan.

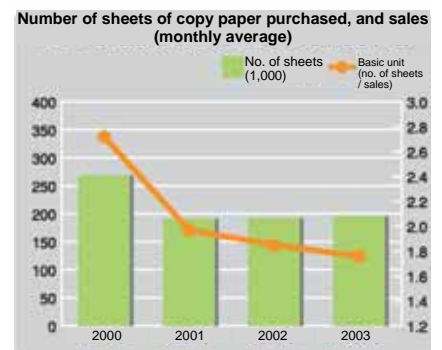
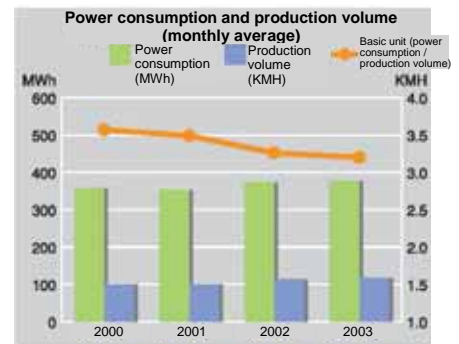
In 2001 we acquired ISO 14001 certification after an expanded scope audit for EEMS, and three years have passed since we began our EMS activities.

Production system reorganization in Japan has caused changes in our circumstances more frequently and more suddenly than before. In these circumstances, we are continuing to steadily reduce the amount of disused articles. We are also reducing the energy consumption required for the same production volume, once again contributing to environmental preservation.

In terms of disposal, we were able to achieve "zero emission" with the amount of direct landfill waste reduced to zero.

To decrease the number of sheets of paper used for OA work, we have promoted the disuse of printed forms and print using both sides of office paper.

With the Automobile Recycling Law to be enforced in the next fiscal year, we believe that component manufacturers, including ourselves, have a duty to design and develop products such as wiring harnesses, using materials with less environmental impact. As a member of the SWS Group, we will strive to achieve this.





## Group company overseas actions

### Sumi Moterson Innovative Engineering, Ltd.

- Production item:  
Manufacture of molded parts and metal terminals, assembly of components
- ISO 14001 certification:  
Acquired in March 2000.

- Actions

We are continuing improvement through organized and aggressive strategies for environmental management. After identifying all operations and processes directly and indirectly related to the environment, we are taking actions that are effective in achieving optimal production, particularly in terms of molding materials, oils, power, paper and packing materials. These actions are in accordance with the environmental management plan and operation control procedures.

- The current environmental management plan and a part of the results are described as follows:

No.	EMS plan	Unit	Immediately after acquiring certification	FY2003	Improvement effect
1	Reduction of molding loss	%	4.9%	1.5%	70%
2	Reuse of packing material	Ratio to sales (%)	1.26%	0.66%	48%
3	Energy saving	kWh / actual operation time	18.4%	13.6%	26%
4	Reduction in waste oil	Liter / month	230	128	44%

- Through the continuous activities above, we are making efforts to reduce resource depletion and control air, water, soil, and noise pollution. In addition, we have 23 operation control procedures to implement measures to prevent global warming, reduce the amount of landfill waste and hazardous substances, and control other safety aspects related to our operational activities.



Company building of SMIEL

### International Wiring Systems (Phils.) Corporation

- Production item:  
Assembly of wiring harnesses, manufacture of plastic parts
- ISO 14001 certification:  
Acquired in July 2002.
- Established in June 1990, and began operation from June 1991, two weeks before the eruption of Pinatubo Volcano. The number of employees is 5,600.

- Actions

We introduced a facility that purifies wastewater discharged from the plant, cafeteria, and other sites, and are conducting both physical and biochemical treatment using this equipment. This has resulted in compliance with the regulation values prescribed for wastewater. Water quality management for specified items is ensured by measurements performed by a person charged with using an appropriate gauge. In the future we are planning to reuse wastewater for toilet flushing, etc.



Aeration tank for wastewater treatment



ISO 14001 Certification



Wastewater treatment facility (capacity: 220 t / day)

# Enlightenment and Education

## Environmental Education Promotion System

### ■ Environmental education programs

Under the slogan of "eco-activities by all members," it is important that all members, from new employees to management, recognize environmental issues and promote environmental preservation in a united effort.

At SWS, we have built an education system in accordance with the five employee ranks, and provide education programs suitable for the respective ranks. We hold an environmental exhibition every year, refreshing the minds of employees and giving opportunities to improve awareness of the environment.

