Environment Report 2001

FURUKAWA ELECTRIC

Contents

●Covered business bases

1) Chiba Works, 2) Mie Works, 3) Hiratsuka Works,
4) Nikko Works, 5) Osaka Works, 6) Fukui Works,
7) Oyama Works, 8) Shiga Works, 9) Shinagawa Works,
10) Kambara Works, 11) Yokohama R&D Laboratories

●Covered period

From April 1, 2000 to March 31, 2001

●For further information contact

Safety, Environment and Health Promotion Department
The Furukawa Electric Co., Ltd.
Tel: +81-3-3286-3090 Fax: +81-3-3286-3598

Opening Remarks

The human race has come face to face with the 21st Century.

Through scientific and technical advance the 20th Century laid the foundations of a society of affluence, but at the same time it has raised concerns about pollution of the earth's environment and depletion of its natural resources through indiscriminate consumption.

I believe that the 21st Century will be crucial in determining whether we human beings go on enjoying a bounteous environment and continue to flourish.

We are charged with the duty of conserving this global environment, so essential to mankind's continued existence, for the sake of our children and our children's children. It is therefore incumbent of us to develop ways for mankind to live in harmony with the environment –to build an environment-friendly society. And this will require us to turn away from traditional mass consumption and profligate waste.

In anticipation of such a time, we at Furukawa Electric are ever more aware that we must treat harmonization with the environment as an important part of our management strategy, focusing people on the environment and focusing our Company on people.

In the past Furukawa Electric has been deeply involved in enterprises that were basic to industry, and our activities have had an important impact on the environment. We have made significant contribution toward a more affluent society–whether by recycling copper and aluminum, by developing ultrahigh-voltage power cables, fiber-optic cables and wavelength-division multiplexing technology, thereby promoting conservation of earth's resources through energy and resource saving.

And in the years to come we will continue to contribute to protecting the global environment and conserving natural resources by developing environment-friendly products incorporating sophisticated technology.

In 1999, Furukawa Electric pledged that we would obtain ISO 14001 certification for all of our production facilities by 2002. Following the Chiba and Mie Works, certification was obtained in 2000 for three facilities – Hiratsuka, Osaka and Kambara– and our other facilities are proceeding according to plan.

We have also been actively working in other areas of environment protection, including reduction in organic chlorine compounds, energy-saving measures, reduction of industrial effluents, and elimination of the use of CFCs, as well as in the publication of environment information.

This report summarizes Furukawa Electric's efforts in the field of environment protection for fiscal year 2000.

We realize there are still areas where improvement can be made, and we are most open to any opinions or suggestions that you may have to offer.

Junnosuke Furukawa
President

1 Furukawa Electric Basic Environmental Policy

1. Basic Concept

Furukawa Electric recognizes that preservation of the global environment is a critical issue for society, and shall incorporate consideration of environmental preservation issues into every phase of corporate activity, to contribute forwards the sustainable development of prosperous and bright society.

2. Activity Guidelines

1. All activity shall be based on an awareness of its effect on the global environment, and environmental preservation activity shall be continued.
2. We shall observe national and local environmental laws and regulations, and when necessary define our own standards and environmental objectives and targets.
3. Environmental issues shall be taken into consideration in every phase of our work from the R&D and design stages, and we shall strive to supply environmentally-friendly products.
4. In every phase of manufacturing, distribution and installation we shall work to reduce consumption of resources and energy, promote recycling, and reduce waste materials and environmental loading.
5. We shall create and maintain organizations as needed to promote environmental preservation activities, such as environmental management system.
6. We shall educate all employees regarding environmental preservation issues.
   Moreover we shall work to maintain and improve understanding of this policy and a better awareness of environmental preservation issues.

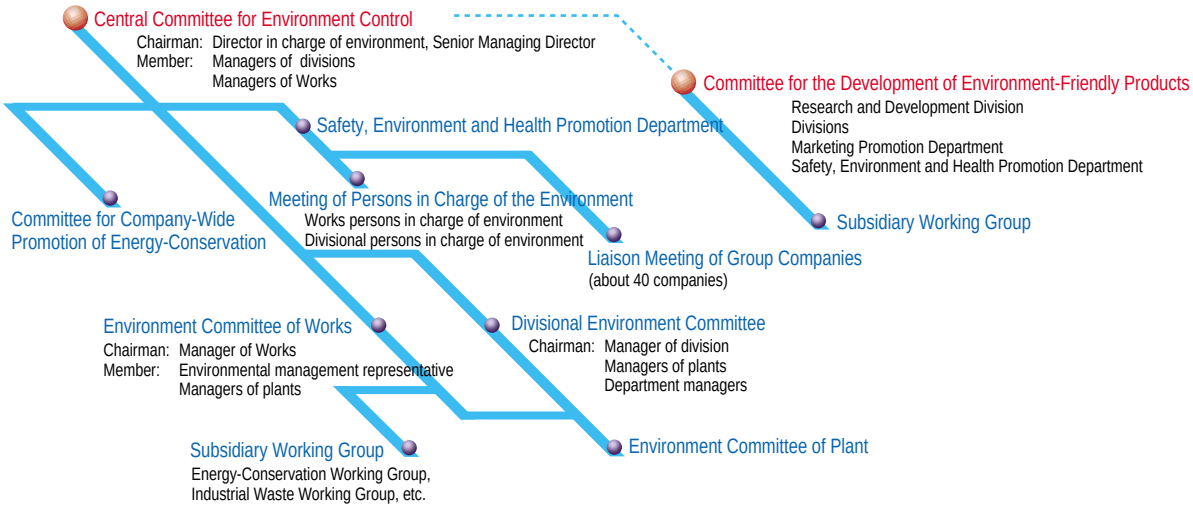
(Established January 5, 1998)

2 Environment Management System

1. Progress of Corporate Initiative

1972: "Company-Wide Regulations for Environmental Pollution Prevention" formulated
1974: Environment Control Department established
Energy-Conservation Team started
1989: Team for Use Reduction of Specified CFCs started
Renamed as Team for Use Reduction of Ozone Layer Depletion Substances in 1992
1993: "Basic Thinking on the Protection of the Global Environment" formulated
(Furukawa Electric's voluntary plan for environment preservation)
1994: Committee for Company-Wide Promotion of Energy-Conservation established
1996: Specified CFCs and trichloroethane completely eliminated from the company
1997: Promotion Team for the Reduction of Industrial Waste started
1998: "Furukawa Electric Basic Environmental Policy" formulated
Central Committee for Environment Control established
1998: Committee for the Development of Environment-Friendly Products established
The Chiba Works acquired ISO 14001 Certification
The Mie Works acquired ISO 14001 Certification
"Company-Wide Regulations for Environment Control" formulated revising "Company-Wide Regulations for Environmental Pollution Prevention"
1999: Safety, Environment and Health Promotion Department started incorporating Environment Control Department and Safety Control Sections
2000: Environment and Energy Laboratory established
Liaison Meeting of Group Companies established to be held twice a year
Environment Report 2000 published
Meeting of Persons in Charge of the Environment established
The Hiratsuka Works acquired ISO14001 certification
The Kambara Works acquired ISO14001 certification
The Osaka Works acquired ISO14001 certification
2001: Environment Report 2001 published

2. Organization and Structure



3. Acquisition of ISO14001 Certification

Recognizing early the importance of the environmental management system (EMS), Furukawa Electric has been constructing such a system of its proprietary design, and when an international standard for environmental management system was established, the company began to tackle acquisition of ISO14001 certification.

