

Environmental Management Report

2014

**SANYO DENKI CO., LTD.**



We at SANYO DENKI Group Companies, aim to help all people achieve happiness, and work with people to make their dreams come true.

To carry out the corporate philosophy, we do the following:

<b>For Environment...</b>	For society and the natural environment, we will help preserve the global environment and contribute to the prosperity of mankind through our corporate activities.
<b>For Customers...</b>	For customers and users, we will create new values through our technology, products and services.
<b>For Suppliers...</b>	For suppliers and vendors, we will strive for integrated technical development and harmonious mutual prosperity through parts purchase, production contracting and joint development.
<b>For Investors...</b>	For investors and financial institutions, we will increase our investment worth and credit through sound and management policy and good access to information.
<b>For Competitors...</b>	For competitors and the industry, we will strive to build industrial and technical development through technical alliances and competition.
<b>For Employees...</b>	For all of our employees, we will help individuals to achieve self-fulfillment through their work and the company.

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### Scope of the report

Organizations covered by the report: The Head Office, the Technology Center and factories in Japan (Kangawa Works, Shioda Works and Fujiyama Works)

Period: Fiscal 2013 (from April 1, 2013 through March 31, 2014, in principle)

Thank you for your continued understanding and cooperation in SANYO DENKI Group's business activities. Preservation of the global environment is becoming an increasingly important challenge for all who live on Mother Earth. In order for not only humanity, but all life forms to exist on Earth perpetually, the humanity needs to construct a sustainable and recycling-based society. And these initiatives are expanding on a global scale.

In such a global trend, we are conducting business activities that "contribute to the preservation of the global environment and the prosperity of humanity" which helps to create a sustainable and recycling-based society. A company is expected to perform its responsibilities in its relations with society, and the responsibility to preserve the environment forms the foundation of its business activities. It cannot gain society's trust unless its business activities are performed in ways that contribute to the preservation of the global environment. SANYO DENKI links its business activities to environmental activities directly by incorporating the aspects of the latter in the former.

Our main business activities encompass product development, manufacturing and sales. Environmental consideration is required in all of our processes, from material procurement to manufacturing, packaging and delivery. Each year, an increasing number of substances are banned from being included in component materials and the regulations are becoming stricter. We strive to attain the world's leading performance in our product development processes. To achieve this goal, we need to design products that are environmentally compatible, achieving not only high functionality, but also less power consumption, less energy conversion loss, reduction in the size of our products, maintenance-free and longer service life, lighter weight, and fewer components. Our products are evaluated for environmental compatibility in the product life cycle assessment and each stage of product development, and those that meet certain environmental assessment standards are internally certified as "eco-products."

We also focus on the management of electricity and other energies used at our factories, zero emission of wastes and the recycling of materials in our production activities. Our efforts also include energy-saving activities that have been achieving a certain degree of results amid the nationwide trends for energy saving since 2011, following the concern about power shortages in Japan.

While we have been working on the direct reduction and management of resources such as power, copy paper and waste at our development, production and sales sites, we strive to assist our customers, through our products, in increasing their products' competitiveness and implementing environmental activities in hopes that our environmental initiatives will contribute widely to reducing global environmental burdens through our products.

These Our environmental activities are led by the Environmental Committee that manages progress. We see it as important and as our responsibility to society to continue promoting environmental preservation activities and to ensure the transparency of our business management through the disclosure of relevant environmental information.

We hope this Environmental Management Report will show you how we engage in environmental management activities. We appreciate your understanding and welcome any opinions and feedback on our environmental activities.

