

HITACHI
Inspire the Next

Environment Report 2000

Toward a Recycle-Oriented Society
for Sustainable Development

Hitachi Group

■ Company Profile (As of March 31, 2000)

Corporate name:	Hitachi, Ltd.
Incorporated:	February 1, 1920 (Founded 1910)
Principal office:	6, Kanda-Surugadai 4-chome, Chiyoda-ku, Tokyo 101-8010, Japan
Representative:	Etsuhiko Shoyama, President and Director
Paid-in capital:	¥281,738 million

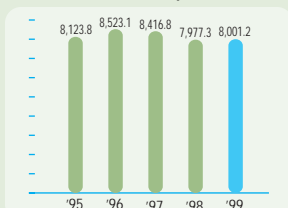
■ Financial Summary for the Year Ended March 31, 2000

	Unconsolidated	Consolidated
Net sales	¥3,771,948 million	¥8,001,203 million
Net profit	¥1,172 million	¥16,992 million
Employees	59,692	337,911

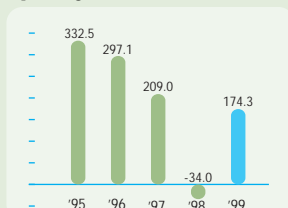
Consolidated figures include 1,047 subsidiaries.

■ Changes in Consolidated Results

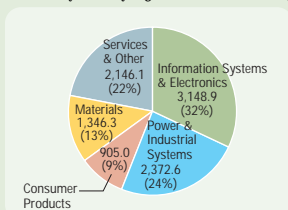
Net Sales (billions of yen)



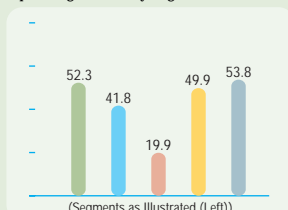
Operating Income (Loss) (billions of yen)



Net Sales by Industry Segment, FY99 (billions of yen)



Operating Income by Segment, FY99 (billions of yen)



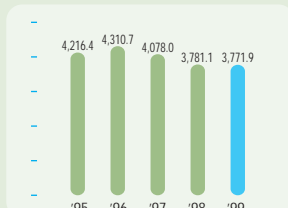
Total (Industry Segment Sales)	¥9,918.9 billion
Intersegment Transactions	¥1,917.7 billion
Consolidated Net Sales	¥8,001.2 billion

Total Segment Operating Income	¥217.7 billion
Management Sector Expenses, Other	¥ 43.3 billion
Consolidated Operating Income	¥174.3 billion

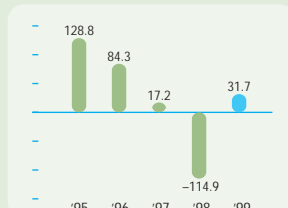
Note: Net Sales by Industry Segment include intersegment transactions.

■ Changes in Unconsolidated Results

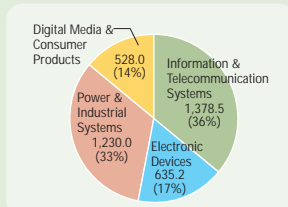
Net Sales (billions of yen)



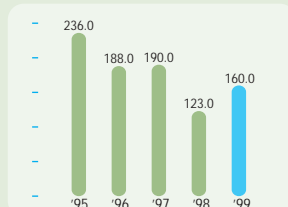
Income (Loss) before Income Taxes (billions of yen)



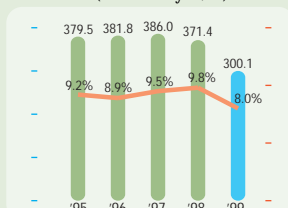
Sales by Industry Segment, FY99 (billions of yen)



Capital Investment (billions of yen)



R&D Expenditures/R&D as a Percentage of Net Sales (billions of yen, %)



Message from the President

With the 21st century stretching out before us, we find that the innovative production methods that have supported our socioeconomic system have led to a number of environmental issues and that, in the name of sustainable socioeconomic development, we must change our values with regard to production, consumption, disposal and our way of life.

Since its founding, the Hitachi Group has consistently met or exceeded society's expectations with technology and reliability. In the 21st century, we will use our products and services in our role as the world's most reliable partner for the best solutions and as a leader in bringing about a society in harmony with the environment in which resources are reused and recycled.

In fiscal 1999, in addition to strengthening consolidated management, the Hitachi Group promoted continuous improvement with the expansion of its environmental activities, **GREEN 21**. We have taken action with regard to global environmental issues in a number of ways, including: reaching a higher level of consideration for environmental issues in our products and services; developing new action plans for waste disposal, energy saving during production and the management of chemical substances; developing and offering services to maximize energy efficiency; and supporting a symbiotic municipal development project as a model environmental preservation system for society. In addition, to quantitatively understand the effects and costs of our environmental operations, we have introduced an environmental accounting system and are concentrating the energies and abilities of the entire Hitachi Group to promote more rational environmental operations. We believe that responding quickly to the needs of the environment and earning society's trust through these activities are Hitachi's mission.

This *Environmental Report* details sustainable operations the Hitachi Group has advanced during fiscal 1999, while also presenting an overview of Hitachi's environmental work to date and a look at plans for the future.

It is our sincere wish that this report leads to a deeper understanding of the Hitachi Group's activities and policies concerning environmental preservation. We respectfully ask for your continued support and guidance as we face the challenges ahead.



Etsuhiko Shoyama
President and Director

A handwritten signature in black ink that reads "Etsuhiko Shoyama".

Environmental Management System

Fundamental Principles of Environmental Activities

Hitachi, Ltd. has embraced environmental activities since 1970. In 1972, Hitachi began making Companywide environmental-related capital expenditures, and the progress has continued. Further, since 1973, environmental audits from the management's perspective have been included in performance evaluations.

The Environmental Protection Action Guidelines were formulated in 1993 and have served as the basis for the Company's environmental activities.

On April 1, 1999, the Hitachi Group adopted a consolidated business structure that includes the business groups of Hitachi, Ltd. and 35 major affiliated companies.

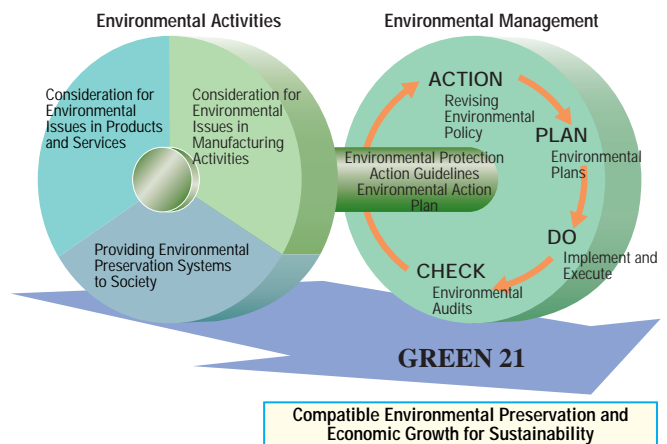
In line with these management reforms, Hitachi also sought to strengthen its organizational structure to improve the Company's stance as regards environmental management Groupwide. One aspect of this was the establishment of the Senior Executive Committee for

Environmental Policy, a top management-level body led by Hitachi's president. The committee assesses and sets the course for the Hitachi Group's policies regarding the environment.

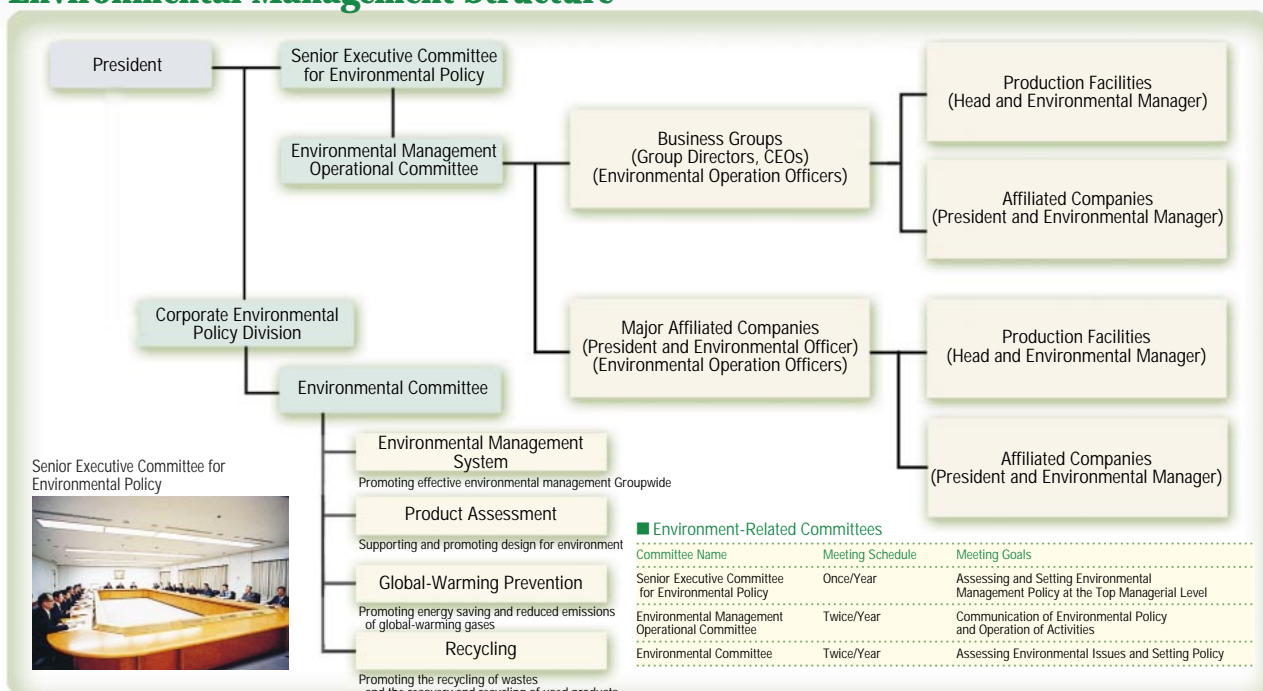
Furthermore, as a body specifically promoting environmental activities within Hitachi, Ltd., an officer in charge of environmental management operations was appointed anew to unify the environmental departments of each business group. Affiliated companies also appointed officers in charge of environmental promotion (environmental executive officers) and established similar structures.

The Environmental Management Operational Committee was established to consider Groupwide environmental issues and develop environmental awareness within the Group.

We are assembling the collective strength of the Hitachi Group with the three goals of providing products and services that reflect consideration for the environment, manufacturing activities with due consideration for society of which Hitachi is a part, and supplying society with an environmental preservation system to achieve compatible environmental preservation and economic growth for sustainability.



Environmental Management Structure



Standards for Corporate Activities/Environmental Protection Action Guidelines

Hitachi, Ltd. formulated the Environmental Protection Action Guidelines in March 1993. The Hitachi Group conducts its environmental preservation activities based on the guidelines.

Standards for Corporate Activities • Basic Philosophy

The basic philosophy of Hitachi, Ltd. is to further promote the principles upon which the Company was founded—harmony, sincerity and a pioneering spirit—to take pride in Hitachi and to contribute to the society of which Hitachi is a part through superior technologies and products.

In accord with this, the Company is fully aware that enterprises are also members of society, and, in addition to a deep devotion to just and transparent corporate activities, the Company strives as a responsible corporate citizen to bring about a society of real wealth through harmony with the environment and the aggressive pursuit of activities that contribute to society.

Environmental Protection Action Guidelines

The Environmental Protection Action Guidelines, as part of Hitachi's Standards for Corporate Activities, express standards for activities in response to environmental issues as related to the Company's business activities.

1. In recognition that problems affecting the global environment are serious matters for all mankind, harmony with the environment will be a top management priority throughout the Company.
2. By establishing a structure for the promotion of environmental protection, enacting regulations relating to the environment, setting environmental impact reduction targets and similar measures, officers and site directors in charge of environmental promotion will promote environmental preservation activities. Moreover, environmental audits will be used to confirm the efficacy of activities and in efforts for continued improvement.
3. By accurately understanding how best to resolve environmental problems facing the world, the Company will work to make contributions to society through the development of highly reliable technologies and products that meet those needs.
4. The Company gives due consideration to reducing the effect on the environment a product will have throughout its entire life cycle, from R&D and design stages through production, logistics, use and disposal.
5. The Company will investigate and examine the effect of its business operations on the environment and seek to introduce new technologies and materials with superior functionality regarding environmental safety, energy conservation and resource conservation.
6. In addition to observing international, national and local regulations with regard to the environment, the Company will develop its own standards where necessary to maintain environmental conservation.
7. With regard to overseas activities and the export of products, the Company will give consideration to the effects on the local environment and implement measures in response to the wishes of the local society.
8. In addition to working to enhance the environmental awareness of its employees, the Company will focus such activities on society at large, contributing to the society, of which Hitachi is a part, with environmental protection activities from a broad perspective.
9. Should an environmental problem arise as a result of the Company's business activities, the Company will take appropriate steps to minimize the impact on the environment.

Environmental Action Plan

In conjunction with the strengthening of the Hitachi Group's environmental management, the Environmental Action Plan was completely revised in December 1999.

Category	Item	Target Values	Target Date		
Environmental Management	GREEN 21 Activities	Improving Green Points	Increase of 21% (based on FY1998 levels)	FY2001	
	Environmental Management Performance	Acquiring ISO 14001 certification chiefly for nonmanufacturing sites and enhancing environmental audits	Acquisition of certification	FY2002	
		Promoting green procurement	Spreading throughout the Hitachi Group		
		Strengthening environmental training	Spreading throughout the Hitachi Group		
	Environmental Accounting	Introducing environmental accounting	Hitachi, Ltd. unconsolidated *1 Spreading throughout the Hitachi Group	FY1999 FY2000	
Consideration for Environmental Issues in Products and Services	Design for Environment	Expanding design for environment (environmental information labeling system)	Over 60%	FY2003	
		Increase the proportion of recyclable materials	Improve by over 40% (based on FY1992 levels)	FY2000	
		Reduce disassembly time	Over 60% (based on FY1992 levels)	FY2000	
		Reduce polystyrene foam packaging	Over 60% (based on FY1990 levels)	FY2000	
		Eliminate products using hydrochlorofluorocarbons (HCFCs)	Complete elimination	Within Japan: End 2003 Internationally: End 2006	
		Promote green procurement	Spreading throughout the Hitachi Group		
Consideration for Environmental Issues in Manufacturing Activities	Preventing Global Warming	Reducing basic units of CO ₂ emitted vs. production output	25% reduction (based on FY1990 levels)	FY2010	
		Reducing emissions of non-CO ₂ global-warming gases (HFCs, SF ₆ , PFCs)*2	Promotion in accord with industry's autonomous activities plan		
	Reducing Industrial Waste	Reducing the amount of ultimate disposal waste	Hitachi, Ltd. unconsolidated	Below 15%	FY2005
				Below 10%	FY2010
			(based on 1991 levels)	Affiliated companies	
		Below 85%	FY2005		
		Below 75%	FY2010		
		(based on 1998 levels)			
	Promoting zero-emission facilities	18 sites	FY2005		
	Managing Chemical Substances	Thorough chemical substance management and planned reduction of emissions	Spreading throughout the Hitachi Group		
Supplying Environmental Preservation Systems to Society	Using the Hitachi Group's environmental preservation technologies to reach comprehensive solutions				
Research and Development	Actively promoting research and development that contributes to environmental preservation as regards products and services				
Exchange with Society— Environmental Communication	In addition to seeking a broad understanding of the Hitachi Group's environmental activities among such stakeholders as customers, shareholders, partners, government bodies and the public at large by reporting on those activities (in environmental reports, exhibitions, and through other means), the Hitachi Group seeks communication with stakeholders to ensure understanding of its environmental preservation efforts.				

1 Data includes data from some affiliated companies managed on an integrated basis in business operations of the parent company.

2 HFCs: hydrofluorocarbons; SF₆: sulfur hexafluoride; PFCs: perfluorocarbons

Environmental Management

GREEN 21 Activities

Action Plan

- **Improve Green Points for Fiscal 2001 by 21% over Fiscal 1998**

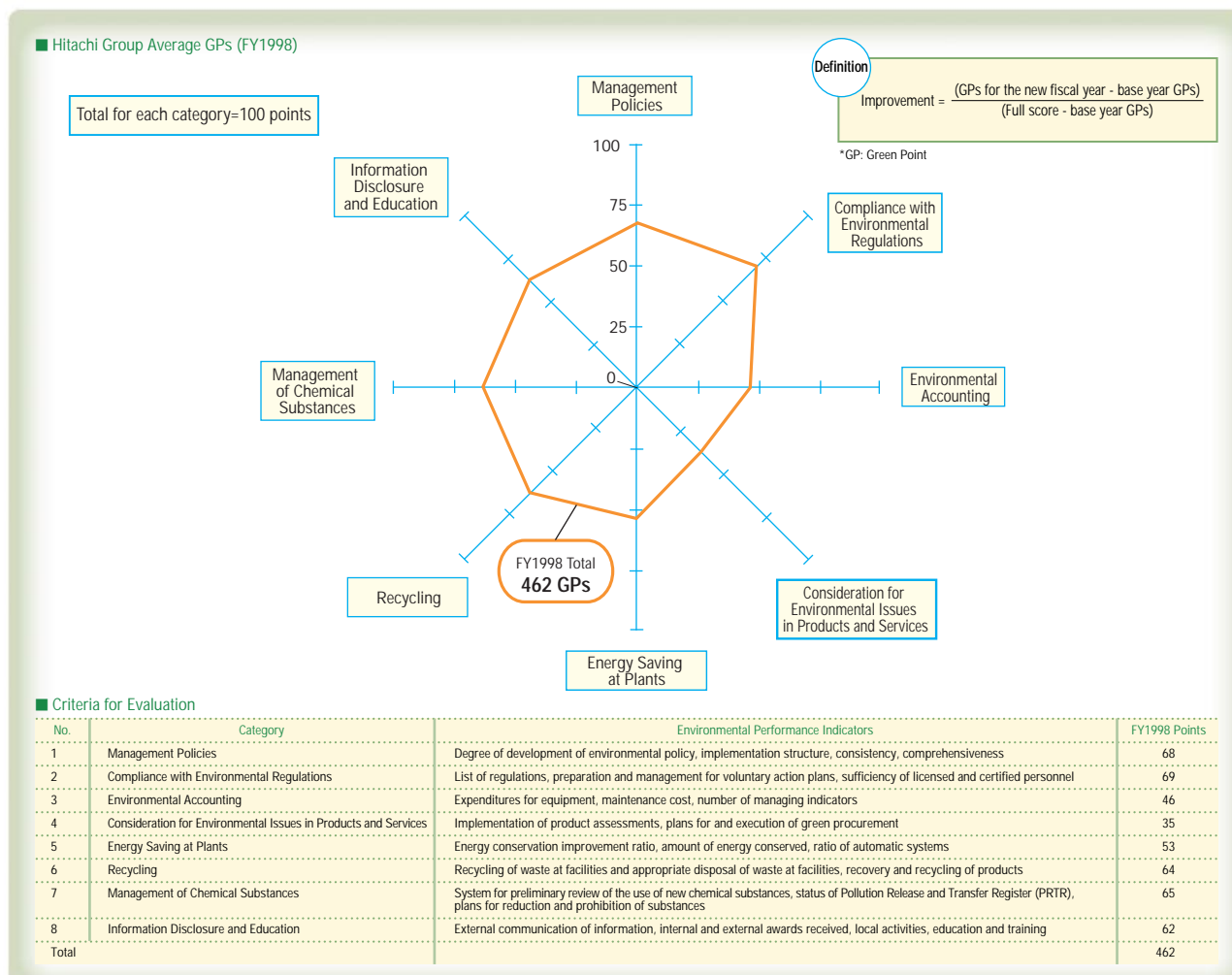
In fiscal 1998, the Hitachi Group established GREEN 21, a new system to evaluate the Group's environmental performance. The self-evaluation system scores all activities against a fixed set of standards and promotes continuous improvement and a greater level of environmental activities. The system is also useful for improving the environmental management of business groups and

major affiliated companies as well as promotes a greater degree of harmony with the environment.