In 1998, the Chiba and Mie Works acquired the certification. These Works are composite production bases of large scale comprised of a variety of plants for such products as optical components, electric wires and cables, aluminum products, automobile components and copper products. Based on this acquisition experience, Furukawa planned to extend the acquisition program across the company, in which three Works acquired the certification in FY 2000 ending in March 2001, and three Works are due for acquisition by FY 2001, to be followed by the rest of the Works by FY 2002.

Year	Works / Laboratories	Agency	Certificate No.
FY 1998	Chiba	DNV	EMCS-1208
	Mie	JACO	EC98J1097
FY 2000	Hiratsuka	DNV	EMSC-1699
	Kambara	JSA	JSAE315
	Osaka	DNV	EMSC-1114
FY 2001	Shinagawa	Construction of EMS under way	
	Nikko (Kiyotaki District)	ditto	
	Fukui	ditto	
FY 2002	Nikko (Sheet Plant)	ditto	
	Shiga	ditto	
	Oyama	ditto	
	Yokohama	ditto	

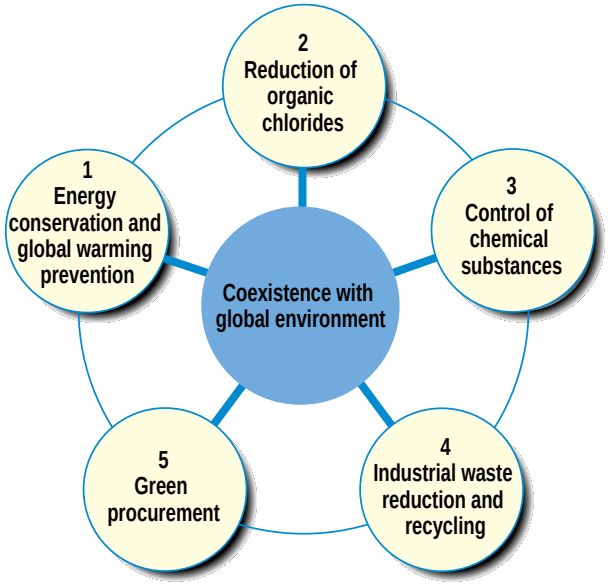
4. Company-Wide Environmental Monitoring

Within the framework of company-wide environmental management system, environmental monitoring of all the Works is carried out twice a year by the Safety, Environment and Health Promotion Department. In this program, achievements in the environment preservation activity and the progress of addressing environmental tasks at every Works are checked regularly, promoting continuous improvement of the company-wide EMS initiative.

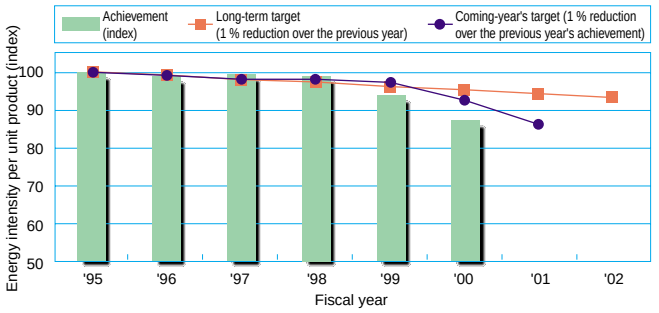
5. Support for Environment Preservation Activities of Group Companies

It is essential to promote environment preservation activities on a group-company basis integrally. In accordance with this thinking, the Liaison Meeting of Group Companies was founded in June of 2000 to be held twice a year. In such meetings, environment-related regulations newly came into force are studied, environmental activities among group companies are comprehended, environmental tasks are shared generally, and environmental technologies are introduced. We intend to raise the level of environmental activity of our group companies as a whole, including addressing individual environmental tasks.

3 Environment Preservation Initiative



Changes in the Company-Wide Energy Intensity per Unit Product



Certain values for FY 1999 shown in Environment Report 2000 have been amended in this Graph.

1. Energy-Conservation and Global Warming Prevention

(1) Progress, Organization and Targets of Energy-Conservation Activity

In view of the revision of the Law for Promotion of Effective Use of Resources in 1993, the Committee for Company-Wide Promotion of Energy-Conservation was founded in April 1994 initiating company-wide activities under the participation of those plants other than the Designated Energy Management Plants.

The index-based managing method conventionally used as a standard began to face difficulties due to the drastic changes of company products into light, thin, short and small products. Accordingly, Furukawa's proprietary management system was modified in 1997, in compliance with the Law for Promotion of Effective Use of Resources, to be based on energy intensity per unit product, whereby a target was set to be a 1 % reduction over the previous year in terms of this unit.

We have successfully achieved not only the long-term target in which a 1 % reduction over the previous year is aimed at based on the achievement of FY 1995, but also the coming-year's target in which a 1 % reduction over the achievement of the previous year is aimed at.

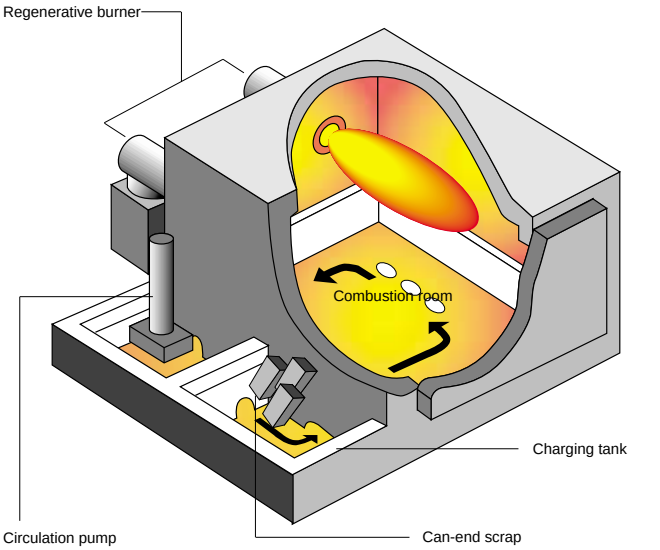
The energy intensity unit used in the Graph basically employs the unit of "crude oil in kl / product in ton". However, because major products of our plants are greatly diversified covering copper, aluminum and plastics, simple addition of every unit value from each plant is likely to be significantly influenced by the changes in product constitution. Consequently, to alleviate the influence of changes in product constitution, the energy intensity unit calculated using the values from each plant is weight averaged based on the consumed energy amount converted by the crude-oil scale, thereby yielding the company-wide energy intensity per unit product along with its ratio over the previous year.