Director and Major Operating Officer  
Nobumasa Kodama

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## Environmental Policy

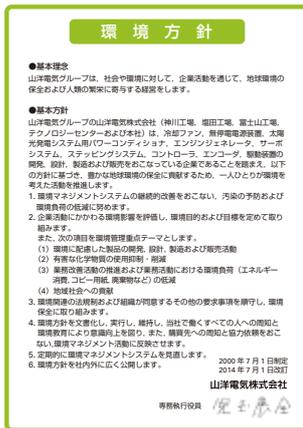
### Basic Philosophy

SANYO DENKI helps preserve the global environment and enhance humanity's prosperity through its corporate activities for society and the environment.

### Basic Policy

SANYO DENKI CO., LTD., comprising Kangawa Works, Shioda Works, Fujiyama Works, Technology Center and Head Office, develops, designs, manufactures and sells cooling fans, UPS, power conditioners for photovoltaic generation system, engine generators, servo systems, stepping systems, controllers, encoders, and driving devices. Under the principles listed below, each member of SANYO DENKI will take part in eco-friendly activities to help preserve our abundant global environment.

1. We will continuously improve the environmental management system and work hard to prevent pollution and reduce the environmental impact of our activities.
2. We will assess the environmental impact of our corporate activities and focus on our environmental objectives and targets.  
We will also deal with the following as high-priority themes for environmental management.
  - (1) Develop, design, manufacture, and sell environment-friendly products
  - (2) Reduce or eliminate the use of hazardous chemicals
  - (3) Reduce the environmental impact (energy consumption, number of copies, waste, etc.) of business activities
  - (4) Contribute to the local community
3. We observe environmental laws, restrictions and other rules agreed upon by organizations and work hard for environmental preservation.
4. We document, carry out and maintain our environmental principles, make them known to all our employees, and ask that our employees both cooperate in the pursuit of these principles and reflect them in our environmental management.
5. We will review the environmental management system periodically.
6. We will openly publicize the environmental principles to parties in and outside the company.



Environmental Policy Brochure

## Our System

It has been 14 years since the Environmental Committee was established in April 2000. The committee has been working to maintain a level of energy saving and waste reduction in factories since fiscal 2004. In addition to reducing environmental burdens, the committee is also striving to reduce the volume of hazardous chemical substances and develop Eco-products to achieve its major environmental management goals.

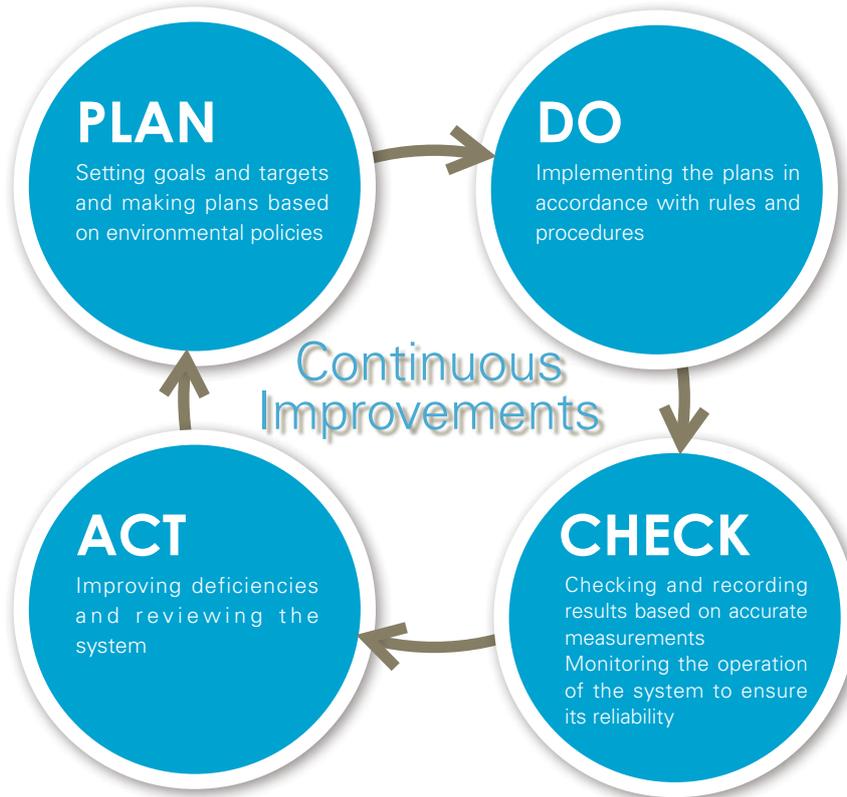
### Major Responsibilities of the Environmental Committee