The system evaluates 43 environmental performance indicators in eight key categories: management policies, compliance with environmental regulations, environmental accounting, the consideration for environmental issues in products and services, as well as information disclosure and education are management performance indicators. Energy saving at plants, recycling and the management of chemical substances are operational performance indicators. The total number of points—called Green Points (GPs)—for each category is 100,

and the entire evaluation has a maximum score of 800 GPs. The scores are represented on a radar chart, allowing each business group or affiliated company to easily use the results in decision making regarding environmental management. The evaluation is made annually, allowing a quantitative assessment of the state of continuing progress in implementation.

Each unit evaluates its own performance indicators with regard to each category once a year and compares the score with levels from the base year, fiscal 1998, to measure improvement. In our pursuit of continuing improvement, our goal for fiscal 2001 is to beat the total score of the base year by 21%.



Environmental Management Performance

Action Plan

- **Acquiring ISO 14001 certification chiefly for nonmanufacturing sites and enhancing environmental audits**
- **Promoting green procurement**
- **Strengthening environmental education and training**

Acquiring ISO 14001 Certification and Environmental Audits

Seeking continuing improvement in environmental management and the reduction of environmental risk, the Hitachi Group has introduced an environmental management system based on the ISO 14001 international standards, and a number of facilities, principally manufacturing centers, have been certified as ISO 14001 compliant. (See pages 1 and 2 of accompanying documents regarding ISO 14001 certified sites.) In the future, we will seek to continue to improve through the promotion of an enhanced environmental management system and pursue ISO 14001 certification for nonmanufacturing business centers, such as software and service firms. Furthermore, to meet ISO 14001 standards, Hitachi, Ltd. introduced its own Environment Round Audit System in 1995. The system employs a system of round internal audits whereby audits are performed by certified employees assigned to units other than the unit being audited to assure the objectivity and fairness of the audit.

Groupwide seminars are held to improve the quality of audits, and qualified staff are then registered as internal auditors. As of March 2000, approximately 1,600 Hitachi Group employees certified as auditors conducted audits at business sites throughout the Group.

■ Overview of Hitachi's Environmental Audits

Environmental Audit	Frequency	Auditors	Content
Environment Policy Office Environmental Audit (Performance Audit)	Once every 3 to 4 years	Environmental auditors from the Environment Policy Office	Prevention of environmental problems Management's perspective of all environmental activities
ISO 14001 Environmental Audits	Environmental Round System Audits	Once a year	Environmental auditors from a facility other than the one to be audited
	Internal Environmental Audit	At least once a year	Environmental auditors from the facility to be audited
			Overall efficacy of environmental management systems Compliance with laws and regulations Establishment of autonomous objectives and targets relating to the environment
			Efficacy of environmental management systems at the departmental level

Furthermore, environmental audits have been conducted as part of compliance audits since being recognized as an issue for management in 1973.

Compliance with Laws and Regulations

To ensure the preservation of the environment, each Hitachi Group site has established internal standards more stringent than most laws and external regulations. Each site works to prevent environmental harm through regular measurements and the maintenance and supervision of environmental preservation facilities and equipment. Moreover, specific training programs are in place to ensure that each site has the required number of employees with environment-related legal qualifications.

■ Special Qualifications/Legally Certified Staff

As of February 2000, Hitachi's business activities required a total of 4,833 employees with special certifications or qualifications. The Company exceeded these requirements, having 29,279 employees with special certifications or qualifications as of the same date.

Green Procurement

The Hitachi Group promotes green procurement policies for administrative materials to be used by management and nonproduction departments (office supplies, business cards, toilet paper and other supplies). Specifically, the Hitachi Office Supply Catalog, prepared in June

1998, calls for the proactive purchase of products with minimal environmental impact. (See page 3 of accompanying documents for more information regarding green procurement.)

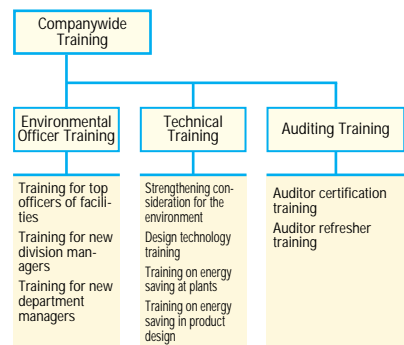
* See page 10 for more information on component materials covered under green procurement standards.

Environmental Education and Training

The understanding of every employee is important in our response to environmental issues. Based on its employee education system, the Hitachi Group holds Groupwide classes to further develop its employees' understanding.

Moreover, to meet specific needs of its management strategy, each business group and affiliated company pursues education and training for employees with certain job classifications, new employees and the entire Hitachi family.

■ Companywide Training



Environmental Accounting

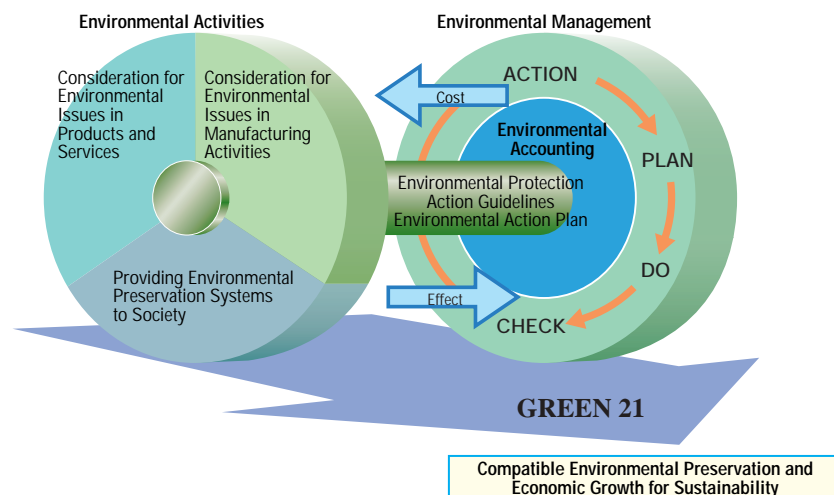
Introduction of an Environmental Accounting System

Hitachi, Ltd. introduced an environmental accounting system to promote efficiency and continuous improvement in environmental investment and environmental activities.

Data was compiled for Hitachi, Ltd. on an unconsolidated basis for the first fiscal year of operations under the new system.*1 In addition to plant and equipment investment related to environmental activities announced since fiscal 1997, costs encompassed ordinary expenditure items, such as R&D expenditures and the cost of operating and managing environmental conservation plants.*2 Effectiveness was established based on an economic result, addressed in terms of monetary value, and a quantitative effect, addressed in terms of the degree of environmental load abatement. The economic effect was based on reliable grounds. The quantitative effect*3 was calculated not only on the basis of the degree of environmental load abatement during the manufacture of a product but also during the use of the product. Eco-efficiency was also assessed, in terms of the decrease in cost per environmental load item.

*1 Environmental load data includes data from some affiliated companies managed on an integrated basis in business operations of the parent company.

Environmental Accounting System Concept



*2 These figures are based on the "Draft Guidelines for Measuring and Announcing Environment Cost," Environment Agency of Japan (issued March 1999).

*3 Hitachi used its own system to estimate the abatement effect under conditions of standard use.

Goals of the Introduction of the Environmental Accounting System

The environmental accounting system was introduced as information for environmental management to promote efficiency and continuing improvement in environmental investment and environmental activities.

Furthermore, through the disclosure of information regarding the distribution of management resources to environmental activities and regarding environmental technologies and products, Hitachi, Ltd. seeks a greater understanding of its commitment to being a company in harmony with the environment.

Environmental Accounting Approach and Concept

Hitachi, Ltd. decided in July 1999 to introduce the environmental accounting system. A project team of employees drawn from the financial and environmental divisions studied environmental accounting items and methods. Also during this time, Hitachi took part in a Study Group on Practical Matters about

Introducing Environmental Accounting established by the Environment Agency in June 1999. Hitachi views the system as a means of improving eco-efficiency and achieving rational environmental management.

Results from the First Fiscal Year

The chart below presents an overview of the results for fiscal 1999. (See page 3 of the accompanying documents for a more detailed report.) Of special note is that Hitachi's R&D expenditures (¥11.14 billion) accounted for 42% of the total expenditures and investment related to environmental activities.

As a result, energy consumed during the use of products by end users decreased an estimated 165 million kWh—the equivalent of energy consumed in one year by 48,000 average households.

Future Approach to Environmental Accounting

In the future, the data used will be drawn for an increasing number of Hitachi Group companies. Moreover, the data will be made more comprehensive, and more details of the data will be disclosed.

Hitachi intends to use the implementation of the environmental accounting system to promote rational economic management and to contribute to the society of which it is a part by balancing corporate growth with the protection of the environment.

Cost	
Expenditures:	¥26.7 billion
Investments:	¥6.76 billion
Effect	
Economical Effect:	¥4.16 billion
Quantitative Effect (Amount Reduced/Equivalent Number of Households):	
• Reduction in energy used during production	94 million kWh/27,000 households
• Reduction in final amount of wastes disposed during production	792t/3,000 households
• Reduction in energy consumed during use of products	165 million kWh/48,000 households

Consideration for Environmental Issues in Products and Services

—3R* Policies for a Recycle-Oriented Society—

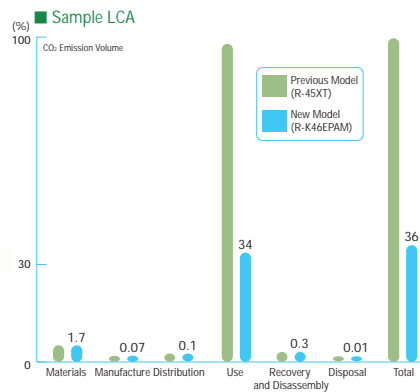
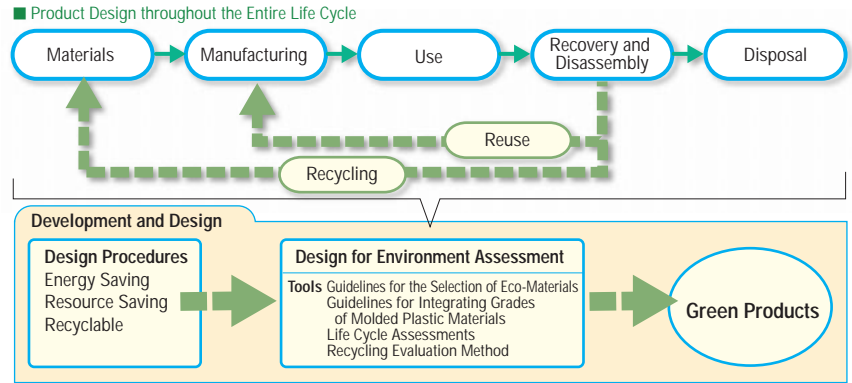
*3R: Reduce, Reuse, Recycle

Design for Environment

Action Plan

- Expand the proportion of products developed with consideration for environmental issues to 60% by FY2003
- Increase the proportion of recyclable materials* by over 40% by FY2000 (based on FY1992 levels)
- * Proportion of recyclable materials = Weight of recyclable materials ÷ Total product weight
- Reduce disassembly time to 60% of FY1992 levels
- Reduce polystyrene foam packaging to 60% of FY1990 levels

Product development that seeks to minimize environmental load in all stages of the product's life cycle—including the selection of a product's component materials, its manufacture, use, recovery, disassembly and disposal (a life cycle assessment (LCA))—is necessary for the establishment of a recycle-oriented society. With this in mind, we are working to create products that reflect the three Rs—reduce, reuse and recycle—promoting the reduction of emissions at the disposal stage, the reuse and recycling of products and their components and, in particular, energy savings and the reduction of by-products at the manufacturing and use stages.



The Recyclability Concept

Defined as the possibility that, using technology currently available, a product or its components can be recycled.

Principal Recyclable Materials

1. Iron, steel plates, one-piece stainless steel components
2. Aluminum, copper, one-piece non-iron/steel components
3. A- and B-rank plastics (as per the Guidelines for the Selection of Eco-Materials)
4. Cardboard, polystyrene foam
5. Motors
6. CRTs

Materials Difficult to Recycle

1. Products difficult to disassemble with standard tools
2. C- and D-rank materials (as per the Guidelines for the Selection of Eco-Materials)
3. Electrical wires, printed wiring boards
4. Molded plastic inserts, painted items or items glued to other items
5. Vinyl-clad steel

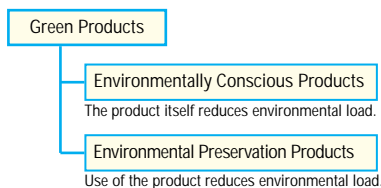
Each business site is working to ensure that goals stated in the Action Plan are met. (See page 4 of accompanying documents for more information.)

Design for Environment Assessments and the Environmental Labeling System

The Company embraced the concept of assessments in terms of a product's design for environment in conjunction with the promulgation of the Law for the Promotion of Recyclable Resources in

October 1991. In March 1999, Hitachi drew up design for environment (DfE) assessment criteria. Information regarding each category of a product in development is recorded, and a radar chart based on the results of the product's environmental load assessment is prepared,

Green Products Defined



Design for Environment Assessment Criteria

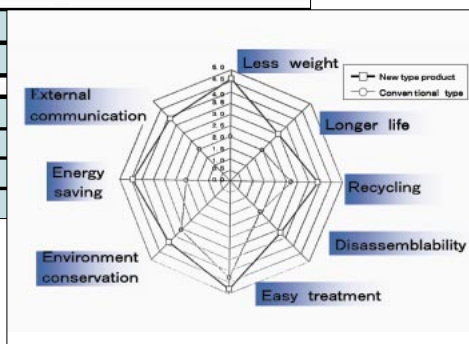
Assessment Category	Life Cycle	Assessment Points
Reducing	Materials, manufacture, distribution	Resource conserving, compact, conformity, lightweight, standardization, high yield
Longevity	Use	Upgradability, ease of repair and maintenance, durability, reliability
Recycling	Reuse, distribution	Reusability, conformity of materials, reusability of promotion of resource component materials, reuse, labeling of materials
Disassemblability	Disassembly	Disassemblability, materials, ease of separation, labeling of materials
Ease of Processing	Manufacture, distribution, disassembly	Crumbing, fragmentation, disassembly and separation, ease of processing
Environmental Safety	Materials, manufacture, distribution, use, disassembly, disposal	Potential levels of toxicity, injury, explosion/implosion, other hazards
Energy Saving	Use, manufacture	Energy saving, energy consumption, efficiency
Availability of Information	Use, disassembly	Availability of processing information, information regarding disposal

■ Design for Environment Assessment Entry and Assessment Output

Items	Performance	Evaluation		1	2	3	4
		Old	New				
Smaller products							
① Smaller ?	m ³	2	2	2	up	same	<10%
Less area ?	m ²	2	3	3	up	same	<10%
② Less weight ?	kg	2	3	3	up	same	<10%

Higher reliability							
① Parts' reliability	Successful %	2	2	2			
② Materials' reliability	Successful %	2	2	2			
Reduction of packaging compared with old product							
① Smaller, lighter carton ?	m ³	2	3	3			
	kg	2	2	2			
② Less styrene foam?	m ³	2	2	2			
	kg	2	2	2			

Entry

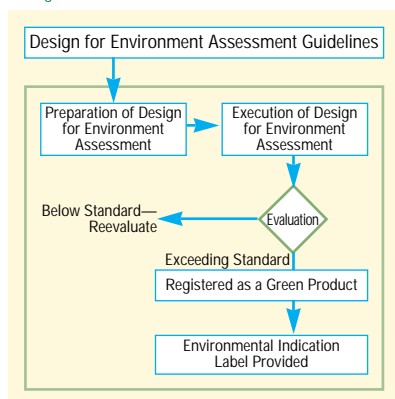


Output

■ Environmental Data Sheet

項目	PC1000	PC1000S	PC1000L	PC1000M
1 型名	PC1000	PC1000S	PC1000L	PC1000M
2 外形寸法 (mm)	278x145x95	278x145x95	278x145x95	278x145x95
3 質量 (kg)	約1.85	約1.65	約1.65	約1.65
4 消費電力 (W)	約15.0	約15.0	約15.0	約15.0
5 寿命 (年)	約10	約10	約10	約10
6 梱包材 (m ³)	約0.05	約0.05	約0.05	約0.05
7 梱包材 (kg)	約0.5	約0.5	約0.5	約0.5
8 高圧発熱材 (g)	約10	約10	約10	約10
9 可燃性樹脂 (g)	約100	約100	約100	約100
10 難燃剤 (g)	約10	約10	約10	約10
11 環境負荷係数	約1.0	約1.0	約1.0	約1.0
12 製造年月	1997年10月	1997年10月	1997年10月	1997年10月
13 廃棄日	2000年10月	2000年10月	2000年10月	2000年10月
14 特記事項	・製品の設計・製造・使用・廃棄の各段階において、環境負荷の低減に努めています。 ・製品の製造・使用・廃棄の各段階において、環境負荷の低減に努めています。 ・製品の製造・使用・廃棄の各段階において、環境負荷の低減に努めています。			

■ Registration Criteria



allowing assessments that can be understood at a glance. Products scoring above a certain standard on the DfE assessment are registered as green products, and in December 1999 a system of disclosure guidelines was put into effect regarding environmental information, whereby information is presented through indicator marks and data sheets.

Selection and Integration of Plastic Materials

Recycling efforts are under way for such metals as iron, copper and aluminum. To improve the proportion of recyclable materials, it is necessary to change to

materials that have less environmental impact than molded plastic materials. With regard to the selection of molded plastic materials, 13 selection categories—including energy consumed during manufacturing, recyclability and longevity—were prepared in “Guidelines for the Selection of Eco-Materials” in 1993, and the guidelines are applied from the design stage. In 1997, Hitachi revised the guidelines to reflect changes in materials for use in products.

In addition, criteria for integrating molded plastic materials based on their properties—such as flame retardancy, melt flow rate and flexure/resilience—were set out in 1999 in “Guidelines for Integrating Grades of Molded Plastic Materials.” Grade ratings for principal resins covered in the guidelines—acrylonitrile butadiene styrene (ABS) resin, polystyrene (PS) resin, and polypropylene (PP) resin—have been reduced by 62%.

■ Grades of Molded Plastic

Resin	ABS	PS	PP	Total
Prior to Integration	23	24	29	76
After Integration	9	9	10	28

*ABS = acrylonitrile butadiene styrene resin; PS = polystyrene resin; PP = polypropylene resin

Chemical Substance Management

The Pollutant Release and Transfer Register (PRTR) Law was enacted in July 1999. In response, Hitachi revised its autonomous management of chemical substances with regard to their use in consumer goods (See page 18.). Chlorofluorocarbons (CFCs) used as coolant in refrigerators and as foaming agents in thermal insulation will be completely eradicated, and, since the end of 1995, there has been a change from the use of CFC (HCFC-141b) as a foaming agent in thermal insulation to the use of the hydrocarbon cyclopentane. Regarding lead and lead compounds, also the target of reduction activities, since 1989 we have manufactured larger computers with lead-free solder using tin and silver substitutes. Moreover, since 1999 we have manufactured notebook computers, 8mm cameras, washing machines, air conditioners and other products with lead-free solder, using tin, silver and copper instead. In addition, our PCs use eco-boards—halogen-free flame retardant printed wiring boards.