(2) Energy-Conservation Activities in FY 2000

The energy intensity per unit product for FY 2000 has been reduced by 7 % due to energy-conservation measures and the increase in production volume.
Concerning energy-conservation investment, two high-performance industrial furnaces shown below were introduced in FY 2000 succeeding FY 1999 under the subsidy from the New Energy and Industrial Technology Development Organization.

1. Melting furnace for aluminum recycling
2. Annealing furnace for copper strip using LPG

Energy Conservation at Melting Furnace for Aluminum Recycling

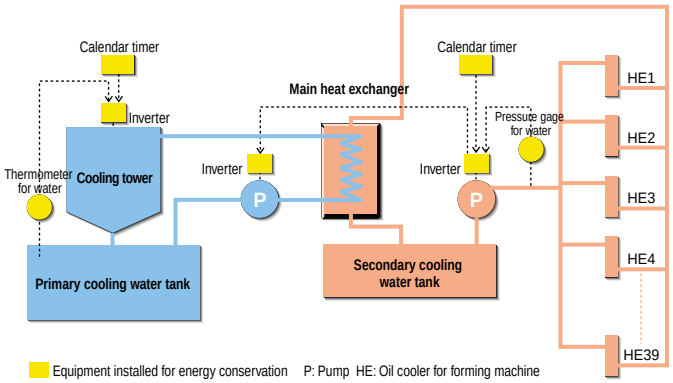


A melting furnace for recycling of aluminum can-end scrap exclusively has been installed at the Fukui Works. As for the crude-oil burners of this furnace, regenerative burners of energy-conserving type have been adopted, enabling an improvement of 58 % in terms of energy intensity unit per unit product compared to the conventional furnace. The furnace provides excellent process yield, since it is based on the side-well principle where the burner flame does not touch the scrap material, thereby suppressing oxidation on the material's surface. Adequate consideration has been given to its environment-related peripheral equipment, so that the furnace is under stabilized operation in which an ample margin is maintained with respect to the emission concentration of dioxins and the like.

Apart from this, waste-heat boilers have been introduced to existing diesel engine generators to suppress the use of kerosene boilers; and pumps and fans at 11 divisions have been converted to be inverter-powered.

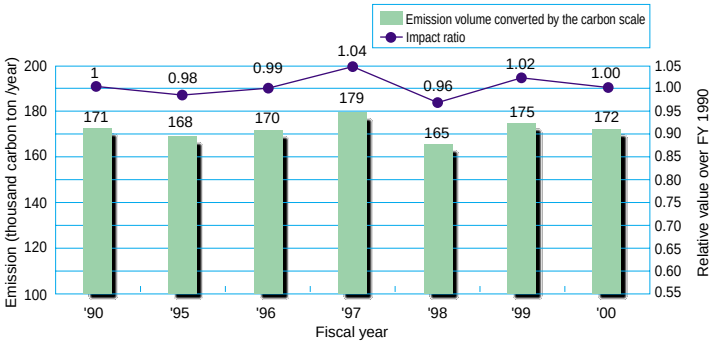
In terms of the impact due to global warming gas, CO_2 emission converted by the carbon scale decreased by 2 % over the previous year despite the increase in production volume, achieving an emission volume equivalent to that of FY 1990.

Energy Conservation at Oil Cooler of Forming Machines



Conventionally, the oil cooling system for forming machines was in operation even during holidays to avoid startup troubles in stabilizing water supply to 39 systems of forming machine. Moreover, the pumps were often forced to operate with reduced output power to adapt themselves to the capacity of activated forming machines that is ever changing. The system was improved by such measures as: 1) a secondary cooling water tank was installed to enable circulation of cooling water with a constant pressure eliminating interference within the pressure system, thus allowing supply of required quantity of water with suitable pressure; 2) fans for the cooling tower were set to be activated based on measured temperatures of the water tank; 3) the pumps and the cooling tower were set to rest during holidays automatically using a calendar timer.

Changes in Global Warming Gas Impact



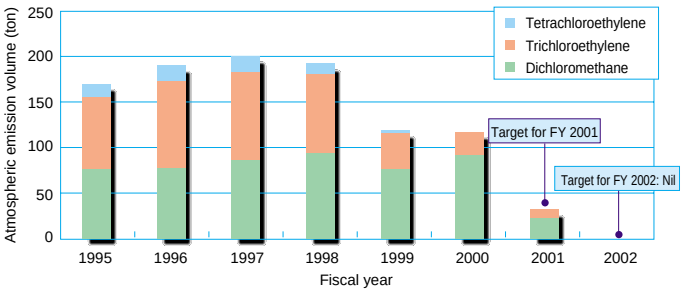
The carbon conversion scale used is the one announced by the Japan Federation of Economic Organizations. In Report 2000, the conversion coefficient for FY 1998 was used for the calculation of FY 1999; and this Report 2001 amends the old calculation using the revised coefficient for FY 1999, but still uses the coefficient for FY 1999 for the calculation of FY 2000.

(3) Energy-Conservation Activities in Future

We intend to achieve saving of energy intensity per unit product by 1 % or more every year, through promoting energy-conservation activities such as provision of management standards and the like that conform to the judgement of the Law for Promotion of Effective Use of Resources.

2. Reduction of Organic Chlorides

Changes in the Atmospheric Emission of Organic Chlorides



We made efforts, consecutively to last year, to reduce the atmospheric emission volume of the three substances noted above by 50 % over FY 1995. While those substances were virtually eliminated in the area of electric wires, the conversion program to substitute substances in other areas were delayed due to tightened quality requirements for the products, rendering the reduction level for FY 2000 as low as 32 % over FY 1999. Although we could not attain our goal for reduction, we were successful in completely eliminating tetrachloroethylene that is most toxic among the three substances.

Considering the seriousness of impacts on the working and general environments associated with the use of these substances, we will make efforts to achieve the following targets for atmospheric emission reduction:

(1) FY 2001: 80 % reduction over FY 1995

(2) FY 2002: Complete elimination of the three substances

3. Control of Chemical Substances

It was decided to regularly report on the emission and transfer volume of chemical substances from FY 2001 in accordance with the PRTR law. Furukawa Electric has been actively participating in the PRTR research program sponsored by the Federation of Economic Organizations since FY 1996, gathering detailed data.

In the future, we will actively promote our program to reduce further not only the emission and transfer volume but also the handling volume of all chemical substances not limited to organic chlorides.

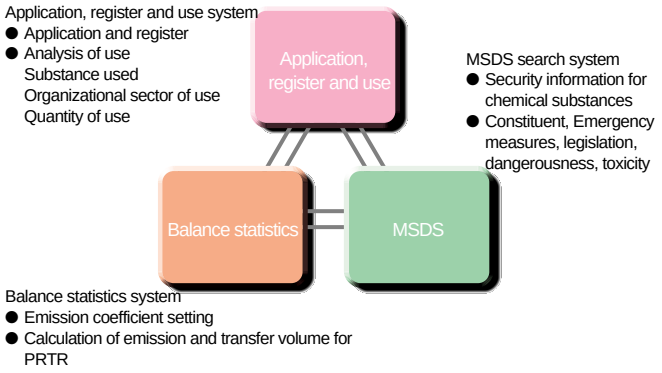
Furukawa Electric has been strengthening appropriate control of chemical substances in the company, promoting toxic chemical substance reduction activities such as elimination of ozone layer depletion substances and reduction of organic chlorides. Furthermore, we have recently formulated chemical substance control regulations to centralize controlling the use of chemical substances across the company, in which a mechanism and its supporting system to grasp and control the company-wide use, emission and transfer of chemical substances have been structured for near-future operation. Thus, strengthening of chemical substance control and further reduction of toxic chemical substances will be promoted hereafter.

