



# Make a difference

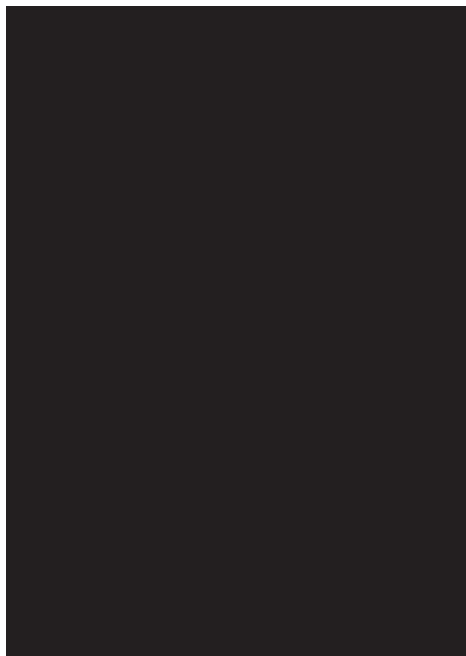
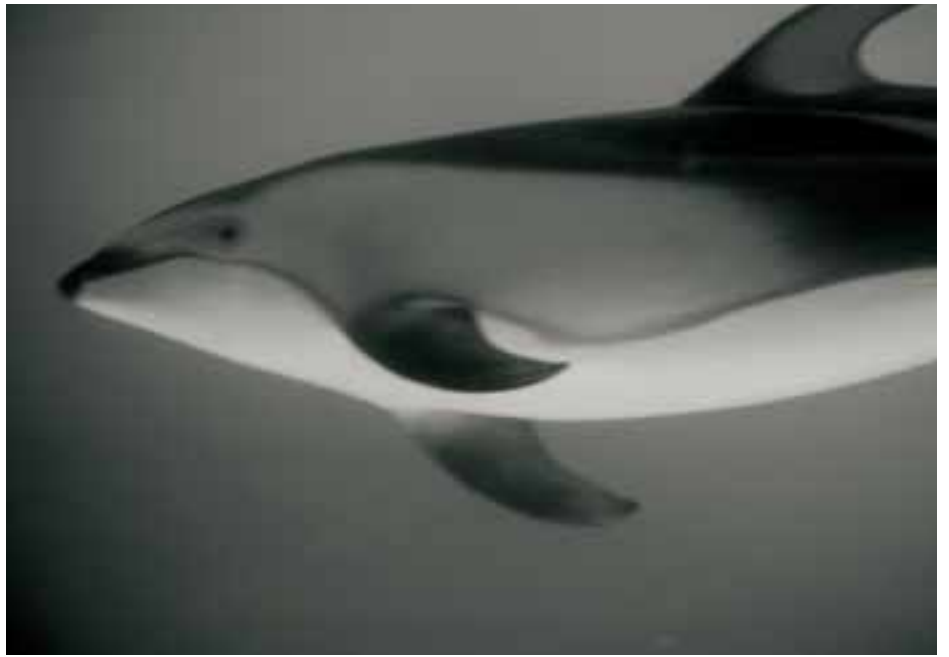
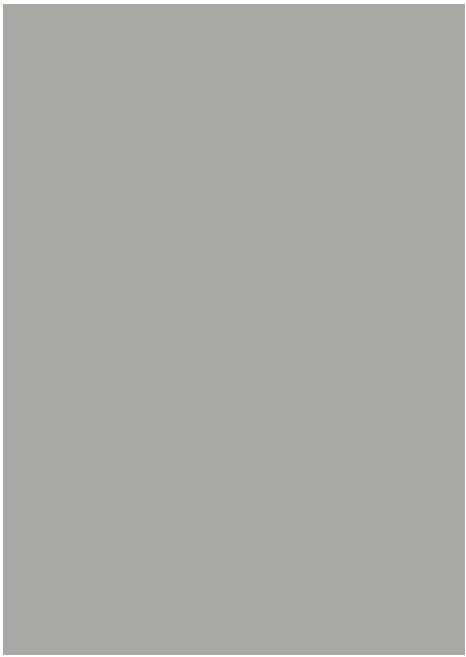
Are we creating unique technologies that make a difference?  
A development-oriented company loses its raison d'être when it fails to meet the challenges for new product development.



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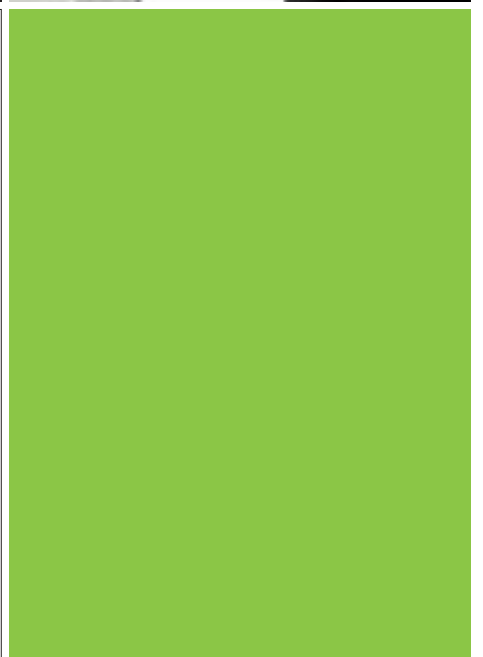
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Make it  
**unique**

Are we seeking new horizons to make it unique? Hitachi Metals' "Materials Magic" concept expresses our challenging spirit bound for new business horizons.



## Corporate Statement

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### Our Vision

We are committed to contributing to society by developing and providing environmentally friendly leading-edge materials, technologies, products and services.

### Our Mission

We will continuously take up the challenge afforded by new technologies and, by affirming our manufacturing tradition, we will create endless possibilities and great value.

### Our Value

We seek to preserve and enhance our customers' trust in us by fulfilling our responsibilities, and the unleashing of our imaginations and energies, coupled with tenacious execution.

#### ● From a Customer Standpoint

"Materials" encompasses people, products, technologies, designs, ideas and services that solve problems and generate value. We provide solutions that amaze our customers. This is what we call "Materials Magic."

#### ● About Our Manufacturing Philosophy

Our philosophy is to pursue the development of niche products with a clear competitive edge. This philosophy has remained constant even as the times have changed. As a development-oriented company that, using materials as its foundation, plans to expand far and wide, we continue to develop products that amaze our customers. This, too, is "Materials Magic."

#### ● Each and Every One of Us

Using our wisdom and knowledge, the experience we have amassed over the years as well as all of the other "Materials" that we possess, we generate value that amazes our customers. This is another facet of "Materials Magic."

### Note on the Report

This environmental report covers the environmental protection activity performances for Hitachi Metals, Ltd. and 38\* of its manufacturing subsidiaries based on data for fiscal 2002 (April 1, 2002, through March 31, 2003).

\* An environmental impact survey was conducted for the 85 companies in the Hitachi Metals Group, and those manufacturing subsidiaries demonstrating environmental impacts exceeding established standards were selected for inclusion in this report. The 38 companies covered in the report account for 83% of the environmental impact of the Hitachi Metals Group overall.

## > Data Highlights

Hitachi Metals Group Years ended March 31, 2003, 2002 and 2001

	Millions of yen			Thousands of U.S. dollars	Thousands of euros
	2003	2002	2001	2003	2003
Net Sales	¥ 408,658	¥ 409,650	¥479,480	\$3,405,483	€3,143,523
Operating Income (Loss)	12,599	(11,003)	25,371	104,992	96,915
Net Income (Loss)	738	(27,179)	9,663	6,150	5,677
CO <sub>2</sub> Emissions (t-CO <sub>2</sub> /year)	902,563 (552,414)	832,829 (522,228)	(607,092)		
Energy Usage (crude oil equivalent kl/year)	547,449 (324,924)	502,582 (311,352)	(336,624)		
Energy Consumption Rate	1.705	1.701	1.592		
Total Discharged Volume (t/year)	287,599 (196,890)	287,226 (191,363)	(217,563)		
Final Disposal Volume (t/year)	60,373 (21,917)	69,153 (24,254)	(37,525)		
Recycled Volume (t/year)	188,509 (171,755)	182,219 (162,940)	(176,213)		
Recycle Rate (%)	(88.7)	(87)	(81)		

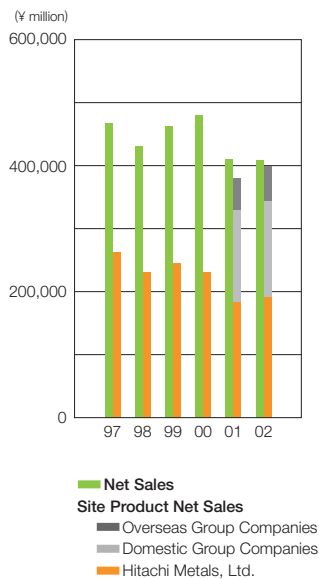
Notes: 1. Figures shown above for net sales, operating income (loss), and net income (loss) were calculated using generally accepted Japanese auditing standards.

2. U.S. dollar and euro amounts were calculated at the rates of ¥120=US\$1 and ¥130=€1, the prevailing rates as of March 31, 2003.

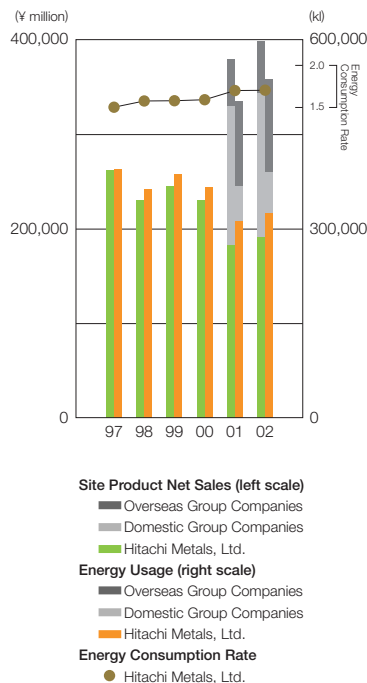
3. Figures in parentheses are Hitachi Metals parent data for environmental standards.

4. Energy Consumption Rate = (energy usage amount/site product net sales). Site product net sales refers to sales of products produced within a site. Site refers to the scope of ISO 14001 certification, focusing on production centers and including plants and laboratories.

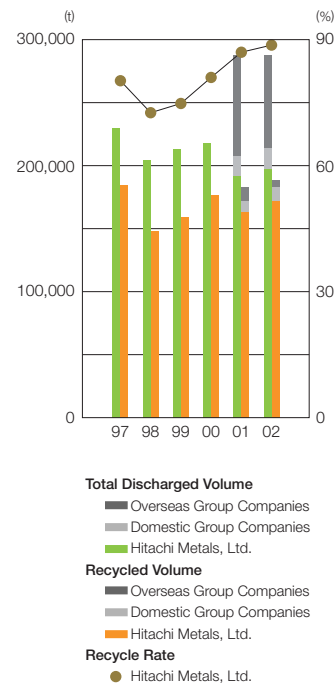
### ■ Net Sales and Site Product Net Sales



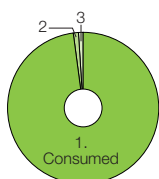
### ■ Site Product Net Sales, Energy Usage, and Energy Consumption Rate



### ■ Total Discharged Volume, Recycled Volume, and Recycle Rate

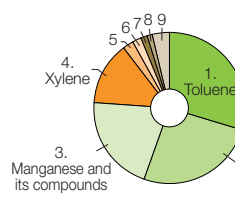


### ■ Fiscal 2002 Volume of PRTR Chemical Substances Handled: 37,525 t



1. Consumed	97.9%
2. Discharged	1.1%
3. Transferred	1.0%

### ■ Fiscal 2002 PRTR Survey Results



1. Toluene	29.7%
2. Chromium and chromium (III) compounds	25.8%
3. Manganese and its compounds	20.7%
4. Xylene	13.5%
5. Nickel and its compounds	2.3%
6. Molybdenum and its compounds	1.9%
7. Hydrogen fluoride and its water-soluble salts	1.4%
8. Zinc compounds (water-soluble)	1.1%
9. Others	3.7%

Note: PRTR = Pollutant Release and Transfer Register



Hitachi Metals, Ltd.'s corporate philosophy calls for it to strive always to be "the best possible company." This determination is reflected in our "Hitachi Metals' Business Conduct Guidelines" formulated in 1998, which state in part: "We shall contribute positively to society as a good corporate citizen by endeavoring to preserve the earth's environment and striving to coexist in harmony with local communities." Recognizing the 21st century as "the century of the environment" and dedicating ourselves to continuing progress for humankind, we remain committed to promoting sustainable growth to help preserve our precious global environment.

As a materials manufacturer supporting industry from an "upstream" position, we have always been particularly conscious of our environmental responsibilities and, therefore, actively involved in pursuing a wide variety of environmental preservation activities.

Based on a medium-term plan, the final year of which is fiscal 2003, we are conducting activities aimed at the creation of a recycling-based society.

**1. Expand lineup of environmentally conscious products**

(Expand environmentally conscious products 40% by fiscal 2003)

**2. Reduce waste materials**

(Reuse or recycle 90% of waste by fiscal 2003)

**3. Energy conservation**

(Reduce energy usage 3% compared with fiscal 2000 levels by fiscal 2003)

**4. Reduce harmful chemical substances**

(Reduce harmful chemical substances 15% compared with fiscal 2000 levels by fiscal 2003)

**Hitachi Metals'  
Action Guidelines**

1. Obey the law and walk the path of virtue.
2. Be a good corporate citizen.
3. Supply satisfying products.
4. Respond to social expectations through continued growth.
5. Strive to create pleasant workplaces conducive to self-improvement.

We accomplished the following performance in fiscal 2002 as a result of our environmental activities.

**1) Manufacturing activities:**

1. Activities to conserve resources and energy  
(Energy conservation measures cut energy usage 2.3%. However, the energy consumption rate rose 0.2% year on year.)
2. Recycle waste  
(Activities are geared toward achieving zero emissions. The recycling rate increased 1.7 percentage points year on year to 88.7%.)
3. Reduce harmful chemical substances  
(Substances subject to volume reduction have been slashed 36% compared with fiscal 2000 levels.)

**2) Cooperation with customers in reducing environmental impact of material products during their use and disposal:**

1. Make products more environmentally conscious through energy conservation and reductions in harmful chemical substances
  - Expand lineup of environmentally conscious products  
(Expand lineup of environmentally conscious products 26.6% by fiscal 2002)
  - Reduce harmful chemical substances contained in products
2. R&D activities
  - Develop nanotechnology products that help protect the environment and prevent global warming  
(Participate in national research projects for optical communications materials and construction materials)
  - Develop manufacturing methods with minimal environmental impact
  - Other activities

In fiscal 2002, Hitachi Metals conducted a survey of the environmental impact of Group companies in fiscal 2001, introduced environmental accounting systems at Group companies, and expanded the scope of this report to include consolidated subsidiaries. Further, we added details about our measures to ensure Occupational Safety and Health to our 2003 Environmental Report.

To further advance the environmental preservation activities of the Hitachi Metals Group, we will continue setting environmental activity targets and objectives for the entire Group.

Aiming for sustainable growth, we are making every effort to create higher quality environmental management systems. We ask for your continued guidance and support in our endeavors to preserve the environment.



Michihiro Honda  
President, Chief Executive Officer and Director  
Hitachi Metals, Ltd.



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### High-Grade Metal Products and Materials

- **Specialty Steel Company**

The Specialty Steel Company has continued to evolve its technologies to meet changing times and now widely supplies its YSS™ brand specialty steels to such fields as automotive and electrical devices, precision equipment, aviation, atomic energy, and electronics.

- **Roll Company**

The Roll Company, based on its unsurpassed metallurgical technologies, deals with construction materials, industrial machinery components, and ceramics products as well as rolling-mill rolls, its main product.

- **Hitachi Tool Engineering Group**

The Hitachi Tool Engineering Group, handling specialty steel tools, cemented carbide tools, ceramic tools, diamond tools, drills and related products, re-grinds these products for recycling.