Recyclability Evaluations

The Disassemblability Evaluation Method (DEM) was developed in 1993 as a quantitative measurement of the ease with which a product could be disassembled and recycled after use, and stipulations regarding consumer electronics goods and office automation equipment have been implemented and enhanced. In April 2001, the Law for the Recycling of Specified Kinds of Consumer Electric Goods (the Consumer Electronics Recycling Law) will take effect, requiring manufacturers to handle recycling efforts for products they manufacture. We have established and begun using a Recycling Evaluation Method (REM) based on the procedures required to recycle a given product and economic feasibility.

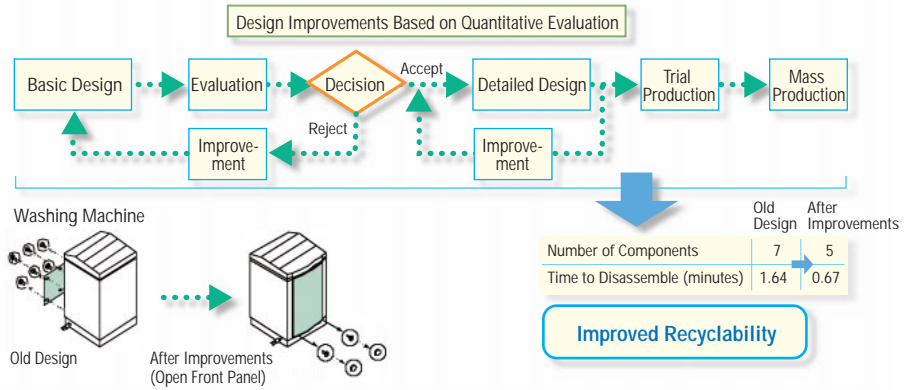
Green Procurement

Concerning procurement, Hitachi's green procurement policies give priority to suppliers of products, components, materials and other goods produced in consideration of the environment. In July 1998, we distributed copies of our *Green Procurement Guideline* to 3,100 suppliers.

Each business site also conducts environmental load surveys of its suppliers, waste disposal contractors and other business contacts, providing information on environmental activities and conducting educational activities annually.

Hitachi supports the environmental activities of its suppliers and other business contacts, striving for sustainable product development.

DEM/REM Example—Washing Machine




Green Procurement Guideline


- Establishing an Environmental Management Structure
 - Carrying Out Product Assessments
1. Selection of Materials
 2. Resource Conservation
 3. Reuse of Resources
 4. Ease of Disassembly
 5. Materials Labeling for Plastic Components
 6. Chemical Substance Management
 7. Energy Saving
 8. Packaging Considerations
 9. Disclosure of Information

Green Procurement Evaluation—Example

	Supplier Name	Energy Consumption (Monthly)			Product Class	Waste Disposal (Monthly) (kg)				ISO Certification Plans	
		Electricity (MWh)	Gas (km ³)	Oil (kl)		Industrial Hazardous Wastes	Other Wastes	General Hazardous Wastes	Specially Controlled Wastes		
1	Company A	2.0	0.1	0.04	1	13	420	0	0	×	
2	Company B	17.7	0.0	2.6	1	0	0	0	800	×	
3	Company C	23.0	0.0	1.6	1	0	0	0	400	×	
4	Company D	17.5	0.0	0.0	1	14	150	0	0	×	
5	Company E	11.4	0.0	0.0	0	120	1,270	0	9		
▼											
Evaluation Scores											
1	Company A	1	1	1	5	1	2	0	0	5	16
2	Company B	1	1	1	5	0	0	0	3	5	16
3	Company C	1	0	1	5	0	0	0	2	5	14
4	Company D	1	0	0	5	1	1	0	0	5	13
5	Company E	1	1	0	0	3	3	0	1	0	9
⋮											

Representative Products

<p>Refrigerators Model: R-K46EPAM</p> 	<p>Energy Savings</p> <hr/> <p>Ease of Recycling/Disassembly</p> <hr/> <p>Packaging Materials</p> <hr/> <p>Other</p>	<ul style="list-style-type: none"> • Pulse amplitude modulation (PAM) and other energy-saving technologies have cut annual electricity consumption 65%, from 1,130kWh to 390kWh (compared with the 1992 model R-45XT). • Reduction of total components through the integration of the refrigerating cycle unit, structural improvements to the multi-temperature room participant, reduced number of mounting screws • One-piece door liner molding eliminates the PVC gasket holder. • Low-density, high-functionality design uses less insulating polyurethane foam. • Disclosure of materials in plastic components <ul style="list-style-type: none"> • Polystyrene foam cut 60% (compared with 1990 models) through the reduction of upper cushioning materials, smaller upper and lower cushioning materials' size. <ul style="list-style-type: none"> • Complete eradication of CFCs (principally freon) as refrigerants and foaming agents for insulating materials; use of hydrocarbon cyclopentane as a foaming agent 	<p>■ One-Piece Door Liner Molding</p> <p>Earlier Models: Door Gasket, Door Liner, Urethane, Gasket Holder (PVC), Outer Door Panel</p> <p>Improved Design: One-Piece Door Liner</p> <p>■ Reduced Use of Polystyrene Foam Packaging</p> <p>Earlier Models: Reinforcing Flap, Fewer, Smaller Cushioning Bars</p> <p>Improved Design: Size Reductions</p>
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<p>Washing Machine Model: NW-8PAM</p> 	<p>Energy Savings</p> <hr/> <p>Water Savings</p> <hr/> <p>Ease of Recycling/Disassembly</p> <hr/> <p>Packaging</p>	<ul style="list-style-type: none"> • PAM and ion cleaning cut standard-program electricity consumption 77%, from 230Wh to 53Wh per program (compared with the 1995 model NW-8S). • Standard-program water use cut 36%, from 194l to 125l (compared with the 1995 model NW-8S). • Single-stage automatic water-level setting effectively cuts water use. • Use of bathwater allows further reductions in water use. <ul style="list-style-type: none"> • One-direction, single-action disassembly (through the front panel or top cover) • Thermoplastic elastomer hose to draw bathwater reduces PVC use. • Electronic control board uses lead-free solder. • Disclosure of materials in plastic components <ul style="list-style-type: none"> • Use of polystyrene foam cut 50% compared with 1990 models by partitioning, use of smaller base cushioning and use of molded pulp. 	<p>■ Front Panel or Top Cover Single-Action Disassembly</p> <p>Controllers, Back Panel, Top Cover, Stainless Steel Tub, Front Panel, Front, Back</p>
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Room Air Conditioner
Model: RAS-2810LX



Energy Savings

- Wide-range PAM and a motor using a high-intensity magnet yield a 5.03 standard* rating, beating the 4.9 rating mandated by law for air conditioners effective 2004.
- Annual electricity consumption has been cut 52%, from 1,988kWh to 949kWh (compared with the 1989 model RAS-289AX).
- Standby power requirement cut 80%, from 4W to 0.8W (compared with the 1998 model RAS-2810KX).

Ease of Recycling/Disassembly

- Simplification of the indoor heat exchanger fitting, fewer mounting screws reduces total number of components.
- ABS blower direction plate replaced with polystyrene, unification of plastic components
- Disclosure of materials in plastic components

Packaging Materials

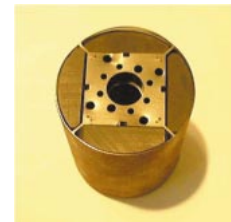
- Use of polystyrene foam cut 60% compared with 1990 models by the elimination of polystyrene foam from indoor unit, smaller cushions for outdoor unit and the use of molded pulp products.

Other

- Uses new hydrofluorocarbon (R410A) with no impact on the ozone layer.

■ DC Motor Using High-Intensity Magnet

Ferrite Motor



Rare Earth Motor



* Standard: Average air conditioner/heater energy efficiency

Color Television
Model: W32-GF3



Energy Savings

- Annual electricity consumption was cut 29% compared with 1997 model W32-G1, from 316kWh to 225kWh.
- Standby power requirement cut 91% compared with 1997 model W32-G1, from 4.3W to 0.4W.

Ease of Recycling/Disassembly

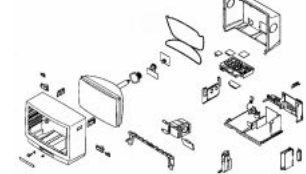
- Single-unit, buildup-type circuit boards reduce weight and the number of components.
- The front frame and back cover are made from halogen-free materials, which have an extremely low likelihood of generating environment-polluting substances.
- Internal wiring does not use lead as a stabilizer for insulating material.
- Structural components use no PVC.
- Disclosure of materials in plastic components
- Uses JIS-standard screws, standard industrial tools

Packaging Materials

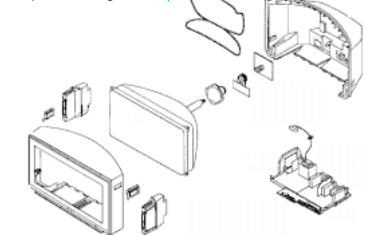
- Use of polystyrene foam cut 60% compared with 1990 models by partitioning, use of smaller upper cushioning

■ Component Reduction

Earlier Models



Improved Design



Videocamera
Model: E6H Series



Energy Savings

- Video, camera and LCD circuitry uses a single LSI, cutting electricity use 11% compared with the 1998 model VM-H945LA.

Ease of Recycling/Disassembly

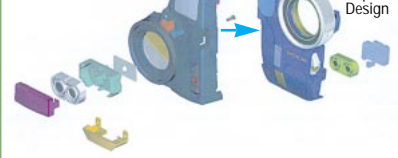
- Plastic-molded components of polystyrene and polycarbonate replaced with ABS, improving recycling 70%.
- Integration of the front cover and microphone cover cuts the number of parts, from 81 to 66.

Packaging Materials


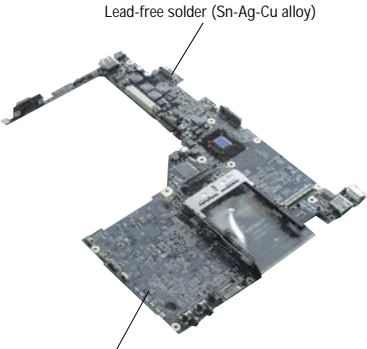
- Use of polystyrene foam cut 72% compared with 1992 models by using thinner packaging materials and changing support for the product.


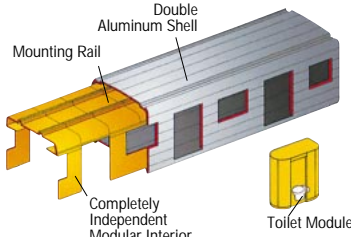
■ One-Piece Design for Front Cover and Microphone Cover


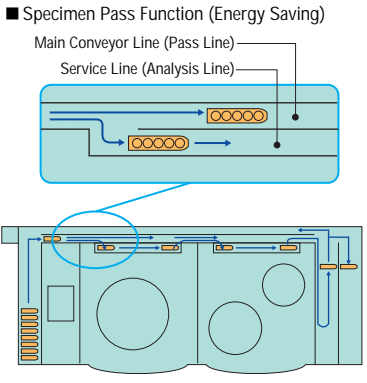
Earlier Models



Improved Design

<p>Notebook Computer Model: FLORA 220FX</p> 	<p>Energy Savings</p> <p>Resource Savings</p> <p>Ease of Recycling</p> <p>Packaging Materials</p>	<ul style="list-style-type: none"> Electricity consumption efficiency* 1/7 the standard by energy consumption by law (Category S, electricity consumption efficiency 0.0065) *The electricity consumption efficiency value has been calculated by dividing the power consumption, measured according to the definition in the Law concerning the Rational Use of Energy, by the value representing the composite theoretical performance defined in the Energy Conservation Law. Power supply voltage in suspended mode declined from 5V to 3V; energy consumption at the time of suspended mode was 1W, which is the best value in the same category. Use of a 12.1-inch LCD reduces size and weight. Printed circuit board using hydrogen-free flame retardants External casing using magnesium alloy Polystyrene foam completely eliminated by use of cardboard cushioning. 	<p>■ Printed Circuit Board Using Lead-Free Solder</p>  <p>Lead-free solder (Sn-Ag-Cu alloy)</p> <p>Printed circuit board using halogen-free flame retardants</p>
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<p>Railroad Coach Model: A-Train</p>  <p>Next-Generation Aluminum Car-body System</p>	<p>Energy Savings</p> <p>Ease of Recycling</p> <p>Ease of Disassembly</p>	<ul style="list-style-type: none"> Double aluminum shell results in coaches 30% lighter than stainless steel coach bodies, reducing electricity use 6%. Improved production, disassembly and recycling through the development of functionally independent modular interior components Friction stir welding (FSW) produces an elegant product with little deformation, cutting energy used in the manufacture of advanced rolling stock 20%. 	<p>■ Modular Interior System</p>  <p>Double Aluminum Shell</p> <p>Mounting Rail</p> <p>Completely Independent Modular Interior</p> <p>Toilet Module</p>
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<p>Automatic Blood Chemistry Analyzer Model: 7600</p> 	<p>Product Overview</p> <p>Energy Savings</p> <p>Ease of Recycling</p> <p>Ease of Disassembly</p>	<ul style="list-style-type: none"> Automatic blood analyzer Specimen pass function reduces analysis and waiting time. Automatic on/off control and other functions cut electricity use 38% compared with earlier models. Easy to add/remove multispecimen and multicategory modules for flexible expansion and disposal Unpainted plastic molded components Selection of materials renders surface finishing unnecessary. Ease of recycling improved over earlier models by 52%. Disassembly time reduced 46% over earlier models through component integration, compatibility, and shared use. External casing fastened with rivets. 	<p>■ Specimen Pass Function (Energy Saving)</p>  <p>Main Conveyor Line (Pass Line)</p> <p>Service Line (Analysis Line)</p>
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Recycling Used Products

Response to the Electric Home Appliances Recycling Law

In response to the Electric Home Appliances Recycling Law, scheduled to go into effect in April 2001, Hitachi established Kantou Eco Recycle Co., Ltd., a new subsidiary to handle recycling operations for used electric home appliances in four categories: television sets, refrigerators, washing machines and air conditioners.

The new company's plant will be located in a production center for refrigerators and air conditioners in Tochigi Prefecture, where the four products will be disassembled, shredded and sorted, but the remaining materials will be gathered. CFCs used for thermal insulation for refrigerators will also be collected. The plant will have an annual operating capacity of 300,000

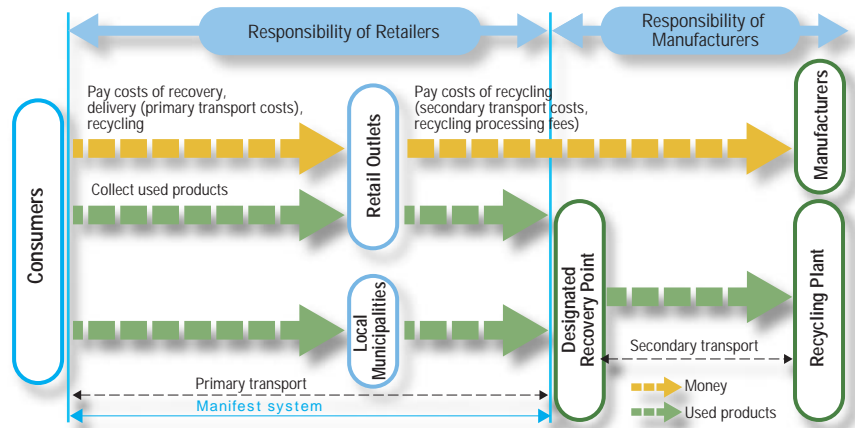
units and will be completed in September 2000. We hope to use the knowledge and experience we gain from operations at this plant in future DfE activities.

In addition to Kantou Eco Recycle, Hokkaido Eco Recycle Systems Co., Ltd.

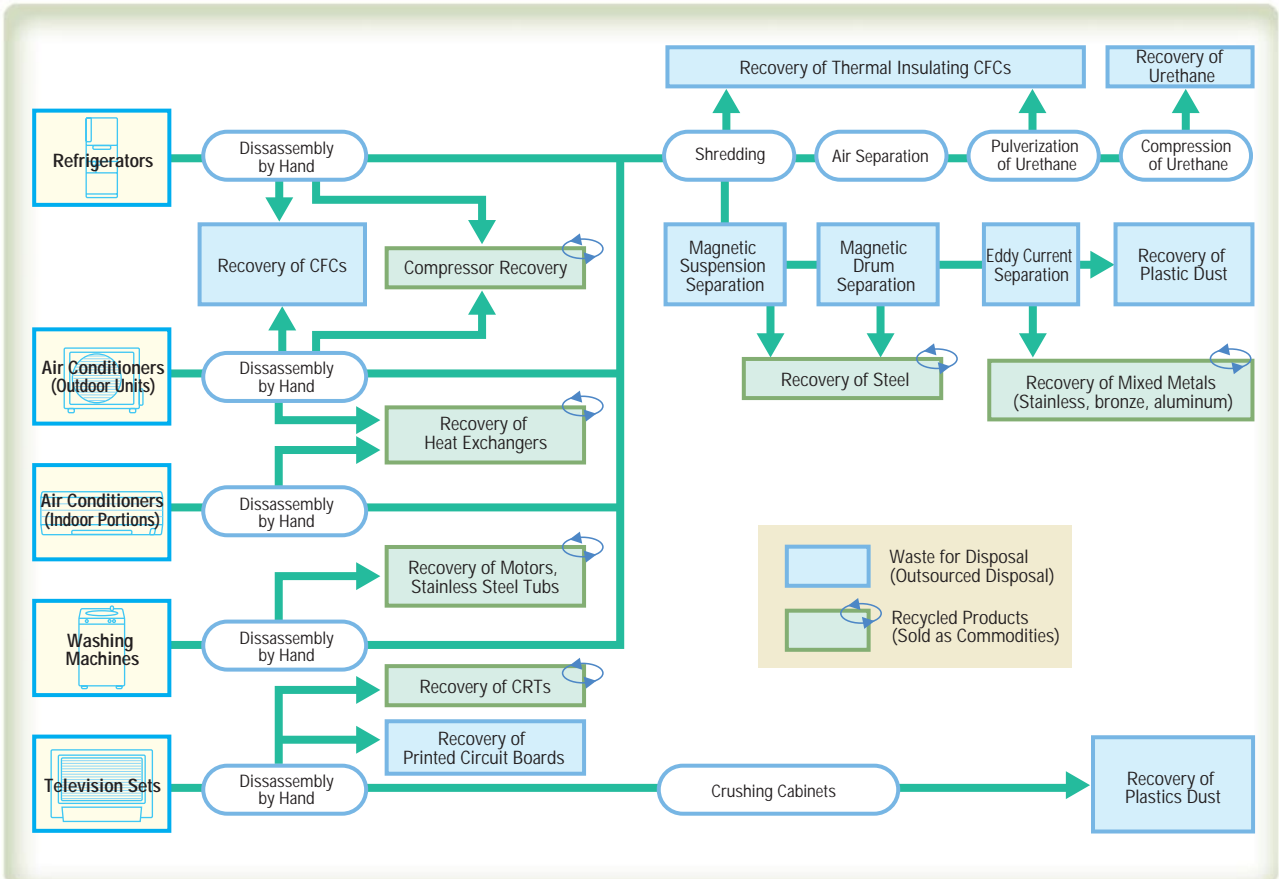
and Tokyo Eco Recycle Co., Ltd. were established in October and December 1999, respectively.

Hitachi is cooperating with others in the industry to advance recycling efforts in other areas of Japan.

■ Overview of the Electric Home Appliances Recycling Law



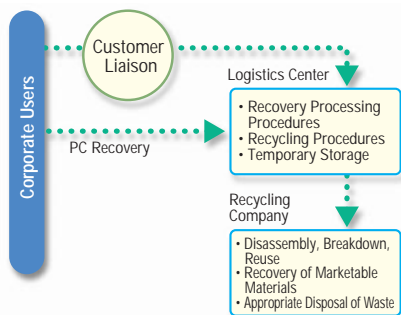
■ Flowchart for Kantou Eco Recycle Co., Ltd.