	Emission and Transfer Volume (ton/year)		
Name of chemical substance*	FY 1998	FY1999	FY 2000
Toluene	374	400	353
Dichloromethane	101	75	95
Trichloroethylene	80	33	25
Xylene	22	51	46
Others	35	83	65
Total	612	642	584

	Handling Volume (ton/year)		
Name of chemical substance*	FY 1998	FY1999	FY 2000
Toluene	609	674	576
Dichloromethane	122	96	136
Trichloroethylene	80	39	27
Xylene	603	604	479
Others	393	229	333
Total	1,807	1,642	1,551

* In accordance with the PRTR law

Outline of Chemical Substance Control System



4 Reduction and Recycling of Industrial Wastes

(1) Industrial Waste

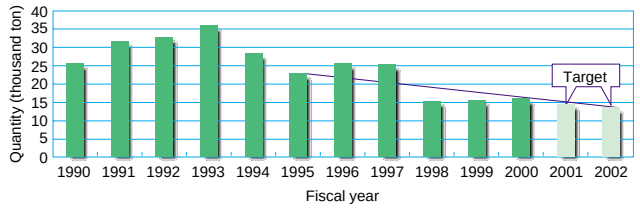
The industrial waste reduction program that started in 1993 set its second-term target in 1997, following its first-term target setting, which reads as "a 40 % reduction over FY 1995 by FY 2002", and the target is under pursuance at present.

During the course of time, the reduction program proceeded satisfactorily through the activity of the Promotion Team for the Reduction of Industrial Waste. In spite of the fact that the industrial waste recently increased by 4 % over the previous year, which was caused by the increased production volume including optical fiber, a reduction of 30 % over FY 1995 is still maintained thereby achieving the long-term target.

Major contents of the reduction activity include recycling of plastic waste, alkali waste, sludge, wood waste and paper waste in addition to condensation and volume reduction of oil waste.

Moreover, Zero Emission Activity is going to be started at the last half of this year in certain plants, aiming at deployment to a company-wide activity.

Changes in the Quantity of Industrial Waste

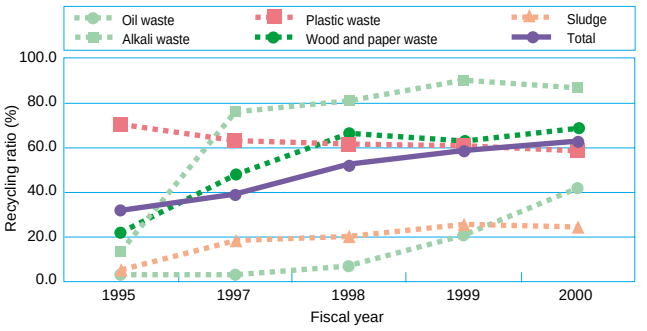


(2) Recycling

The ratio of recycling of Furukawa Electric has steadily improved, now exceeding 60 % of the total industrial waste. The growth in the recycling ratio of oil waste is a major factor for this improvement.

This fiscal year, emphasis will be placed on the recycling of plastic waste where no appreciable improvement in recycling ratio is seen.

Changes in Recycling Ratio

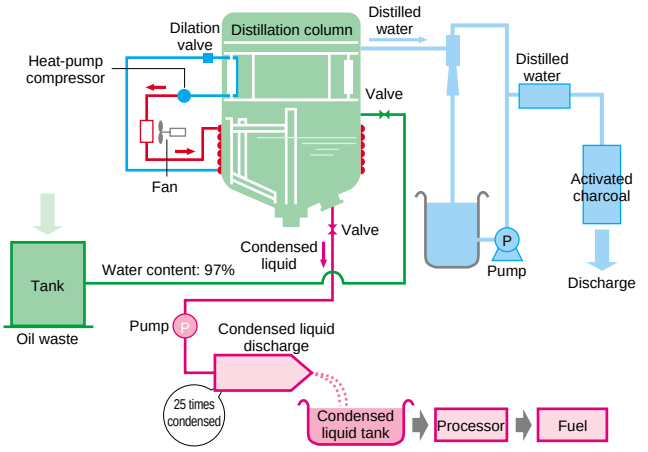


Examples of Recycling

Recycling of oil waste was slow in progress at the beginning. In these few years, however, condensation and volume reduction equipment have been introduced to enable conversion of oil waste into fuel, greatly improving the recycling ratio. Notable examples are given below.

- Introduction of depressurized distillation equipment for condensation and volume reduction of oil waste
- Introduction of UF (ultra-filter) equipment for condensation and volume reduction of oil waste
- Introduction of acid-resolving equipment for condensation of oil waste
- Condensation of water-containing oil waste using heating equipment with a heat source of oil waste.

Recycling of Oil Waste by Depressurized Distillation



5. Green Procurement

In order for Furukawa Electric to provide the customers with our products having little environmental impact, it is essential not only to promote our environment-conscious business activity, but also to reduce the environmental impact of procurement items such as raw materials, components and auxiliary materials that we purchase from our vendors.

Based on such an idea, we are planning to operate Green Procurement Program, a corporate initiative to purchase environment-friendly items through friendly cooperation of our vendors.

In Green Procurement, in order to encourage vendors who are promoting environment-conscious business activity to supply goods with little environmental impact, a new assessment term of environment consciousness will be added to conventional terms of quality, cost and delivery to make an integral assessment, and priority will be given to those vendors or procurement items that acquire high scores.

Moreover, procurement items will be evaluated in terms of chemical constituents and their usage in the manufacturing process taking their toxicity into consideration, so as to reduce environmental impact integrally.

Concept of Green Procurement

4 Data Regarding Environment Preservation

1. Entire Company

Energy: Converted into crude oil
Water: Industrial water, clean water and well water

Industrial waste: Excluding industrial waste to be recycled
Recycling: Including recycled industrial waste and valuables converted from industrial waste

2. Major Works

Below is presented the data for atmospheric emission and wastewater quality, including NO_x, SO_x and dust from major production facilities for the former, and pH, COD, SS and oil mist (mineral oil) for the latter.