1. Formulation of policies on environmental conservation activities, and reporting and instructions on the same
2. Formulation and enforcement of company rules and procedures (including company-wide environmental manuals) concerning environmental conservation activities
3. Promotion of environmental conservation activities at the head office, factories and branch offices through those in charge of environmental management
4. External contacts concerning company-wide environmental conservation activities
5. Surveys on social situations relating to environmental conservation activities

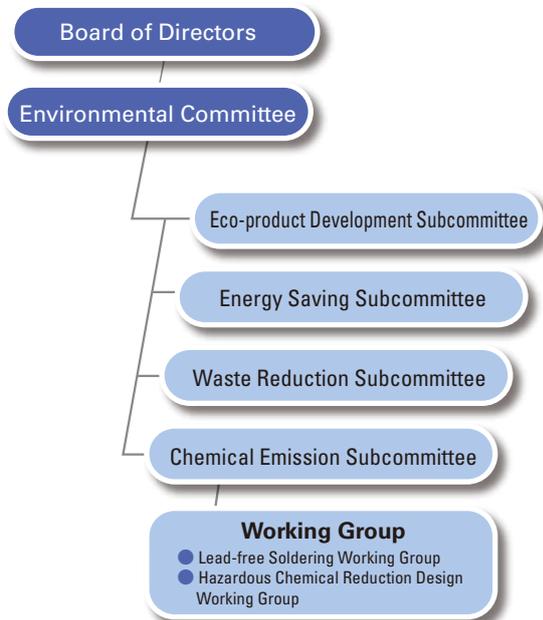


Environmental Committee

## Environmental Management System



### Positions within the Environmental Committee and Its Structure



### Organization Chart for the Environmental Management System



- Eco-product Development Subcommittee**  
It promotes the development of competitive products designed to protect the environment in accordance with eco-design standards.
- Energy Saving Subcommittee**  
It promotes energy saving through its daily activities the EMS (environmental management system). It also formulates long-term energy-saving strategies and proposes cost-effective investments.
- Waste Reduction Subcommittee**  
It works to reduce waste and disposal costs and achieve zero emissions.
- Chemical Emission Reduction Subcommittee**  
It strives to reduce emissions of hazardous chemical substances and minimize environmental pollution via self-management. It also works to promote the use of lead-free soldering and lead-free electric wires, reduce hazardous chemical substances, and develop measures for the PRTR (pollutant release and transfer register).

# Activity Report for Fiscal 2013

We developed 21 new certified Eco-products in this fiscal year and were also able to raise the sales ratio for Eco-products to 33.7%. We achieved a 99.6% level of zero emissions for the company as a whole.