Recovery Services for Old PCs

As a service, the Hitachi Group collects used PCs from corporate users. After disassembling the collected computers and separating the components and materials,

■ Recovery System from Corporate Users



the Hitachi Group, in cooperation with recycling companies, collects the reusable parts and valuable resources, and the remainder is disposed of appropriately. A portion of the collected plastic is reused in computers.

Plans for the recovery of used PCs from general consumers will be implemented shortly.

For more information on PC recovery, visit Hitachi's home page at:

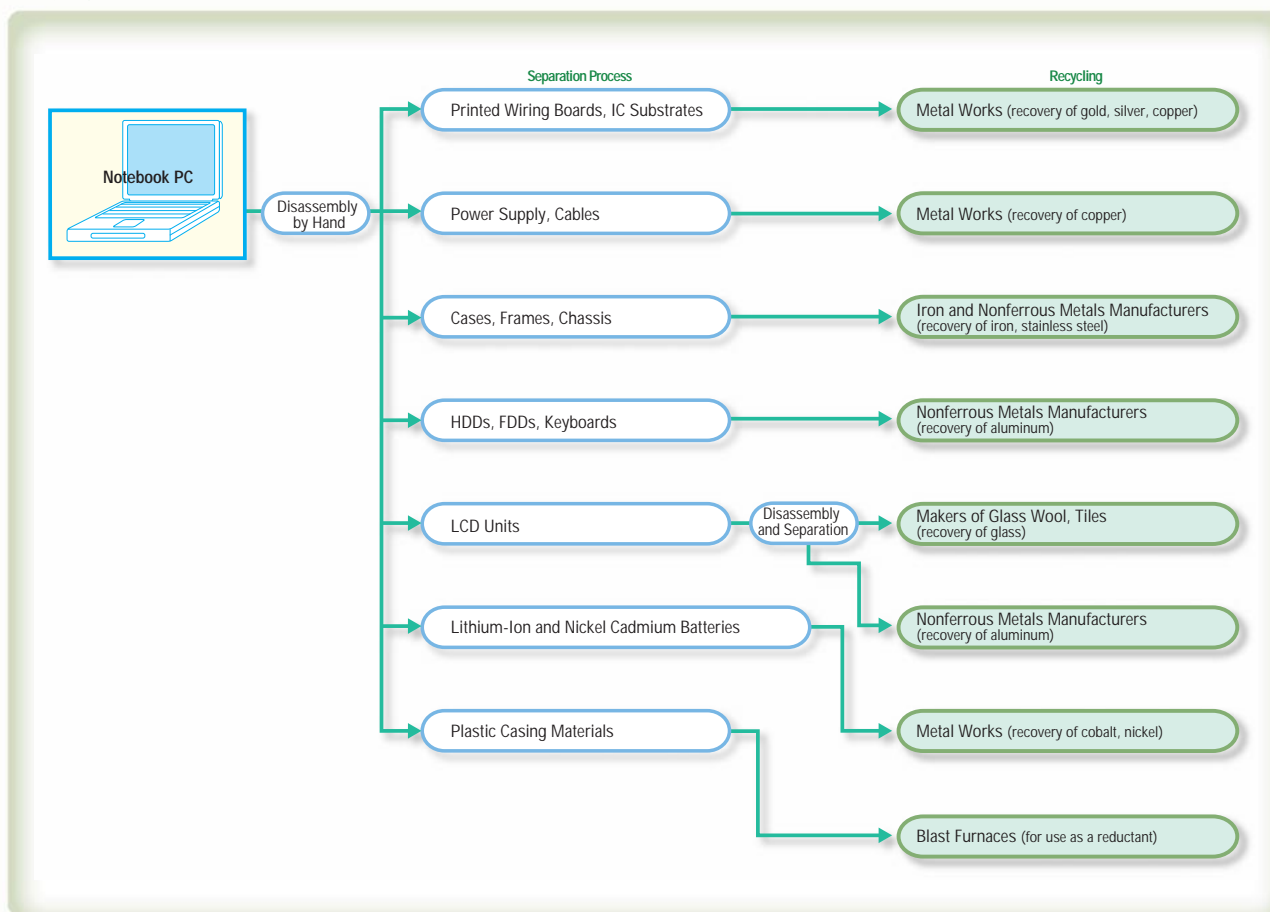
<http://www.hitachi.co.jp/Prod/comp/OSD/pc/index-j.htm>

Autonomous Activity Plans

Regarding PC Recycling and the 3Rs

In January 2000, the Japan Electronic Industry Development Association announced an autonomous activity plan aiming to reduce waste products and reuse and recycle resources regarding PCs. The plan focuses on the three themes of Manufacturing (DfE in accord with the 3R considerations), Collecting (promoting a greater degree of collection of used PCs) and Using (raising the recycle rates of collected PCs). Hitachi is actively promoting this activity plan.

■ Recycling Flow for Notebook PCs



Consideration for Environmental Issues in Production Activities

Prevention of Global Warming

Action Plan

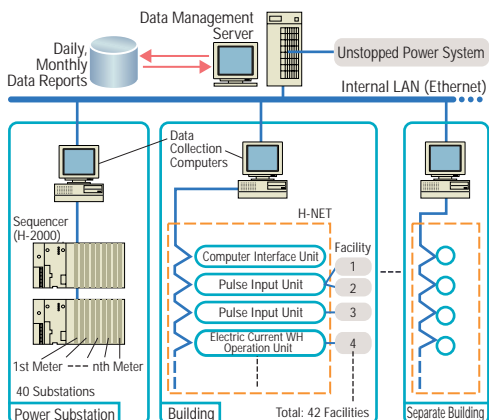
- Reducing production-related CO₂ emissions 25% by FY2010 (based on FY1990 levels)
- Satisfying industry autonomous activity plan requirements regarding global-warming gases (hydrofluorocarbons (HFCs), sulfur hexafluoride (SF₆), per-fluorocarbons (PFCs)) other than CO₂

Saving Energy

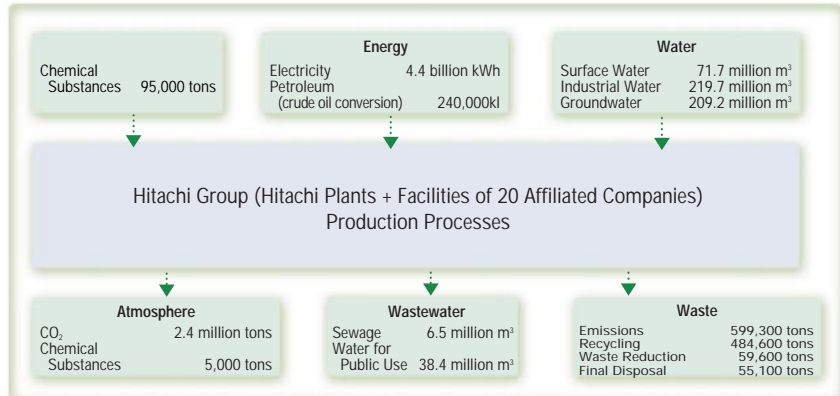
In December 1997, the Third Conference of the Parties (COP3) of the United Nations Framework Convention of Climate Change (UNFCCC) adopted measures to reduce levels of global-warming gases, one of which includes efforts to control CO₂ emissions by conserving energy as a necessary step in preventing global warming.

The Hitachi Group has actively sought to advance energy conservation through the introduction of systems to measure energy use, energy savings assessments conducted prior to the establishment and introduction of new facilities and equipment, and the use of energy-saving equipment. In March 1999, we prepared *Energy Conservation Guidelines* and a collection

Energy Measurement System (H-NET Electric Power Monitoring System)



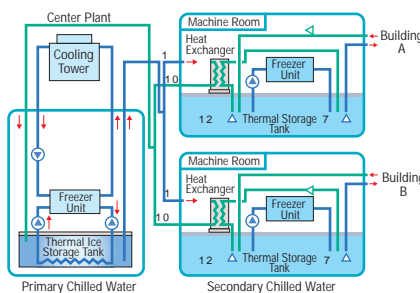
Resource Input and Emissions (FY1999)



Main Energy Conservation Activities

Item	Measures
Air-Conditioning System	Installation of energy-efficient equipment, reduction in air-conditioning airflow, regulation of number of units to raise efficiency
Heat-Treatment Furnace	Improved insulation to reduce heat loss, low-load operations through regulation of rotational frequency of blowers
Cogeneration System	Improvement in total efficiency through use of gas turbine cogeneration system
Boiler	Switch to smaller boilers, regulation of number of units to improve efficiency, exhaust heat recovery
Compressor	Efficiency through regulation of number of units, rightsizing of exerted pressure
Motor	Switch to high-efficiency motor
Other	Smaller vacuum pumps, installation of energy-efficient lighting, installation of thermal ice storage system

General Diagram of Thermal Ice Storage Center Plant (Enterprise Server Division)



of practical examples, through which we seek to continue improvement in energy savings at each Hitachi business site.

Case Study: Industrial Equipment Group, Narashino Division

Electricity provides 75% (24.7 million kWh/year) of this division's energy supply, 62% of which was consumed by

motors, prompting an assessment of the energy used by equipment that drives motors. Based on this assessment, high-efficiency motors were installed, resulting in FY1998 energy consumption levels 16% (4.3 million kWh) lower than FY1996 levels and a 10% (900kW) reduction in contract power supply.



High-efficiency Motor (Narashino Division)

Other Global-Warming Gas Policies

Hitachi uses several global-warming gases in addition to CO₂, including HFCs in coolants and thermal insulation for air-conditioning units and refrigerators, PFCs as an etching gas for semiconductors, and SF₆ as an insulator for electric equipment. Following the guidelines of the industry's autonomous activity plan, Hitachi promotes the recovery and reuse of these substances and is working to develop materials and technologies to replace them.

Waste Reduction

Action Plan

- Reducing the amount of waste for final disposal at Hitachi, Ltd. to 15% or lower by FY2005 and 10% or lower by FY2010 (based on FY1991 levels)
- Reducing the amount of waste for final disposal at associated firms to 85% or lower by FY2005 and 75% or lower by FY2010 (based on FY1998 levels)
- Promoting zero-emissions facilities

Through the production process, secondary operations and other business activities, Hitachi produces a variety of waste and substandard products. The

Major Recycling/Reuse Methods

Material	Method of Recycling/Reuse
Paper	Recycled paper, RDFs
Wood	Charcoal, RDFs
Plastics	Recycled for internal processing, RDFs, blast furnace reductant
Sludge	Base material for cement
Oil	Distilled and reused, used as fuel additives
Acid, Alkali	Distilled and reused, used as neutralizing agents
Slag	Base material for iron, steel, cement
Raw garbage	Compost

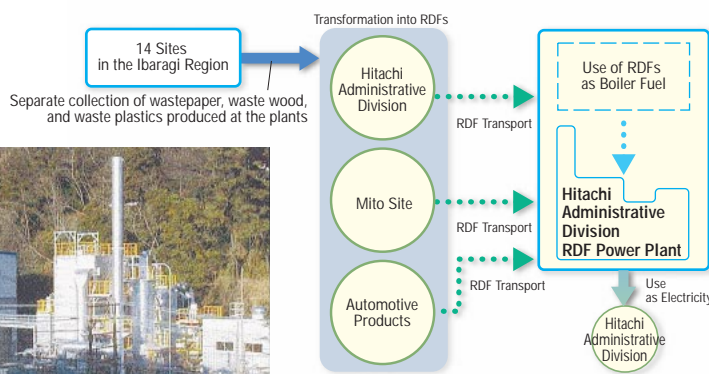
Examples of Efforts at Group Sites

Hitachi's Use of Refuse-Derived Fuels (RDFs) and Thermal Recycling

Hitachi has developed and installed at three of its plants RDF production devices that use wastepaper, waste wood, and waste plastic from other nearby companies for fuel. In April 1999, Hitachi



RDF Power Plant



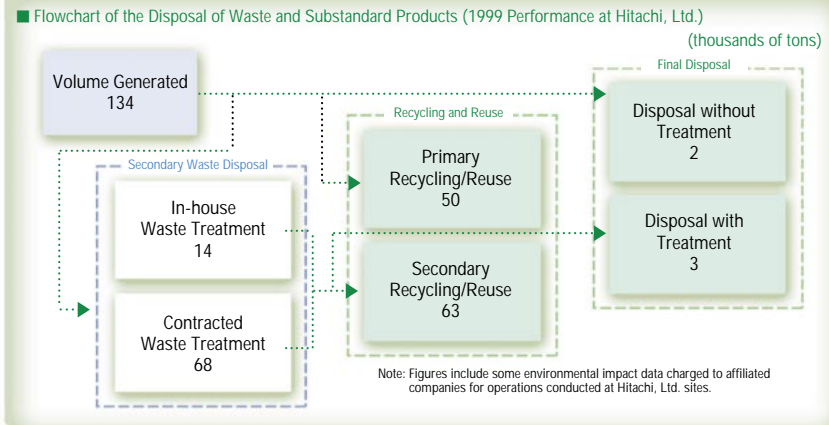
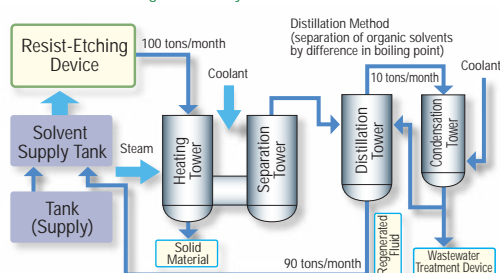
began using RDFs as fuel for a power plant that supplies the site with energy.

Resist Solvent Regeneration System (Mobara Site)

Hitachi has developed a distillation and regeneration device for resist solvents

used in the production of liquid crystal thin-film transistor (TFT) panels, allowing Hitachi to reuse 90% of its waste solvents.

Resist Solvent Regeneration System



Company is progressing not only in controlling the output of waste and substandard products but is also working to install recycling equipment, collaborate with other industries and outsource waste management to recycling companies so that usable resources are utilized to the fullest extent possible. Furthermore, Hitachi has established guidelines for appropriate waste disposal and conducts periodic inspections of its recycling contractors to ensure that they meet standards set by the guidelines.

Hitachi aims for zero emissions at each of its Group sites.

At Hitachi, zero emissions is defined as an emissions volume of less than 1% of the final disposal rate of the current fiscal year*1, or less than 5 tons/year*2.

*1 Final Disposal Rate = Final Disposal Amount/ Amount Generated

*2 Final Disposal without Treatment + Disposal with Treatment

Please see page 3 of the accompanying documents for further information on Hitachi's waste reduction operations.

Dioxin Countermeasures

Hitachi has systematically worked to prevent the generation of dioxins arising from incineration by discontinuing the use of its incinerators, including smaller incinerators that are not subject to regulation. In December 1997, the Company established a plan to discontinue its use of incinerators, and as of December 1999, it had successfully done so at 10 of 11 facilities. Hitachi plans to abolish the use of all incinerators by December 2000 and work to reduce and recycle waste that it would have incinerated in the past.

Chemical Substance Management

Action Plan

- **Thorough management of chemical substances and planned cuts in emissions volumes**

While chemical substances offer many improvements to our quality of life, it has become clear of late that some chemical substances, such as so-called environmental hormones, have come to have a negative impact on the environment.

In Japan, the Pollution Release and Transfer Register (PRTR) system will become law in 2002. For corporations, thorough routine management and risk management with regard to chemical substances has come to be more critical in furthering business.

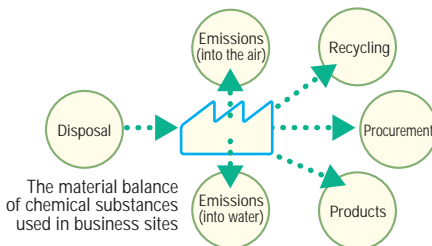
Prior to the PRTR Law, the Hitachi Group promoted the reduced use of designated chemical substances used in its

products and production processes and the replacement of these substances with other substances having less impact on the environment, through its Autonomous Guidelines for Chemical Substance Management, promulgated in 1996. Moreover, we have conducted PRTR surveys* since 1998.

* PRTR survey: Survey of 179 chemical substances specified by the electric and electronic industries

The Hitachi Group's Comprehensive Chemical Management System

With the PRTR Law as an example, regulations concerning chemical substances are being further developed and strengthened. In response, the Hitachi Group's Comprehensive Chemical Management System was



initiated in 1999 to raise the level of autonomous management, part of the Company's efforts to reduce its use of chemicals with an impact on the environment. The system includes management guidelines encompassing the procurement, use, disposal and commercialization of chemical substances at business sites. The first step is to understand exactly what types of chemical substances are being handled at each business site, then to evaluate the substances' potential impact on the environment and determine how substances should be managed. "Eliminate," "Reduce" and "Manage" have been set as autonomous management classifications, and, based on these classifications, substitution and elimination plans are prepared for banned substances, while specific plans for cuts in use and emissions are set for substances designated for reduction. Substances in the "Manage" category are handled in accord with appropriate handling guidelines and PRTR requirements.



■ Risk Assessment Guidelines			■ Risk Management Classification		
Environmental Impact	Evaluation Criteria	Score	Total Evaluation Score	Management Rating	Management Overview
Major	Substances for which Production Is Restricted by Law	20	20 or More Points	Eliminate	Complete Elimination
Moderate	Substances with High Environmental Toxicity Gases Significantly Impacting Global Warming (SF ₆ and others) Substances the Use of which Is Restricted by Law	10	10-19 Points	Reduce	Promote Reduction Plans
Minor	Substances with Environmental Toxicity Poisonous Substances Hazardous Substances	1-5	Less than 10 Points	Manage	Inventory Control

■ Hitachi's Autonomous Substance Management (1,100 Substances)

Substances Covered under the PRTR Law

- Hitachi's Autonomous Substance Management (1,100 Substances)
- Banned Substances (100)** (benzine, dioxin, others)
- Substances for Reduction (250)** (methylene chloride, lead, others)
- Managed Substances (750)** (styrene monomer, ethanolamine, others)

Hitachi's Autonomous Substance Management policy is based on various laws and voluntary action plans.

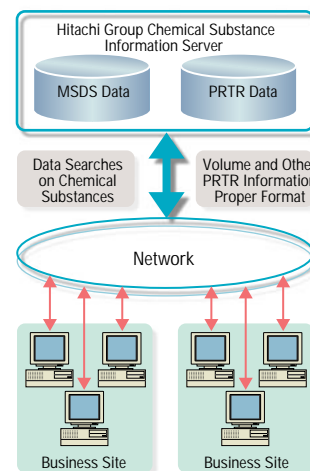
The Hitachi Group Comprehensive Management Support System for Chemical Substances

Hitachi developed and introduced the Hitachi Group Comprehensive Management Support System for Chemical Substances for the efficient operation of a comprehensive management system efficiently covering the entire Group. The system links the Group's business sites in a network, and any site can use the system to search for information about chemical substances anywhere in the Hitachi Group's possession. Complete PRTR information for the

Group is also compiled on the network, allowing real-time access to PRTR data.

The system's database contains information on the processing, special characteristics and other aspects of chemical substances as compiled by the Hitachi Group's wide range of companies, including manufacturers of chemical products and electronic components and devices, as well as logistics services companies. Group companies can use this information to more effectively carry out such environmental preservation operations as incorporating consideration for the environment in product designs and reducing emissions.

■ The Hitachi Group Comprehensive Management Support System for Chemical Substances



We will begin the filing and disclosure of PRTRs from 2002, in accord with the PRTR Law. Hitachi supplies stakeholders with information regarding various risks concerning chemical substances, actively pursuing risk communication to build a relationship of trust while enhancing understanding.

Keeping the Air and Water Clean

Every year, the legal regulations governing the amounts of pollutants in discharges from the workplace into water systems or the atmosphere grow stricter. Anticipating this, the Hitachi Group has instituted its own set of standards regarding discharges that are more exacting than any official ones. Since the 1996 revision of Japan's Clean Air Law and the 1999 promulgation of the Law Concerning Examination and Regulation of Manufacture and Handling of Chemical Substances, it has become more important than ever for companies to act on their own to reduce the volume of discharges from their workplaces. Currently, Hitachi is working hard to curb the

volume of volatile toxic substances its workplaces discharge into the atmosphere or bodies of water as well as to recover heavy metals from wastewater before they reach the general sewage system.