■Atmospheric Emission Data (April 2000 - March 2001)

Chiba Works

Item	Facility	Controlled value by law	Agreed value	Measured value
NO_x (ppm)	Melting furnace	200	63	<30
	Boiler	150	82	46~67.3
SO_x (ppm)	✻	58	58	3.2~24.9
Dust (g/Nm^3)	Melting furnace	0.2	0.013	0.009~0.012
	Boiler	0.25	0.010	0.0015~0.0019

✻Control by immutable weight

Mie Works

Item	Facility	Controlled value by law	Agreed value	Measured value
NO_x (ppm)	Melting furnace	180	-	26~59
	Annealing furnace	180	-	9~35
SO_x (Nm^3/h)	Melting furnace	0.6	-	0.095
Dust (g/Nm^3)	Melting furnace	0.3	-	0.02~0.23
	Annealing furnace	0.2	-	<0.01

Nikko Works (Kiyotaki District)

Item	Facility	Controlled value by law	Pref. tightened value	Measured value
NO_x (ppm)	Heating furnace	200	-	17~70
	Melting furnace	200	-	75~170
	Boiler	230	-	45~140
SO_x (K value)	Heating furnace	17.5	14.5	0.03~0.21
	Melting furnace	17.5	14.5	0.26~2.15
	Boiler	17.5	14.5	<0.10
Dust (g/Nm^3)	Heating furnace	0.2	-	0.002~0.022
	Melting furnace	0.2	-	0.001~0.003
	Boiler	0.25	-	0.001~0.006

Fukui Works

Item	Facility	Controlled value by law	Pref. tightened value	Measured value
NO_x (ppm)	Melting furnace	180	120	3~86
	Heating furnace	130	120	1~59
	Annealing furnace	130	120	1~11
	Boiler	130	120	28~113
SO_x (ppm)	Melting furnace	17.5(K value)	160	5~41
	Boiler	17.5(K value)	380	5or less
Dust (g/Nm^3)	Melting furnace	0.2	0.2	0.005~0.172
	Heating furnace	0.25	0.12	0.005~0.059
	Annealing furnace	0.25	0.12	0.005~0.050
	Boiler	0.1	0.1	0.005~0.008

Nikko Works (Sheet Plant)

Gothic figure means averaged value

Item	Facility	Controlled value by law	Pref. tightened value	Measured value
NO_x (ppm)	Melting furnace	180	-	**50**~81
	Heating furnace	200	-	**18**
	Annealing furnace	200	-	**26**~27
	Boiler	230	-	**69**~101
SO_x (K value)	Melting furnace	17.5	14.5	**0.29**~0.35
	Heating furnace	17.5	14.5	**0.06**
	Annealing furnace	17.5	14.5	**0.05**~0.08
	Boiler	17.5	14.5	**0.49**~0.68
Dust (g/Nm^3)	Melting furnace	0.3	-	**0.03**~0.04
	Heating furnace	0.25	-	**0.05**
	Annealing furnace	0.25	-	**0.03**
	Boiler	0.25	-	**0.05**~0.08

✻Only major production facilities are shown.

4 Data Regarding Environment Preservation

■Wastewater Quality Data (April 2000 - March 2001)

Chiba Works

Item		Controlled value by law	Agreed value	Measured value
pH		5~9	5~9	7.6~8.5
COD	(mg/ℓ)	25	15	3~13
SS	(mg/ℓ)	50	20	1~6.8
Oil mist	(mg/ℓ)	10	2	0.1~0.3

Mie Works

Gothic figure means averaged value

Item		Controlled value by law	Agreed value	Measured value
pH		5.8~8.6	5.8~8.6	**7.38**~7.67
COD	(mg/ℓ)	160	10	**1.49**~4.53
SS	(mg/ℓ)	200	25	**1.14**~1.91
Oil mist	(mg/ℓ)	5	5	**0.14**~0.16

Nikko Works (Kiyotaki District)

Item		Controlled value by law	Pref. tightened value	Measured value
pH		5.8~8.6	5.8~8.6	7.0~7.4
COD	(mg/ℓ)	160	25	0.8~2.7
SS	(mg/ℓ)	200	50	1.1~9.5
Oil mist	(mg/ℓ)	5	5	0.04~0.05

Fukui Works

Item		Controlled value by law	Pref. tightened value	Measured value
pH		5~9	5~9	6.87~8.48
COD	(mg/ℓ)	600	180 Note)	3~114
SS	(mg/ℓ)	600		5~120
Oil mist	(mg/ℓ)	5	5	0.1~2.6

Note: (COD+0.4×SS) = 180

Nikko Works (Sheet Plant)

Gothic figure means averaged value

Item		Controlled value by law	Pref. tightened value	Measured value
pH		5.8~8.6	5.8~8.6	7.1~8.1
COD	(mg/ℓ)	160	25	**2.2**~3.0
SS	(mg/ℓ)	200	50	<0.1
Oil mist	(mg/ℓ)	5	5	<1

3. Environment-Related Accounting

Covered business bases: All Works excluding the Shinagawa Works
Covered period: April 1, 2000 - March 31, 2001

Unit of amount: million yen

Cost of Environment Preservation

Category	Major contents	Amount of cost
(1) Cost of environment preservation to suppress environmental impact caused by the production or service activities of business generated within the business area (In house cost)	Pollution prevention, global environment preservation, resource recycling, etc.	3,360
(2) Cost of environment preservation to suppress environmental impact caused by the production or service activities of business generated within the upstream and downstream areas of business area (Up- and down-stream cost)	Retrieval and recycling of containers, packaging, drums, etc.	456
(3) Cost of environment preservation associated with management activities (Management cost)	Construction, maintenance and management of environment managing system, maintenance of environment preservation, measurement of environmental impact, etc.	452
(4) Cost of environment preservation associated with research and development activities (Research and development cost)	Publication of information, greening, etc.	420
(5) Cost of environment preservation associated with social activities (Social activity cost)	R&D of environment-friendly products, research in substitutes for toxic substances, R&D of environmental impact reduction in manufacturing processes, etc.	36
(6) Cost of environment preservation dealing with environmental impact (Environmental impact cost)	Assessment for environmental impact, inquiries and measures for soil contamination and groundwater, etc.	21
Total		4,745

*The amount of cost excludes investment cost.

Investment and Research Costs

Environment-related investment	3,788
(Entire investment cost	48,100)
(Entire research cost	15,300)

Economic Effects Associated with Environment Preservation Measures

Content	Amount
(1) Income gained by recycling	169
(2) Reduction in waste disposal costs through recycling	-28

Physical Effects Associated with Environment Preservation Measures

Environmental impact	Quantity	Reduction (over previous year)
(1) Industrial waste (disposed of by landfills) (ton)	16,213	-901
(2) Emission of volatile chemical compounds (ton)	120	1
(3) CO_2 (carbon ton)	172,088	2,434
(4) SO_X (ton)	71	3
(5) NO_X (ton)	641	86
(6) Dust (ton)	80	43

5 Environment-Friendly Products and Recycling Technology

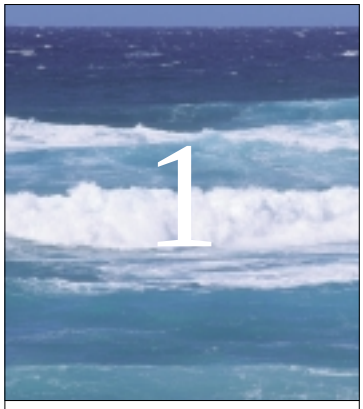
1. Environment-Friendly Products

To protect the environment and contribute to the realization of a sustainable society, Furukawa Electric recognizes that "the 21st century is the century of the environment," and in response to the needs of society and our customers, is actively working to develop environment-friendly products and technologies. Our aim is to develop a range of commercially viable "environment-harmonized" products--products that at every stage, from materials selection, manufacture and use to distribution and disposal, will be non-toxic and of low environmental impact.