Activity	Goal for fiscal 2013	Track record in fiscal 2013	
Promotion of eco-design	Creation of Eco-products	Twenty-one new products certified as Eco-products	
Sales activities	Sales ratio of Eco-products: 40% or higher	Sales ratio of Eco-products: 33.7%	
Reduction of hazardous chemical substances	Use of lead-free soldering Development of products with reduced amounts of RoHS-6 hazardous substances Reduction of substances defined in the PRTR Law	Lead-free solder usage in each division is now nearly 100%, and we will continue promoting this effort in the future. Almost all models of cooling fans, stepping motors and servo motors now comply with the RoHS-6 hazardous substance directive. Other models are being brought into compliance upon request.	
Reduction in power consumption	Kangawa Works	8%	23%
	Shioda Works	23%	76%
	Fujiyama Works	8%	10%
	Technology Center	(8%)	(5%)
	Head Office	7%	14%
Reduction in fuel consumption	A-type heavy oil: 265 kl *Total of the Shioda and Fujiyama Works	19%	22% A-type heavy oil: 257 kl
	LPG: 44,000 m <sup>3</sup> N *Total of the the Technology Center	47%	41% LPG: 49,100 m <sup>3</sup> N
	Town gas: 669,000 m <sup>3</sup> N * Total of the the Kangawa Works	6%	10% Town gas: 639,200 m <sup>3</sup> N
Reduction in the use of copy paper	Kangawa Works	(37%)	(23%)
	Shioda Works	(9%)	77%
	Fujiyama Works	(8%)	(3%)
	Technology Center	9%	7%
	Head Office	41%	42%
Reduction of waste	Kangawa Works	(10%)	11%
	Shioda Works	(1%)	58%
	Fujiyama Works	47%	52%
	Technology Center	34%	44%
	Head Office	46%	65%
Contribution to local communities	Head Office, Technology Center, Cleaning of areas around the factories conducted at least once every month		Goal achieved
Promotion of zero emission	Raising the company-wide waste recycling rate to 99.6% or higher		Company-wide rate: 99.6%

Note:

1. The reduction rate is calculated using fiscal 2000 as the base year, except for electric power and town gas, for which fiscal 2006 and 2010 were used as the respective base years.

2. Figures in parentheses indicate increases.

## Specific Energy-Saving Measures

As a countermeasure against global warming, we consider the restriction of CO<sub>2</sub> emissions through energy-saving activities as our top-priority task, and are promoting the improvement of energy use efficiency and energy saving activities. In fiscal 2013, as compared with the previous fiscal year, electric power consumption went up as the result of increased output, and CO<sub>2</sub> emissions were increased as well. The unit cost for output remained almost the same.

## Results of Introduction

- When we introduced electrical heating equipment, we developed and introduced a topical electrical heating system, and replaced the existing furnace-based heating system with it. As a result, electricity consumption was reduced by cutting power while the equipment was idle.
- When we introduced new equipment in the Kangawa Works, we developed and introduced in-house electrical equipment using our own servo motors instead of the former hydraulic method. Electricity consumption was subsequently reduced.
- We developed a web application that works in tandem with the central monitoring facilities to monitor electricity in the Fujiyama and Kangawa Works to start managing electricity consumption and demand values on the web in real time.