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### Electronics and IT Devices

- **Magnetic Materials Company**

In addition to cast magnets, Hitachi Metals' Magnetic Materials Company supplies the market with ferrite and rare earth magnets. It is also expanding aggressively into such applied product fields as bonded magnets and linear actuators.

- **Information System Components Company**

The Information System Components Company offers a wide range of products, ranging from ferrite cores for power sources of communications devices to mobile phone components, noise reduction devices, and many others.



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### High-Grade Casting Components for Automobiles

- **Automotive Components Company**

In addition to producing aluminum wheels, Hitachi Metals' Automotive Components Company has developed HERCUNITE® (heat-resistant steel) and other materials and parts, striving to meet the growing need for more environment-friendly products.



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### Construction Components, Plant and Equipment

- **Piping Components Company**

Offering such products as plastic piping and fittings, and Chilled Towers™ for use in supplying coolants to semiconductor manufacturing equipment, the Piping Components Company's business revolves around such piping-related businesses as materials development and function and design technologies.

- **Environmental Systems Company**

The Environmental Systems Company's business ranges from water treatment systems to waste processing facilities, and it supplies products designed to help meet today's environmental needs.

- **Hitachi Metals Techno Group**

The Hitachi Metals Techno Group manufactures and sells construction equipment and chains, as well as related work.

### **Building Higher-Quality Environmental Management Systems**

We are building an environmental management system based on our basic environmental policies.

Many of the Group's environmental management systems both in Japan and abroad have already earned ISO 14001 certification, and we are constantly revising and improving these through the methodical application of such objective evaluation systems as environmental auditing and environmental accounting.

### **Developing Environmentally Conscious Products and Environmental Businesses**

Hitachi Metals' products are created with optimum environment-friendliness in mind, and many of these environment-friendly products have proved useful in our environmental business endeavors. Throughout our production activities, from manufacture to distribution, environmental considerations are never overlooked. We use environmentally conscious product assessment and green procurement standards in our upstream development engineering and procurement activities. In our environmental considerations, we carefully choose the means of transportation for products and type of material used in packaging.

### **Reducing Waste, Conserving Energy, and Managing Hazardous Chemicals**

In line with the recycling-based socioeconomic systems being built in the world today, Hitachi Metals has been involved in efforts to reduce the environmental impacts of all of its production and other facilities, including revising manufacturing processes and reinforcing measures to reduce energy consumption. A comprehensive chemical management system is also being introduced to ensure that hazardous chemical substances are controlled, managed, handled, and transported in accordance with relevant PRTR regulations.

## Hitachi Metals' Basic Environmental Policies

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### Ideal

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Hitachi Metals' fundamental corporate ideal is to be "the best possible company" and to contribute to a greater society for mankind. In line with this philosophy, we regard it as crucial to ensure that humanity's shared environmental resources can be passed down to future generations in the best possible condition. Accordingly, throughout our operations we treat environmental considerations as an issue of highest importance and strive actively to promote environmental protection efforts on both the global and local community levels.

### Business Conduct Guidelines

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- Recognize environmental protection as an issue of the highest importance, common to humanity as a whole, while making the achievement of harmony with the environment around us an important operational priority extending throughout the Hitachi Metals Group. Include effort to establish clear environment-related goals that allow us to continually improve the quality and effectiveness of our environmental protection activities.
- Maintain an organizational structure that includes leadership by an executive director responsible for managing environmental issues, as well as an underlying administrative structure dedicated to thoroughgoing support and promotion of environmental protection initiatives throughout the Hitachi Metals Group. Additionally, strive to maintain and improve our environmental management activities by implementing voluntary environmental auditing procedures.
- In addition to complying with all applicable laws, regulations, and agreements concerning environmental issues, maintain a ready willingness to formulate and apply environmental regulations, standards, manuals, and other tools on our own initiative in order to meet emerging needs and continue improving the quality of our environmental management efforts.
- Investigate and review the environmental impact resulting from our business activities and minimize this impact through efforts to protect the environment, conserve resources and energy, increase recycling, reduce waste, and eliminate or reduce the use of hazardous chemicals wherever possible.
- Endeavor to reduce the burden placed on the environment by products at every phase and stage of their existence, including R&D, product design, raw materials purchasing, production, distribution, and eventual disposal. Further, employ LCA techniques to expand the range of products that are developed and produced based on a more thoroughgoing environmental consciousness.
- Publicly disclose information on the status of our environmental management activities and any environmentally conscious technologies, materials, and products we have developed or adopted.
- Thoroughly consider the potential impact that our overseas operations and product exports may have on local environments and implement any measures required to remain in accord with the needs of local communities.
- Contribute to local communities through environment-related community services and support these efforts by promoting environmental consciousness among employees through educational and promotional activities.
- Be prepared to take appropriate action to minimize environmental impact in the event that an environmental problem has arisen in association with our business activities.

Note: LCA = Life Cycle Assessment, a method for quantitatively evaluating the environmental impact of products throughout their entire life cycles



## Obtaining ISO 14001 Certification

All of Hitachi Metals' works and research facilities in Japan had obtained ISO 14001 certification by April 1999. Among the companies in the Hitachi Metals Group, four overseas companies (in the United States and the Philippines) are also certified, as are 15 sites, 26 branch offices and 12 major Group companies in Japan. The Environmental/Health and Safety Management Office offers its support in fully mobilizing Hitachi Metals' extensive know-how to assist all companies in the Group build optimal environmental systems toward earning ISO environmental certification.

### ISO 14001 Certified Sites (Hitachi Metals)

Certified Site	Facility	Certification Date
Tottori	Tottori Works	September 24, 1998
Yasugi	Yasugi Works Metallurgical Research Laboratory	October 20, 1998
Wakamatsu	Wakamatsu Works	January 25, 1999
Kumagaya	Kumagaya Works Business Center Advanced Electronics Research Laboratory Production System Laboratory	March 11, 1999
Kyushu	Kyushu Works	March 29, 1999
Moka	Moka Works Casting Technology Research Laboratory	April 22, 1999
Kuwana	Kuwana Works	April 22, 1999
OE Device Division	OE Device Division	February 24, 1999

## Hitachi Metals Group Companies

The Group companies listed below, having been ranked according to their assessed environmental impact, earned ISO 14001 certification on the dates as shown.

### ISO 14001 Certification (Hitachi Metals Group Companies)

	Group Company	Certified Site	Certification Date
Subsidiaries	AAP (United States)	AAP	September 24, 1998
	LET (Philippines)	LET	September 26, 1998
	HMY, Ltd.	All Facilities	August 24, 2000
	Hitachi Metals Techno, Ltd.	Kanto Plant	December 8, 2000
	Hitachi Tool Engineering, Ltd.	Yasu Works	December 21, 2000
		Narita Works	February 8, 2001
		Nakatsu Technical Center	March 19, 2001
		Drills Division	March 28, 2001
	Hitachi Metals Kiko Co., Ltd.	Yoshii Works	September 7, 2001
	Himec, Ltd.	Tokyo Offices (Headquarters, Kanto Office)	March 28, 2002
		Chugoku Office	April 25, 2002
	Seitan Inc.	Muikamachi Head Office Plant	August 7, 2002
	Hitachi Metals MPF, Ltd.	Same as Seitan above	
	Hitachi Ferrite Electronics, Ltd.	Head Office Plant	August 21, 2002
Kuwana Create Co., Ltd.	Kuwana Site expansion	May 22, 2003	
HMW, Ltd. (Ashiya office)	Wakamatsu Site expansion	March 27, 2003	
ACP (United States)		October 4, 2002	
NAMYANG (South Korea)		April 12, 2002	
Affiliates	Toyo Seihaku Co., Ltd.	Niigata Works	December 28, 2000
	Aoyama Special Steel Co., Ltd.		November 8, 2001

Note: AAP: AAP St. Marys Corporation      LET: Luzon Electronics Technology, Inc.  
 NAMYANG: Nam Yang Metals Co., Ltd.      ACP: ACP Manufacturing Company LLC.  
 Site refers to the scope of ISO 14001 certification, focusing on production centers and including plants and laboratories.

## Environmental Auditing

Ever since Hitachi Metals began its environmental auditing program in 1991, accompanying the introduction of environmental management systems, we have conducted Companywide environmental cross-auditing and individually run site-based internal environmental auditing. Auditors are appointed to the respective groups: environmental cross-auditors approved by the director in charge and internal environmental auditors approved by the head of each site.

- Environmental cross-auditors:163 (including 99 at Hitachi Metals)

## For Better Environmental Management Systems

As of May 2003, eight Hitachi Metals sites (six works, one operational office, one business office and four laboratories) and 12 Group companies (15 sites, 26 branch offices) have earned ISO 14001 certification. To improve our environmental management systems at these sites even further, the Corporate Environmental Committee's EMS Study Group works hard to improve the skills of its members through auditor training seminars and follow-up seminars to upgrade qualifications.

Further, Hitachi Metals assists other Group companies by working with them to attain certification targets and offering guidance on building environmental management systems, including inviting them to participate in the seminar programs mentioned above.

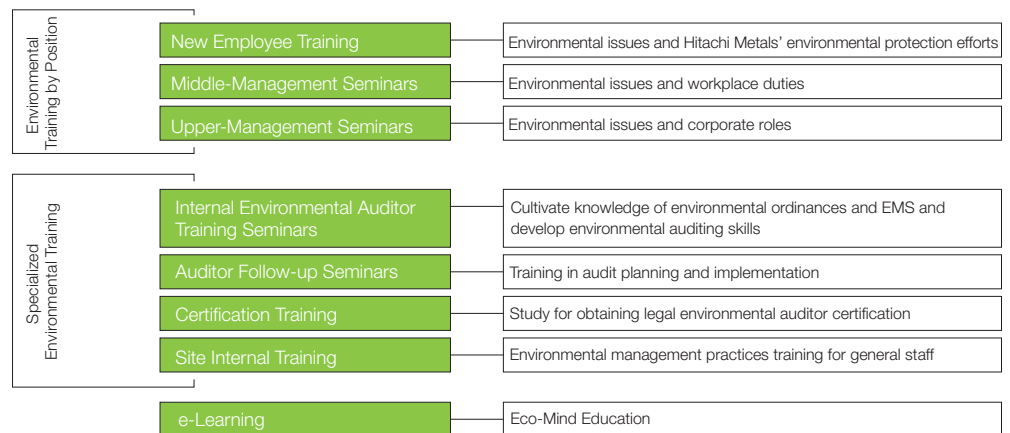
## Education and Awareness Promotion

Environmental education has been woven into the fabric of many of the personnel training programs implemented throughout Hitachi Metals. In addition to workplace-specific training, training systems to include environmental management system-related education are also being built, and the roles played by Companywide training and individual factory-level training are clearly defined, leading to further improvement of staffs' environmental awareness as well as enhanced knowledge and skills relevant to each workplace.



Internal environmental auditor training

### ● Environmental Education System



## Communication

We received 14 complaints regarding noise, vibration and dust and responded in the most appropriate fashion possible under the circumstances.

## Environmental Accounting

In fiscal 2000, Hitachi Metals introduced an environmental accounting system aimed at streamlining its environment-related investments and activities and promoting ongoing improvement.

In fiscal 2001, the Company held a meeting on environmental accounting systems for Group companies, and in fiscal 2002, the scope of environmental data collection expanded to domestic subsidiaries. We have established this environmental accounting system in compliance with the guidelines published by the Japanese Ministry of the Environment and also in alignment with the environmental accounting system of the Hitachi Group as a whole in terms of classifications and tallying methods. Each index of "environmental costs" is calculated and then categorized into "investment" or environmental activity "expenses" (including facilities operating costs and R&D costs). The "environmental effects" include only those economic and physical effects immediately quantifiable and not those that are calculated under certain assumptions, such as "risk aversion."

### ● Environmental Accounting Approaches and Philosophy

Given the growing seriousness of both global and regional environmental issues, corporations have come to bear greater social responsibility for their environmental impacts. We recognize environmental accounting as a tool to take effective action in order to realize the appropriate and ever-improving environment conservation ideals stated below:

- To promote appropriate, effective decision making regarding environmental conservation activities by allowing the related costs and resulting effects to be recognized.
- To disclose information to stakeholders on a regular basis in order to deepen their understanding of the Company's environmental protection accomplishments and their economic implications.

### Environmental Costs (Years ended March 31, 2003 and 2002)

(¥100 million)

Cost Classification	2002		2003 (Hitachi Metals)		2003 (subsidiaries)		Details	
	Expenses	Investment	Expenses	Investment	Expenses	Investment		
Business Area Costs	Pollution Prevention	13.8	2.3	12.7	0.4	0.8	0.7	Prevention of air pollution and water pollution, etc.
	Global Environmental Preservation	0.5	0.4	0.4	0.2	0.3	0.4	Global warming prevention, energy conservation
	Resource Recycling	11.8	0.4	7.0	0.0	2.1	0.1	Reducing and recycling waste, conservation of water
Subtotal	26.1	3.1	20.1	0.6	3.2	1.2		
Industrial Upstream and Downstream Costs	0.2	0.0	0.2	0.0	0.1	0.0	Green procurement expenses, recycling of containers and packaging	
Management Activity Costs	5.9	0.0	5.3	0.0	1.5	0.0	Implementation and maintenance of EMS, operation of environment-related department	
Research and Development Costs	25.0	0.3	18.4	1.2	2.3	0.2	Research and development for the reduction of the environmental impacts caused by products and manufacturing processes	
Community Activity Costs	0.2	0.0	0.2	0.0	0.2	0.0	Supporting nature protection and local environmental activities, disclosing environmental information	
Others	0.5	0.0	0.4	0.0	0.0	0.0		
Total	57.9	3.4	44.6	1.8	7.4	1.4		

### Environmental Effects (Years ended March 31, 2003 and 2002)

(¥100 million)

Economic Effects	2002	2003 (Hitachi Metals)	2003 (subsidiaries)
	Waste Processing and Recycling	2.9	16.2
Energy Conservation	1.3	1.3	0.4
Others	1.6	2.8	0.0
Total	5.8	20.3	1.6

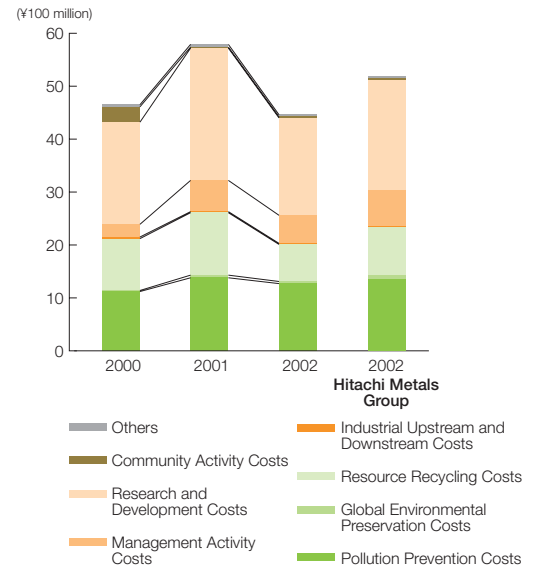
  

Physical Effects	2002	2003 (Hitachi Metals)	2003 (subsidiaries)
	Energy Saved (Crude Oil Equivalent)	4,238kl	7,574kl
Water Usage Reduction	213km <sup>3</sup>	10.1km <sup>3</sup>	11.3km <sup>3</sup>
Waste Reduction	1,022 t	921 t	276 t

### ● Analysis of Results for Fiscal 2002

In fiscal 2002, environmental expenses amounted to ¥5.2 billion for the Hitachi Metals Group. Of this total, Hitachi Metals accounted for ¥4.46 billion (86% of total environmental expenses), and its subsidiaries ¥0.74 billion (14%). Environmental expenses for Hitachi Metals saw a decrease of ¥1.33 billion against the previous year, mainly due to reviews of definitions of R&D costs, and reduction of waste disposal volume leading to a fall in resource recycling costs. R&D costs accounted for 44% of total costs. We expect R&D costs to continue rising in the future, as specifications for reducing environmental burden are increasingly used in new product development concepts. The reduction in waste is the result of efforts to improve recycling efficiency toward achieving zero emissions. Environmental effect value increased year-on-year mainly due to a rise in applicable material in waste emissions from a change in the product mix.