Education program	Target	Education contents
New employee education	New employees	General education on environment
General education (Revision education)	General employees	Actual situation of environmental preservation activities
	Mid-level employees	Environmental preservation activities focusing on operational management
	Promoted employees	Status of our environmental preservation activities and roles of managerial staff
	Person recommended by superior	Contents of ISO 14001 standard and techniques for audits
Environmental lecture	Executives, management-level employees, general employees	Presentation of environmental actions actually performed by environmentally advancing companies etc.



Scene of general education class (waste sorting guidance)



Advanced education (for mid-level employees)

## Enlightenment & Publicity

For the promotion of environmental preservation it is necessary to report the current status of environmental actions to every employee and constantly increase their awareness of the environment.

We continue to send information to employees by providing a variety of events, displaying posters and releasing publications such as environmental news and company journals.

### ■ Issue of environmental news

The latest environmental news is prepared, distributed to relevant departments and displayed on electronic bulletin boards to raise employees' awareness.



### ■ Issue of environmental policy card

Original environmental cards were created for each area and issued to all employees with instructions that they always be carried.



### ■ Setting up an environmental exhibition corner

In response to a request from the employees at SWS headquarters, we set up a corner for displaying the latest environmental information, including posters and news. Revising these posters and news every month prompts the employees to increase their awareness of the environment, supporting environmental preservation activity PR.



### ■ Environmental clean-up activity

As part of our social activities, we have performed clean-up activities for the area surrounding our premises since 1998. Currently, this activity is regular monthly work at all sites in Japan.



# Communication

## ■ Awarded "Kansai Recommended EcoOffice"

The Kansai Council has promoted the "Kansai EcoOffice Declaration" campaign and awarded the "Kansai Recommended EcoOffice" to offices recognized as leaders in superior environmental actions among the participants in this campaign. Our office was a recipient of this award from 1,882 offices that participated and 98 offices that applied.

[Our highly valued actions]

- Turning lights off after use and turning off the power to OA appliances etc., when not in use
- Introduction of timers or sensors in all offices to automatically turn the lights off when unnecessary and the use of invertors for all lights
- Attachment of stickers (energy saving mode already set) to personal computers to increase awareness of power saving
- Issue of environmental news and display of posters to make employees aware of the environment, and implementation of inspection patrols

## ■ Presentation at the Leading Industry Exhibition

A presentation was made for the second year at "The 2<sup>nd</sup> 21st Century Leading Industry Exhibition" in Mie held in May 2004 at the Yokkaichi Dome. Over two days our booth had 850 visitors, many listening eagerly to an explanation given during the presentation of the Virtual Visual Assembly System, which was done for the first time this year.

## ■ Holding in-house environmental exhibition

At SWS sites we hold in-house environmental exhibitions with the intention of increasing the environmental awareness of employees, conveying the latest information and providing environmental education for employees. The number of sites that hold this exhibition each year was increased to 12 sites, including group companies in fiscal 2003, and a total of 3,000 persons participated.

The contents of this exhibition included the panel presentation of general global environmental issues, progress of our actions and future challenges, and the display of recycled products and Eco-Cars.

## ■ Support for NPO activity

In fiscal 2004, we are continuing to support the "Earth Project 21" (NPO activity) that promotes tree planting in Nepal, from the previous year.

In fiscal 2003, we welcomed children and teachers on a tour from Nepal to our plant.

## ■ Information release through home page

We have released our environmental reports on our home page since 2001, with many readers having viewed these reports. English versions have also been provided since 2002, making the information available for people overseas and enlarging the scope of target readers. We intend to further enhance this system of releasing information.



# Compliance with Laws and Regulations

With an increased demand for environmental preservation, national and local governments have formulated and enforced environmental laws and regulations. We are promoting a variety of environmental preservation activities, considering compliance with these laws and regulations as a minimum requirement.

## ■ Setting up Compliance Committee

In April 1, 2004, we set up a Compliance Committee to examine and implement compliance measures and give instructions to the employees. We intend to establish a compliance system and consistently raise the employees' awareness for compliance in order to prevent a future embarrassment.