Water Quality Preservation

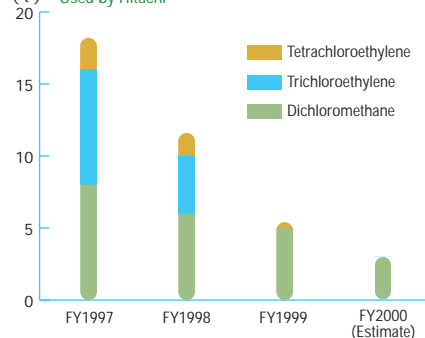
To curb the discharge of such toxic substances as heavy metals from the workplace into open bodies of water, Hitachi is pressing ahead with the installation of wastewater treatment facilities that purify and recycle wastewater after toxic substances have been separated from it and recovered through the use of filter membranes and other devices. At the Hitachi Semiconductor Group's semiconductor production facility in Naka, Ibaragi, wastewater is being effectively recycled at the rate of approximately 330m³ a day.

Preserving the Earth's Atmosphere

Hitachi has succeeded in eliminating the use of such substances that destroy the ozone layer as CFCs and 1,1,1-trichloroethane by devising technologies that facilitate the move to water-based detergents or render unnecessary the cleaning of substrates. (For details of Hitachi's

policies toward hydrochlorofluorocarbons (HCFCs), which are due to be phased out of production use by 2020, please refer to page 9.) Japan's Clean Air Law stipulates that companies are responsible for managing and monitoring their discharge of designated harmful substances into the atmosphere. Of these substances, trichloroethylene and tetrachloroethylene are particularly noxious, and Hitachi, designating them as prohibited substances, eliminated them from use Companywide in May 1995. Hitachi is also making significant progress in reducing its consumption of methylene chloride by making improvements to production processes and shifting to substitute compounds.

■ Trends in the Volume of Certain Atmospheric Pollutants Used by Hitachi



Using a membrane filter, this wastewater treatment device at Hitachi's Naka semiconductor production facility plays a crucial role in the recycling of wastewater.

Providing Environmental Preservation Systems to Society

The Hitachi Group's Comprehensive Environmental Business

Since 1996, environment-related members of the Hitachi Group have worked together to promote comprehensive environmental business. The technologies and businesses of the Hitachi Group

cover the fields of environmental preservation comprehensively. It is our goal to provide the best solutions for all environmental issues through cooperation and systemization. Accordingly, our

efforts are turning to environmental service businesses and regional revitalization in a harmonious relationship with the environment.

The Best Mix for Total Solutions

As the guiding principle of its comprehensive environmental business, the Hitachi Group seeks to provide total solutions with the best mix. This is to say that Hitachi's products are not just a specific treatment for an environmental ill; rather, Hitachi's philosophy is comprehensive, covering organizations' operational structure, logistics and the recovery of products and resources—all aspects of business.

From a broad perspective, with the goal of mobilizing the Group's overall strengths and systemized functions at their greatest levels to resolve environmental issues, Hitachi bases its environmental policy around five fundamental, comprehensive considerations:

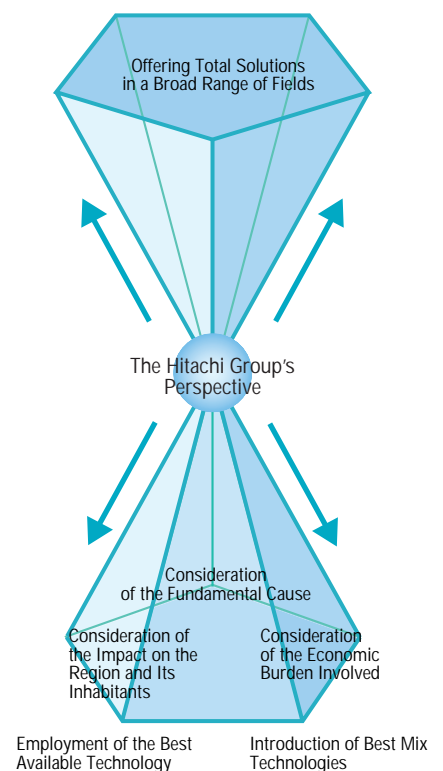
1. The Fundamental Cause
2. The Impact on the Region and Its Inhabitants
3. The Economic Burden Involved

4. Best Available Technology
5. The Best Mix

The illustration to the right shows Hitachi's perspective, supported by the five fundamental considerations and yielding total solutions with the best mix over a broad range of issues. Based on these five considerations and while focusing on environmental preservation in citizen's lives, industry, welfare, education and other fields, Hitachi is proposing solutions to meet broad needs, such as those for the revitalization of local communities.

To realize total solutions with the best mix, the Hitachi Group has diverse product lines focusing on solutions regarding waste, water, air, energy, information and services. Our goal is to provide the most appropriate solutions for all concerns. Below are some of the Hitachi Group's representative products and business operations.

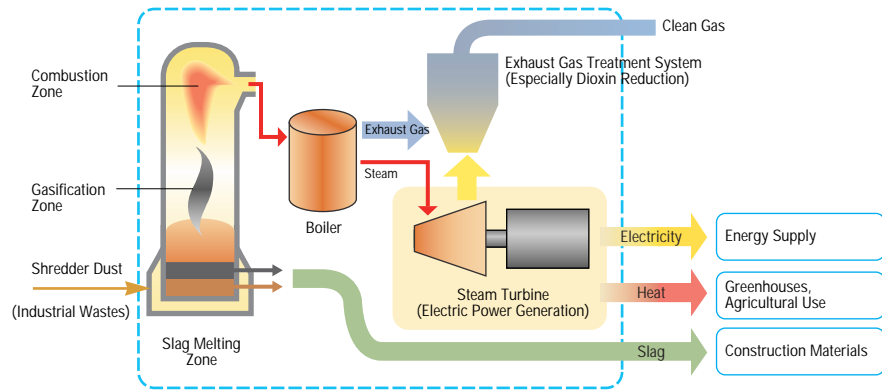
■ The Best Mix for Total Solutions—Overview



■ Major Hitachi Group Products and Businesses for Environmental Preservation

	Waste	Energy	Air	Water	Environmental Services
Major Products and Businesses	Recycling <ul style="list-style-type: none"> Industrial Waste Products Recovering Oil from Waste Plastics Refuse-Derived Fuels (RDFs) Composting Carbonization 	High-Efficiency Use <ul style="list-style-type: none"> Waste-Derived Power Generation Fuel Cells Cogeneration Regional Heating and Cooling 	Exhaust Gas Treatment <ul style="list-style-type: none"> Flue Gas Desulfurization Flue Gas Denitrification Dust Collectors Deodorizers 	Wastewater Treatment <ul style="list-style-type: none"> Sewage and Industrial Wastewater Treatment Reuse of Drainage and Rainwater Advanced Water Treatment 	Environmental Consulting
	Optimal Processing <ul style="list-style-type: none"> Thermolysis Incineration Furnaces Ash Melt Furnaces 	Waste-Derived Energy Use <ul style="list-style-type: none"> RDF Power Generation Power Generation Using Oil from Waste Plastics 	Dioxin Countermeasures <ul style="list-style-type: none"> CFC & Perfluorocarbon (PFC) Decomposition 	Sludge Treatment <ul style="list-style-type: none"> Incineration, Drying, Composting 	Environmental Management Support <ul style="list-style-type: none"> ISO 14000 Management Support Chemical Substance General Management Support
	Waste Information Management <ul style="list-style-type: none"> Manifests 	Renewable Energy <ul style="list-style-type: none"> Solar Power Generation Wind Power Generation Untapped Energy Sources 	CO₂ Stabilization <ul style="list-style-type: none"> Supporting Systems Analysis and Measurement Systems Monitoring Systems Simulation Systems 	Soil and Groundwater Purification <ul style="list-style-type: none"> Hydrosphere Purification 	Environmental Service Businesses <ul style="list-style-type: none"> Measurement and Analysis Analysis Monitoring Logistics Treatment and Recycling
	Eco-Products/Eco-Materials <ul style="list-style-type: none"> Eco-Production Process 	Lean Burn Engine Vehicles <ul style="list-style-type: none"> Electric Vehicles 		Supporting Systems <ul style="list-style-type: none"> Water Quality Monitoring Purification Simulation Systems Information Systems 	Facilities Operation, Maintenance, Management <ul style="list-style-type: none"> Facility Leasing
					Introduction of Best Mix Technologies

Overview of the Utashinai Project for Harmonious Coexistence



Comprehensive Environmental Business—Examples

Below are some examples of the Hitachi Group's commitment to the best mix for total solutions.

Electric Power Generation Business Using Industrial Waste in Utashinai, Hokkaido

With cooperation from the public sector,

the Hitachi Group has developed the Thermolysis Ash Melting System to convert industrial wastes into electricity and heat. The project will serve as new infrastructure, and is expected to attract new firms to the area and revitalize the region.

The generated heat will be used by new businesses. In July 1999, the city of Utashinai, Hitachi Metals, Ltd. and Hitachi, Ltd. established a new company to oversee the venture. The new firm will begin operations in October 2002.

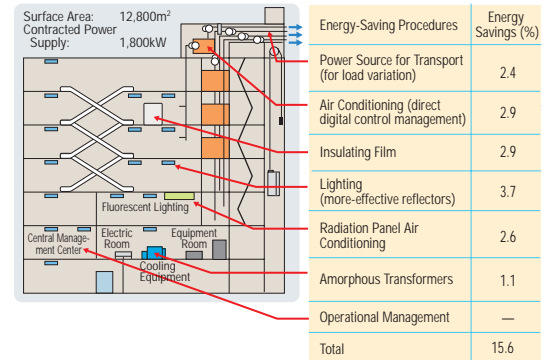
Energy Services Companies

While energy services companies (ESCOs) are a new form of business in Japan, they parallel similar business plans that arose in the United States in the 1970s, centering on guaranteeing energy savings over the long term through improvements in facilities and equipment. In 1998, as part of plans to promote this form of business in Japan, the Ministry of International Trade and Industry (MITI) decided to support model ESCOs

established by the private sector.

Hitachi's Mechanical Engineering Research Laboratory applied for and received MITI support for its construction for improved energy savings, which is expected to produce annual energy savings of 15.6% and reduce CO₂ emissions by 94 tons. Hitachi is advancing its ESCO operations based on the technologies developed in this model business.

Model Business—High Energy Efficiency (Mechanical Engineering Research Laboratory)



Comprehensive Water Environmental Business

In recent years, manufacturing and daily activities in urban areas have caused a water pollution problems in Japan's rivers and lakes. The creation of a biotope along rivers as well as the improvement of the water quality of lakes and drainage to maintain flow levels in rivers are required

to preserve the total water environment. Hitachi is supporting various water environmental management decision making by enhancing its plant control expertise and through various simulation technologies, wide area telecommunications network systems and watershed management systems, utilizing Geographical Information Systems (GIS).



An image of Comprehensive Water Environment Business

Representative Environmental Preservation Products/Systems

Waste Treatment and Reuse of Resources

Rotary Kiln-Type Thermolysis and Ash Melting System

The Hitachi Group has begun commercial production of next-generation waste treatment systems that overcome many of the drawbacks of conventional waste incineration methods. The Hitachi rotary kiln-type waste thermolysis system maximizes waste energy and reduces the volume of ash by melting it and making it

reusable. Moreover, residual heat is used with great efficiency in the generation of electricity. High-temperature combustion greatly reduces dioxins, and exhaust gas treatment equipment minimizes the dioxin content of exhaust gas to under 0.01ng-TEQ/m³N. By combining thermal recycling and materials recycling, the waste thermolysis and ash melting system makes a significant contribution to the preservation of the global environment.



Pilot waste treatment plant using the kiln-type waste thermolysis system in Hitachinaka City, capable of processing 20 tons of waste material a day

Electric Home Appliances Recycling Business

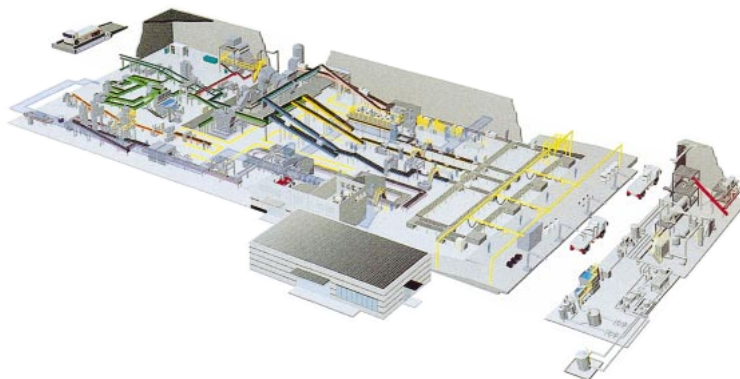
Hitachi has developed a recycling system in accord with Japan's Electric Home Appliances Recycling Law. The system reduces environmental load by recycling materials after crushing and separating waste components. Foamed urethane used as insulation in refrigerators is compressed, then the CFCs in it are recovered. At the same time, the system recovers metals, reusable plastic and polyvinyl chloride (PVC) from the crushed materials by using various separation techniques.

As the next step, Hitachi founded Hokkaido Eco Recycle Systems Co.,

Ltd. in October 1999 and Tokyo Eco Recycle Co., Ltd. in December 1999, applying the system it developed to

the consumer electronics recycling business in Japan.

Electric Home Appliances Recycling Plant
Picture: Association for Electric Home Appliances



Energy

Photovoltaic Power Generation Systems

Using the sun as an energy source provides a clean source of electricity with essentially no environmental load from emissions.

Facilities can be located where necessary to meet the demands of the situation. Facilities can be operated with no supervision, equipment has a long life-time and maintenance is quite simple.



Solar Power Generation System
(Kure Technical College)

Wind Power Systems

With a product lineup capable of generating from 230kW to 1,800kW, Hitachi can provide the wind power system that best matches the operating environment

and application. The system's high-efficiency, low-noise operation supplies high-quality electricity, and exacting maintenance service provides stable power generation.



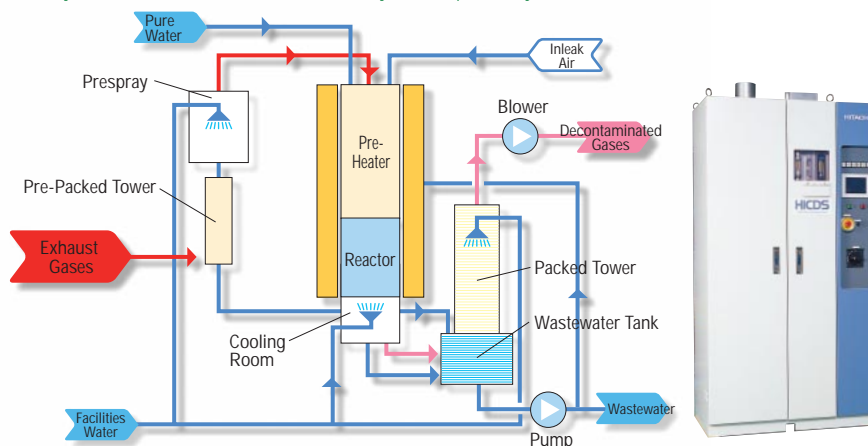
500kW Wind Power Generation System
(Okinawa Electric Power Company)

Air Environmental Preservation

PFC Catalytic Decomposition System

PFCs are used throughout the semiconductor and liquid crystal display (LCD) industries for a variety of process applications. PFCs were listed as global warming gases at the 3rd Conference of the Parties (COP3) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Kyoto in 1997, and it has become increasingly important to abate or neutralize them. The issue has been an ongoing problem for the semiconductor industry, as PFCs are very stable and difficult to break down. Hitachi has solved this problem by developing a proprietary catalytic decomposition technology through which PFCs, CHF₃, C₂F₆, C₃F₈,

■ System Flow and External View of the PFC Catalytic Decomposition System



C₃F₈, SF₆, NF₃ and even CF₄—generally the most difficult PFC to decompose—can be broken down by more than 99% at 750°C (including CO), while maintaining the lowest cost of ownership available today.

Exhaust gases from the etching process, which include PFCs, are washed in the prespray tower to remove such solids as SiO₂. The gases are heated to 750°C in the chamber and are decomposed by the catalyst in the reactor. The hot

decomposed gases are then cooled in a cooling room. Since HF gas is formed by the catalytic reaction, a packed tower is included to remove the acid from the decomposed gases. The final exhaust by-products are CO₂ and fluorinated water.

The system has a high resistance to corrosion and offers superior maintenance, providing an excellent environmental protection measure.

Water Environmental Preservation

Ribbon-Fiber Biofilter System

The ribbon-fiber biofilter system very effectively decomposes and abates organic pollution (biochemical oxygen demand, chemical oxygen demand and algae) by concentrating microorganisms that normally live dispersed in polluted water in a system of ribbon fibers. The system offers potential energy savings, as it uses the microorganisms' natural abili-

ties to purify the water. Operation and maintenance characteristics are also superior, as minimal sludge generation reduces clogging and jamming.



(Above) Ribbon-Fiber Units
(Right) A View of the System in Use

Environmental Services

Comprehensive Chemical Substance Management System—Chemilution

Chemilution is a package system offering unified management functions for such chemical substance issues as PRTRs and green procurement. Based on extensive data accumulated by Hitachi Group companies concerning a diverse range of

chemical substances as well as their extensive process knowledge and experience with regard to materials selection, the system can also be used as a database. In addition, efficient data compilation and analysis functions allow emissions reduction plans to be implemented smoothly.



The Chemilution Start-up Screen and Data Entry Screen

Research and Development

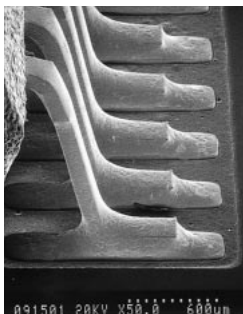
Research and Development for Environmental Preservation

Each of the Hitachi Group's R&D centers actively promotes research into products and services that contribute to environmental preservation by focusing on research themes related to environmental preservation systems.

Recent R&D work includes developments in materials, new energy sources and the measurement of chemical substances.

Three New Lead-Free Solders Developed In-house

Hitachi is working to eliminate lead from many of its products. Since 1989, some supercomputer components have used lead-free solder based on alloys of tin and silver. Hitachi has developed three materials that can replace lead in a wide range of product applications, from industrial and commercial applications to general home applications. As a result, practically all products can now be made without the use of lead. The companies of the Hitachi Group are actively putting these new materials into use.



Magnified Photo of Lead-Free Solder in Use

Manganese-Lithium Rechargeable Batteries

Rechargeable lithium batteries are a critical tool in the resolution of a number of energy and environmental problems, showing potential for use in electric cars and in electric power load-leveling applications. We are specializing in manganese-lithium batteries, the resources

Lead-Free Solder Materials

	High-Temperature Solder	Medium-Temperature Solder	Low-Temperature Solder
Main Components	Tin-silver alloy	Tin-silver alloy with small amounts of bismuth and other elements	Tin-bismuth
Special Characteristics	Used in product fields demanding superior strength and reliability and in heat-resistant flow processes*1 components on printed circuit boards	Good usability, better wettability than the high-temperature solder, for use in reflow processes*2	Good usability, used as a low-temperature material in three-dimensional layered mounting components on printed circuit boards
Main Applications	Vacuum cleaners Washing machines	PCs 8mm video cameras	Mainframes Washing machine display substrates

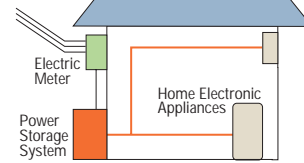
*1 Flow processes—for insertion mounting *2 Reflow processes—for surface mounting

for which are abundant and inexpensive. Through a project sponsored by the New Energy and Industrial Technology Development Organization (NEDO), we are promoting the development of a power storage system for home electric appliances that focuses on the use of manganese-lithium batteries and makes use of off-peak nighttime electricity. One application of the results of this research is manganese-lithium batteries for use in electric cars.