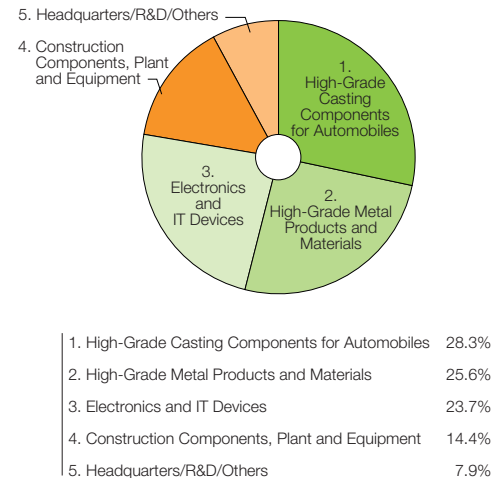
### ■ Environmental Expenses



### ● Environmental Expenses by Product Sector

Among Hitachi Metals' products, high-grade metal products and materials, electronics and IT devices, high-grade casting components for automobiles, and construction components, plant and equipment in particular use scrap metal as their primary raw material, which is melted down and converted into useable, saleable products. In this sense, such products can already be considered products leading to a recycling-based society. Their main environmental requirements, therefore, have more to do with the management of energy, waste, and air and water quality, which approximately account for 92% of total environmental expenses. Further, environmental expenses listed for the headquarters are those associated with R&D costs incurred by new-product development units to expand Hitachi Metals' environmentally conscious product range.

### ■ Environmental Expenses by Product Sector



Total Environmental Expenses: ¥5.2 billion

### ● Future Efforts

To establish environmental accounting as an effective management benchmark for the environmental preservation measures of the Hitachi Metals Group, the Company is making concerted efforts to improve environmental performance and to promote environmental preservation activities in order to upgrade our environmental accounting system.

Note: Zero Emissions refers to the achievement of a final disposal rate of less than 1%.

## Environmental Consciousness in Development and Engineering

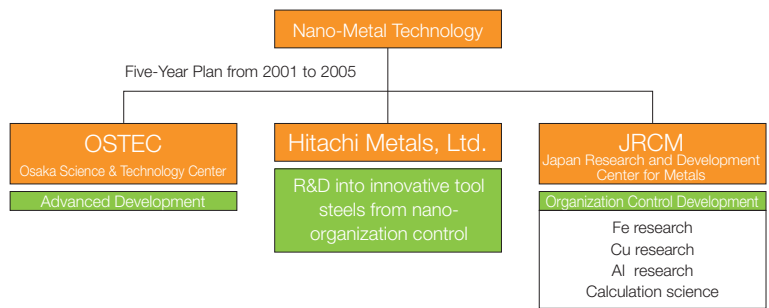
Hitachi Metals supplies a wide variety of products, ranging from high-grade metal products and materials, electronics and IT devices, and high-grade casting components for automobiles to construction components, plant and equipment.

Hitachi Metals starts the process of creating environmentally conscious products in the development and engineering stages. The Company assesses the environmental impact of its products to quantify the reduction of environmental impact in each stage of a product's life cycle, from development and engineering to procurement, production, distribution, usage and disposal.

### ● Eco-Products (Development and Engineering)

Hitachi Metals is engaged in R&D in the nanotechnology fields of such next-generation materials as soft magnetic metal materials and construction materials, which contribute to environmental preservation, preventing global warming, recycling, and resource conservation. Hitachi Metals will continue R&D towards the creation of new products and businesses in the nanotechnology and materials fields. The Company is making every effort to strengthen material functionality by participating in national projects, including nano-metal technology projects.

### ● Hitachi Metals' Position in the NEDO Nano-Metal Technology Project



Note: NEDO: New Energy and Industrial Technology Development Organization

## ■ Environmental Contributions of Newly Developed Products

Examples of the environmental benefit of our newly developed products are as follows:

### ● HERCUNITE®

As a measure to prevent global warming, the automobile industry has set targets for reducing fuel costs for gasoline engines 21.4% and for diesel engines 13.1% by 2010 compared with 1995 levels. HERCUNITE® exhaust manifolds contribute to fuel economy and the achievement of this industry target.



HERCUNITE® exhaust manifolds

### ● HICS Chilled Tower™ W Series Features

Lower Electricity Charges

This product uses the scroll compressor system with the new refrigerant R407C. In addition, in comparison with conventional chiller cooling systems, this system achieves 60-90% cuts in power costs and 30-60% cuts in power consumption.



HICS Chilled Tower™ W Series

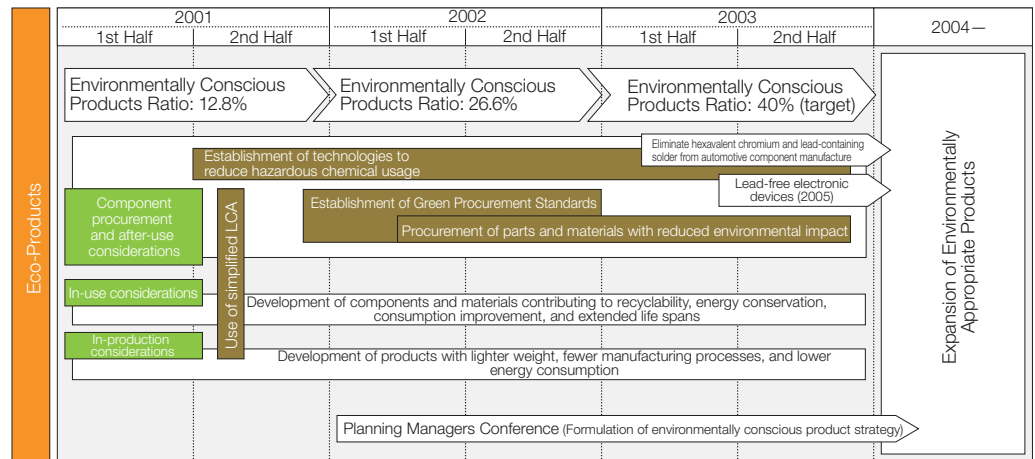
$$\frac{\text{Cumulative units sold} \times \text{Annual power consumption per unit of previous model}}{\text{Energy savings ratio}} = \text{Environmental contribution}$$

(300) (620,000 kWh) (60%) (111,600,000 kWh)

## Environmentally Conscious Products

At Hitachi Metals, we place considerable emphasis on the environmental suitability of our products. Moving along a concrete plan, we have prepared an “eco-products road map” to guide us in our creation of environmentally conscious products and to encourage our entire staff to participate more fully in our eco-product activities. We have also introduced a system to register products as “environmentally appropriate products” when they are assessed as having overall environmental performance that is better than the required standards.

### ● Eco-Products Road Map



### ■ Environmentally Appropriate Product Assessment

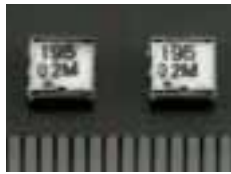
Item Evaluated	Environmental Areas Affected	Assessment Points
1. Improvement of materials used in products	Resource depletion	1. Smaller and lighter 2. Recyclability 3. Functionality and durability 4. Measures against resource depletion
2. Reduced use of hazardous substances and environmental pollutants	Human health, ecosystem health, ozone layer, other human life-related issues	1. Reduction of harmful substances 2. Control of chemical substances
3. Reduced use of energy and natural resources during product manufacture	Resource depletion, global warming, ecosystem effects	1. Reduction of energy use 2. Environmental consideration in manufacturing processes 3. Environmental impact during use or in the event of accident
4. Reduced waste, emissions, and other discharges during product manufacture	All categories	1. Effects on outside environment 2. Reduction of discharged materials 3. Use of renewable/recyclable resources 4. Energy consumption during distribution
5. Conservation of resources, energy, and water during product use	Resource depletion, global warming	1. Reduction of resource use and ease of consumption 2. Reduction of energy use 3. Ease of repair/maintenance 4. Collection of packing materials and improvement of transportability
6. Lower pollution and lower emissions during product use	Human health, ecosystem health, acidification, other human life-related issues	1. Low pollution/low emissions
7. Reduced waste following product use	Resource depletion, global warming	1. Reduction of discharged materials 2. Ease of processing 3. Reduced/alternative packaging 4. Ease of packaging
8. Provision of information	All categories	1. Provision of information to appropriate targets 2. Appropriate information provision techniques and system

**Environmentally Conscious Products in Society**

We assess the environmental suitability of our products, and register such products under the Hitachi Group's Environmental Information Indication System.  
 (31 products registered as of March 2003)

● **4mm Square Isolators**

Contribute to making cell phones smaller and lighter by being 45% lighter than conventional isolators.



● **Chilled Towers™**

Reduce energy consumption by 60% to 90% compared with conventional chilling systems.



● **Super HIBASE® Hitachi Metals Techno, Ltd.**

Helps shorten construction periods, reduces construction costs, and reduces energy required for on-site jointure work.



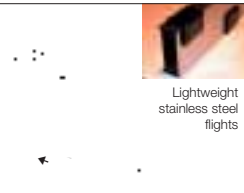
● **Plasma-Fired Direct Melting Furnace System**

A waste-processing shaft kiln designed to render discharged waste harmless and reduce its volume.



● **All-Stainless Sludge Raking Machine**

Highly durable, made of recyclable components, and lighter weight than conventional sludge rakers.



● **Electrofusion Fittings**

Earthquake- and corrosion-resistant, easy to use, and require less energy for installation and bonding.



● **Corrosion-Resistant Pipe Fittings with Built-in Cores**

Conventional PVC cores and outer linings have been replaced with polyolefin resin types for better recyclability.



● **La-Co Magnets to Replace Strontium Ferrite**

Allow thinner product designs and contribute to energy and space savings in electrical components and electronic products.





● **Wide Flange Rolls**

By matching recycled shafts and super-hardened outer layers, wide flange rolls realize significant rolling cost reductions and better recyclability.



● **HINEX™ Rolls**

HINEX™ rolls offer considerable advancements in rolling efficiency thanks to dramatic improvements in abrasion resistance.



● **High-Performance Nd-Fe-B Radial Ring Magnets**

Special magnetization technique allows for higher-performance motors. It also contributes to energy conservation.



● **High-Performance Nd-Fe-B Magnets (HILOP®)**

Ideal for high-efficiency applications, allow motors to be made smaller, and contribute to energy conservation.



● **SSM Suspension Components**

Semisolid die-casting manufacturing (SSM) process for automotive components contributes to lighter vehicles.



● **5mm Square Isolator**

Our 5mm square isolators can be mounted using lead-free solder, for a completely lead-free product.



● **Antenna Switch Modules**

These antenna switch modules are 48% smaller than their predecessors and can be mounted using lead-free solder.



● **Ni-Zn Ferrite Low-Loss Materials**

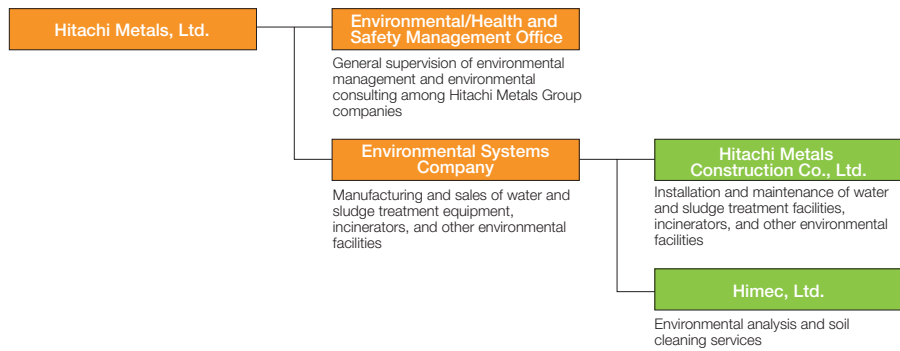
With high saturation magnetic flux density, these Ni-Zn ferrite low-loss materials contribute to reductions in power consumption with less loss than previous materials.



**Environmental Business**

Hitachi Metals began manufacturing chains for sewage treatment systems in the latter part of the 1950s, and currently the Environmental Systems Company makes such environmental facilities as water treatment equipment, waste incinerators, and RDF (refuse-derived fuel) manufacturing equipment. Plans are under way now to integrate the environmental know-how of the Hitachi Metals Group into a more unified system capable of contributing to the creation of a recycling-oriented society.

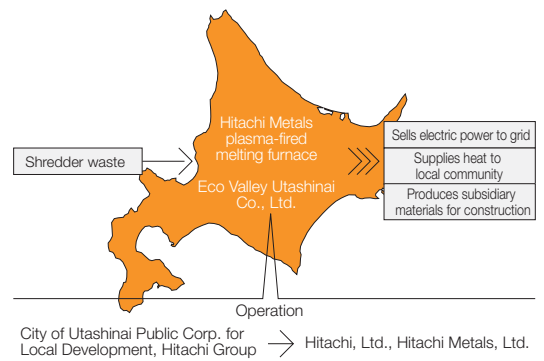
● **Environmental Business Structure of the Hitachi Metals Group**



● **Solutions Business (Waste)**

An Environmental Project to Benefit a Local Community

Hitachi started a regional development project centered on environmental business in the Hokkaido city of Utashinai. Hitachi Metals' contribution to this business was to supply the plasma-fired melting furnace system, which generates electrical power from industrial waste, to a new company called Eco Valley Utashinai Co., Ltd. In this way, the project aims to realize an industrial community that coexists with the environment.



● **Solutions Business (Water)**

To maintain the quality of communal water supplies, the Hitachi Metals Group offers complete services from the design and installation to maintenance of sewage wastewater purification systems, while realizing space- and energy-saving solutions.

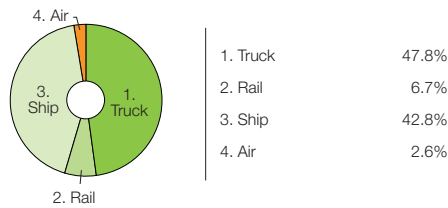


## Green Logistics

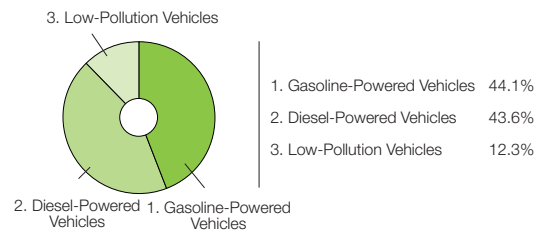
To build a recycling-oriented society, we believe that, in addition to producing environmentally conscious products, it is necessary to reduce environmental impact in product packaging and distribution.

To determine the environmental burden of transporting its own products, the Hitachi Metals Group takes surveys of transportation methods and packaging used for its products. The Company is also working to increase the use of returnable packaging with its customers and suppliers.

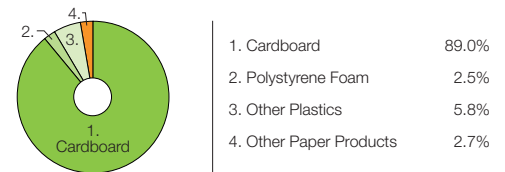
### ■ Transportation Methods for Hitachi Metals Group Products



### ■ Ratio of Low-Pollution Vehicles in Hitachi Metals Group



### ■ Volume and Type of Materials Used in Packaging



### ■ Introduction of Low-Pollution Hybrid Trucks at HMY, Ltd.

With a high-performance chargeable battery, the Capacitor Hybrid Truck, pictured on the right, runs on both a diesel engine and an electric motor. Since we frequently come into contact with local communities in transportation activities, we feel a heavy responsibility to protect and improve the environment. Accordingly, we are introducing low-pollution vehicles as a symbol of our environmental efforts.



## Environmental Activities in Materials Procurement

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As an upstream manufacturer in the materials industry, Hitachi Metals has always taken its significant environmental responsibilities particularly seriously. Our business activities are based on the corporate code of proactively contributing to society as a corporate citizen in the aim of protecting the global environment and co-existing with local communities.

In fiscal 2002, the second year of the medium-term plan, we promoted activities to preserve the environment toward realizing objectives in fiscal 2003, the final year of the plan.