Topical electrical heating system

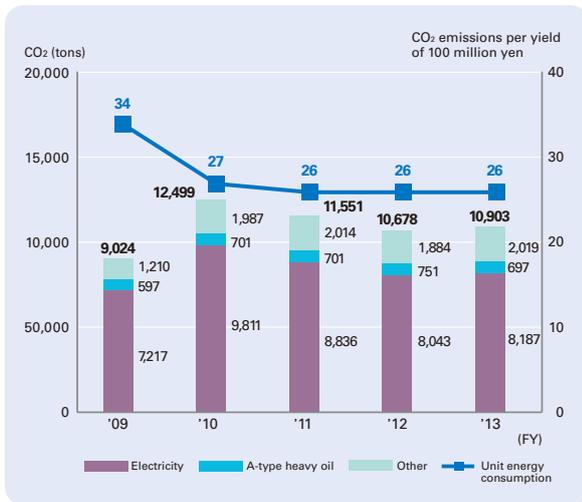


Equipment introduced in the Kangawa Works

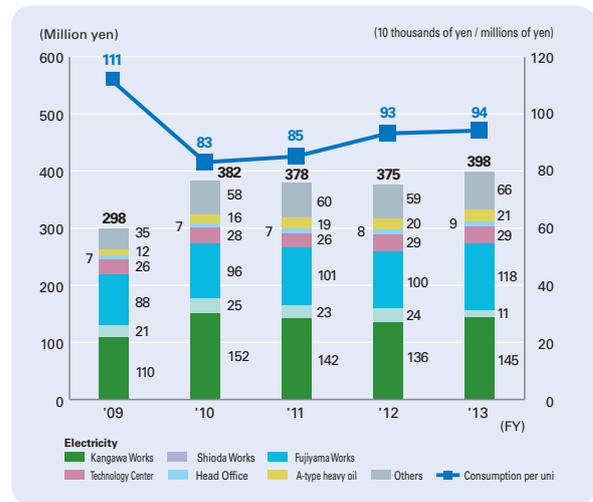


Electricity monitoring system

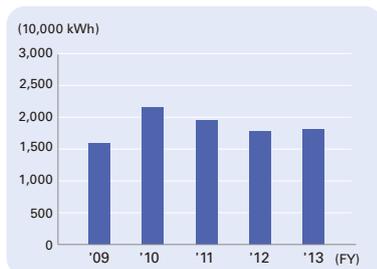
## Energy consumption measured in terms of the amount of CO<sub>2</sub>



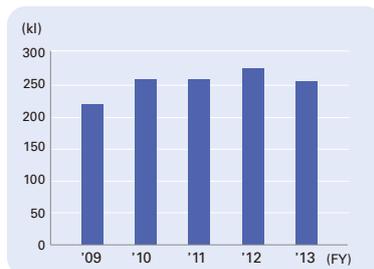
## Consumption value per production value



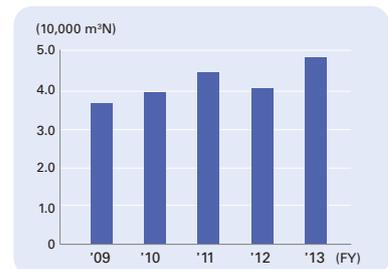
## Power consumption



## A-type heavy oil



## LPG



## Energy Saving Measures Implemented in Manufacturing Processes at Factories

Works	Measures implemented	Effects
Kangawa Works	<ul style="list-style-type: none"> <li>(1) Cutting down on unnecessary lighting in warehouses and on equipment</li> <li>(2) Lower air-pressure setting, repairing air leaks</li> <li>(3) Promoting the use of solar power</li> </ul>	<ul style="list-style-type: none"> <li>(1) Savings in commercial power use as a result of limiting the amount of lighting</li> <li>(2) Savings in commercial power use as a result of reducing the operating ratio of air compressors</li> <li>(3) Savings in commercial power use</li> </ul>
Shioda Works	<ul style="list-style-type: none"> <li>(1) Affixing calendar timers to machines</li> <li>(2) Redesigning mounter programs</li> <li>(3) Miniaturizing the equipment to be newly installed</li> <li>(4) Systematic operation of boilers according to weekly calendar timers</li> </ul>	<ul style="list-style-type: none"> <li>(1) Savings in electricity by preventing switches from being left on</li> <li>(2) Savings in electricity by reducing the production cycle time</li> <li>(3) Savings in electricity through miniaturization of heater capacity</li> <li>(4) Control of the use of A-type heavy oil</li> </ul>
Fujiyama Works	<ul style="list-style-type: none"> <li>(1) Cutting down on unnecessary lighting</li> <li>(2) Adjusting the operating hours of air conditioners</li> <li>(3) Shifting the operating hours of production equipment</li> <li>(4) Adjusting the operating hours of loading equipment for tests</li> <li>(5) Promoting the use of solar power</li> </ul>	<ul style="list-style-type: none"> <li>(1) Savings in electricity by reducing lighting hours</li> <li>(2) Savings in electricity by reducing operation hours, and the reduction in the consumption of A-type heavy oil</li> <li>(3) Savings in commercial power</li> <li>(4) Savings in electricity by reviewing the test run time</li> <li>(5) Savings in commercial power</li> </ul>



Solar panels at Kangawa Works



PV Inverters at Fujiyama Works

## Transportation

Our company is using vehicles that comply with the regulations on diesel car exhaust in seven municipal communities to transport supplies between factories. A company-wide “Stop Idling” campaign is also under way, in order to reduce the environmental burden.