Prototype Reusable Manganese-Lithium Battery



Overview of Home Power Storage System Equipment



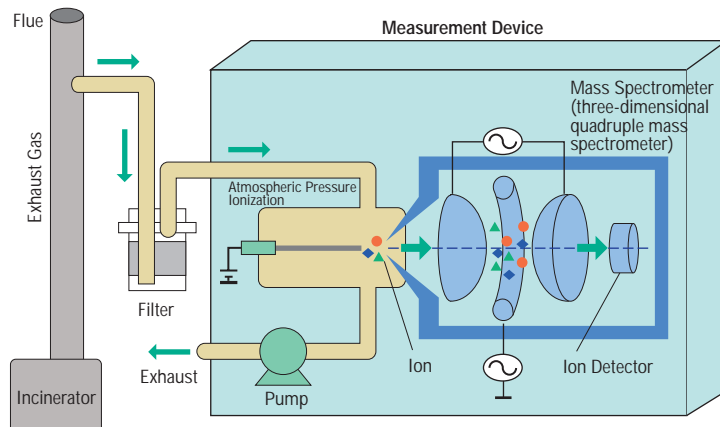
Chlorophenol Monitoring System for On-line Measurement of Dioxin Antecedents in Flue Gas

We have developed a technology for on-line measurements of concentrations of chlorophenol, an antecedent of dioxin found in flue gas from incinerators used to dispose of waste products.

Results of measurements are reported to incineration control, and, by suppressing the generation of chlorophenol, it is possible to reduce dioxin emissions.

In the past, dioxin analysis typically took several weeks, but a special feature of this new technology is that chlorophenol concentration can be measured on-line in approximately one minute.

Overview of the Dioxin Antecedent (Chlorophenol) Concentration Measurement Device



Exchanges with Society—Environmental Communication

Disclosure of Information on the Environment

People from all walks of life, corporations, politicians and bureaucrats must build a partnership, cooperate and work together in unison toward the goal of realizing a fully sustainable society.

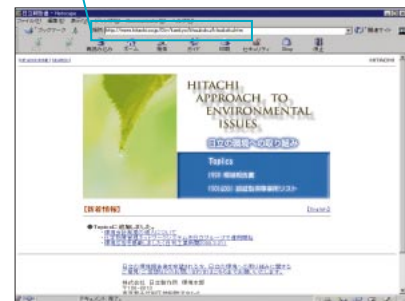
Above all else, what matters is a collective awareness of environmental risks, the burden that we place on the environment, an exchange of information about various environmental strategies and a broadening of mutual understanding. Based on this philosophy, while striving to make as many people aware of its

environmental operations as possible, Hitachi is pushing ahead with these operations only after conducting a serious and sustained dialogue with all those involved.

Bringing Information to the World
Publication of the Hitachi Environmental Report and Web Site Features
Hitachi has been publishing pamphlets on the environment since 1993 and in 1998 published and distributed its first full-fledged environmental report. In April 1999, we established a series of

pages on our Web site devoted to our approach to environmental issues and have placed on those pages not only our environmental reports but also the latest news on environmental topics.

Hitachi's Approach to Environmental Issues—
Web Site Address:
<http://www.hitachi.co.jp/Div/kankyo/khoukoku/kfoukoku.htm>



■ Environment-related Printed Documents

Month/Year	Issue	Printed Volume
Oct. 1993	FOR PLANET EARTH	5,000
Oct. 1994	BEYOND RECYCLE NEWS	3,000
Mar. 1995	FOR PLANET EARTH (English version)	3,000
Mar. 1996	FOR PLANET EARTH (Additional data '94 & '95)	10,000
Oct. 1996	FOR PLANET EARTH (English version)	3,000
Dec. 1997	FOR PLANET EARTH (Additional data '96)	10,000
Sept. 1998	1998 Environment Report, Japanese version	10,000
July 1999	1999 Environment Report, Japanese version	10,000

■ Home Page Addresses for Hitachi Group Environment Activities

Company Name	Home Page Address
Hitachi Chemical Co., Ltd.	http://www.hitachi-chem.co.jp/honsha/environment/rc.html
Hitachi Koki Co., Ltd.	http://www.hitachi-koki.co.jp/env/eindex.html
Hitachi Denshi, Ltd.	http://www.hitachi-denshi.co.jp/Pages/CoPrf/kankyoku.html
Hitachi Cable, Ltd.	http://www.hitachi-cable.co.jp/eco/index.htm
Hitachi Maxell, Ltd.	http://www.maxell.co.jp/company/kankyo.pdf

Hitachi at Exhibitions

In 1999, Hitachi made presentations at the exhibitions listed below and deepened the public's understanding of its approach to environmental issues.

■ Principal Exhibitions in which Hitachi Recently Participated

Month and Year	Event Title
June 1999	Environment Exhibition '99 (Hitachi City)
October 1999	New Earth '99
November 1999	Wastec '99
November 1999	Recycle Festa Yokohama
December 1999	Eco Products 1999
February 2000	ENEX '99



Eco Products 1999

Participation in Lecture Meetings

Hitachi is working hard to enhance communication with the general public by introducing them to the technology and know-how it uses in its approach to environmental issues via magazine articles written by its employees and lecture meetings.

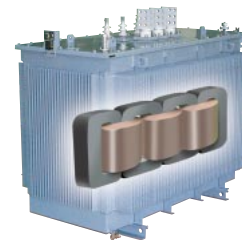


Discussion Meeting Hosted for Local Small and Medium-Sized Corporations by the Nagano Prefecture Techno Highland Development Organization

Awards

Hitachi has received a number of awards from organizations outside of the Company in recognition of its products' environmental soundness and the environmental operations of its offices and factories. (See page 7 of accompanying documents.)

■ Super Amorphous Transformer Awarded the Chairman's Prize* by the Energy Conservation Center, Japan



By using an amorphous alloy for the iron core of the transformer, the winding structure is improved, and total losses are reduced by half. It has been widely praised for its high energy conversion efficiency.

* Presented by the Energy Conservation Center, Japan, for energy-conserving machines suited to life in the 21st century, one of the major energy conservation accolades awarded by Japan's Ministry of International Trade and Industry (MITI).

In Touch with Nature

At every Hitachi business site, employees enthusiastically participate in environmental activities in their area, from greenification projects and other beautification campaigns. Local residents and people from other corporations nearby are encouraged to visit the Company's workplaces and are thereby introduced to Hitachi's unique approach to environmental preservation and able to exchange views on environmental issues with Hitachi employees.

When we were approached by people complaining of excessive noise being generated by Hitachi's factories and when local authorities have had occasion to bring to Hitachi's attention issues concerning

wastewater discharge, the Company has taken rapid and decisive steps to deal with the problems.

To support contributions made by its employees to environmental activities and the society of which Hitachi is a part, in May 2000 Hitachi established a Green Award for Social Contribution, for which any of its workplaces can be nominated.

Conservation in Action—Enterprise Server Division

In July 1993, the Enterprise Server Division inaugurated a new project, The Woods of Wild Birds Program, designed to attract more wild birds to the park surrounding the division's premises.



Putting Up Bird-houses with Elementary School Students



A Newspaper Feature Introducing The Woods of Wild Birds Program

Members of the division planted fruit-bearing trees and put up birdhouses, feeding stations and birdbaths to encourage more birds to visit.

Members of the program attended the morning assemblies at a local elementary school.

Foundations and Institutes

With the intention of deepening society's awareness and understanding of environmental issues, as far back as 1972, Hitachi established the Environmental Research Center, an incorporated foundation. The center contributes to the resolution of environmental problems in numerous ways: by supporting the study-abroad programs of environmental specialists with

either administrative or research backgrounds; by conducting surveys and research into a host of environmental matters; by publishing an in-house magazine, *Environmental Research* and by awarding its Environmental Prize for environmental activities.

Hitachi also supports the World Wide Fund for Nature Japan (WWF Japan) and other environmental NGOs.



Hitachi's In-house Publication *Environmental Research*

Responding to Your Questions and Opinions

In fiscal 1999, by telephone, post and e-mail from our home page and through other means, Hitachi responded to some

200 requests for more information about its environmental policies. Below are just

a few examples of the sort of inquiries that we receive.

Inquirer	Subject of Inquiry	Hitachi's Response
Junior High School Student	Questionnaire of area businesses for a homework project on efforts to prevent pollution	We completed the student's questionnaire and sent out a copy of the <i>Hitachi Environmental Report</i> .
University Student	Surveying the impact IT equipment has on the environment and efforts being made to lessen its impact	We explained what we do in this area, particularly with regard to our returns system for recovering used IT equipment and other products.
Middle-aged Man	A lover of Hitachi products, this man asked to be sent a copy of the <i>Hitachi Environmental Report</i> as he said that he was going to take into consideration the attitude of electrical manufacturers toward the environment when making purchases of electrical goods in the future.	We sent out a copy of the <i>Hitachi Environmental Report</i> .
Electrical Machinery Manufacturer	Conducting a survey into how companies were making their products more environment-friendly	We explained our guidelines regarding design for environment.
Financial Institution Employee	Surveying the approaches of companies to environmental issues as part of an investigation into Ecofunds	We explained our approach, as presented in the <i>Hitachi Environmental Report</i> .

Environmental Activities around the World

The Hitachi Group has business interests all over the world, not only in Japan but also in Southeast Asia, Europe and the Americas. Everywhere that it operates, the Company is actively committed to the concept of environmental soundness and is pressing ahead with the introduction of environmental management systems and the acquisition of ISO 14001 certification. As a good corporate citizen, Hitachi takes care to participate in a variety of activities that will hopefully lead to the making of a better and more fulfilling society for everyone and is putting together a series of projects that are designed to bring Hitachi closer to the citizens of the societies where the Company operates. Hitachi also enthusiastically supports the volunteer activities of its employees wherever they work.

Hitachi Semiconductor (Malaysia) Sdn. Bhd.

Hitachi has banned the use of chlorine solvents and halon gas in fire extinguishers, reduced the volume of soldering waste generated 30%, moved to 100% recycled packaging for all its products and introduced several energy conserving measures at this Malaysian semiconductor production facility. In August 1998, the facility acquired ISO 14001 certification. In recognition of these and other achievements, in February 2000, Hitachi was awarded the Malaysian Prime Minister's Hibiscus Award, the premier environmental award for business and industry in Malaysia.



Receiving the Malaysian Prime Minister's Hibiscus Award

Hitachi Air Conditioning Products (M) Sdn. Bhd.

This Malaysian air-conditioning manufacturing plant acquired ISO 14001 certification in April 1997 and has been constantly broadening the scope of its recycling operations and the reach of its environmental policies.

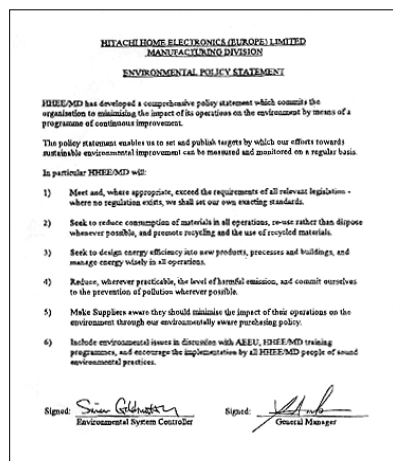
The Malaysian administration recognized the depth of Hitachi's commitment to the environment when in October 1998 the factory was awarded the Selangor State Prize for Environmental Excellence (Large-Scale Business Category).



Presentation of the Selangor State Prize for Environmental Excellence (Large-Scale Business Category)

Hitachi Home Electronics (Europe) Ltd., Manufacturing Division

This is a Hitachi television manufacturing facility in the United Kingdom that has drawn up a comprehensive statement of its environmental policies and made noteworthy efforts to purchase products that are environmentally sound, manage chemical substances as carefully as possible and reduce waste products.



The Environmental Policy Statement of Hitachi Home Electronics (Europe)

Environmental Awareness Activities in the Fiscal 1999 Hitachi Young Leaders Initiative*

With the cooperation of the World Wide Fund and local authorities, Hitachi hosted a camp on the outskirts of Kuala Lumpur for young people involved in the Young Leaders Initiative, where they were able to learn more about environmental preservation, explore local forests and take part in tree-planting initiatives, thereby deepening their awareness of the importance of conserving our natural environment. They also performed dramatic sketches on environmental themes and were able to share their thoughts and exchange opinions on green issues.

*An international students forum inaugurated by Hitachi in 1996 to discover the leaders of the next generation from across Asia and help them network and promote a greater understanding of various problems confronting the region.



Learning about the Environment

Hitachi Computer Products (America), Inc.

Employees at the Hitachi Computer Products manufacturing facility in Norman, Oklahoma were enthusiastic participants in the city's volunteer-based garbage collection day, held on April 8, 2000. In five hours, Hitachi employees managed to collect an amazing 84,600 pounds of garbage.



Hitachi Employees Helping to Clean Up Norman, Oklahoma

The History of Hitachi's Approach to Environmental Issues

	Month and Year	Measures Taken by the Hitachi Group	Year	World Events
1960s–1970s			1967	Japan's Basic Law for Environmental Pollution Control promulgated
			1968	Japan's Air Pollution Control Law promulgated
	September 1970	Pollution Prevention Committee set up	1970	Japan's Clean Water Act and other water pollution-related laws promulgated
	September 1971	Environmental Management Promotion Center set up		
	February 1972	Hitachi begins Groupwide investment in environment facilities		
		Environmental Research Center established		
	May 1973	Hitachi incorporates environmental audits into its operational audits		
1980s	February 1983	Environmental Management Promotion Center renamed the Environment Protection and Fire Prevention Production Center	1988	Montreal Protocol signed
	May 1989	CFC Policy Committee set up		
1990s	June 1991	Environment Policy Office established	1991	Keidanren Global Environment Charter formulated
	December 1991	Hitachi wins Stratospheric Ozone Layer Protection Award from the U.S. Environmental Protection Agency (EPA)		Japan's Law for the Promotion of Recyclable Resources promulgated
	March 1992	Environmental Committee established		Japan's Waste Management Law revised
		Ozone Layer Protection Committee, Products Recycling Committee, Global Warming Prevention Committee, Industrial Waste Committee set up	1992	Earth Summit in Rio de Janeiro
	July 1992	Environmental Action Plan formulated		British Standards Institute BS7750 environmental management systems certificate established
	October 1992	Cogeneration systems introduced at Hitachi facilities		
	March 1993	Hitachi formulates Environmental Protection Action Guidelines (Global Environment Charter)	1993	Japan's Basic Environment Law promulgated
	May 1993	Awarded Global Environment Prize by WWF Japan		Japan's Law Concerning the Rational Use of Energy revised
	December 1993	Use of CFCs as cleaning agents eliminated		
	May 1994	ISO Certification Committee set up	1994	United Nations Framework Convention on Climate Change comes into effect
	December 1994	Use of trichloroethane and other chlorine-based organic solvents eliminated		
	January 1995	Internal environmental audit system introduced	1995	Containers and Packaging Recycling Law promulgated
	October 1995	Refuse-Derived Fuel (RDF) facilities introduced		
	December 1995	Use of all CFCs deemed ozone depleting by the Montreal Protocol completely eliminated		
	January 1996	Environmental Action Plan revised with regard to product recycling and global warming prevention measures	1996	Keidanren Appeal on Environment proclaimed
				Japan's Clean Air Act revised
	June 1996	The Storage Systems Division becomes the first Hitachi unit to acquire BS7750 environmental management systems certification from the British Standards Institute		ISO 14001 international environmental standards established
	March 1997	Hitachi voluntarily introduces system of usage reduction and the elimination of particularly toxic chemicals	1997	Japan's Waste Management Law revised
				Japan hosts the Third Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3)
	September 1997	Hitachi wins the U.S. EPA's Best-of-the-Best Stratospheric Ozone Protection Award		
	December 1997	Industrial Waste Reduction Action Plan revised		
		Hitachi has a prominent stand at Eco Japan '97 exhibition, held alongside the Third Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3) in Kyoto, Japan		
	February 1998	Recycling System Committee set up	1998	Japan's Law Concerning the Rational Use of Energy revised
	March 1999	Hitachi awarded the Minister of International Trade and Industry's Prize at the Green Japan Center sponsored annual Resource Recycling Awards ceremony		Japan's Law for the Recycling of Specified Kinds of Consumer Electric Goods (the Consumer Electric Home Appliances Recycling Law) promulgated
		Design for environmental assessment guidelines formulated		
	April 1999	Hitachi Group environmental management structure strengthened by the establishment of the Senior Executive Committee for Environmental Policy and the start of GREEN 21 activities	1999	Japan's Law Concerning Promotion of Global Warming Countermeasures promulgated
	July 1999	Formulation of Comprehensive Chemical Substance Management Policies		Japan's Law Concerning Examination and Regulation of Manufacture and Handling of Chemical Substances promulgated
	October 1999	Hitachi introduces a system for the disclosure of environmental information		
	December 1999	Hitachi Group's Environmental Action Plan revised completely		
		Hitachi exhibits at Eco Products 1999		Japan's Law Concerning Special Measures to Control Dioxin promulgated
	Environmental Accounting Policies formulated			
2000s	April 2000	Environmental accounting results disclosed		
	May 2000	Green Award for Social Contribution established		

Organization or Committee System Groupwide Policy Major External Awards

Data on Environmental Performance Fiscal 1999

■ Contents

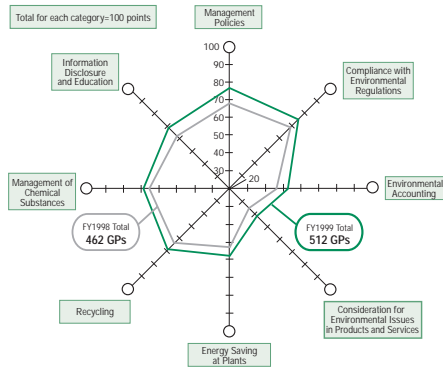
● Environmental Management System	
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Results of environmental operations of Hitachi, Ltd. and 20 affiliated companies (identified on the contents page of the *Hitachi Environment Report 2000*). Figures for Hitachi, Ltd. include some environmental impact data arising from operations conducted for affiliated companies at parent company sites.

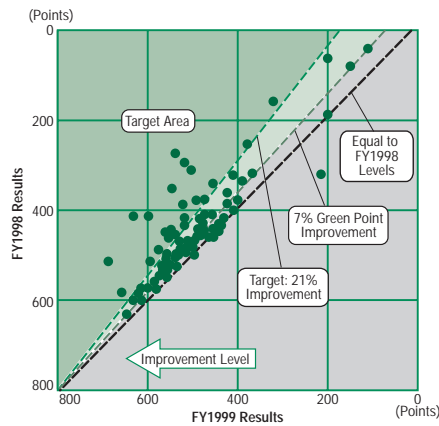
Environmental Management System

GREEN 21

● Hitachi Group Average Green Points Average improvement from fiscal 1998: 14.8%



● Green Points for Hitachi, Ltd. and Affiliated Firms (FY1999 vs. FY1998)



Environmental Management Performance

● ISO 14001 Certification Status (Hitachi Group, Mar. 2000)

	Hitachi, Ltd. (Unconsolidated)		Affiliates in Japan		Overseas Affiliates
	Manufacturing	Non-manufacturing	Manufacturing	Non-manufacturing	Manufacturing
Certified Sites	33 (all sites)	1	110 (all sites)	9	24

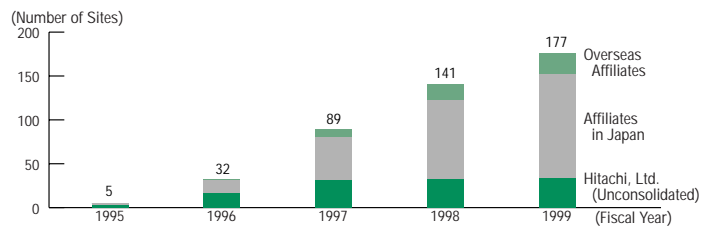
*Includes affiliates other than the 20 covered in the scope of the *Hitachi Environmental Report*.