The roles of this committee are:

- (1) Planning and implementation of measures to perform business activities according to applicable laws and morals.
- (2) Investigation of important laws that may need organizational or systematic compliance. Research of morally wrong examples, and giving instructions regarding these laws and examples, the prevention of any reoccurrence and a preventative action plan and dissemination to in-house departments and group companies.
- (3) Receipt of, and response to, problems and reports concerning compliance.

## ■ PCB storage

PCB waste is carefully controlled according to the Law Concerning Special Measure against PCB. Currently stored waste that contains PCB are high-voltage capacitors and toroid ballasts at the Suzuka Plant, and high-voltage capacitors in the group company. The storage state is reported to the administrative office every year.



PCB storage space

PCB storage method



Constant measurement device for nitrogen and phosphorus

\*1 COD: Chemical Oxygen Demand

	High-voltage capacitor	Transformer	Toroid ballast
Suzuka Plant	2	2	131
Hokuriku Harness	1		

## ■ Effluent control

To conserve the water quality of Ise Bay, a total pollutant load reduction plan with respect to COD<sup>\*1</sup>, nitrogen and phosphorus content, was formulated with a target year of fiscal 2004. This is titled "the 5th total pollutant load control" and requires the conducting of measurements. In enclosed water areas, the amount of nutritive salt such as nitrogen and phosphorus is increased due to sewage, plant effluent and fertilization. With exposure to sunlight there is an explosive increase in the amount of single-cell algae, phytoplankton, large aquatic plants, etc. This is the reason for applying a total pollutant load control to Ise Bay and other aquatic areas.

In April 2003, the Suzuka Plant, subject to this control, introduced a device for constantly measuring phosphorus and nitrogen content, beginning the continuous monitoring of levels for these substances in addition to COD.

## ■ Soil pollution investigation

Our soil investigation was comprehensive and assessed whether any hazardous substances had been used on land before we purchased it and that which is currently occupied by our sites and group companies in Japan. As a result, four SWS sites, which occupy land where these substances had been used in the past, conducted voluntary soil investigation, and it was verified that no pollution had occurred.

This fiscal year, we plan to expand the scope of soil investigation to cover group companies worldwide.

## ■ PRTR investigation

PRTR investigation is conducted for the SWS sites and group companies (manufacturing plants) in Japan every year. In fiscal 2003, four SWS sites and one group company completed registry.

## ■ Environmental complaints

In fiscal 2003, there were no environmental complaints to the SWS sites or group companies in Japan.

# Environmental Data

## Headquarters, Yokaichi area

Air	Item	Equipment	Regulation value	Previous year	FY2003
	Smoke & soot	Boiler	0.05 g/Nm <sup>3</sup>	0.005	0.005
	Sox	Boiler	1.33 m <sup>3</sup> /h	0.004	0.002
	Nox	Boiler	150 ppm	43	61

	Item	Regulation value	Previous year			FY2003		
			Max.	Avg.	Min.	Max.	Avg.	Min.
Water (release to sewerage)	Discharge (m <sup>3</sup> /day)	-	150	133	119	145	133	118
	pH	5.7 – 8.7	8.5	7.0	5.9	8.7	7.5	6.1
	SS	300 mg/l	59.0	31.8	4.0	130.0	58.0	12.0
	BOD	300 mg/l	225.0	76.5	5.0	197.0	87.0	17.0
	Mineral oil	5 mg/l	1.0	1.0	1.0	1.0	1.0	1.0
	Animal & vegetable oils	30 mg/l	16.0	5.6	1.0	5.0	3.0	1.0
	Phenol	1 mg/l	0.500	0.300	0.100	0.100	0.100	0.100
	Copper	0.1 mg/l	0.040	0.030	0.020	0.030	0.025	0.020
	Zinc	5 mg/l	0.483	0.212	0.014	0.796	0.258	0.023
	Soluble iron	10 mg/l	0.360	0.115	0.020	0.800	0.020	0.020
	Soluble manganese	10 mg/l	0.020	0.020	0.020	0.030	0.020	0.020
	Total chrome	2 mg/l	0.040	0.040	0.040	0.040	0.040	0.040
	Fluorine	15 mg/l	0.100	0.100	0.100	0.100	0.100	0.100
	Cadmium	0.1 mg/l	0.001	0.001	0.001	0.001	0.010	0.001
	Cyanogen	1 mg/l	0.100	0.100	0.100	0.100	0.100	0.100
	Organophosphorus	1 mg/l	0.100	0.100	0.100	0.100	0.100	0.100
	Lead	0.1 mg/l	0.010	0.010	0.010	0.010	0.010	0.010
	Chrome (VI)	0.5 mg/l	0.040	0.040	0.040	0.040	0.040	0.040
Arsenic	0.1 mg/l	0.005	0.005	0.005	0.005	0.005	0.005	
Mercury	0.005 mg/l	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	