### 1. Efforts at Green Purchasing

At Hitachi Metals, all employees strive to use eco-friendly goods, such as paper and other office supplies. By using a purchasing network over the Web, any employee is able to freely choose items that fall under the green purchasing category. In this way, we are working to purchase green mark products and other eco-friendly goods.

### 2. Efforts at Green Procurement

To reduce environmental loads through our products, we believe that appropriate management is necessary at the initial material procurement stage. In reflection of this fundamental concept, we are moving to share the same goal with materials suppliers for preserving the environment.

#### ● Establishment of Green Procurement Guidelines

In October 1999, Hitachi Metals established Green Procurement Promotion Standards in an aim to contribute to the preservation of the global environment and the prevention of global warming by prioritizing the procurement of products that are environmentally friendly. In December 2002, the Company updated these standards into the Green Procurement Guidelines.

Based on the materials procurement requirements of quality, cost, delivery and environmental protection, these guidelines are accessible through the Hitachi Metals Web site to widely promote a cooperative spirit for protecting the environment.

● **Surveys of Suppliers and Procured Items**

We strive to reduce environmental burden and hand over a pristine environment to the next generation. To turn this belief into action, Hitachi Metals conducted a survey of its primary suppliers. The survey asks for confirmation of activities to preserve the environment. We plan to have all of our suppliers take this survey, especially new suppliers. The survey can be viewed in Japanese on our Web site under Green Procurement Supplier Survey.

At Hitachi Metals, we are fully conscious of our responsibility to customers in providing them products. We classify chemical substances into prohibited substances, reduced substances, and substances to be controlled, and begin to manage chemical substances from the materials procurement stage. We are requiring suppliers not to use prohibited substances.

● **Green Procurement Totals**

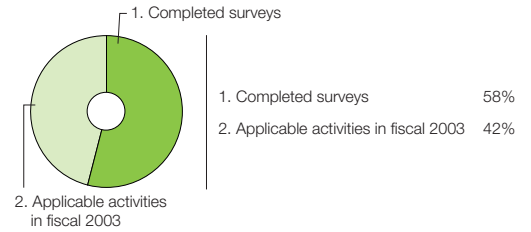
The chart on the right shows the change in the total amount of green procurement from fiscal 2002 to fiscal 2003.

We classify recycled and other environmentally conscious products as green products, and refer to the purchase of such environmentally friendly products as green procurement. The Company is working to increase the usage of items designated as green products from a technological perspective.

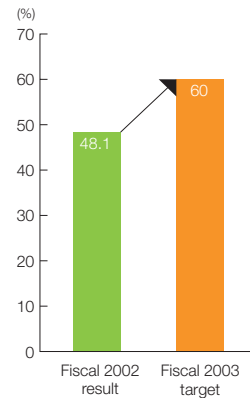
**3. Training and Educational Activities**

To promote educational activities across the Company, it is necessary to ascertain the direction of activities currently underway in each layer of the organization and in each division. We provided training on green procurement to managers in charge of procurement in each business section of the procurement division.

■ **Supplier Surveys (number of companies)**



■ **Green Procurement Totals**

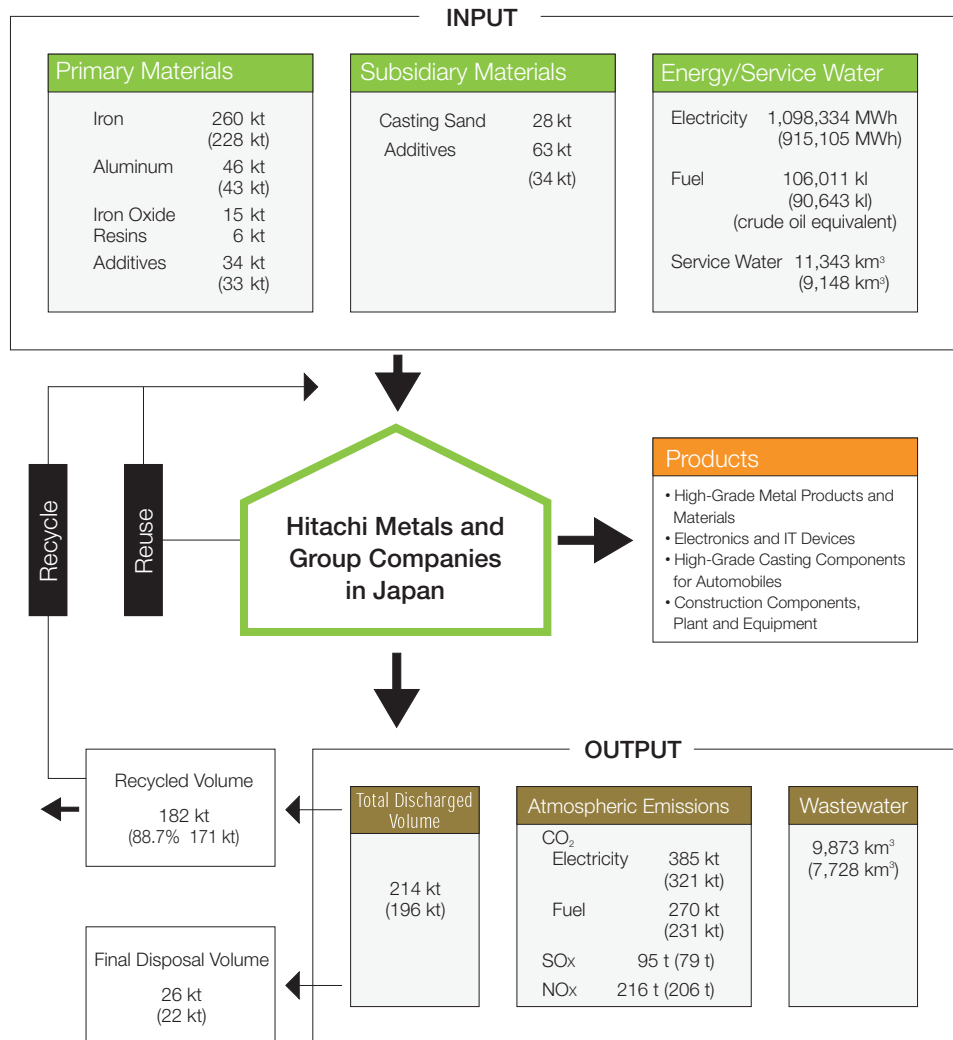


Training on green procurement

**Flow of Primary Materials in Manufacturing Stage at Hitachi Metals and Group Companies in Japan**

The flow of materials used during manufacturing processes for all Hitachi Metals sites in fiscal 2002 is shown below. Environmental themes currently being undertaken at the manufacturing stage include reducing relative investment in resources and energy, controlling and reducing atmospheric emissions and wastewater effluents, and reducing and recycling waste. In addition to these efforts dealing with products at the start of their life cycles, we also regard the expansion of “return routes” to channel products at the end of their life cycles back for reuse and recycling as a key element in contributing to a more recycling-oriented socioeconomic structure.

● **Flow of Materials from an Environmental Perspective** (fiscal 2002)



Notes: 1. Figures are the total of Hitachi Metals and domestic Group companies.  
2. Figures in parentheses are for Hitachi Metals.

## ■ Use of Primary and Subsidiary Materials at Hitachi Metals and Group Companies in Japan



### Kyushu Works

High-grade casting components (iron and steel) for automobiles

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron	42,193
		Additives	2,877
	Subsidiary Materials	15,453	
	Energy	Electricity (MWh/year)	97,930
		Fuel (crude oil equivalent, kl/year)	2,859
Service Water	(km <sup>3</sup> /year)	130	
OUTPUT	Discharged Materials	(kt)	26
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	34
		CO <sub>2</sub> <Fuel> (kt/year)	7
		NO <sub>x</sub>	5
		SO <sub>x</sub>	0
	Wastewater	(km <sup>3</sup> /year)	57



### Moka Works

High-grade casting components (iron and aluminum) for automobiles

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron	28,755
		Aluminum	3,300
		Additives	600
	Subsidiary Materials	6,085	
	Energy	Electricity (MWh/year)	81,045
Fuel (crude oil equivalent, kl/year)		1,768	
Service Water	(km <sup>3</sup> /year)	418	
OUTPUT	Discharged Materials	(kt)	19
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	28
		CO <sub>2</sub> <Fuel> (kt/year)	4
		NO <sub>x</sub>	1
		SO <sub>x</sub>	0
	Wastewater	(km <sup>3</sup> /year)	238



### Kuwana Works

Piping components, water-cooling equipment, mass flow controllers and valves

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron	17,093
		Resins	5,600
		Additives	1,649
	Subsidiary Materials	6,688	
	Energy	Electricity (MWh/year)	58,326
Fuel (crude oil equivalent, kl/year)		7,858	
Service Water	(km <sup>3</sup> /year)	1,042	
OUTPUT	Discharged Materials	(kt)	18
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	20
		CO <sub>2</sub> <Fuel> (kt/year)	26
		NO <sub>x</sub>	8
		SO <sub>x</sub>	20
	Wastewater	(km <sup>3</sup> /year)	833



### Wakamatsu Works

Mill rolls, injection molding machine parts, steel frame joints for construction equipment

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron	61,458
		Subsidiary Materials	4,540
	Energy	Electricity (MWh/year)	81,197
		Fuel (crude oil equivalent, kl/year)	4,254
	Service Water	(km <sup>3</sup> /year)	174
OUTPUT	Discharged Materials	(kt)	50
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	28
		CO <sub>2</sub> <Fuel> (kt/year)	11
		NO <sub>x</sub>	6
		SO <sub>x</sub>	0
	Wastewater	(km <sup>3</sup> /year)	98

Notes: 1. SO<sub>x</sub> atmospheric emissions amounts were derived based on environmental impact volume duties.

2. NO<sub>x</sub> atmospheric emissions amounts were derived using direct measurements from facilities subject to atmospheric pollution control regulations.



### Yasugi Works

High-grade specialty steels, electronic materials

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron	78,774
		Additives	22,422
	Subsidiary Materials	26,634	
	Energy	Electricity (MWh/year)	433,578
		Fuel (crude oil equivalent, kl/year)	56,230
Service Water	(km <sup>3</sup> /year)	6,132	
OUTPUT	Discharged Materials	(kt)	68
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	152
		CO <sub>2</sub> <Fuel> (kt/year)	148
		NO <sub>x</sub>	175
		SO <sub>x</sub>	59
	Wastewater	(km <sup>3</sup> /year)	5,518



### Tottori Works

IT components and ferrite cores, EMC noise reduction components, FINEMET®

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron Oxide	1,272
		Additives	503
	Subsidiary Materials	9	
	Energy	Electricity (MWh/year)	29,160
		Fuel (crude oil equivalent, kl/year)	539
Service Water	(km <sup>3</sup> /year)	84	
OUTPUT	Discharged Materials	(kt)	1
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	10
		CO <sub>2</sub> <Fuel> (kt/year)	1
		NO <sub>x</sub>	0
		SO <sub>x</sub>	—
	Wastewater	(km <sup>3</sup> /year)	80

Notes: 1. SO<sub>x</sub> atmospheric emissions amounts were derived based on environmental impact volume duties.

2. NO<sub>x</sub> atmospheric emissions amounts were derived using direct measurements from facilities subject to atmospheric pollution control regulations.



### Kumagaya Works Business Center

Ferrite and rare earth magnets and applied materials, aluminum wheels and other aluminum products, environmental plant operations

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron Oxide	13,920
		Aluminum	40,560
		Additives	5,486
	Subsidiary Materials	3,292	
	Energy	Electricity (MWh/year)	119,479
Fuel (crude oil equivalent, kl/year)		17,134	
Service Water	(km <sup>3</sup> /year)	1,024	
OUTPUT	Discharged Materials	(kt)	13
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	42
		CO <sub>2</sub> <Fuel> (kt/year)	32
		NO <sub>x</sub>	11
		SO <sub>x</sub>	0
	Wastewater	(km <sup>3</sup> /year)	850



### OE Device Division

Electronic devices and components

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron Oxide	5
		Additives	2.1
	Subsidiary Materials	10.2	
	Energy	Electricity (MWh/year)	14,389
		Fuel (crude oil equivalent, kl/year)	0
Service Water	(km <sup>3</sup> /year)	141	
OUTPUT	Discharged Materials	(kt)	0
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	5
		CO <sub>2</sub> <Fuel> (kt/year)	0
		NO <sub>x</sub>	0
		SO <sub>x</sub>	—
	Wastewater	(km <sup>3</sup> /year)	54



### HMY, Ltd.

Precision casting products, specialty precision processed products

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron 2,396	
		Additives 561	
	Subsidiary Materials	895	
	Energy	Electricity (MWh/year) 60,975	
	Fuel (crude oil equivalent, kl/year) 10,766		
	Service Water (km <sup>3</sup> /year)	34	
OUTPUT	Discharged Materials (kt)	8	
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	21
		CO <sub>2</sub> <Fuel> (kt/year)	28
		NO <sub>x</sub>	8
		SO <sub>x</sub>	16
	Wastewater (km <sup>3</sup> /year)	13	



### Hitachi Tool Engineering, Ltd.

Specialty steel tools, cemented carbide tools, ceramic tools, diamond tools, drills

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron 254	
		Additives 76	
Subsidiary Materials		0	
Energy	Electricity (MWh/year)	28,169	
	Fuel (crude oil equivalent, kl/year)	20	
Service Water (km <sup>3</sup> /year)		66	
OUTPUT	Discharged Materials (kt)	1	
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	10
		CO <sub>2</sub> <Fuel> (kt/year)	0
		NO <sub>x</sub>	0
		SO <sub>x</sub>	—
	Wastewater (km <sup>3</sup> /year)		64



### Seitan Inc. (including Hitachi Metals MPF, Ltd.)

Precision forgings and dies

Segment	Material	Amount (t/year)	
INPUT	Primary Materials	Iron 12,814	
		Non-ferrous metals 20	
Subsidiary Materials		0	
Energy	Electricity (MWh/year)	14,413	
	Fuel (crude oil equivalent, kl/year)	895	
Service Water (km <sup>3</sup> /year)		1,311	
OUTPUT	Discharged Materials (kt)	3	
	Atmospheric Emissions	CO <sub>2</sub> <Electricity> (kt/year)	5
		CO <sub>2</sub> <Fuel> (kt/year)	2
		NO <sub>x</sub>	2
		SO <sub>x</sub>	0
	Wastewater (km <sup>3</sup> /year)		1,311

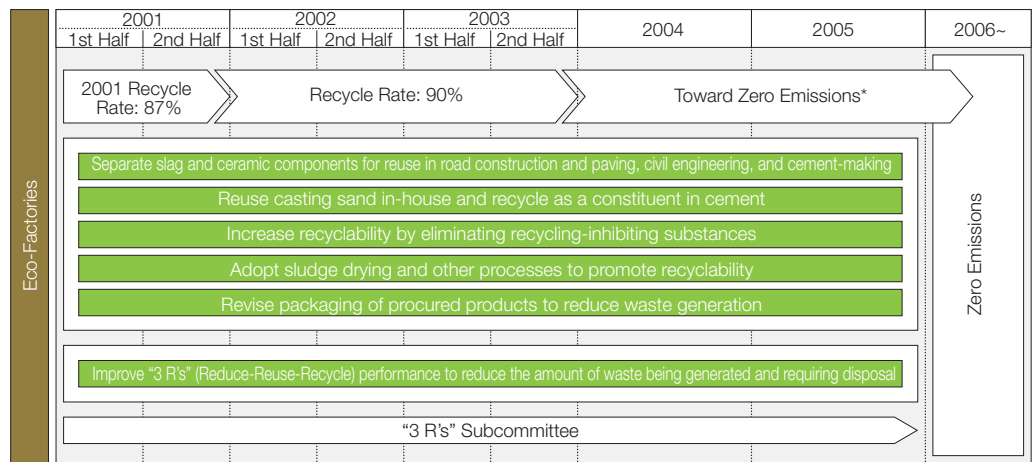
Notes: 1. SO<sub>x</sub> atmospheric emissions amounts were derived based on environmental impact volume duties.