Signboard for stop idling



Low emission vehicles



Electric vehicle



Vehicle that complies with the regulations on diesel car exhaust

SANYO DENKI has been employing an environmental accounting system since fiscal 2003 with the aim of implementing efficient and effective measures for environmental conservation. We measure the costs required for environmental conservation in our business activities and the effects produced by these activities using quantitative indicators (measured in terms of monetary units or physical quantities) to the greatest extent possible, and analyze these costs and effects in order to improve the efficiency and activity levels of environment management

## Performance in fiscal 2013

### (1) Environmental Conservation Costs

Environmental Conservation Costs in fiscal 2013 were 967 million yen in total: 74 million yen for investment and 893 million yen for costs and expenses. As for investment, we not only spent money on facilities that incorporate PV grid management equipment but also spent R&D money in order to develop Eco-products. As for costs and expenses, R&D costs and management activities costs posted the high rates of 60.8% and 23.6%, respectively.

### (2) Environmental Conservation Effects

Due to increases in production output of some factories, effects concerning resources used for business activities became positive, except for the consumption of electric power, LPG and town gas. In particular, The introduction of the energy has increased CO<sub>2</sub> emissions by 264 tons, and electric power consumption by 310 thousands kWh, as compared with the previous fiscal year. As solar power generation facilities at the Fujiyama Works started operation, the ratio of recyclable energy from solar power generation has increased to 2.268% from 1.249% in the previous year.

### (3) Economic Effects

Due to increases in the production output of some factories, reduction of costs by energy saving has increased by about 7% on a year-on-year basis to 26 million yen. Meanwhile, profits from sales of useful materials were 85 million yen, up about 20% from the previous year.

"Environmental Accounting Guidelines" published by the Ministry of the Environment, Format for publication C

Data range (company-wide)

Period covered: April 1, 2013 to March 31, 2014

## Environmental Conservation Costs

(In thousands of yen)

Category		Details of major activities	Investment	Cost
(1) Costs within the area of business	1. Pollution prevention costs	Air pollution prevention (measurement of smoke and soot) Water pollution prevention (inspection of wastewater treatment tanks, extraction of sludge, sewage disposal, etc.)	0	26,667
	2. Global environment conservation costs	Periodic electricity checks	9,923	26,030
	3. Resource recycling costs	Reduction of waste, recycling, and proper waste disposal	0	42,403
	Total of items 1 through 3			9,923
(2) Upstream and downstream costs		Green procurement of office supplies and commissions for refurbishing and reconditioning products	0	16,170
(3) Administration costs		Development and operation of EMS and environmental training for employees	0	210,926
(4) R&D costs		Development of Eco-products (such as testing equipment and molds)	63,915	543,459
(5) Social activity costs		Annual membership fee for the Japan Environmental Management Association for Industry, and other fees	0	3,400
(6) Environmental damage measure costs		Assessment of soil contamination, and costs for countermeasures	0	24,064
Total			73,838	893,119

Expenses include depreciation of facilities and personnel costs.