Noise	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
	Morning & evening	65 dB	63	55	58	51
	Daytime	70 dB	63	57	63	56
	Night	60 dB	59	53	59	53

Vibration	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
	Daytime	65 dB	49	38	45	39
	Night	60 dB	39	30	40	31

## Suzuka Plant

Air	Item	Equipment	Regulation value	Previous year	FY2003
	Smoke & soot	Boiler	0.3 g/Nm <sup>3</sup>	0.005	0.005
	Sox	Boiler	0.71 m <sup>3</sup> /h	0.04	0.03
	Nox	Boiler	180 ppm	80	71

	Item	Regulation value	Previous year			FY2003		
			Max.	Avg.	Min.	Max.	Avg.	Min.
Water (release to sewerage)	Discharge (m <sup>3</sup> /day)	-	708	618	536	772	639	590
	pH	5.8 – 8.6	7.2	7.0	6.8	7.3	7.1	6.9
	BOD	25 mg/l	4	2	1	7	3.2	1
	COD	25 mg/l	7	5	2	10	4.7	1
	SS	70 mg/l	6	4	2	7.0	2.9	1 >
	Mineral oil	1 mg/l	1 >	1 >	1 >	1 >	1 >	1 >
	Animal & vegetable oils	10 mg/l l	1 >	1 >	1 >	2	1 >	1 >
	Phenol	1 mg/l	0.5 >	0.5 >	0.5 >	0.1 >	0.1 >	0.1 >
	Total nitrogen	60 mg/l	7.06	4	0.72	7.9	4.7	2.9
	Total phosphorus	8 mg/l	1.6	0.9	0.2	1.8	0.7	0.1
	Colon bacillus	3000 pcs./l	350	72	0	2900	434	3
	Copper	1 mg/l	0.02	0.02 >	0.02 >	0.04	0.03	0.02
	Zinc	5 mg/l	0.151	0.124	0.096	0.41	0.40	0.39
	Soluble iron	10 mg/l	0.07	0.06	0.05	0.10	0.08	0.06
	Soluble manganese	10 mg/l	0.02	0.02	0.02	0.05	0.05	0.04
	Chrome	2 mg/l	0.04 >	0.04 >	0.04 >	0.04 >	0.04 >	0.04 >
	Fluorine	15 mg/l	0.2	0.1 >	0.1 >	0.1 >	0.1 >	0.1 >

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Noise	Morning & evening	65 dB	60	40	63	42
	Daytime	70 dB	62	45	67	49
	Night	60 dB	60	40	60	41

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Vibration	Daytime	65 dB	41	28	44	26
	Night	60 dB	38	23	43	24

## Misono

	Item	Regulation value	Previous year			FY2003		
			Max.	Avg.	Min.	Max.	Avg.	Min.
Water	Discharge (m <sup>3</sup> /day)	-	28	19	17	52	28	20
	pH	5.8 – 8.6	6.7	6	5.8	7.2	6.3	5.8
	BOD	25 mg/l	12	6	1.8	10	6.6	2.5
	COD	25 mg/l	19	16	8.1	18	15.3	11
	SS	70 mg/l	7.2	4	1.2	16	7.3	2

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Noise	Morning & evening	65 dB	56	47	52	49
	Daytime	70 dB	56	47	60	49
	Night	60 dB	55	47	52	48

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Vibration	Daytime	65 dB	29	21	31	22
	Night	60 dB	26	20 >	25	20 >

## Ibaraki Electric Wire Works

	Item	Regulation value	Previous year			FY2003		
			Max.	Avg.	Min.	Max.	Avg.	Min.
Water	Discharge (m <sup>3</sup> /day)	-	728	469	346	1,198	530	398
	pH	5.8 – 8.6	8.0	7.6	7.3	7.8	7.6	7.5
	BOD	25 mg/l	8	4.2	0.6	7.2	4	1.7
	COD	25 mg/l	18	5.0	2.8	4	3	1.9
	SS	40 mg/l	6.5	4.0	1.5	4	2	1.1
	Animal & vegetable oils	5 mg/l	1 >	1 >	1 >	1 >	1 >	1 >
	Copper	3 mg/l	0.05	0.02	0.01 >	0.07	0.03	0.02