2. NO<sub>x</sub> atmospheric emissions amounts were derived using direct measurements from facilities subject to atmospheric pollution control regulations.

**Reducing Waste**

Hitachi Metals aims to achieve a discharged-materials recycling rate of more than 99% by fiscal 2005. The mid-range plans toward achieving this include increasing the recycle rate for such materials to 90% by fiscal 2003. The recycle rate in fiscal 2002 was 88.7%.

**Zero Emissions Road Map**

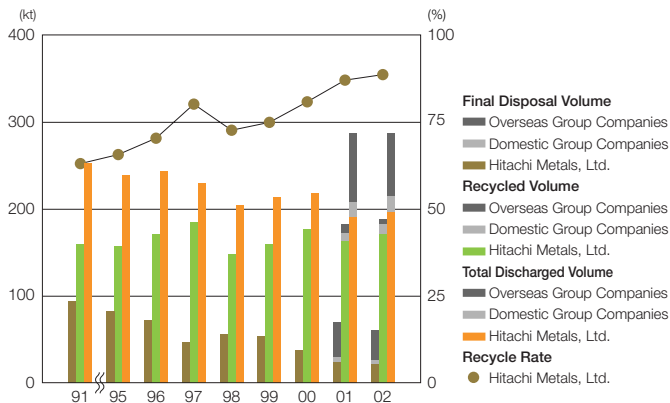


\* Zero Emissions refers to the achievement of a final disposal rate of less than 1%.

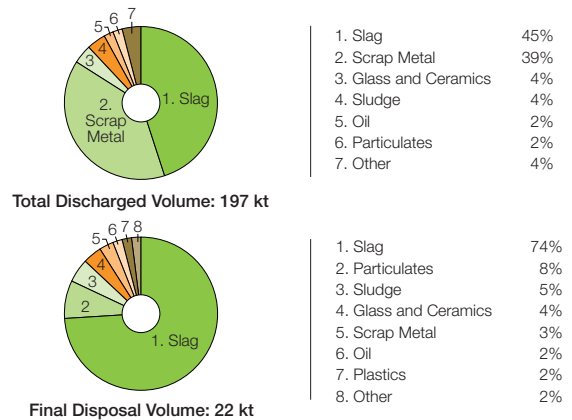
**Recycling Performance**

In fiscal 2002, Hitachi Metals generated approximately 196,000 tons of industrial waste, of which 171,000 tons were successfully recycled and 22,000 tons were channeled for final disposal. This represents a current recycle rate of 88.7%, up from 86.5% in the previous fiscal year. The total amount of waste generated by the Hitachi Metals Group as a whole was approximately 287,000 tons. Recycling efforts included using slag waste to make road construction materials, recycling casting sand in-house or using it as a material in cement, and reusing dust containing cobalt, chromium, tungsten, and other elements in the fabrication of specialty steels. Dust containing such elements as nickel is used by other companies to make other kinds of specialty steels.

**Changes in Companywide Waste Generation and Recycle Rate**



**Breakdown of Waste Generated (Hitachi Metals, Ltd.)**



Note: Total Discharged Volume = Total volume of all non-product materials discharged from manufacturing processes  
 Final Disposal Volume = Volume of waste disposed of directly or in landfill  
 Recycled Volume = Volume of materials reused for the same purposes or recycled as resources or energy for other purposes  
 Recycle Rate = Recycled Volume / (Recycled Volume + Final Disposal Volume) x 100

● **Efforts to Achieve Zero Emissions**

As early as fiscal 1979, Hitachi Metals began a Companywide project aimed at reducing waste and increasing recycling, including the reclamation of casting sand for reuse and the repurposing of casting dust and waste sand as materials for road construction. Currently, primarily through the efforts of the “3 R’s” Subcommittee that functions under the auspices of Hitachi Metals’ Corporate Environmental Committee, we are expanding the depth and breadth of our waste-handling activities in general. We are moving forward toward achieving the targets of the Hitachi Metals Group.

Our current goals include a Zero Emissions program that aims to reduce the amount of discharged materials to less than 1%. This includes a Companywide revision of manufacturing processes to reduce waste and manage waste generation more closely, as well as more thorough separation of waste into different types for improved recyclability.

● **3R (Reduce, Reuse, Recycle) Activities in Fiscal 2002**

In fiscal 2002, we engaged in the activities outlined in the table below. Changing sludge into material for Ni and cement production, as well as turning heat-resistant material into material for soil improvement, contributed significantly to increasing the recycling ratio. We were able to reduce the amount of sludge in final disposal by approximately 80% from last year. The Company encourages 3R activities to reduce other kinds of waste as well.

**Types of Waste and 3R Measures Implemented in Fiscal 2002**

Type of Waste	Measures Implemented
Slag	Expanded use of slag-derived materials in road construction Expanded in-house reuse of casting sand, as well as reuse in road construction materials and cement Collection of shot-blasting dust for reuse as a reducing agent
Glass and Ceramics	Recycling of brick fragments into brick constituents and road construction materials Recycling of ceramic baking trays into ceramic constituents Use of heat-resistant material for soil improvement
Oil	Integration of types of oils used to control waste oil generation Control emission of discarded oil by extending its useful lifespan
Sludge	Extraction of usable metals from acid-treated waste sludge Change into material for Ni and cement production through drying
Plastics	Solidification of plastic fragments for recycling using a combining facility Conversion of waste plastic into solid RDF (refuse-derived fuel)
Others	Recycling of wastepaper through sorting and collection Washing of rags and utility gloves for reuse Make wood chips out of greenery trimmings Recycle thermal energy

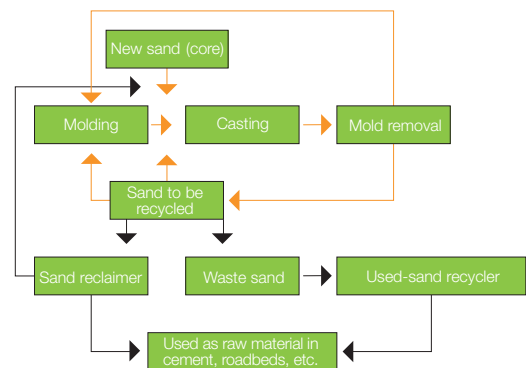
■ **Examples of Waste Reduction**

● **Casting Sand Reclamation and Reuse**

The sand used in the manufacture of cast-metal products can either be reused for further castings or repurposed as an ingredient for making cement or roadbed materials.



Waste sand recycler at the Moka Works



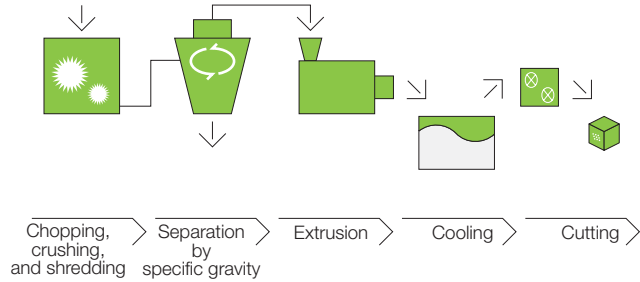
→ Manufacturing process → Foundry dust recycling process

● Recycling Waste Plastic

Plastic electrofusion fittings used for gas, water, and sewage are collected from Hitachi Metals customers, converted into pellets, and recycled as low-grade plastic materials at the Kuwana Works.



Pelletizing equipment at the Kuwana Works



● Others

Hitachi Metals encourages the reduction of business-related general waste in its activities to reduce waste toward achieving zero emissions.



● Recycling Gardening Waste (Moka Works)

Waste in the form of branches and leaves produced from gardening work at our manufacturing bases in Japan are shredded into wood chips of a size suitable for reuse and recycling.



Φ 150 wood chips  
45m per minute



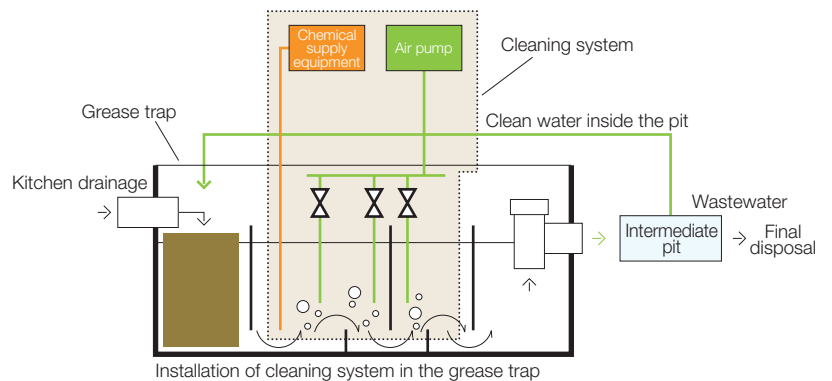
Φ 120 wood chips  
7m per minute



Branches and leaves  
45m per minute

● Reduction of Wastewater Drainage with Grease Trap for Kitchens (OE Device Division)

Oils released in wastewater from the kitchens of business offices are processed after a vacuum collects grease separated and recovered in a grease trap. With a cleaning system installed in the grease trap, grease is broken down with a constant drip of chemicals and air-drying. The system contributes to zero processing of grease at final disposal sites.



● Separation of Paper Cup and Boxed Lunch Garbage (Wakamatsu Works, Hitachi Tool Engineering, Ltd., others)

We are separating and collecting paper cups, which had been mixed in with paper waste and incinerated before, enabling their recycling into paper. We also separate and thermally recycle boxed lunch containers and ramen noodle cups.



Collection bins for paper cups



Collection containers for boxed lunches and ramen noodle cups

## Resource and Energy Conservation

Hitachi Metals is pursuing energy conservation activities that aim to reduce its energy consumption rate by 10% against 1990 level by 2010. In fiscal 2002, Hitachi Metals reduced usage by 2.3% due to energy conservation measures. However, the energy consumption rate increased 0.2% year-on-year to 1.704 on account of a decline in product prices and other factors. Overall, the energy consumption rate is up 32.1% compared with 1990 level.

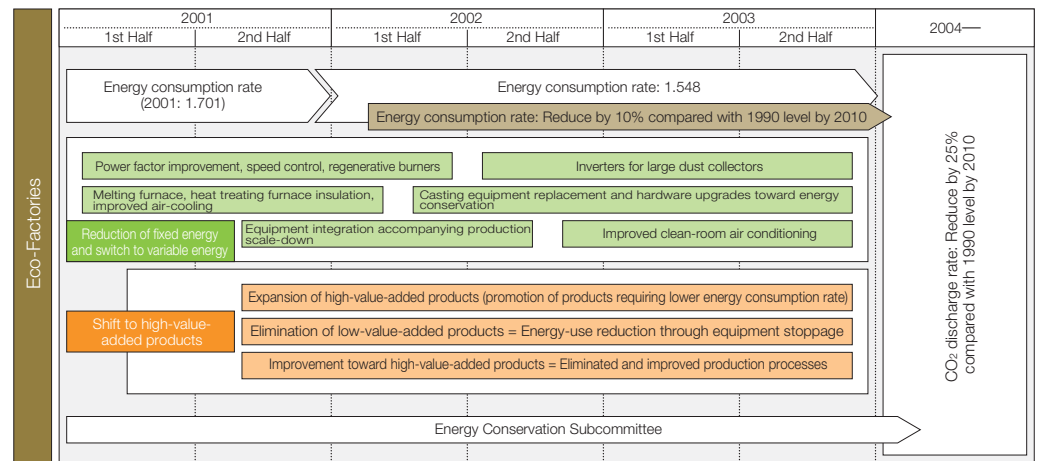
Hitachi Metals' parent CO<sub>2</sub> emissions have declined 27% compared with fiscal 1990 level.

### ● Energy Conservation Measures

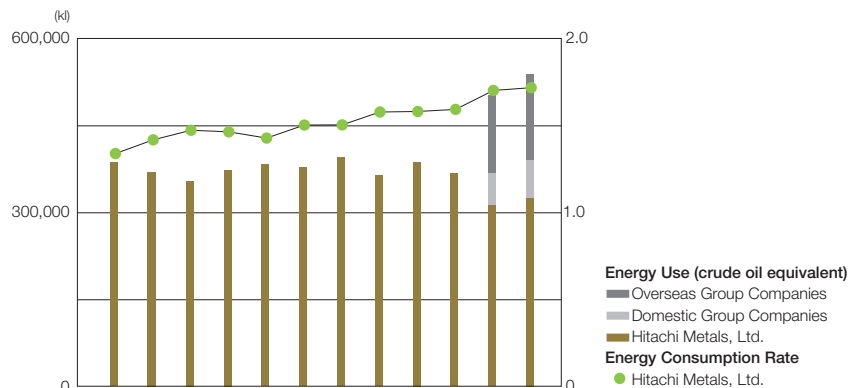
Energy consumption has been an ongoing issue for the steel industry ever since the so-called oil shocks of the 1970s, and along with industrial waste it has become one of the most pressing environmental issues today. As part of the activities being advanced by Hitachi Metals' Energy Conservation Subcommittee, in addition to staff initiatives to eliminate energy waste and improve processes, facilities, and equipment, we have also been following an "energy conservation road map" designed to engage all employees in efforts to eliminate workplace and facility energy waste. These efforts have involved establishing mid-range goals and creating and implementing concrete improvement themes to achieve these goals. So far, these have resulted in an overall energy savings equivalent to 2.3%.

In fiscal 2003, the final year of the medium-term plan, we are pushing forward with a concrete action plan toward achieving objectives based on our road map. We added a new long-term target for CO<sub>2</sub> emissions, formulated a new road map to achieve this target, and are making concerted efforts to conserve energy.

### ● Energy Conservation Road Map

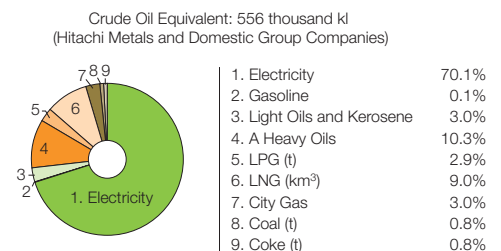


### ■ Energy Use and Energy Consumption Rates



### ■ Distribution of Energy Use

(fiscal 2002)



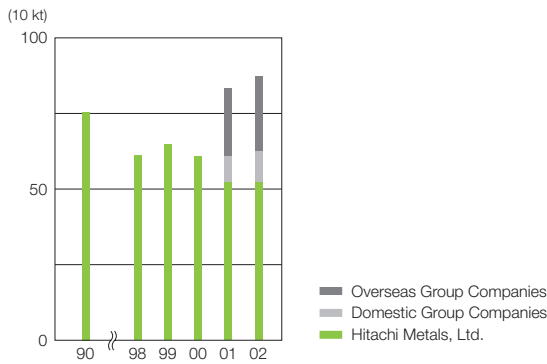
● **Trends in CO<sub>2</sub> Emissions**

On a parent basis, CO<sub>2</sub> emissions in fiscal 2002 totaled 552,000 tons, an increase of 30,000 tons from the previous fiscal year. CO<sub>2</sub> emissions are down 27% compared with fiscal 1990 levels. From fiscal 2001, Hitachi Metals began to tabulate Groupwide CO<sub>2</sub> emissions. Accordingly, the Group generated 655,800 tons of CO<sub>2</sub> in Japan, a year-on-year increase of 7.6%, and 246,800 tons of CO<sub>2</sub> overseas, a rise of 10% compared with the previous fiscal year. Based on our new road map, we aim to reduce CO<sub>2</sub> emissions while concentrating efforts on improving the CO<sub>2</sub> consumption rate.

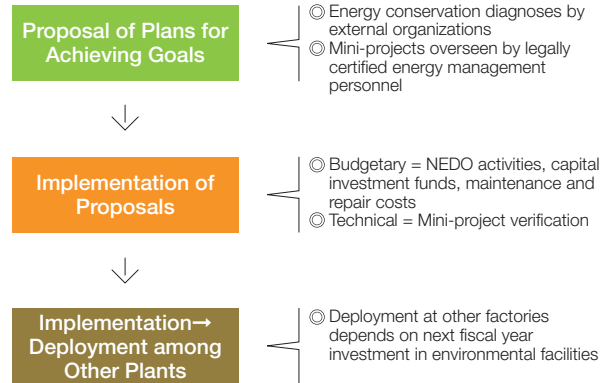
● **Companywide Energy Conservation Subcommittee**

The Companywide Energy Conservation Subcommittee, which supports environmental management systems at all our sites, has proposed concrete actions plans to realize medium-term targets for energy conservation while deferring to management decisions. At the same time, the subcommittee deploys energy-saving technologies across the organization, working steadily toward achieving preset energy reduction targets. The subcommittee will continue to follow the new road map for conserving energy and further reducing energy consumption.