Typical Environment-Friendly Products

	Name of product	Field of application	Features
(1) Products with reduced environmental impact	■ Halogen-free electrical wire (ECO-ACE, ECO-Beamex)	Home appliances, power distribution, communications	Halogen-free, Lead-free
	■ Lead-free electrical wire	Automobiles	Lead-free
	■ Lead-free plated parts of electronic equipment	Electronic parts	Lead-free
	■ Halogen-free resin flexible conduit (Eco-PlaFlexi)	Indoor electric wire laying	Halogen-free, Lead-free
(2) Products that contribute to preventing ozone layer depletion	■ HPWR II heat- and refrigerant-resistant windings	Home appliances, automotive	For CFC substitutes
	■ SALAMANDER nitrogen-atmosphere reflow ovens	Electronic equipment	Eliminates CFCs
	■ FullCoat functional resin-coated aluminum sheets	Electronic equipment	Eliminates lubricants, cleansers
(3) Products designed for reduced waste disposal and improved recyclability	■ Recycled aluminum can stock	Cans	Recycling
	■ Recycled aluminum distribution wire	Wire and cable	Recycling
	■ CCBOX and Information Box underground ducts	Cable laying	Reuse of materials
	■ BioAce biodegradable resin sheets	Packaging materials	Biodegradability
(4) Products that contribute to preventing global warming	■ MCPET high-reflectivity foamed sheets	Lighting	Saves energy
	■ High-performance heat-exchanging material	Automobiles	Lightweight, saves energy
	■ Products containing micro heat-pipes	Electronic equipment	Saves energy
	■ Solar photovoltaic systems	Electric power	Clean energy
	■ Deep-sea CO_2-fixing systems	Power generation	Reduces CO_2

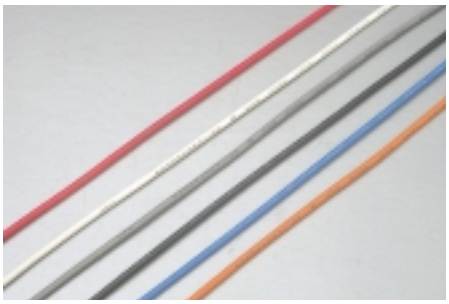
5 Environment-Friendly Products and Recycling Technology



Products with Reduced Environmental Impact

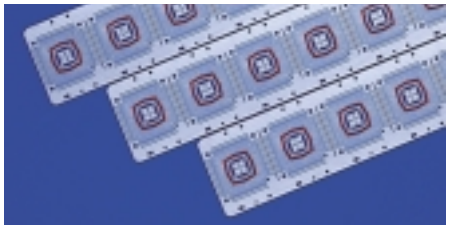
We are developing products that do not create environmental problems when they are used, but further, they do not emit toxic by-products when they are eventually disposed of by incineration or in landfills, thus reducing environmental impact.

ECO Non-Halogenous Wire and Cable



By developing polymers and flame-retarding agents, we have achieved products free of halogens, lead and phosphorous, which permit easy disposal by incineration. "ECO-ACE" general cables for indoor use, "ECO-Beamex" wires for electrical appliances and power supply cords, and highly flame-retardant optical cables are already in use.

Lead-Free Plating for Electronic Components



Lead-free plating for the leads of ICs, capacitors, connectors, printed circuit boards, etc. has been achieved by using a tin-bismuth alloy instead of the tin-lead material used previously, so that elimination of lead from customers' mounting process can be much improved.

Eco-PlaFlexi (Environment-friendly indoor cable-protection conduit made of flame-retardant resin)

Since these cable conduits contain no halogen-based flame-retarding agents, they do not emit dioxins nor halogenous gases when combusted, permitting easy recycling.

Products that Contribute to Prevent Ozone Layer Depletion

We are developing devices and processes that do not use CFCs, together with products adapted to CFC substitutes.

HPWR II for Use with CFC Substitutes

These heat- and refrigerant-resistant windings are now in use in the compressor motors of air-conditioning and refrigerating systems using CFC-substitute refrigerants (HFC-407C, R410A, R134a).

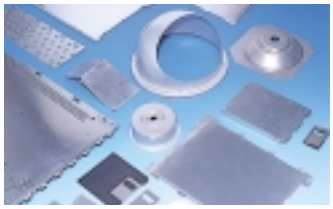
Copper Tube for Use with CFC Substitutes
(Furukawa Multi-Grooved Tube, Furukawa SuperClean Tube)

These are heat exchanger copper tubes for use with CFC-substitute refrigerants to reduce the ozone layer depletion. They have reduced oil residuals in the tube's inner surface and are internally multi-grooved to improve heat-exchanging performance.

SALAMANDER Nitrogen-Atmosphere Reflow Oven

This reflow oven carries out the reflow soldering process during the mounting of electronic components in a nitrogen atmosphere. This eliminates the need to cleanse completed circuit boards, obviating the use of CFCs.

"FULL-COAT" Functional Resin-Coated Aluminum Sheets



These functional resin coated aluminum sheets provide enhanced formability, corrosion resistance, scuff- and fingerprint-resistance, resistance to chemicals, electrical conductivity, ease of printing, and anti-bacterial and anti-mold properties. They are also self-lubricating, so that disposal of the lubricants and cleansers formerly used in the stamping process is eliminated.

Products that Contribute to Reducing Waste and Achieving a Recycling-Oriented Society

We are moving to develop products that reuse waste materials, products that feature unification of materials to facilitate recycling, and products that are biodegradable and thus do not leave residual waste products.

Recycled Aluminum Can Stock

The use of can stock made from used beverage cans contributes to promoting aluminum recycling.

Recycled Aluminum Distribution Wire

We have succeeded in processing the old power distribution wire removed and retrieved by power utilities by developing techniques for sorting the aluminum wire, re-refining it and managing impurities, and remanufacturing it as wire rods and distribution wire.

BIO-ACE Biodegradable Resin Sheets

When these foamed sheets used in packaging and wrapping are disposed of in landfills, they are completely broken down by the action of microorganisms in approximately one year. We have developed an environment-friendly foaming process based on our proprietary technology.

"KOTA-KUN" Underground Cable Duct Made from Cable Waste

This underground cable duct with multiple bores makes effective use of plastic waste. "KOICHI-KUN" duct for information box use is also highly reputed.