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Noise	Morning & evening	65 dB	58	56	58	53
	Daytime	70 dB	59	57	59	55
	Night	60 dB	57	56	57	54

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Vibration	Daytime	65 dB	39	36	41	33
	Night	60 dB	39	38	40	36

## Sumidenso Platech, Headquarters

	Item	Regulation value	Previous year			FY2003		
			Max.	Avg.	Min.	Max.	Avg.	Min.
Water	Discharge (m <sup>3</sup> /day)	Groundwater consumption	1,177	709	100	1,098	689	100
	BOD	120 mg/l	1.1	0.8	0.5	0.5	0.6	0.7
	COD	120 mg/l	0.6	0.6	0.6	0.9	0.8	0.7
	Normal hexane	5 mg/	0.7	0.7	0.6	0.5	0.5	0.5

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Noise *1)	Morning & evening	45 dB	56	48	54	49
	Daytime	50 dB	56	47	55	50
	Night	40 dB	56	47	55	48

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Vibration	Daytime	60 dB	30	30	34	30
	Night	50 dB	34	30	35	30

\*1) Although there is a high level of background noise and the decibel level exceeds regulations, there have been no complaints from the surrounding neighborhood.

## Sumidenso Platech, Natsukari Plant

	Item	Regulation value	Previous year			FY2003		
			Max.	Avg.	Min.	Max.	Avg.	Min.
Water	Discharge (m <sup>3</sup> /day)	Top water consumption	8.0	6.6	0.0	7.6	7.2	0.0
	BOD	120 mg/l	17.0	9.0	1.0	54.0	22.3	3.3
	COD	120 mg/l	25.0	13.3	1.6	45.0	25.1	4.3
	Normal hexane	5 mg/	0.5	0.5	0.5	0.7	0.6	0.5

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Noise	Morning & evening	65 dB	56	48	59	46
	Daytime	70 dB	56	47	63	48
	Night	60 dB	56	47	56	42

	Item	Regulation value	Previous year		FY2003	
			Max.	Min.	Max.	Min.
Vibration	Daytime	70 dB	39	33	48	32
	Night	65 dB	39	30	47	30



## ■ FY2003 release and transfer of substances with environmental impact (PRTR law)

(The table below only includes data for substances handled in amounts of 0.1 t or more per year.)

	Class I specific chemical substance	Air	Water area	Soil	Solid waste	Sewerage
Headquarters, Yokkaichi area	Nickel	0.00	0.00	0.00	0.55	0.02
	Nickel compounds	0.00	0.00	0.00	0.00	0.02
Suzuka Plant	Antimony and its compounds	0.00	0.00	0.00	1.74	0.00
	Xylene	0.29	0.00	0.00	0.15	0.00
	Chloroform	0.02	0.00	0.00	0.81	0.00
	Toluene	0.75	0.00	0.00	0.50	0.00
	Lead and its compounds	0.00	0.00	0.00	0.69	0.00
	Bis (2-ethylhexyl) phthalate	0.00	0.00	0.00	37.23	0.00
	Poly(oxyethylene) nonylphenyl ether	0.00	0.00	0.00	0.23	0.00
	Bisphenol type A epoxy resin	0.00	0.00	0.00	0.04	0.00
Ibaraki Electric Wire Works	Ethylbenzene	0.64	0.00	0.00	0.00	0.00
	Xylene	0.99	0.00	0.00	0.00	0.00
	Toluene	0.45	0.00	0.00	0.00	0.00
	Poly(oxyethylene) nonylphenyl ether	0.00	0.00	0.00	0.13	0.00
	Bis (2-ethylhexyl) phthalate	0.00	0.00	0.00	0.60	0.00
Misono Plant	Bisphenol type A epoxy resin	0.00	0.00	0.00	0.00	0.00
	Lead and its compounds	0.00	0.00	0.00	0.31	0.00