■ **Changes in CO<sub>2</sub> Emissions**



■ **Energy Conservation Meeting**

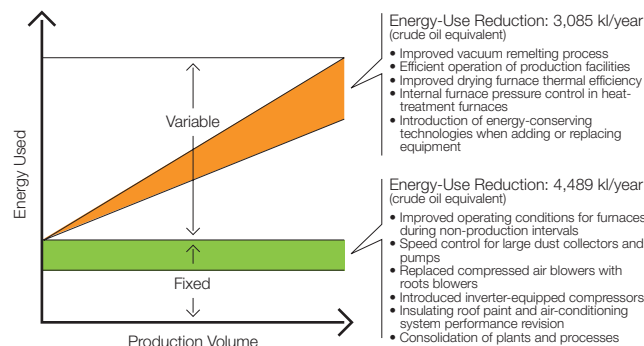


● **Specific Energy Conservation Strategies**

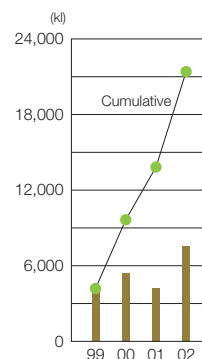
Our focus in reducing energy use has been to minimize the effect of declining production volumes on our energy consumption rate by reducing the fixed portions of our energy consumption. To this end, we first clarified our energy consumption patterns, and based on this assessment identified those processes where fixed energy use might viably be reduced or converted to variable energy use. This analysis has helped us improve our per-unit energy consumption rate, which is an integral part of our energy conservation strategy.

The results in fiscal 2002 included both efforts to reduce fixed energy use (for example by eliminating no-load equipment operation and idling, improving air-conditioning energy performance, and reducing compressed air loss) and making efforts to increase variable energy per-unit usage rates (through such measures as revising manufacturing processes and improving melting furnace and drying furnace efficiency).

■ **Fixed and Variable Energy Consumption Reduction Measures in Fiscal 2002**



■ **Changes in Energy Use through Energy Conservation Measures (crude oil equivalent)**



## Examples of Measures to Conserve Energy

### Yasugi Works: Conserving Energy in Dust Collectors by Using Inverters



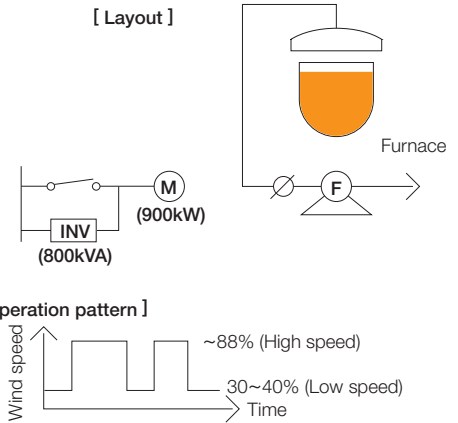
Inverter power source equipment

At the Coastal Plant of Yasugi Works, the Company installed direct-pull dust collectors on each electric furnace to prevent the scattering of dust generated by electric furnaces and to improve the work environment.

However, dust collectors operate at a constant speed, needlessly consuming electricity. To solve this problem, we installed an inverter on the motors powering each dust collector in an effort to conserve energy. For a direct-pull dust collector installed in a 40-ton electric furnace, we were able to achieve substantial energy savings of approximately 80% compared with previous operational parameters.

Electric power consumption rate: from 34 kWh per ton (dust volume) to 7 kWh per ton (dust volume)

Energy savings of approximately 200 MWh per month for 7,500 tons of dust produced



### Wakamatsu Works: Reduction in Fuel Oil Usage by Automatically Controlling Pressure in Heat Treating Furnaces



Heat treating furnace

Wakamatsu Works was able to reduce fuel oil usage owing to the following measures:

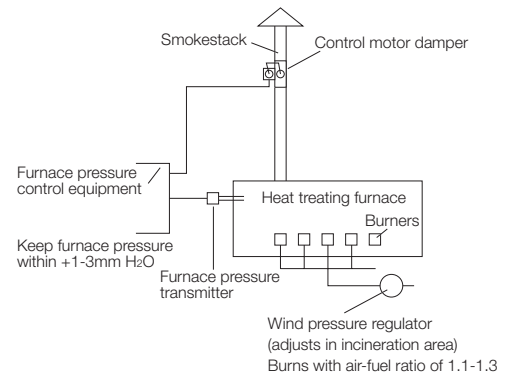
1. The Company aims to reduce fuel oil usage by 20% by improving thermal efficiency through efforts to stabilize incineration conditions, including preventing cold-air intrusion and keeping the air-fuel ratio to within the 1.1 to 1.3 range, through automated control of pressure inside oil-fired heat-treating furnaces.

Number of furnaces: 3 (two with 90-ton and one with 50-ton capacity)  
Improvement: 12.1 kiloliters per month

2. We installed large-scale ladle pre-heating equipment to pre-heat the incineration ladle. As a result, the Company was able to reduce fuel oil usage by approximately 30% through improvements to thermal efficiency by maintaining temperatures and preventing heat from escaping.

- Applicable ladles: 15-20 ton ladles
- Improvement: From 100 liters per hour to 70 liters per hour

#### [ Furnace Pressure Control System ]



### Kuwana Works: Energy Conservation Activities

At Kuwana Works, we have reduced energy consumption through the following measures:

1. Expanding operations from casting pipe joints to plastic pipe joints
2. Increasing productivity by integrating plants
3. Installing energy-saving production facilities including internal-fuel cupola and high-voltage inverters

These activities to reduce energy consumption in fiscal 2002 resulted in savings of 128 MWh per month.

- Changing from hydraulic to electric powered cylinders on casting lines
- Participating employees' efforts to reduce energy consumption (preventing air leakage, etc.)

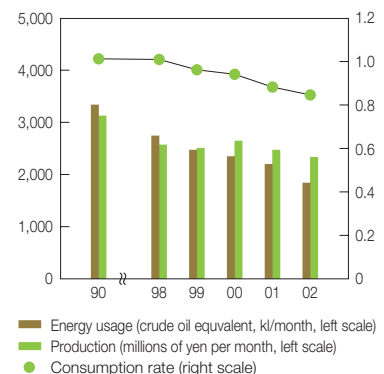
As a result, amid declining production volumes, we have been able to achieve an average consumption rate improvement of 6.5% over the past five years.



Upgraded to a thermal hot air cupola



Cast-frame hydraulic cylinders were changed to electric-powered servo cylinders



## Reduce Harmful Chemical Substances

### ● The Management and Control of Chemical Substances

Regarding the management and control of chemical substances, in 1986 Hitachi Metals established its "Preliminary Evaluation Guidelines for New Chemical Introduction," later revised in 1992 as "Evaluation Standards for Introducing New Chemicals," both designed to allow thorough advance evaluation of new chemicals. In addition, we have also formulated and implemented standardized procedures for handling and storing chemicals.

In 2001, we introduced a comprehensive management system for chemical substances, and have since then used it to search for information on chemical substances and manage discharge and transfer volumes.

#### Fiscal 2002 PRTR Survey Results (Total of substance handled 10kg per year of greater)

Scope of data: Hitachi Metals and Group companies in Japan

(t)

Chemicals	Used		Discharged (Atmosphere, water ways)		Transferred (Sewage, waste)		Consumed (Including volume treated)	
	Hitachi Metals	Domestic Group Companies	Hitachi Metals	Domestic Group Companies	Hitachi Metals <small>Figures in parentheses are recycled volumes</small>	Domestic Group Companies	Hitachi Metals	Domestic Group Companies
Zinc compounds (water-soluble)	77.44	—	0.09	—	8.86(7.98)	—	68.49	—
2-aminoethanol	0.11	—	0.00	—	0.11(0.00)	—	0.00	—
n-alkylbenzenesulfonic acid and its salts (alky C = 10-14)	0.10	—	0.10	—	0.00(0.00)	—	0.00	—
Bisphenol A type epoxy resin (liquid)	0.02	2.44	0.00	0	0.02(0.00)	0.05(0.00)	0.00	2.40
Ethylbenzene	33.58	0.47	3.94	0.00	0.00(0.00)	0.00(0.00)	29.64	0.47
Ethylene glycol	0.06	—	0.00	—	0.06(0.00)	—	0.00	—
Ethylene glycol monoethyl ether	0.05	—	0.00	—	0.01(0.00)	—	0.04	—
Ethylenediaminetetraacetic acid	0.06	—	0.00	—	0.01(0.00)	—	0.05	—
Xylene	103.52	53.26	42.50	49.75	14.50(0.00)	0.00(0.00)	46.52	3.51
Chromium and chromium (III) compounds	17,459.19	10.23	37.62	0.00	166.63(42.19)	0.00(0.00)	17,254.94	10.23
Chromium (VI) compounds	1.11	0.12	0.00	0.00	0.27(0.27)	0.12(0.00)	0.83	0.00
Cobalt and its compounds	721.90	33.89	0.20	0.00	5.38(5.22)	0.00(0.00)	716.32	33.89
Ethylene glycol monoethyl ether acetate	0.03	—	0.01	—	0.02(0.00)	—	0.00	—
Dichloromethane	—	0.06	—	0.05	—	0.01(0.00)	—	0.00
Organic tin compounds	6.02	—	0.00	—	0.00(0.00)	—	6.02	—
Selenium and its compounds	1.82	—	0.00	—	0.00(0.00)	—	1.82	—
Copper salts (water-soluble, except complex salts)	19.51	—	0.02	—	1.66(1.49)	—	17.83	—
1,3,5-trimethyl benzene	1.79	—	1.67	—	0.11(0.00)	—	0.00	—
Toluene	95.44	190.63	45.62	182.26	7.29(0.00)	0.00(0.00)	42.54	8.37
Lead and its compounds	20.63	0.01	0.00	0.00	0.32(0.25)	0.00(0.00)	20.31	0.01
Nickel and its compounds	14,892.98	2.93	4.88	0.00	13.20(10.12)	0.30(0.28)	14,874.90	2.63
Barium and its water-soluble compounds	—	4.81	—	0.00	—	0.00(0.00)	—	4.81
Hydroquinone	—	0.18	—	0.00	—	0.18(0.00)	—	0.00
Phenol	6.02	—	3.76	—	0.00(0.00)	—	2.26	—
Bis (2-ethylhexyl) phthalate	21.91	—	0.00	—	0.04(0.00)	—	21.87	—
Hydrogen fluoride and its water-soluble salts	16.62	0.60	10.34	0.34	0.02(0.00)	0.03(0.00)	6.27	0.23
Benzene	4.23	0.30	0.00	0.00	0.00(0.00)	0.00(0.00)	4.23	0.30
Boron and its compounds	88.33	—	0.78	—	6.12(3.23)	—	81.43	—
Poly (oxyethylene) alkylether (alky C=12-15)	0.04	—	0.00	—	0.04(0.00)	—	0.00	—
Poly (oxyethylene) octylphenylether	—	0.87	—	0.87	—	0.00(0.00)	—	0.00
Poly (oxyethylene) nonylphenylether	0.03	—	0.03	—	0.00(0.00)	—	0.00	—
Formaldehyde	7.08	—	3.26	—	0.05(0.00)	—	3.77	—
Manganese and its compounds	1,524.76	4.15	37.57	0.65	125.92(55.55)	0.07(0.00)	1,361.28	3.43
Molybdenum and its compounds	2,103.76	11.95	1.20	0.00	12.52(1.22)	1.50(0.00)	2,090.04	10.45
Total	37,208.13	316.90	193.57	233.93	363.16(127.51)	2.25(0.28)	36,651.40	80.72

## Reducing Emissions of Chemical Substances

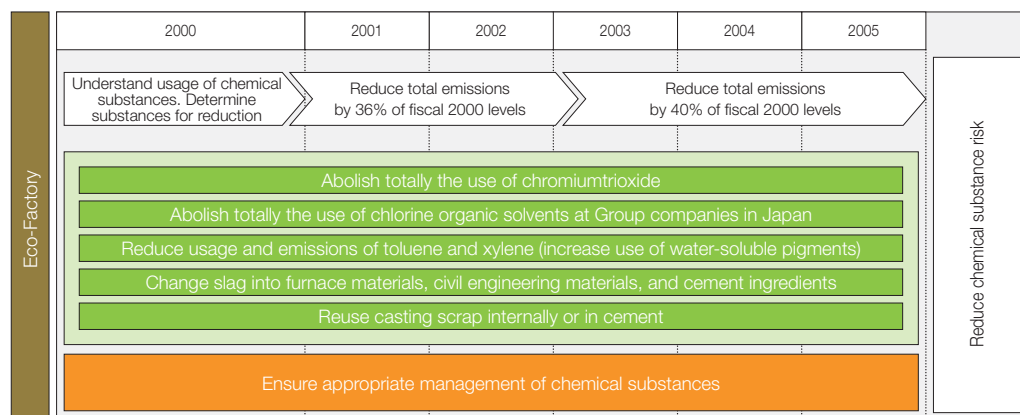
The Hitachi Group classifies chemical substances according to its own risk assessment standards into “abolish”, “reduce” and “manage.” The Group plans to abolish totally the use of “abolish” substances by fiscal 2005, and to lower emissions of “reduce” substances by 30% compared with fiscal 2000 levels. Hitachi Metals and its main Group companies in Japan have formulated plans to lower emissions of chemical substances based on that policy. In fiscal 2002, approximately 56% of total emission of “PRTR” substances were “reduce” substances. We plan to expand our emission reduction activities. In fiscal 2002, we had reduced emissions of substances by 35.8% of fiscal 2000 levels. As a result, we re-set our fiscal 2005 goal to achieve emission reductions of 40% fiscal 2000 levels.

Note: We define the term emissions used in emission reduction activities as total discharge and transfer volumes as defined by the PRTR law minus recycled volumes.

## Emissions of Reduction Substances

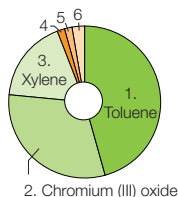
Fiscal 2002	Emissions (t)	Percentage
“PRTR” substances	665.12	—
“Reduce” substances	371.87	56%

## Roadmap to Reducing Emissions of Chemical Substances

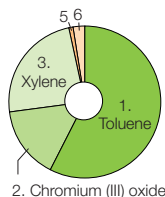


## Emissions of “Reduce” Substances and Their Percentage

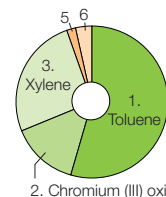
Fiscal 2000 Emissions (579.0 t)



Fiscal 2002 Emissions (371.9 t)



Fiscal 2005 Emission Targets (347.1 t)



## Activities to Reduce Chemical Substances (Fiscal 2002)

Chemical	Substance Activity
Chromiumtrioxide	Recycle waste fluid Develop replacement technology for chemical conversion processing
Chromium (III) oxide	Find partial replacement for casting scrap
Toluene and xylene	Reduce usage by using more water pigment Increase coating efficiency with improved nozzles
2-aminoethanol	Find partial replacement for cutting fluids
Poly (oxyethylene) alkylether	
Boron and its compounds	
Phenol	Find replacement for resist separation materials

## Pollution Prevention Measures

To prevent pollution of the atmosphere and water, which directly affect global and local environments, we are formulating procedural manuals for each of our facilities describing how to make periodic inspections and environmental assessments of the facilities. Moreover, we are redoubling efforts to continuously improve our environmental management system and reduce environmental impact. In fiscal 2002, the Company cleared all regulatory benchmarks.

The following is atmospheric and water quality data for Hitachi Metals and each of its main domestic Group companies.

