

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

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Products with Reduced Environmental Impact

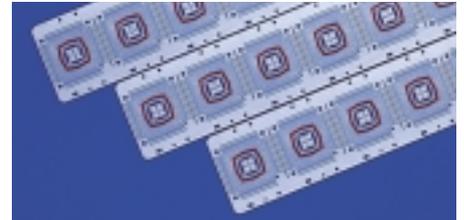
We are developing products that do not create environmental problems when they are used, but further, they do not emit toxic by-products when they are eventually disposed of by incineration or in landfills, thus reducing environmental impact.

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.

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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.

3

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.

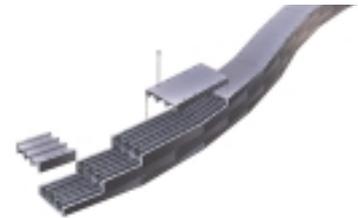
BIO-ACE Biodegradable Resin Sheets



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.

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Products that Contribute to Preventing Global Warming

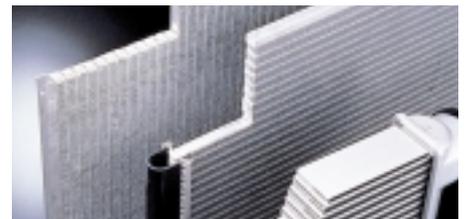
Through the development of products that realize energy conservation, clean energy systems and the like, we are developing products that contribute to the prevention of global warming.

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 CO₂ 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.

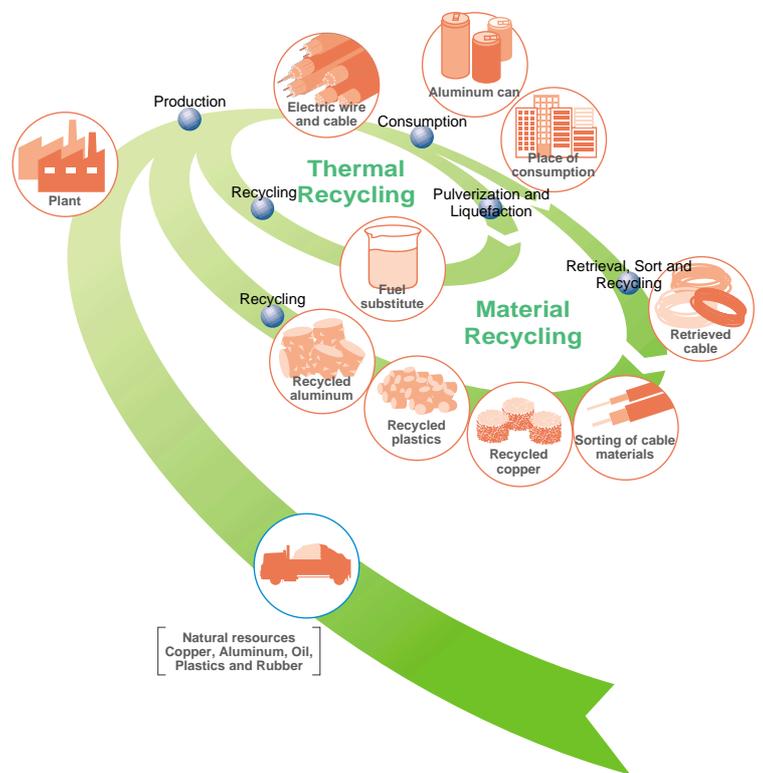
Recycled cables are disassembled and separated material to material, and subsequently reused. Copper and aluminum from conductors are 100 % reused, while covering materials are reused as recycled plastic and fuel achieving a considerable reusability.

(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.