### Group companies

Tohoku Sumidenso, Ninohe	Lead and its compounds	0.00	0.00	0.00	0.00	0.00
Toyo Harness, Kameyama	Xylene	0.39	0.00	0.00	0.40	0.00
	Toluene	0.91	0.00	0.00	0.39	0.00
Hokuriku Harness, Takaoka	Antimony and its compounds	0.00	0.00	0.00	0.00	0.00
Yamagata Sumidenso	N-cyclohexyl-2-benzothiazolesulfenamide	0.00	0.00	0.00	0.13	0.00
	Bis (2-ethylhexyl) adipate	0.00	0.00	0.00	0.30	0.00
Ichinoseki	Ethylene glycol	0.19	0.00	0.00	0.00	0.00
	Toluene	0.24	0.00	0.00	0.00	0.00
Kyoritsu Hiparts	Lead and its compounds	0.00	0.00	0.00	0.00	0.00
	Di-n-butyl phthalate	0.13	0.00	0.00	0.00	0.00
Fujisawa	Lead and its compounds	0.00	0.00	0.00	0.00	0.00
Sumidenso Platech	Di-n-butyl phthalate	0.00	0.00	0.00	0.00	0.00

## Third-Party Opinion

The environmental preservation policy and action guidelines were established in 1995, followed by the issue of environmental reports from 2001. The 2004 environmental report is the fourth report, confirming that reporting and evaluation have been improved over time, and a positive attitude regarding the release of reports externally is to be highly commended. The backbone of these reports, made up of practical environmental strategies and their achievement, has been improved in both quality and quantity, and this is worthy of high regard.

### ■ Highly evaluated points

- SWS specified the environmental preservation policy and action guidelines with clear targets. SWS also formulated an action plan until fiscal 2007, not just for the relevant fiscal year, and progressed with this plan according to schedule.
- In addition to conventional actions to reduce the amount of paper, waste, and energy, SWS is systematically working on reducing environmental impact by setting up in-house guidelines.
- SWS has already included the group companies in Japan in the scope of the environmental reports, and is working actively to expand this scope so that it includes the group companies overseas.
- SWS plans to establish a certification system for environmentally friendly products, with a list of environmental claims for these products, and this system will be implemented during product development.
- SWS introduced LCA for evaluating environmental impact, and is endeavoring to identify problems to reduce the total environmental impact throughout the lifecycle.
- SWS actively introduced cogeneration and photovoltaic systems, striving to reduce CO<sub>2</sub> emissions.
- SWS is taking aggressive actions to achieve "zero emission," and is expected to achieve this target for the entire SWS Group in Japan, including the group companies, by the end of this year.
- SWS is promoting environmental education in-house, activities to enlighten in-house and externally, and contribution to local communities.

### ■ Requests for improving report contents

- Action targets were put in place for development & design, procurement, and all other stages, respectively. It is recommended that a description of the progress in achieving these targets be included, along with any problems that arose from the measures taken.
- Target values were determined to simply reduce the amount of energy consumed and CO<sub>2</sub> discharged. It is requested, however, that target values be reset so that the effects of energy saving and CO<sub>2</sub> reduction are improved even when production volume is increased.
- The reports contain a variety of quantitative results and reports. When proposals for active improvement and evaluation are added, based on these results and reports, they will become more convincing.
- When the reports include a description for creating an environmental activity system involving a continuous improvement cycle from P (Plan), D (Do), C (Check), to A (Action), actual advancement in workplaces will become clearer.

**Seizo Kato**  
Professor

Dean of Faculty of Engineering, Mie University

Doctor of Engineering, engaging in research on LCA and eco-product design, CO<sub>2</sub> reforms using plasma and photocatalyst, hydrogen energy systems, heat control, etc.



### ● SWS's Comments on Third-Party Opinion

We, for the first time, requested Mr. Kato, Professor, and Dean of the Faculty of Engineering, Mie University, to provide his opinion on this page. We will faithfully consider the matters raised by him, and promise our future activities will reflect his recommendations.

Environmental Report  
2004



**Issued by:**

Kaoru Ishida, General Manager, Environmental Control Dept., Sumitomo Wiring Systems, Ltd.

**Contact:**

Comments or questions about this Environmental Report should be submitted to the Environmental Control Dept. Of Sumitomo Wiring Systems, Ltd.  
(person in charge: Shinkichi Miwa, Yokkaichi Group)  
Telephone: (81) 593-54-6374  
Facsimile: (81) 593-54-6424

This Report can also be read on our home page (<http://www.sws.co.jp/>).

Graphic on cover

Japanese Zelkova, a symbol tree of Suzuka City where the Suzuka Plant is located, is pictured.



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