### Kyushu Works

Type	Item	Regulation Value	Measured Value	
Atmospheric Emissions	Arc Furnaces	SOx (Nm <sup>3</sup> /h)	—	
		NOx (ppm)	—	
		Particulates (g/Nm <sup>3</sup> )	0.1	0.0022
	Heat Treating Furnaces	SOx (Nm <sup>3</sup> /h)	—	—
		NOx (ppm)	180	46
		Particulates (g/Nm <sup>3</sup> )	0.1	0.0028
	Kilns	SOx (Nm <sup>3</sup> /h)	—	—
		NOx (ppm)	180	7
		Particulates (g/Nm <sup>3</sup> )	0.15	0.0011
Water Quality	pH	5.8—8.6	7.8	
	SS (mg/l)	25	4.7	
	COD (mg/l)	15	4.7	

### Kuwana Works

Type	Item	Regulation Value	Measured Value	
Atmospheric Emissions	Cupola	SOx (Nm <sup>3</sup> /h)	6.78	0.09
		NOx (ppm)	200	33.7
		Particulates (g/Nm <sup>3</sup> )	0.1	0.003
	Annealing Furnaces	SOx (Nm <sup>3</sup> /h)	1.92	0.14
		NOx (ppm)	180	41
		Particulates (g/Nm <sup>3</sup> )	0.25	0.01
	Boilers	SOx (Nm <sup>3</sup> /h)	0.9	0.446
		NOx (ppm)	180	80.97
		Particulates (g/Nm <sup>3</sup> )	0.3	0.004
Water Quality	pH	5.8—8.6	7.2	
	SS (mg/l)	25	15	
	COD (mg/l)	25	7	

### Yasugi Works

Type	Item	Regulation Value	Measured Value	
Atmospheric Emissions	Boilers	SOx (Nm <sup>3</sup> /h)	13.69	0.211
		NOx (ppm)	150	94
		Particulates (g/Nm <sup>3</sup> )	0.25	0.0072
	Heating Furnaces	SOx (Nm <sup>3</sup> /h)	13.09	0.033
		NOx (ppm)	130	65
		Particulates (g/Nm <sup>3</sup> )	0.2	0.0004
	Arc Furnaces	SOx (Nm <sup>3</sup> /h)	—	—
		NOx (ppm)	—	—
		Particulates (g/Nm <sup>3</sup> )	0.1	0.0094
Water Quality	pH	5.8—8.6	7.7	
	SS (mg/l)	150	0.59	
	COD (mg/l)	20	5.6	

### Moka Works

Type	Item	Regulation Value	Measured Value	
Atmospheric Emissions	Melting Furnaces	SOx (Nm <sup>3</sup> /h)	—	—
		NOx (ppm)	—	—
		Particulates (g/Nm <sup>3</sup> )	0.1	0.008
	Melting Furnaces	SOx (Nm <sup>3</sup> /h)	—	—
		NOx (ppm)	—	—
		Particulates (g/Nm <sup>3</sup> )	0.2	0.002
	Melting Furnaces	SOx (Nm <sup>3</sup> /h)	2.3	0.1 or less
		NOx (ppm)	180	28
		Particulates (g/Nm <sup>3</sup> )	0.2	0.004
Water Quality	pH	5.8—8.6	7.0	
	SS (mg/l)	50	1.0	
	BOD (mg/l)	25	1.1	

### Wakamatsu Works

Type	Item	Regulation Value	Measured Value	
Atmospheric Emissions	Arc Furnaces	SOx (Nm <sup>3</sup> /h)	—	—
		NOx (ppm)	—	—
		Particulates (g/Nm <sup>3</sup> )	0.1	0.0011
	Heat Treating Furnaces	SOx (Nm <sup>3</sup> /h)	—	—
		NOx (ppm)	200	7
		Particulates (g/Nm <sup>3</sup> )	0.05	0.0011
	Drying Furnaces	SOx (Nm <sup>3</sup> /h)	—	—
		NOx (ppm)	250	10
		Particulates (g/Nm <sup>3</sup> )	0.3	0.0011
Water Quality	pH	—	—	
	SS (mg/l)	—	—	
	COD (mg/l)	—	—	

### Kumagaya Works Business Center

Type	Item	Regulation Value	Measured Value	
Atmospheric Emissions	Melting Furnaces	SOx (Nm <sup>3</sup> /h)	6.35	0.1 or less
		NOx (ppm)	180	19.5
		Particulates (g/Nm <sup>3</sup> )	0.2	0.009
	Melting Furnaces	SOx (Nm <sup>3</sup> /h)	5.5	0.1 or less
		NOx (ppm)	180	8
		Particulates (g/Nm <sup>3</sup> )	0.2	0.0045
	Sintering Furnaces	SOx (Nm <sup>3</sup> /h)	3.73	0.1 or less
		NOx (ppm)	—	—
		Particulates (g/Nm <sup>3</sup> )	0.4	0.0795
Water Quality	pH	5.8—8.6	7.3	
	SS (mg/l)	60	4	
	BOD (mg/l)	25	15	

### Tottori Works

Type	Item	Regulation Value	Measured Value
Atmospheric Emissions	No Relevant Facilities	SOx (Nm <sup>3</sup> /h)	—
		NOx (ppm)	—
		Particulates (g/Nm <sup>3</sup> )	—
Water Quality		pH	5.8—8.6
		SS (mg/l)	200
		BOD (mg/l)	160

### HMY, Ltd.

Type	Item	Regulation Value	Measured Value
Atmospheric Emissions	Heating Furnaces	SOx (Nm <sup>3</sup> /h)	18.68
		NOx (ppm)	180
		Particulates (g/Nm <sup>3</sup> )	0.2
Water Quality		pH	(Wastewater included under Yasugi Works)
		SS (mg/l)	
		BOD (mg/l)	

### Seitan Inc.

Type	Item	Regulation Value	Measured Value
Atmospheric Emissions	Heat Treating Furnaces	SOx (Nm <sup>3</sup> /h)	1.86
		NOx (ppm)	180
		Particulates (g/Nm <sup>3</sup> )	0.2
	Heating Furnaces	SOx (Nm <sup>3</sup> /h)	—
		NOx (ppm)	180
		Particulates (g/Nm <sup>3</sup> )	0.2
Water Quality		pH	5.8—8.6
		SS (mg/l)	90
		BOD (mg/l)	160

### OE Device Division

Type	Item	Regulation Value	Measured Value
Atmospheric Emissions	No Relevant Facilities	SOx (Nm <sup>3</sup> /h)	—
		NOx (ppm)	—
		Particulates (g/Nm <sup>3</sup> )	—
Water Quality		pH	5.8—8.6
		SS (mg/l)	200
		BOD (mg/l)	160

### Hitachi Tool Engineering, Ltd. (Drills Division)

Type	Item	Regulation Value	Measured Value
Atmospheric Emissions	No Relevant Facilities	SOx (Nm <sup>3</sup> /h)	—
		NOx (ppm)	—
		Particulates (g/Nm <sup>3</sup> )	—
Water Quality		pH	5.8—8.6
		SS (mg/l)	200
		BOD (mg/l)	160

Note: Water quality data is for factory effluents other than standard sewage.

## Countermeasures to Soil and Underground Water Pollution

We discovered soil and underground water pollution at the Kuwabe section of the Kuwana Works, and notified Mie Prefecture and Kuwana City in accordance with the Ordinance Concerning Environmental Preservation of Mie Prefecture. At the same time, Hitachi Metals publicly announced this discovery through various mass media.

From 1981 to 1994, the Kuwabe section had used organochlorine solvents for cleaning and degreasing casting pipe fittings. Based on this record, we investigated the area where the cleaning occurred, and as a result discovered the pollutants trichloroethylene (TCE), cis-1, 2-dichloroethylene (c-DCE). To identify the presence of any pollution in surrounding areas, we installed observation wells at the boundary area and monitored the underground water of those observation wells and wells in nearby areas. The results of investigation did not indicate the presence of these pollutants in underground water. Hitachi Metals conducted extensive surveys of soil and underground water pollution to determine the extent of the pollution, and then implemented measures to clean up the pollution. Finally, we disclosed detailed information on all of these activities.

### 1) Purification Measures

We purify that polluted areas, excavating and removing polluted soil, pumping out and treating underground water, and injecting reductant into the polluted areas.

### 2) Information Disclosure

Every month, Hitachi Metals reported on the progress of purification to Mie Prefecture and Kuwana City, and received guidance after each report. We also reported on our activities to residents by periodically holding conferences related to the incident.

## > Corporate Community Service Activities

It is part of Hitachi Metals' policy to undertake a variety of activities aimed at benefiting local communities. On an ongoing basis, we work to strengthen cooperative ties with local residents through a multitude of projects great and small, including monitoring rivers and wastewater, maintaining flower beds along river dikes, and participating in drives to clean up neighborhood streets, train stations, playgrounds, parks, and other local areas. In addition to these regular activities, we have also been involved in many special events, including donating 500 young cherry trees, planting pine trees as part of the "Eco-Town Hibikinada Landfill Greening" campaign, and participating in a drive to plant ecologically friendly kenaf crops (useful as a raw material for papermaking). We have also taken part in coastline clean-up activities, in conjunction with the "Clean Kitakyushu Campaign," and at Miho Beach in Shizuoka Prefecture. We are committed to continuing such environmental efforts wherever possible in order to better contribute to the well-being of local communities.



Community Service	<p>Participated in the "Eco-Town Hibikinada Landfill Greening" campaign by planting pine trees / Participated in a drive to plant ecologically friendly kenaf crops / Donated 500 young cherry trees to the city of Yasugi for planting in five locations / Performed maintenance work on river dike flower beds along Sawayaka ("Refreshment") Road</p> <p>Monitored rivers and wastewater in Moka City</p> <p>Participated in beachfront cleaning associated with the "Clean Kitakyushu Campaign" / Participated with Hitachi Metals Group companies in a drive to clean up Miho Beach / Cleaned the area around the south exit of JR Kagohara Station / Cleaned the roads between Yasugi Station and the Yasugi Works / Cleaned the area in front of Kanda Station / Cleaned a commuter passageway in Kuwana / Conducted clean-up activities in the Tottori Station Park area</p> <p>Opened the Tottori Works' medical clinic to the public / Worked to generate strong participation in blood donation drives / Increased commitment to community medical care in Yasugi City through the Hitachi Memorial Hospital</p> <p>Participated in "red feather" community chest drives / Donated to the Japanese Red Cross</p> <p>Supported Joetsu Vocational High School (by training new gas contractor employees in gas safety and equipment installation techniques)</p> <p>Participation by Hitachi Tools in such regional environmental preservation activities as a Lake Biwa clean-up effort</p>
Educational Activities	<p>Donated books to the town of Kanda / Hosted elementary school social studies field trips to the Yasugi Works / Education on the environment at elementary schools by Yasugi Works / Hosted visits to the Wakamatsu Works by elementary and junior high school students</p> <p>Material Science Research Fund, a non-profit organization that in 2002 awarded grants to 10 projects, three of which were environment-related research projects</p> <p>Supported Moka Computer College</p> <p>Hosted kendo (Japanese fencing) courses for boys</p> <p>At the request of the Kumagaya Chamber of Commerce ISO promotion liaison council, offered management support for small and medium-sized companies in the Kumagaya region toward earning ISO certification</p> <p>Established and supported an environment committee at Yuwakai (a Kumagaya region cooperative company)</p>
Communication with Local People	<p>Supported a goodwill marathon for the town of Kanda / Sponsored the Kuwana City Marathon / Hosted the Sakura Marathon in Kumagaya City</p> <p>Hosted six types of athletic events for Yasugi district junior high schools / Hosted volleyball tournaments for housewives' teams / Wakyo Cup volleyball tournament in Moka / Supported volleyball tournaments for junior high schools in the Tottori region</p> <p>Hosted Hitachi Metals flag baseball games for the city of Kuwana / Supported baseball tournaments for junior high schools in the Wakamatsu region / Dispatched volunteer umpires to the Wakamatsu branch of the All-Japan Hard Rubber-Ball Baseball League</p> <p>Co-sponsored the Tottori Shanshan Festival / Supported the Yasugi Cutlery Festival / Sponsored visits to nursing homes by members of the Hitachi Kai's tea ceremony club / Brass band visits to elementary schools / Loaned items to the Wako Museum</p> <p>Opened public access to Company gymnasiums, athletic fields, tennis courts, and archery halls</p> <p>Initiated composting at the Kumagaya Works Business Center cafeteria, accompanied by free distribution of compost to local residents</p> <p>Participation in the Niigata Festival by the Hitachi Group</p>



### ● Yasugi Works Holds Study Groups for the Environment at Elementary Schools

As a part of its activities that support the global environment, Hitachi Metals holds environmental study groups at elementary schools to raise awareness of the environment and teach children about the current state of the environment at their school and Hitachi Metals' environmental activities. Based on the catchphrase "studying together about the environment," we spend approximately two hours with elementary school students learning about the environment. The students were very interested in the environmental activities of Hitachi Metals and asked many questions. Through our experience with the study group, we have renewed our determination to step up our activities to preserve the environment.



Impressions of environmental study groups  
(Yasugi Arashima Elementary School)

## Efforts to Eliminate Labor Accidents

### Fiscal 2002 Targets

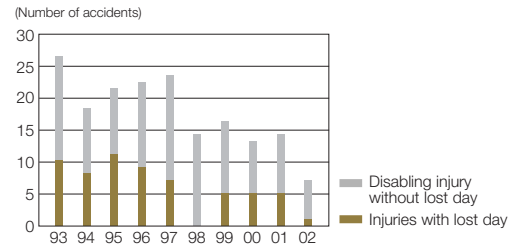
Our goal is to establish the Hitachi Metals' safety culture in occupational safety and to create a safe and secure working environment. To this end, we have fostered self-awareness in each and every employee and through a comprehensive review of workplace systems and processes successfully raised safety standards.

### Principal measures to eliminate labor accidents

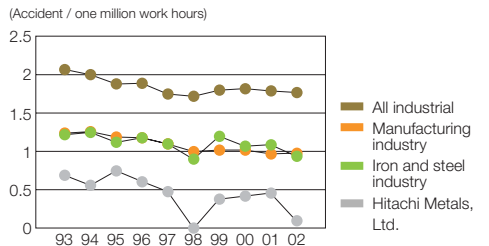
1. Establishing and maintaining occupational safety and health management system
2. Inherent safety of machinery
3. Improving safety and health education levels
4. Improve working environment and promote health management activities
5. Promote occupational safety and health management activities throughout the Group

Positive results of our occupational safety activities are reflected in trends in workplace accidents. In fiscal 2002, the number of labor accidents totaled seven, the smallest number recorded by Hitachi Metals, Ltd. to date. This figure however, is by no means satisfactory and we are stepping up our goal from "Zero-Accident" to "Zero Risk."

### Trends in Labor Accidents



### Labor Accident Rate



## Occupational Safety and Health Management System

Hitachi Metals introduced an occupational safety and health management system in fiscal 2001 in an effort to step up its activities and to establish a safe, secure and comfortable workplace.

This system has been introduced at each of Hitachi Metals' manufacturing facilities to ensure systematic and continuous improvement in the identification of hazardous factors through a process of risk assessment, based on Plan, Do, Check, Act (PDCA) cycle.

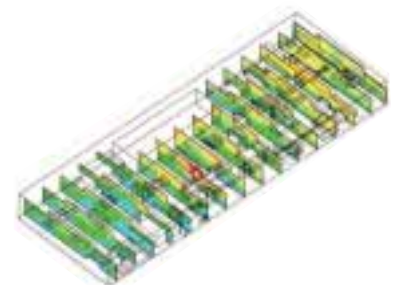
In addition, the Moka Works was the first of the Company's facilities to receive OHSAS 18001 certification in July 2002, an international occupational health and safety assessment series specification.



Receiving OHSAS 18001 certification

## Improvements in Working Environment

Hitachi Metals is working to improve workplace environment following dust and noise measurements taken at all manufacturing facilities. The Company is advancing improvements to ventilation and temperature control based on air current simulation technology and has prepared a noise control technical and policy manual to enhance workplace environment and improve facilities.