● List of ISO 14001-Certified Sites (Hitachi Group, Mar. 2000)

No.	Hokkaido and Tohoku Regions	Date Certified
1	Hitachi Media Electronics Co., Ltd. Mizusawa Works/Koyamasaki Branch	1997. 1.29
2	Hitachi Telecom Technologies, Ltd.	1997. 9.29
3	Hitachi Hokkai Semiconductor, Ltd. Chitose Works	1998. 1.27
4	Hitachi Yonezawa Electronics Co., Ltd.	1998. 1.27
5	Hitachi Hokkai Semiconductor, Ltd. Hakodate Works	1998. 2.24
6	Akita Electronics Co., Ltd.	1998. 3.24
7	Hitachi Hokkai Semiconductor, Ltd. Tsugaru Works	1998. 8.25
8	Nitto Denko Corporation Tohoku Plant	1998.10.28
9	Tohoku Electric Manufacturing Co., Ltd.	1998.11.25
10	Kokusai Electric Co., Ltd. Chitose Works	1999. 4.21
11	Nippon Columbia Co., Ltd. Shirakawa Works	1999. 9.29

No.	Kantou and Koshinetsu Regions	Date Certified
12	Information & Computer Systems Data Storage & Retrieval Systems Division	1995. 7.19
13	Hitachi Chemical Co., Ltd. Goi Works	1995.11.28
14	Semiconductor & Integrated Circuits Kodaira Site	1996. 3.26
15	Hitachi Chemical Co., Ltd. Shimodate Works	1996. 3.27
16	Semiconductor & Integrated Circuits Takasaki Site	1996. 3.27
17	Hitachi Chemical Co., Ltd. Kashima Works	1996. 6.25
18	Consumer Products Home Appliances Division	1996. 7.22
19	Hitachi Chemical Co., Ltd. Yamazaki Works	1996. 7.22
20	Semiconductor & Integrated Circuits Kofu Site	1996. 7.22
21	Instruments	1996. 9.24
22	Hitachi Koki Co., Ltd. Sawa Works, Kasama Works	1996. 9.24
23	Telecommunication & Information Infrastructure Systems Telecommunication Systems Division	1996.10.29
24	Power & Industrial Systems Information & Control Systems Division	1996.10.29
25	Hitachi Chemical Co., Ltd. Yuki Works	1996.12. 3
26	Hitachi Chemical Co., Ltd. Goshomiya Works	1996.12.26
27	Digital Media Digital Media Systems Division	1997. 1.28
28	Digital Media Digital Media Systems R&D Division	1997. 1.28

Certification Trends



29	Production Engineering Research Laboratory	1997. 1.28
30	Consumer Products Refrigeration & Air Conditioning Division	1997. 1.29
31	Digital Media Digital Media Products Division	1997. 2.26
32	Hitachi Cable, Ltd. Toyoura Works	1997. 2.26
33	Hitachi Medical Corporation Kashiwa Site	1997. 3.24
34	Automotive Products	1997. 3.24
35	Hitachi Cable, Ltd. Densen Works	1997. 3.24
36	Displays	1997. 3.25
37	Power & Industrial Systems Industrial Machinery Systems Division	1997. 3.25
38	Hitachi Cable, Ltd. Hitaka Works	1997. 3.25
39	Hitachi Tohbu Semiconductor, Ltd. Nagano Works	1997. 4.21
40	Building Systems Mito Site	1997. 4.22
41	Hitachi Research Laboratory	1997. 4.22
42	Hitachi Denshi, Ltd. Koganei Works	1997. 6.23
43	Semiconductor & Integrated Circuits Naka Site	1997. 6.23
44	Information & Computer Systems Group Enterprise Server Division	1997. 6.24
45	Hitachi Chemical Co., Ltd. Head Office	1997. 6.24
46	Industrial Components & Equipment Nakajo Division	1997. 7.29
47	Device Development Center	1997. 8.26
48	Mechanical Engineering Research Center	1997. 8.27
49	Hitachi Media Electronics Co., Ltd.	1997. 9.30
50	Industrial Components & Equipment Narashino Division	1997. 9.30
51	Power & Industrial Systems Power & Industrial Systems R&D Laboratory	1997. 9.30
52	Hitachi Lighting Equipment, Ltd.	1997. 9.30
53	Hitachi Air Conditioning Systems Co., Ltd. Shimizu Works	1997.10.28
54	Hitachi Construction Machinery Co., Ltd. Tsuchiura Works	1997.11.25
55	Hitachi Tokyo Electronics Co., Ltd. Head Office & Works	1997.11.25
56	Power & Industrial Systems Power Transmission & Distribution Division Kokubu Site	1997.12.22
57	Hitachi Computer Peripherals Co., Ltd. Nakai Works	1997.12.24
58	Hitachi Maxell, Ltd. Tsukuba Site	1997.12.24
59	Hitachi Electronics Engineering Co., Ltd. Shonan Works	1997.12.24
60	Hitachi Science Systems, Ltd.	1998. 1.26

No.	Kantou and Koshinetsu Regions	Date Certified
61	Hitachi Electronic Devices Co., Ltd. Shonan Works	1998. 1.27
62	Hitachi Electronics Engineering Co., Ltd. Saitama Works	1998. 1.28
63	Kokusai Electric Co., Ltd. Hamura Works	1998. 2.23
64	Japan Servo Co., Ltd. Kiryuu, Urizura Site	1998. 2.23
65	Kokusai Electric Co., Ltd. Fuji-Yoshida Works	1998. 3. 6
66	Hitachi Car Engineering Co., Ltd.	1998. 3.24
67	Central Research Laboratory	1998. 3.24
68	Design Center	1998. 3.24
69	Nippon Columbia Co., Ltd. Kawasaki Works	1998. 3.24
70	Hitachi Hokkai Semiconductor, Ltd. Sagami Works	1998. 3.25
71	Power & Industrial Systems Hitachi Administrative Division	1998. 4.20
72	Hitachi Chemical Co., Ltd. Tsukuba Research Laboratory	1998. 6.22
73	Hitachi Tokyo Electronics Co., Ltd. Equipment & Engineering Division	1998. 7.28
74	Hitachi Elevator Engineering Co., Ltd.	1998. 8.24
75	Hitachi Engineering & Services Co., Ltd.	1998. 8.25
76	Hitachi Plant Engineering & Construction Co., Ltd. Matsudo Research Laboratory	1998. 9.24
77	Hitachi Haramachi Electronics Co., Ltd.	1998. 9.24
78	Silontec Corporation	1998. 9.25
79	Nitto Denko Corporation Kanto Plant	1998. 9.25
80	Nakayo Telecommunications, Inc. Operation Headquarters	1998.10.27
81	Hitachi Engineering & Services Co., Ltd.	1998.10.27
82	Hitachi Engineering Co., Ltd.	1998.10.27
83	Hitachi Shonan Denshi Co., Ltd.	1998.10.28
84	Hitachi Hometec, Ltd.	1998.11.25
85	Power & Industrial Systems Thermal & Hydroelectric Systems Division, Materials Product Division	1998.11.25
86	Hitachi Instruments Service Co., Ltd.	1998.11.30
87	Yagi Antenna Co., Ltd. Omiya Works	1998.12.18
88	Hitachi Oxygen, Ltd.	1998.12.22
89	Hitachi Information Systems, Ltd.	1998.12.24
90	Hitachi Electric Systems Co., Ltd.	1999. 1.26
91	Hitachi Techno Engineering Co., Ltd. Ryugasaki Works	1999. 1.27
92	Hitachi Printing Co., Ltd. Mitaka Works	1999. 2.23
93	Hitachi Metals, Ltd. Electronic Devices Division	1999. 2.24
94	Hitachi Kyowa Engineering Co., Ltd.	1999. 3. 1
95	Hitachi Transport System, Ltd.	1999. 3.11
96	Hitachi Metals, Ltd. Kumagaya Works	1999. 3.11
97	Hitachi Naka Electronics Co., Ltd.	1999. 3.29
98	Hitachi Cable, Ltd. Tsuchiura Works	1999. 3.30
99	Tokico Ltd. Yamanashi Plant	1999. 4.21
100	Hitachi Metals, Ltd. Moka Works	1999. 4.22
101	Hitachi Service & Engineering (East) Ltd.	1999. 6.11
102	Hitachi Maxell, Ltd. Tsukuba Laboratory	1999. 6.30
103	Hitachi Kiden Kogyo Co., Ltd. Sano Works	1999. 6.30
104	Hitachi Information Technology Co., Ltd.	1999. 7. 9
105	ShinMaywa Industries, Ltd. Special-Purpose Truck Div. Shonan Plant	1999. 7.28
106	Hitachi Tochigi Electronics Co., Ltd. Koganei Works	1999. 8.25
107	Nissei Sangyo Co. Ltd. Head Office	1999. 8.25
108	Hitachi Techno Engineering Co., Ltd. Ebina Works	1999. 8.25
109	Finance & Distribution Systems Software Division	1999. 9.29
110	Hitachi Plant Engineering & Construction Co., Ltd. Environmental Systems Group & Civil Engineering Center	1999. 9.29
111	Hitachi Via Mechanics, Ltd.	1999.12. 1
112	ShinMaywa Industries, Ltd. Special-Purpose Truck Div. Sano Plant	1999.12.28
113	Hitachi Life Corporation	2000. 1.26
114	Tokico Ltd. Sagami Plant	2000. 1.26
115	Shuwa Industry Corporation	2000. 2.10
116	Hitachi Lighting, Ltd.	2000. 3.15
No.	Hokuriku and Chubu Regions	Date Certified
117	Kokusai Electric Co., Ltd. Toyama Works	1997. 1.17
118	Hitachi Media Electronics Co., Ltd. Hokuriku Works	1997. 3.26
119	Information & Computer Systems Mechatronics Systems Division	1997.10.28

120	Information & Computer Systems PC Division	1997.10.28
121	Hitachi Joel Tech Co., Ltd. Gifu Works	1997.12.24
122	Hitachi IE Systems Co., Ltd.	1998. 9.24
123	Nitto Denko Corporation Toyohashi Plant	1999. 3.11
124	Jidosha Denki Kogyo Co., Ltd.	1999. 7.19

No.	Kansai Region	Date Certified
125	Horiba, Ltd. Head Office & Works, EL Works	1997. 6. 4
126	Hitachi Kiden Kogyo Co., Ltd. Amagasaki Works	1998. 1.26
127	Hitachi Maxell, Ltd. Ono Works	1998. 1.26
128	Nitto Denko Corporation Shiga Plant	1998. 1.27
129	Hitachi Medical Corporation Osaka Site	1998. 2.23
130	Hitachi Maxell, Ltd. Kyoto Site	1998. 2.23
131	Hitachi Maxell, Ltd. Osaka Site	1998. 2.24
132	Nitto Denko Corporation Kameyama Works	1998. 4.20
133	ShinMaywa Industries, Ltd. Industrial Machinery System Div. Ono Plant	1998. 6.18
134	ShinMaywa Industries, Ltd. Takarazuka Area	1998. 9.25
135	Hitachi Air Conditioning & Refrigeration Co., Ltd.	1998.11.24
136	Hitachi Chemical Co., Ltd. Kansai Area Operations Office and Kansai Housing Equipment & Environmental Facilities Sales Office	1999. 2.23
137	Hitachi Metals, Ltd. Kuwana Works	1999. 4.22
138	Hanshin Electric Co., Ltd.	1999. 7.28
139	ShinMaywa Industries, Ltd. Special-Purpose Truck Div. Harima Plant	1999.12. 2
140	ShinMaywa Industries, Ltd. Aircraft Div. Konan Plant	1999.12.27
141	ShinMaywa Industries, Ltd. Special-Purpose Truck Div. Hiroshima Plant	1999.12.27
142	Hitachi Service & Engineering (West), Ltd.	1999.12.28
143	Toyo Machinery & Metal Co., Ltd.	2000. 3.29

No.	Chugoku and Kyushu Regions	Date Certified
144	Babcock-Hitachi K.K. Kure Works & Laboratory, Akitsu Works	1997. 3.21
145	Nitto Denko Corporation Kyushu Plant	1997.12.22
146	Power & Industrial Systems Kasado Administrative Division	1997.12.24
147	Hitachi Yanai Semiconductor Co., Ltd.	1998. 4.20
148	Nitto Denko Corporation Onomichi Works	1998. 7.28
149	Hitachi Metals, Ltd. Tottori Works	1998. 9.24
150	Hitachi Metals, Ltd. Yasugi Works	1998.10.20
151	Hitachi Metals, Ltd. Wakamatsu Works	1999. 1.25
152	Hitachi Metals, Ltd. Kyushu Works	1999. 3.29
153	Seiko Electric Co., Ltd.	1999.12. 2

No.	Overseas	Date Certified
1	Hitachi Home Electronics (Europe) Ltd.	1997. 1.27
2	Hitachi Air Conditioning Products (M) Sdn. Bhd.	1997. 4.22
3	Taiwan Hitachi Co., Ltd.	1997. 8.28
4	Hitachi Semiconductor (Malaysia) Sdn. Bhd.	1997. 8.29
5	Hitachi Computer Products (Asia) Corp.	1997.10.21
6	Hitachi Electronic Devices (Singapore) Pte. Ltd.	1997.12.16
7	Hitachi Technology (Taiwan) Ltd.	1998. 1. 7
8	Hitachi Semiconductor (America), Inc.	1998. 1.16
9	Hitachi Automotive Products (USA), Inc.	1998. 3. 5
10	Kaohsiung Hitachi Electronics Co., Ltd.	1998. 5.28
11	Hitachi Semiconductor (Europe) GmbH	1998. 5.30
12	Hitachi Computer Products (America), Inc.	1998. 6.19
13	Hitachi Electronic Products (Malaysia) Sdn. Bhd.	1998. 7.20
14	Hitachi Telecom (USA), Inc.	1998. 9.23
15	Hitachi Consumer Products (Malaysia) Sdn. Bhd.	1998. 9.25
16	Hitachi Computer Products (Europe) S.A.	1998.11. 3
17	Hitachi Instruments, Inc.	1998.11. 6
18	Hitachi Home Electronics (America), Inc.	1999. 3.18
19	Hitachi Nippon Steel Semiconductor Singapore Pte. Ltd.	1999. 4.19
20	Hitachi Air Conditioning Products (Europe) S.A.	1999. 5. 4
21	Hitachi Elevator Engineering Co., (Hong Kong) Ltd.	1999. 7.21
22	Hitachi Electronic Devices (USA), Inc.	1999. 8.25
23	Hitachi Compressor (Thailand), Ltd.	1999.11. 4
24	Guangzhou Hitachi Elevator Co., Ltd.	2000. 3.17

● Green Purchasing Status

(data for Hitachi, Ltd., unconsolidated)

No.	Item		FY1997	FY1998	FY1999	Scale of Purchase
1	Copier and printer paper	Wastepaper content Brightness	70% 80%	100% Less than 70%	100% Less than 70%	Approximately 200 million sheets
2	Paper for publications	Wastepaper content Brightness	Approximately 70% Approximately 80%	Approximately 70% Approximately 80%	70% 80%	Approximately 400 million sheets
3	Business cards	Wastepaper content Brightness Case	70% Less than 70% Plastic	100% Less than 70% Recycled paper	100% Less than 70% Recycled paper	Approximately 360,000 boxes (1 box=100 business cards)
4	Green procurement guidelines	Wastepaper content	—	100%	—	10,000 sheets
5	Hitachi office supplies catalogs	Wastepaper content	50%	—	100%	Approximately 10,000 brochures
6	Envelopes	Wastepaper content	70%	70%	70%	Approximately 180,000 sheets
7	Writing materials • Pens and pencils • Files and related products • Other	Eco-products ratio*	Approximately 2% 0.0% 5.7% 1.5%	Approximately 18% 67.3% 26.4% 10.4%	20% 70% 30% 13%	Approximately 350 items Approximately 110 items Approximately 80 items Approximately 160 items
8	Recovered toner cartridges	Recycling rate Recovery rate	Approximately 30% —	Approximately 35% 100%	45% 100%	Approximately 6,000 units
9	100% post-consumer waste toilet paper	Wastepaper content	—	—	100%	Approximately 840,000 rolls

*Eco-products ratio: Purchasing price of environmentally conscious products/All products

Environmental Accounting

(FY1999 performance data for Hitachi, Ltd., unconsolidated)

● Performance Progress in Environmental Accounts (billions of yen)

		FY1998	FY1999
Costs	Expenditure	28.25	26.70
	Investments	5.65	6.76
Effect (Economical Effect)		3.69	4.16

● Cost

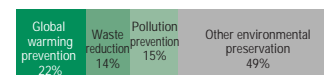
(billions of yen)

	Item	Cost	Overview
Expenses	1. Control of environmental impact during production	9.77	Maintenance of equipment with low environmental impact, depreciation
	2. Control of environmental impact prior to and after production	1.80	Green procurement expenses, recovery of products and packaging, transition to recyclable goods, recycling expenses
	3. Management activities	2.60	Labor costs of environmental management, employment of environmental management system, maintenance expenses
	4. R&D activities*1	11.14	R&D for the reduction of environmental impact of products and production processes, product design expenses
	5. Social activities	1.06	Environmental improvement, including greening and beautification, PR and publicity expenses
	6. Other environmental protection expenses	0.33	Environment-related measures, contributions and levies
	Total expenditures	26.70	
	Total investment**2	6.76	Investment in energy-saving equipment and equipment that directly reduces environmental impact

*1. 3.7% of total R&D expenses. Here, product design is included in R&D expenses.

**2. 4.2% of total capital investment

*3. Makeup of capital investment



● Effect

(billions of yen)

	Item	Effect	Overview	
Economical Effect	Net income effect	1.10	Profit on sales of recycled waste	
	Expense reduction effect	3.06	Reduction in power expenses due to energy savings, reduction in waste treatment costs due to reduction in waste	
	Total	4.16		
	Item	Amount of Reduction	Household Conversion	Overview
Physical Effect	1. Reduction in energy used during production	94 million kWh	27,000 households	Decrease in energy expenses due to installation of energy-saving equipment
	2. Reduction in final amount of waste disposal	792t	3,000	Decrease in ultimate waste output due to separation, recycling
	3. Reduction in energy consumed during use of products	165 million kWh	48,000	Decrease in energy requirements of Hitachi products

Note 1: Depreciation on capital investment and the resulting effect are calculated using a five-year flat rate formula.