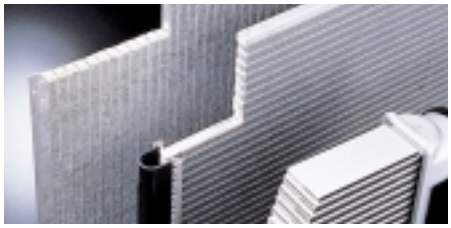
Products that Contribute to Preventing Global Warming

Through the development of products that realize energy conservation, clean energy systems and the like, we are developing products that contribute to the prevention of global warming.

MCPET High-Reflectivity Foamed Sheets

Furukawa Electric is the first in the world to succeed in the commercial-scale production and marketing of white sheets made of extra-fine foamed polyethylene terephthalate (PET). Bubble diameter is so small that optical performance is outstanding, with a total reflectivity of 99 % or more.

High-Performance Heat-Exchangers Material



We have developed aluminum radiator and air-conditioner materials for automotive applications that are lighter in weight, promoting better fuel economy and reducing CO_2 emissions.

Solar Photovoltaic Systems

These clean distributed power generating systems use solar batteries to convert the sun's rays directly into electricity.

Micro Heat-Pipes

Furukawa Electric's micro heat-pipes provide a solution to the problems of heat-dissipation and cooling of electronic equipment, making possible greater availability of computing power along with energy conservations.

■Product Development in Future

In future, new product development must take account of the environmental impact over the whole life of the product, and life cycle assessment (LCA) is a technique that is gaining wide acceptance. Furukawa Electric has already begun conducting life cycle assessments in relation to the development of insulated cables and aluminum heat exchangers.

2. Recycling Technology

(1) Recycling System of Electric Wire and Cable

Recycling systems of used power cables and communication cables from customers have been established, thus enabling reuse of conductors mainly.

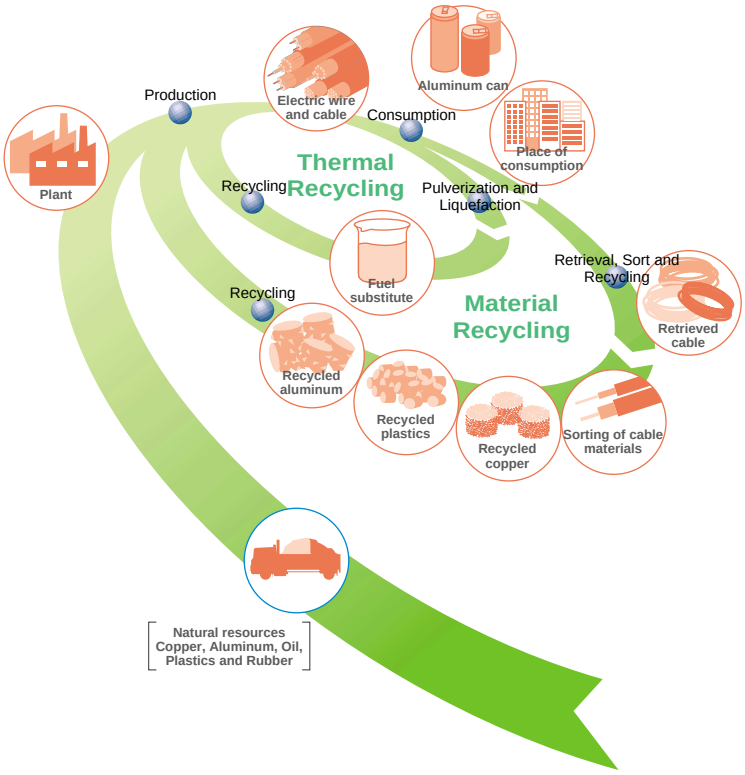
Recycled cables are disassembled and separated material to material, and subsequently reused. Copper and aluminum from conductors are 100 % reused, while covering materials are reused as recycled plastic and fuel achieving a considerable reusability.

(2) National Project for the Development of Recycling Technology

During the 5-year period 1991-96, the Japan Electric Cable Technology Center (JECTEC) has been involved with cable manufacturers under the aegis of the Ministry of International Trade and Industry (currently the Ministry of Economy, Trade and Industry) in research on thermal recycling through the development of liquefaction and pulverization technologies. Since FY 1998, research has been going forward on the use of PVC as solid fuel.

With respect to aluminum, funding from the New Energy and Industrial Technology Development Organization (NEDO) made it possible for the Japan Research and Development Center for Metals (JRCM) and seven manufacturers of aluminum rolled products to embark in 1993 on a 10-year project to develop technology to promote aluminum recycling

Recycling Technology Aiming at Recycling-Oriented Society



Furukawa Electric manufactures a broad range of products, from electrical wire and cable to fiber-optic components, machinery, and plastic and metallic materials, and we will mobilize all of our expertise to advance solutions to problems of the environment.

6 Environmental Communicative Activities

1. Environmental Education

Active commitment of all the employees is essential, along with consistent corporate policy, for corporate environment preservation activities to be successful.

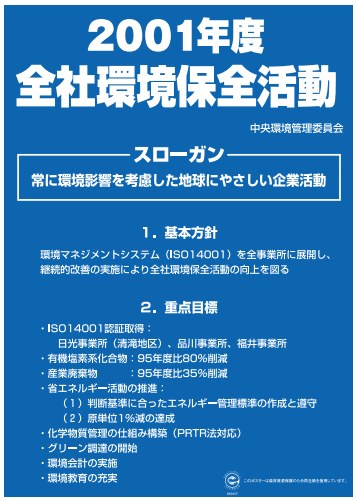
To this end, considering that the awareness of individual employees is indispensable, Furukawa Electric is carrying out a hierarchical employee education program for environment preservation by preparing a lot of educational materials including those on the Intranet.

2. Enlightenment and Publicity Activities

(1) Enlightenment Activities

At the time of the Environment Preservation Month in this June, Furukawa Electric distributed a campaign poster for environment preservation activities to all the Works, Laboratories and Branch Offices, aiming at enlightening all the employees about environment preservation activities. The poster represented slogans for environment preservation activities, the Basic Environmental Policy and important targets for FY 2001.

Notice board for the Environment Preservation Month in this June



Poster for environment preservation activities

(2) Publicity Activities

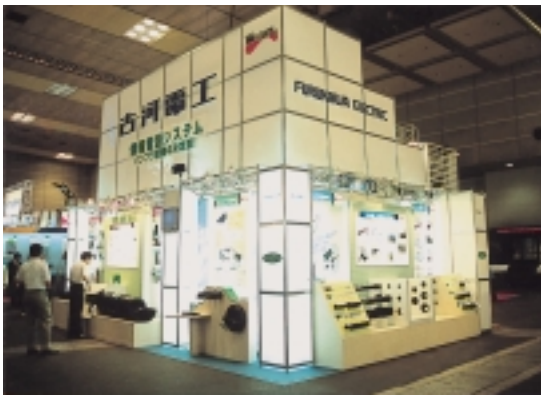
●Furukawa Electric's Web-Site

"Environmental Actions" in English along with this Environment Report 2001 appear on the web-site at:
http://www.furukawa.co.jp/english/