Air current simulation at one of Hitachi Metals' works

## > Chronology of Hitachi Metals' Environmental Activities

February	1971	Environment and Energy Conservation Task Force (currently the Environmental/Health and Safety Management Office) is established.
February	1974	Eight subcommittees are formed to reinforce the development of environment improvement technologies, including: particulate measurement, oil/water separation, wastewater analysis and disposal, waste recycling feasibility study, recycled waste heat-based heating/cooling systems, efficient service water usage, casting sand reclamation, and advanced effluent processing.
April	1974	Companywide resource and energy conservation drive is begun.
July	1975	Cooling system utilizing recycled annealing-process waste heat begins operation at the Kuwana Works production office.
March	1978	50% Energy Reduction Drive begun in 1974 is successfully completed, achieving a Companywide average energy use reduction of 47%.
April	1978	A phase-two "SAVE10" energy conservation drive is launched.
May	1979	Toyoda Prize received from the Japanese Foundry Association for the installation of an air-conditioning and hot-water supply system utilizing recycled waste foundry.
April	1980	A phase-three "SAVE15" energy conservation drive is launched.
February	1982	Moka Works receives the Japanese Ministry of International Trade and Industry's highest award for efficient electricity use.
November	1984	Kyushu Works completes installation of casting sand reclamation facilities.
April	1988	Task force established to study the removal of chlorofluorocarbons (ethane).
May	1991	Internal environmental auditing is initiated.
July	1991	Hitachi Metals donates a "Lakelifter" lake and reservoir cleaning unit to the government of Hungary.
January	1992	The HICS Chilled Towers™ receives the Energy-Saving Center's Chairman Award.
April	1992	A new corporate planning initiative is launched, implementing a preliminary environmental evaluation assessment prior to capital expenditure.
April	1993	Global Warming Prevention Committee is formed.
May	1993	Hitachi Metals' "Action Guidelines for Environmental Protection" are formulated.
July	1993	Specified chlorofluorocarbons are abolished.
January	1994	Hitachi Metals' new clean-engine cast automotive exhaust system components win the Daily Industrial News' (The Nikkan Kogyo Shimbun) 1993 New Product Award.
December	1994	Use of trichloroethane is abolished.
March	1995	An imaging wastewater analysis system and an incinerator specifications preparation system are developed.
June	1995	Casting sand reclamation begins at the Kuwana Works.
July	1995	Air current simulation software is developed.
November	1995	Noise simulation software is developed.
December	1995	The New Corporate Planning Initiative's preliminary evaluation format is revised to include both safety and environmental issues.
November	1996	Companywide EMS preparation project is launched.
January	1997	Kuwana Works receives the Director's Award from Japan's Energy Agency for excellence in plant energy management.
March	1997	Industrial waste disposal facilities are completed at the Yasugi Works and are put into operation on April 1.
May	1997	An integrated waste materials recycling line is inaugurated at the Kumagaya Works Business Center.
September	1998	Tottori Works becomes the first Hitachi Metals facility to earn ISO 14001 certification.
April	1999	All operational facilities of Hitachi Metals, Ltd. are ISO 14001 certified.
November	2000	Kyushu Works receives the Director-General's Award from the Machinery and Information Industries Bureau of the Ministry of International Trade and Industry for its environmental improvement efforts, including energy conservation and waste reduction.
November	2001	Moka Works receives the Materials Process Technology Center's 2001 Sokeizai Industry Environment-Friendly Factory Award.
February	2002	Wakamatsu Works receives Kitakyushu City's 2001 Waste Recycling and Reduction Excellence Award.
October	2002	Hitachi Metals Estate, Ltd. (Kyushu Office) receives an award from KitaKyushu City for outstanding recycling of waste.

## > Group Companies (Japan)

Name of Company	Reflection of Environmental Impact Data	Line of Business
Hitachi Tool Engineering, Ltd.	○	Manufacture and sales of specialty steel tools, cemented carbide tools, ceramic tools, diamond tools, drills and their applications
Hitachi Metals Techno, Ltd.	○	Manufacture, sales and installation of chains, components for steel-frame structures, flooring for buildings, piping components and their accessories; design and contracting of construction projects.
Hitachi Metals Trading Co., Ltd.		Sales of specialty steels, magnetic materials, precision castings, pipe fittings, valves, rolls, chains and machine installations; export/import and domestic sales of raw materials
Hitachi Metals Estate, Ltd.		Leasing of real estate; gardening and landscaping; management and leasing of sports and lodging facilities; sales of magnetic materials, etc.; welfare services at headquarters; insurance agency
Hitachi Metals MPF, Ltd.	○	Manufacture via the press-forging method and sales of moldings of magnesium and other alloys
Himec, Ltd.	○	Surveys, analysis and consulting regarding the atmosphere, water purity, soil, industrial waste, and other aspects of pollution prevention
HMK, Ltd.		Welfare services at Kumagaya office
Hallow, Ltd.		Visual inspection and magnetizing of rare earth magnets
Seitan Inc.	○	Manufacture and sales of precision forgings and dies
Tokyo Seimitsu Kogyo, Ltd.	○	Manufacture and sales of dies and light alloy castings
Auto-tech, Ltd.	○	Machining and assembly of automotive parts
Kyushu Technometal Co., Ltd.	○	Manufacture and sales of high-grade ductile iron castings and malleable castings including automotive parts; environmental sanitation, welfare services, inspection and packing at Kyushu Works
Moka Technos, Ltd.	○	Machining and shipment of cast parts; servicing of vehicles; real estate operations; landscaping; welfare services and leasing business of office machines at Kumagaya office
Alcast, Ltd.	○	Manufacture and sales of light alloy cast products and construction flooring materials
Hitachi Valve, Ltd.	○	Manufacture and sales of valves; machining, manufacture and sales of valve cocks
Shimoda-Ecotech Co., Ltd.		Design, manufacture and sales of SK-type grease traps
Kuwana Create Co., Ltd.	○	Design, fabrication and construction of piping systems for water supply, drainage, air conditioning and gas supply; manufacture of precision fluid control equipment; machining, assembly, inspection, packing, etc. of piping components
HMW, Ltd.	○	Heat treatment and surface treatment of metals; manufacture and sales of industrial kilns and castings; machining of rolls and parts for steel-frame buildings; welfare services at Wakamatsu Works
Towa Electronics, Ltd.	○	Manufacture and sales of Dumet wires, copper-plated thin wires and other electronic parts and materials
Die & Mold Service, Ltd.	○	Machining and sales of die materials
YSS Co., Ltd.	○	Heat treatment and surface treatment of specialty steels
Hiyoshi Kouzai Co., Ltd.		Sales of specialty steels, specialty alloys, their products, castings/forgings, magnetic materials and rolls
Nichiei Corporation	○	Sales, etc. of specialty steels, their products, magnetic materials and precision castings
HMY, Ltd.	○	Manufacture, sales and machining (including forging and straightening of precision castings and precision-machined specialty steel items); road transportation of freight and passengers; welfare services at Yasugi Works
Kusunoki Co., Ltd.	○	Surface flaw removal for specialty steel products; machining; cutting of hoop steel
Hitachi Metals Kiko Co., Ltd.	○	Manufacture and sales of permanent magnets, office machine parts, electronic parts and electronic materials
Magtech Co., Ltd.	○	Manufacture of permanent magnets
Hitachi Ferrite Electronics, Ltd.	○	Manufacture and sales of dies for electronic devices including communications equipment and computers, their accessories, coils for consumer and industrial uses, and various electronic parts including transformers
Nikki Plantech, Ltd.		Sales and installation of chains, plants, and construction equipment
Hitachi Metals Construction Co., Ltd.	○	Design, manufacture and sales of machinery installations, installation work
Tatsumi Engineering, Ltd.		Design, drawing, contract, and manufacture of machinery and equipment
Tools Tech, Ltd.		Sales of specialty steel tools and cemented carbide tools
Cosmo Technos, Ltd.		Purchase, manufacture and sales of sprocket wheels, pulleys, etc.
Hisago Valve Service, Ltd.		Repair, remodeling and special coating of valves; sales of valve parts
Nagashima Kogyo Co., Ltd.	○	Sales of high-grade specialty steels, and machining and sales of plates
System Mate, Ltd.		Manufacture of telemedicine systems, remote monitoring systems, and CD-ROM catalogs; Internet services; LAN installation and system management; PC school operations
Nippon Katan Co., Ltd.		Manufacture and sales of fittings for power transmission cables, metal items for insulators, automotive parts, pipe fittings and industrial machinery parts
Toyo Seihaku Co., Ltd.		Manufacture and sales of rolled products from metal ingots
Moriya Cutlery Laboratory, Ltd.		Manufacture and sales of precision specialty steel products and specialty steel castings
Hada Seiko, Ltd.		Manufacture of specialty steel products, and machining of specialty steels
Kiguchi Technics, Ltd.		Sample indexing, specimen processing and tests, sales of blades of YSS™
Izumo Engineering Co., Ltd.		Manufacture of rolls, hoop steel, dies and screws
Nakasa, Ltd.		Machining and assembly of precision castings
Aoyama Special Steel Co., Ltd.		Sales of specialty steels, their products, magnetic materials and precision castings
Nisso Kosakusho, Ltd.		Manufacture and sales of accessories to machinery equipment and flooring for buildings
Eco Valley Utashinai Co., Ltd.		Power generation by combustion of dust and general waste
Sugiyama Chain Co., Ltd.		Manufacture and sales of chains and parts for construction

## > Group Companies (Overseas)

Name of Company	Reflection of Environmental Impact Data	Line of Business
Hitachi Metals America, Ltd. (HMA)		Sales of Hitachi Metals' products, general administration of investments, loans and finances for subsidiaries and division companies in North America
Hitachi Magnetics Corporation	○	Manufacture of magnets (rare earth, ferrite ceramics, cast alnico)
Hitachi Metals North Carolina, Ltd.	○	Manufacture of ferrite ceramic magnets for automobiles
AAP St. Marys Corporation	○	Manufacture of aluminum wheels for automobiles
Ward Manufacturing Inc.	○	Manufacture and sales of pipe fittings and stainless steel flexible connectors
ACP Manufacturing Company LLC.	○	Manufacture of cast-iron parts for automobiles
HN Automotive, Inc.		Manufacture of cast-iron products for automobiles
Newport Precision Inc.	○	Manufacture of automotive specialty steel products
SinterMet, LLC	○	Manufacture and sales of tungsten carbide rolls
Hitachi Metals Europe GmbH		Sales of Hitachi Metals' products and export of raw and other materials in Europe
Hitachi Metals Singapore Pte. Ltd.		Sales of Hitachi Metals' products in Southeast Asia
Hitachi Metals Australia Pty. Ltd.		Sales of Hitachi Metals' products in Oceania
Hitachi Metals Hong Kong Ltd.	○	Sales of Hitachi Metals' products in Hong Kong and South China; manufacture and sales of soft ferrite cores manufactured at its Panyu Works
Hitachi Metals (Shanghai) Ltd.		sales of Hitachi Metals' products in China
Hitachi Metals (Suzhou) Electronics, Ltd.		Manufacture and sales of isolators and ceramic multilayered components
Hitachi Metals Dongguan, Ltd.		Manufacture of cylinders
Five Ace Technology Co., Ltd.		Processing and machining of sputtering target materials bonding
Hitachi Ferrite (Thailand) Ltd.	○	Manufacture and sales of rotary transformers for VCRs and soft ferrite cores, isolators for mobile phones
Hitachi Rolls (Thailand) Ltd.		Manufacture of rolls for mini-mills
Luzon Electronics Technology, Inc.	○	Manufacture of isolators for mobile phones
Luzon Magnetics, Inc.	○	Manufacture of magnets mainly for CD applications
Nam Yang Metals Co., Ltd.	○	Manufacture and sales of cast-iron parts for automobiles
Taigene Metals Ind. Co., Ltd.		Manufacture and sales of magnets (cast-alnico, ferrite ceramics, rare earth, etc.) soft ferrite materials (Mn based core) and applications
Pacific Metals Co., Ltd.		Manufacture and sales of cast-alnico and ferrite ceramics magnets
DGP Hinoday Industries Ltd.		Manufacture and sales of magnetic materials (hard ferrite ceramic magnets and soft ferrite)
Hiyoshi Hong Kong Ltd.		Sales of magnets, copying machines, printer parts, sintered powders, SUS coils
NICHIEI PILIPINAS INCORPORATED		Sales of speciality steels products
PHILIPPINE PRECISION TECHNOLOGY, INC.		Processing of speciality steels products
HAN IL SPECIAL STEEL Co., Ltd.		Processing and sales of speciality steels products
NICHIEI STEEL (H.K.) Ltd.		Sales of copying machines, printer parts, magnets, and cutter knives
Central Coating & Assembly, Inc.	○	Processing of magnets
Hitachi Tool Engineering Europe GmbH		Sales of Hitachi Tool Engineering's products
Hitachi Maxco, Ltd.		Sales of construction flooring materials
Maxcess Technologies, Inc. (Canada)		Manufacture of construction flooring materials
Maxcess Technologies, Inc. (U.S.A.)	○	Manufacture of construction flooring materials
Shanghai Hitachi Metals Techno Ltd.		Manufacture and sales of sprocket wheels
Sun Maxcess LLC		Manufacture of Hitachi Metals Techno's products
P.T.Bukaka Forging Industries		Manufacture of forgings for automobiles

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## > Manufacturing Facilities

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### Kyushu Works

35 Nagahama-cho, Kandamachi,  
Miyako-gun, Fukuoka 800-0393, Japan  
Tel: +81-93-436-2700



### Moka Works

13 Kinugaoka, Moka-shi,  
Tochigi 321-4367, Japan  
Tel: +81-285-80-3111



### Kuwana Works

2 Daifuku, Kuwana-shi,  
Mie 511-8511, Japan  
Tel: +81-594-24-2000



### Wakamatsu Works

1-9-1 Kitahama, Wakamatsu-ku,  
Kitakyushu-shi, Fukuoka 808-8558, Japan  
Tel: +81-93-761-5131



### Yasugi Works

2107-2 Yasugi-cho, Yasugi-shi,  
Shimane 692-8601, Japan  
Tel: +81-854-22-3501



### Kumagaya Works Business Center (Light Metal Casting Works, Magnetics Works)

5200 Mikajiri, Kumagaya-shi,  
Saitama 360-8577, Japan  
Tel: +81-48-531-1111



### Tottori Works

70-2 Nanei-cho, Tottori-shi,  
Tottori 689-1121, Japan  
Tel: +81-857-53-6000



### OE Device Division

18 Matsuyama-cho, Moka-shi,  
Tochigi 321-4346, Japan  
Tel: +81-285-80-0230



<b>Establishment</b>	April 10, 1956
<b>Capital</b>	¥26.3 billion
<b>Representative Executive Officers</b>	Michihiro Honda, President, Chief Executive Officer and Director Yasuhiro Daimonji, Senior Vice President and Executive Officer and Director
<b>Number of Employees</b>	Hitachi Metals, Ltd.: 5,641 Hitachi Metals Group: 17,098
<b>Net Sales (fiscal 2002)</b>	Hitachi Metals, Ltd.: ¥246.8 billion Hitachi Metals Group: ¥408.7 billion
<b>Products and Businesses</b>	Manufacture, sales, and service of high-grade metal products and materials; electronics and IT devices; high-grade casting components for automobiles; construction components, plant and equipment; and services and other activities
<b>Offices</b>	Headquarters: SEAVANS North Building, 2-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8614 Tel: +81-3-5765-4000 Fax: +81-3-5765-8311  Branches and Sales Offices: 13 in major cities throughout Japan, including Osaka, Nagoya, and Fukuoka  Works and R&D Facilities: 8 works and 4 R&D facilities located in Fukuoka, Saitama, Shimane, Mie, Tochigi, and Tottori prefectures  Overseas Offices: 40 offices worldwide, including New York, Duesseldorf, London, Paris, Hong Kong, Beijing, Sydney, and Singapore

Opinions, suggestions, and inquiries concerning the environmental efforts of Hitachi Metals can be directed to:



**Hitachi Metals, Ltd. Environmental/Health and Safety Management Office**

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Shinjuku-ku, Tokyo 163-1015, Japan  
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