Note 2: Regarding the classification of items and economical effect

- Net income effect: Effects for which there is real income, including the sale of valuables and environmental technology patent income
- Expense reduction effect: Reduction in electricity fees and waste treatment expenses with environmental impact reduction activities

● Eco-Efficiency

Item	Amount of Reduction (A)	Expense Reduction (B)	Efficiency of Environmental Impact Reduction (A)/(B)
Energy use	94 million kWh	¥1.14 billion	8.2 million kWh/¥100 million
Final waste disposal	792t	¥1.23 billion	64t/¥100 million

Note: Efficiency of environmental impact reduction=Amount of reduction/Expenses

● Sales of Environmental Preservation and Environmentally Conscious Products

	Sales (billions of yen)	% of Net Sales
Environmental preservation products	¥ 8.1	0.2
Environmentally conscious products	¥1,018.7	27

Note: Environmental preservation products: Products manufactured for the purpose of environmental preservation—for example, waste treatment systems
Environmentally conscious products: Products—energy-saving products, for example—manufactured with design for environment (selected according to Hitachi guidelines)

Consideration for Environmental Issues in Products and Services

● Products Given Hitachi's Eco Label and Products Supplied with Extra Environmental Information for Consumers (As of March 2000)

Product Name	No.	Product Number	Date Registered	Environmentally Sound Aspects
Notebook PC FLORA 220 FX	1	PC1NPP3-G8C24B110	December 13, 1999	Printed wiring boards do not use halogen-based flame retardants; magnesium alloys used in the external PC casing
	2	PC1NPP3-G8C24B120		
Super Amorphous Transformer	3	SOU-CCDR	March 9, 2000	Uses amorphous alloys; improvements to the winding structure reduce total losses by half
	4	SOU-DD5CA		
Notebook PC FLORA 220 FX	5	PC1NP3-P8C23B120	April 24, 2000	Printed wiring boards do not use halogen-based flame retardants, magnesium alloys used in the external PC casing, or lead-free contact solder.
	6	PC1NP3-P9C23B120		
	7	PC1NP3-P9A23B120		
	8	PC1NP3-P9G23B120		
	9	PC1NP3-G8C23B120		
	10	PC1NP3-G9C23B120		
	11	PC1NP3-G9A23B120		
	12	PC1NP3-G9G23B120		

● Achievement of Assessment Criteria (Representative Products)

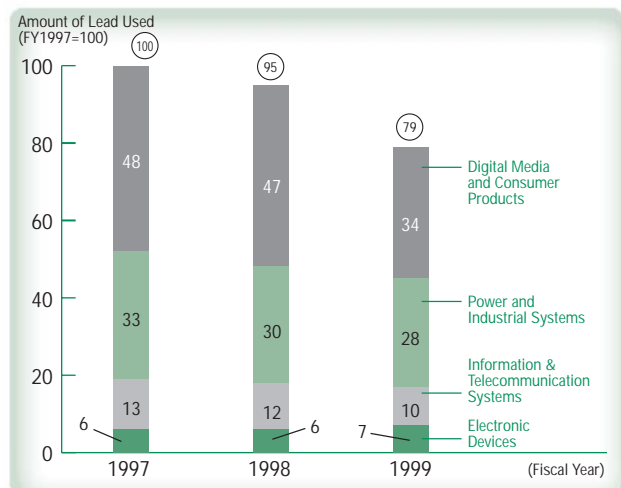
Are our products meeting the assessment targets set out in our Environmental Action Plan? This table explains the current state of affairs. (Unit: %)

Division	Product Type	Reduction in Disassembly Time (Target: 60% Rise vs. Fiscal 1992)	Increase in Proportion of Recyclable Products (Target: 40% Rise vs. Fiscal 1992)	Reduction in Use of Polystyrene Foam (Target: 60% Fall vs. Fiscal 1990)
Information Systems & Electronics	General-Use Computers	58	55	100
	Automated Teller Machines (ATMs)	55	26	100
	Notebook PCs	75	24	100
	Exchange Systems	47	50	100
Power & Industrial Systems	Computers for Factory Automation (FA)	64	47	60
	In-Store Air Conditioners	21	42	100
	Inverters	79	21	100
	Automated Analytical Devices	52	50	55
Consumer Products	Refrigerators	60	52	60
	Room Air Conditioners	60	42	60
	Washing Machines	60	42	60
	Vacuum Cleaners	55	47	100
	Color Televisions	59	38	61
	Display Devices	60	36	68
	VCRs	65	44	66

● Amount of Lead Used in Solder

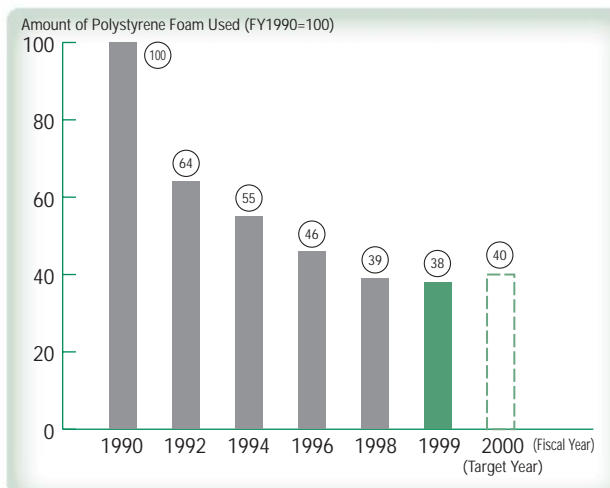
The amount of lead used in solder on printed circuit boards has declined 21% since fiscal 1997, due to the employment of lead-free solder for home electric appliances.

This data refers only to Hitachi, Ltd. (unconsolidated)



● Amount of Polystyrene Foam Used in Packaging for Home Electric Appliances

The amount of polystyrene foam used in packaging home electric appliances has fallen to 38% of fiscal 1990's level, due to the use of alternative packaging made from cardboard pulp as well as reductions in the size and volume of cushioning material required.

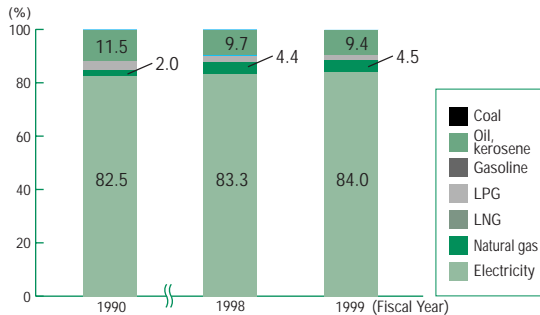


Consideration for Environmental Issues in Production Activities

Global Warming Prevention and Other Issues

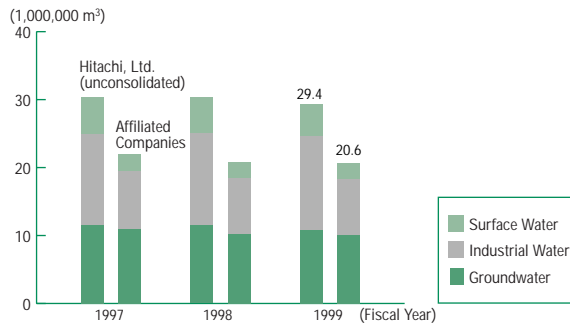
● Composition of Energy Use

Electric power and natural gas combined supplied 88.5% of the energy Hitachi used in fiscal 1999. This is a result of a shift to those energy sources from petroleum fuels made in consideration of greater efficiency and the prevention of air pollution.



● Water Consumption

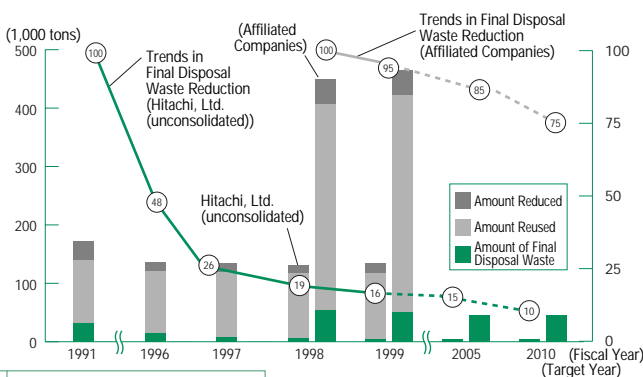
By reusing a portion of wastewater after it has undergone treatment, reducing the cleaning procedures for products, and through other methods, Hitachi is working to reduce water use. Total water use for Hitachi, Ltd. (unconsolidated) in fiscal 1999 was 29.42 million m³, 97% of the figure for the previous year. Water use for affiliated companies was 20.64 million m³, or 99% of the fiscal 1998 total.



Waste Reduction

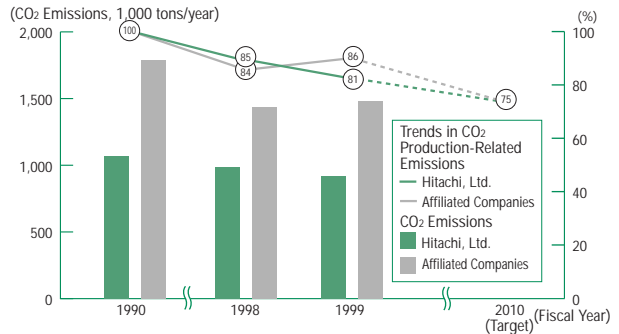
● Waste for Final Disposal

By promoting the recycling of waste plastics, activated sludge, slag and other materials, Hitachi, Ltd. (unconsolidated) has reduced final disposal waste to 16% of the total for fiscal 1991, while final disposal waste for affiliated companies is at 95% of the fiscal 1998 level.



● CO₂ Emissions

As a result of such comprehensive measures to save energy as improved efficiency in air-conditioning systems and the introduction of cogeneration systems, CO₂ emissions for Hitachi, Ltd. (unconsolidated) have been reduced to 81% of FY1990 levels, while emissions for affiliated companies have been cut to 86%.



(Note: Carbon conversion figures for purchased electricity use CO₂ emissions released divided by electric power used.)

By Segment (CO₂ emissions for FY1999)



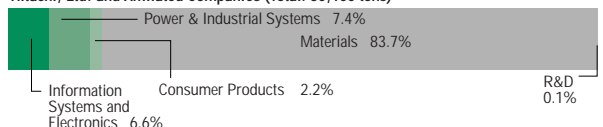
Hitachi, Ltd. and Affiliated Companies



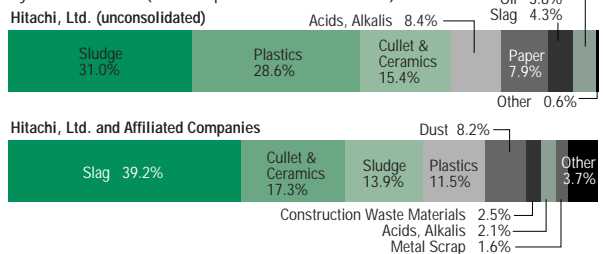
By Segment (Final Disposal Waste for FY1999)



Hitachi, Ltd. and Affiliated Companies (Total: 50,100 tons)



By Waste Product (Final Disposal Waste for FY1999)



Chemical Substance Management

● PRTR Survey Results

(1) Hitachi, Ltd.

Hitachi, Ltd. has records of usage for 50 of 179 chemical substances surveyed by five major electric and electronics organizations. Of these substances, those for which the annual volume handled exceeded 50 tons in fiscal 1999 are detailed below.

(Unit: t/yr)

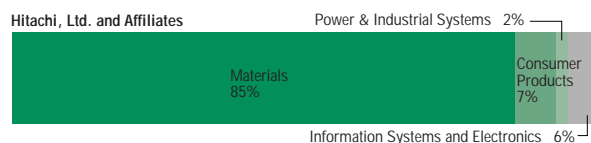
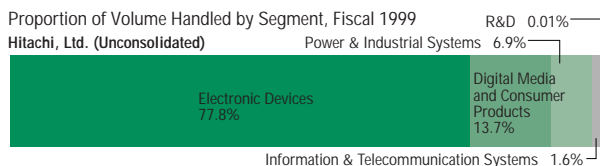
Chemical Substance	Management Classification	Volume Handled		Volume Consumed (Including Volume Removed)		Volume Recycled		Volume Transferred (Waste Products)		Volume Released (Air or Water)	
		FY98	FY99	FY98	FY99	FY98	FY99	FY98	FY99	FY98	FY99
Ethanolamine	Manage	1,690.44	2,943.46	0	0	1,688.14	2,943.35	0	0.11	2.30	0
Lead Compounds	Reduce	1,308.66	1,299.01	1,210.47	1,272.10	83.40	25.72	14.78	1.18	0.02	0.01
Barium Compounds	Manage	739.33	804.50	697.21	759.51	42.00	29.92	0.06	15.07	0.05	0
Hydrochlorofluorocarbons (HCFCs)	Reduce	1,531.90	535.25	1,501.46	523.11	0	0.20	0	0.22	30.44	11.72
Xylene	Reduce	355.26	392.20	0.01	0.52	40.39	31.42	107.38	108.96	207.47	251.30
Hydrofluorocarbons (HFCs)	Reduce	116.70	297.52	115.53	284.56	0	0	0	0.03	1.17	12.93
Toluene	Reduce	169.27	168.81	0.04	0.49	16.98	8.84	18.88	19.04	133.37	140.44
Sulfur Hexafluoride	Reduce	416.10	167.40	246.13	101.38	60.21	5.65	0	0.05	109.76	60.32
Zinc Compounds	Manage	102.32	119.75	36.83	79.24	46.57	28.83	18.68	11.68	0.23	0
Perfluorocarbons (PFCs)	Reduce	93.35	95.50	68.48	45.19	0	0	0	0.89	24.87	49.42
Lead Solder	Reduce	74.76	79.97	46.92	51.62	27.84	27.15	0	0.20	0	0
Formaldehyde	Reduce	77.42	50.50	71.51	46.74	0	0	0.01	0.05	5.90	3.71
Others (38)		431.93	265.33	241.69	96.19	32.16	67.56	103.68	59.66	53.36	41.94
Total		7,107.43	7,218.22	4,236.30	3,260.65	2,037.69	3,168.64	263.48	217.14	568.96	571.79

(2) Affiliated Companies

Hitachi, Ltd.'s affiliated companies have records of usage for 72 of 179 chemical substances surveyed by five major electric and electronics organizations. Of these substances, those for which the annual volume handled exceeded 500 tons in fiscal 1999 are detailed below.

(Unit: t/yr)

Chemical Substance	Management Classification	Volume Handled	Volume Consumed (Including Volume Removed)	Volume Recycled	Volume Transferred (Waste Products)	Volume Released (Air or Water)
		FY99	FY99	FY99	FY99	FY99
Styrene Monomer	Manage	51,632.23	51,534.22	6.74	9.12	82.15
Toluene	Reduce	9,925.98	5,845.24	6.79	445.49	3,597.89
Xylene	Reduce	5,743.14	5,133.45	1.79	77.69	530.21
Formaldehyde	Reduce	4,469.11	4,404.02	26.02	36.00	3.07
Manganese Compounds	Reduce	3,238.89	3,121.59	76.69	40.18	0.43
Acrylonitrile	Manage	1,804.60	1,795.23	0	0	9.37
Di (2-ethylhexyl) Phthalate	Manage	1,540.20	1,540.10	0.10	0	0
Molybdenum Compounds	Manage	1,009.15	982.58	2.53	23.43	0.01
Zinc Compounds	Manage	838.01	798.87	2.84	35.94	0.37
Bisphenol A	Manage	746.70	716.70	0	30.00	0
Zirconium Compounds	Manage	604.44	5.33	208.18	390.93	0
Nickel Compounds	Manage	583.77	435.57	132.19	13.43	0.05
Ethyl Acrylate	Manage	583.10	583.03	0	0	0.07
Diphenylmethane Diisocyanate	Manage	578.22	578.22	0	0	0
Others (58)		4,849.77	4,138.72	154.33	318.15	236.17
Total		88,147.30	81,612.86	618.19	1,420.35	4,459.77



From fiscal 2000, Hitachi, Ltd. will report on the status of 1,100 chemical substances, including those specified in the Law Concerning Examination and Regulation of Manufacture and Handling of Chemical Substances, as part of Hitachi, Ltd.'s autonomous substance management.

Exchanges with Society

Awards

● Products Awards

Area	Award-Winning Product	Award Name	Month and Year of Award	Conferring Organization(s)
Measures to Prevent Global Warming	Highly efficient year-round heater/cooler-type air conditioner	Japan Society of Refrigerating and Air-Conditioning Engineers Technology Prize	May 1999	Japan Society of Refrigerating and Air-Conditioning Engineers
	Perfluorocarbon Catalytic Decomposition System	Environmental Excellence Award	June 1999	The Environmental Research Center The Nikkan Kogyo Shimbun, Ltd.
	Small thermal storage air conditioner	Director's Prize, Agency of Natural Resources and Energy	June 1999	Heat Pump Thermal Center Japan
	Amorphous transformer	Energy Conservation Prize and Energy Conservation Center Chairman's Prize	February 2000	The Energy Conservation Center, Japan
	110W T8 series thin holders for high frequency fluorescent lights			

● Operations Awards

(*Award to Hitachi affiliates. All other awards to Hitachi, Ltd.)

Area	Award-Winning Organization/District	Award Name	Month and Year of Award	Conferring Organization(s)
Green Purchasing	Hitachi, Ltd.	Green Purchasing Prize for Excellence	June 1999	Green Purchasing Network
Measures to Prevent Global Warming	Narashino Division	Award for Factory Energy Management Excellence Agency of Natural Resources and Energy Director's Award	February 2000	Ministry of International Trade and Industry (MITI)
	Narashino Division	The Energy Conservation Center Director's Prize at the National Convention on Cases of Energy Conservation Excellence	February 2000	The Energy Conservation Center, Japan
	Industrial Machinery Systems Division	The Energy Conservation Center Prize for Excellence at the National Convention on Cases of Energy Conservation Excellence	February 2000	The Energy Conservation Center, Japan
	Telecommunication Systems Division	Highest Award for Excellence in Electricity-Use Rationalization	February 2000	The Kanto Region Electricity-Use Rationalization Committee
	*Hitachi Medical Corporation, Kashiwa Site *Hitachi Denshi, Ltd., Kobuchizawa Works	Award for Factory Energy Management Excellence (Electrical Division), Ministry of International Trade and Industry (MITI)'s Kantou Bureau Director's Prize		
Recycling and Reduction of Waste Products	Information & Control Systems Division	Award in Recognition of Recycling Promotion Activities	October 1999	Recycling Promotion Conference
	Nakajo Division	Recycling Promotion Council Chairman's Prize		
	Enterprise Server Division			
	PC Division Toyokawa Site			
	Digital Media Systems Division Gifu Site			
	Displays Mobarra Site			
	Naka Site			
	Instruments			
	Hitachi Air Conditioning Systems Co., Ltd. Shimizu Works	The Aichi Prefectural Governor's Award in Recognition of Appropriate Disposal of Industrial Waste	May 1999	The Shizuoka Prefecture Industrial Waste Products Association
	Digital Media Products Division	Earth-Friendly Corporation Award The Ibaragi Prefectural Governor's Award (Environmental Management and Auditing Division)	June 1999	Ibaragi Prefecture
	Building Systems Mito Site	Earth-Friendly Corporation Award		
	*Hitachi Cable, Ltd., Hitaka Works	The Ibaragi Prefectural Governor's Award (Resource Conservation Division)		
	Narashino Division	The Chiba Prefectural Governor's Award for Workplace Excellence in Recycling and Reducing the Production of Industrial Waste	October 1999	Chiba Clean Waste Convention, Chiba Prefecture
Information & Control Systems Division	Recognition of Recycling Excellence in the Workplace	March 2000	The Ibaragi Prefecture Industrial Waste Products Association, Waste Products Recycling Guidance Center	
Environmental Preservation	*Hitachi Hokkal Semiconductor, Ltd. Sagami Works	Award for Workplace Excellence in Environmental Preservation	July 1999	The Kanagawa Prefecture Environment Preservation Association
Exchanges with Society —Environmental Communication	*Hitachi Chemical Co., Ltd. Shimodate district Three works	Kinugawa Riverbed Cleaning Award	July 1999	The Ministry of Construction, Kanto Regional Construction Bureau
	Newspaper advertisement about a Aoko water bloom removal by magnetic separation	Environment Agency Director General's Prize, Newspaper Advertisement Division, and Grand Prize for an Environment-Related Advertisement	August 1999	Japan EcoLife Center, Nihon Keizai Shimbun, Inc., Toyama Prefecture



**Thank you for reading
the *Hitachi Environment Report!***

We want to make the best possible use of your opinions and advice in dealing with the environmental issues and in compiling environment reports in the future.

Please take a few moments to fill out this questionnaire and fax it to the address below:

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Fax: (81) 3-3258-5810