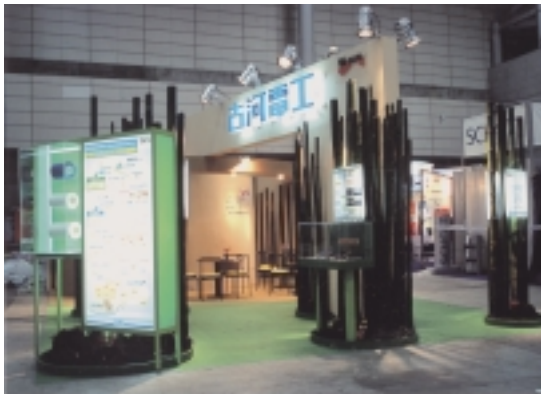
●Exhibitions

Major exhibitions for FY 2000 we participated in are as follows:

- INTERNEPCON JAPAN 2000:
  SALAMANDER with CFC-free cleansing
- 2000 AUTOMOTIVE ENGINEERING EXHIBITION (Technologies for Humans and Automobiles 2000) :
  Environment-harmonized products, Products related with electric vehicles, Weight-reduction technology for wire harnesses
- SIGN & DISPLAY SHOW 2000:
  MCPET energy-saving reflector for sign board
- Electrical Construction Equipment and material Fair:
  ECO-ACE, halogen-free electric wire and KOTA-KUN, using recycled plastics



- SEMICON Japan 2000:
  UV-TAPE, non-PVC back-grinding tape



3. Alignment with the Local Community

Every business base of Furukawa Electric participates in the environmental activities of each local community they belong to, willingly offering our cooperation. Especially in June that is designated as the Environment Preservation Month, we extend our corporate activities such as environment maintenance and environmental patrol beyond the premises, making efforts to enhance the environmental consciousness of the employees.

Cleaning a ditch at the entrance of the Shiga Works

Cleaning the premises of the Nikko Works

7 Outline of the Company

(As of March 31, 2001)

Name	The Furukawa Electric Co., Ltd.
Founded	1884, reorganized 1920
Capital	59.1 billion yen
Net Sales	549.8 billion yen, FY 2000
Employees	8,355
Head Office	6-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8322 Japan Tel: +81-3-3286-3001

Outline of Facilities Addressing the Acquisition of ISO14001 Certification

Name	Place, Phone	Major Products
Chiba Works	6, Yawatakaigandori, Ichihara-shi, Chiba Pref., 290-8555 Tel: +81-436-42-1601	Copper wire, power cable, optical fiber cable, telecommunications cable, electronic appliance wire, erbium-doped optical fiber amplifires, optical devices, optical semiconductor devices, MT connector, optical fiber fusion splicers
Mie Works	20-16, Nobono-cho, Kameyama-shi, Mie Pref., 519-0292 Tel: +81-5958-5-1111	Copper and copper alloy strip, copper wire rod, copper wire, magnet wire, optical fiber cable, automotive components
Hiratsuka Works	1-9, HigashiYawata 5-chome, Hiratsuka-shi, Kanagawa Pref., 254-0016 Tel: +81-463-21-8201	Magnet wire, insulated wire, power cable equipment, communications equipment, optical equipment, optical network systems, plastic products
Nikko Works (Kiyotaki District)	500, Kiyotaki-machi, Nikko-shi, Tochigi Pref., 321-1493 Tel: +81-288-54-0501	Copper products, contact materials, superconductive products
Nikko Works (Sheet Plant)	1 Sakuragaoka-machi, Kiyotaki, Nikko-shi, Tochigi Pref., 321-1493 Tel: +81-288-54-0567	Aluminum alloy plate / strip / forged products, memory disk materials
Osaka Works	6, Doicho 7-chome, Amagasaki-shi, Hyogo Pref., 660-0083 Tel: +81-6-6411-7800	Copper and copper alloy pipe / strip, sheathed copper tube, finned tube, heat-pipes
Kambara Works	5446, Kambara, Kambara-cho, Ambara-gun, Shizuoka Pref., 421-3203 Tel: +81-543-85-4175	Overhead transmission wire, condenser tube materials
Shinagawa Works	13-14 Higashishinagawa 4-chome, Shinagawa-ku, Tokyo, 140-0002 Tel: +81-3-3474-0681	Design, munufacturing, installation and maintenance of power cable with accessories and water supply pipes
Fukui Works	21-1, Kurome, Mikuni-cho, Sakai-gun, Fukui Pref., 913-8588 Tel: +81-776-82-5840	Aluminum sheet of large width / can stock / foil / PS sheet / high-precision sheet / automotive panels / polished skin sheet
Oyama Works	560, Doto, Oyama-shi, Tochigi Pref., 323-0812 Tel: +81-285-23-2111	Aluminum extruded shapes, aluminum pipe / rod / wire, aluminum casting / forging
Shiga Works	172, Chofukuji-machi, Omihachiman-shi, Shiga Pref., 523-0021 Tel: +81-748-38-1300	Aluminum extruded shapes
Yokohama Laboratories	4-3, Okano 2-chome. Nishi-ku, Yokohama-shi, Kanagawa Pref., 220-0073 Tel: +81-45-311-1211	Support for generic technologies, development of leading-edge technologies and new products

Overseas Representative Offices

Asia Representative Office	10 Anson Road, #25-07/08, International Plaza, Singapore 079903	Tel: +65-225-7149	Fax: +65-227-5125
China Representative Office	2301, China World Tower No.1, Jian Guo Men Wai Avenue, Beijing 100004 P.R.China	Tel: +86-10-6505-4608/5485	Fax: +86-10-6505-4609
Shanghai Representative Office	Room 2009, Ruijing Building, No.205, Maoming South Road, Luwan Dist., Shanghai 200020, P.R.China	Tel: +86-21-6466-8145/4930	Fax: +86-21-6467-7943
Philippines Representative Office	Room No.702, Ortigaz Bldg., Ortigaz Center, Ortigaz Avenue, Pasig City, Metro Manila, Philippines	Tel: +63-2-638-8552/8553	Fax: +63-2-638-8554
Middle East Representative Office	Dubai Airport Free Zone, E-1, Suite 229 P.O.Box 54282, Dubai Airport Free Zone, Dubai, U. A. E.	Tel: +971-4-299-4630	Fax: +971-4-299-4609
Europe Representative Office	3rd Floor, Newcombe House, 43-45 Notting Hill Gate, London W11 3FE United Kingdom	Tel: +44-20-7313-5324	Fax: +44-20-7313-5310
North America Representative Office	900 Lafayette Street, Suite 506, Santa Clara, CA 95050 U.S.A.	Tel: +1-408-248-4884	Fax: +1-408-249-3094
Central & South Ameirca Representative Office	Rua Afonso Bras, 413 Vila Nova Conceicao CEP04511-900 São Paulo SP., Brazil	Tel: +55-11-3848-4725	Fax: +55-11-3848-4808

We can.

THE FURUKAWA ELECTRIC CO., LTD.

Safety, Environment and Health Promotion Department

6-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8322 Japan

Tel: +81-3-3286-3090 Fax: +81-3-3286-3598

http://www.furukawa.co.jp/

IE-047 1C10 TR100