## Effects of Environmental Conservation

Classification	Indicators for the effects of environmental conservation		
	Indicators for environmental burdens	Indicators	Indicator value <sup>(Note)</sup>
Effects on resources input for business activities	Input of energy	Decrease in energy consumption	Energy consumption measured in terms of the amount of CO <sub>2</sub> : △ 264 tons of CO <sub>2</sub>
			Electricity consumption: △ 306,000 kWh
	Input of water	Decrease in water consumption	A-type heavy oil consumption: 7.9 kL
			LPG consumption: △ 70.2 t
			Kerosene consumption: 1.8 kL
Input of other resources	Decrease in the input of other resources	Light oil consumption: 28.7 kL	
		Town gas consumption: △ 16,000 Nm <sup>3</sup>	
Effects on environmental burdens due to emissions and waste produced by business activities	Discharge of waste and other materials	Decrease in the total discharge of waste and other materials	Gasoline consumption: 3.0 kL
			Total discharge of waste: △ 150.3 t
		Increase in the percentage of renewable energy in total energy consumption	Photovoltaic power generation: 1.019% (company-wide)
			Recyclable materials and useful materials: 0.472 %
Decrease in the discharge of hazardous waste	Discharge of hazardous waste: 4.2 t		

△ : Indicates that there was no difference compared to last year.

(Note) The measure of the amount will be stated as the difference from the amount of the reference period compared with the year.

## Economic Effects of Environmental Conserving Measures (Substantive Effects) (In thousands of yen)

Classification	Amount	
Profits	84,711	
Reduction of costs	Sales of useful materials	△ 26,240
	Reduction of costs by energy saving	2,381
	Reduction of waste disposal costs by recycling	807
	Reduction of expenses for copy paper	

△ : Triangles indicate that there was no difference compared to last year.

## Eco-products

### Efforts for designing Eco-products

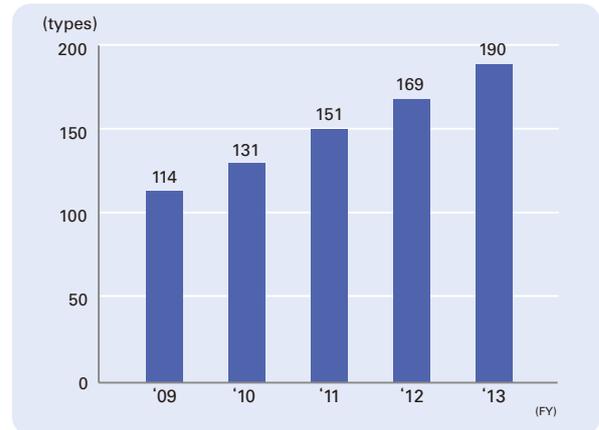
As for product design, we are carrying out R&D to incorporate the latest energy-saving technologies into our new products. At the same time, we carry out product assessments to evaluate the environmental impact of products at each stage, such as component and material procurement, manufacture, distribution, use, recycling, and disposal. Newly developed products are compared with commercially available and existing products and are certified as Eco-products (Eco-design products) if they satisfy the specified evaluation standards. In fiscal 2013, 21 types of products were certified as Eco-products, bringing the total to 190. Eco-products are presented in catalogues and other materials with a LEAF symbol.



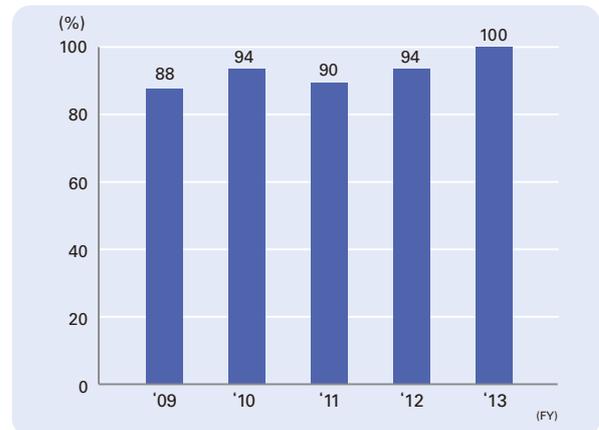
### Life cycle assessment (LCA)

LCA is one of the techniques used to provide a general quantitative measure of levels of environmental impact including global warming that products have through their life cycles. We evaluate the environmental compatibility of a product using this method. Our rate of implementing LCA in our Eco-products was 100% in fiscal 2013.

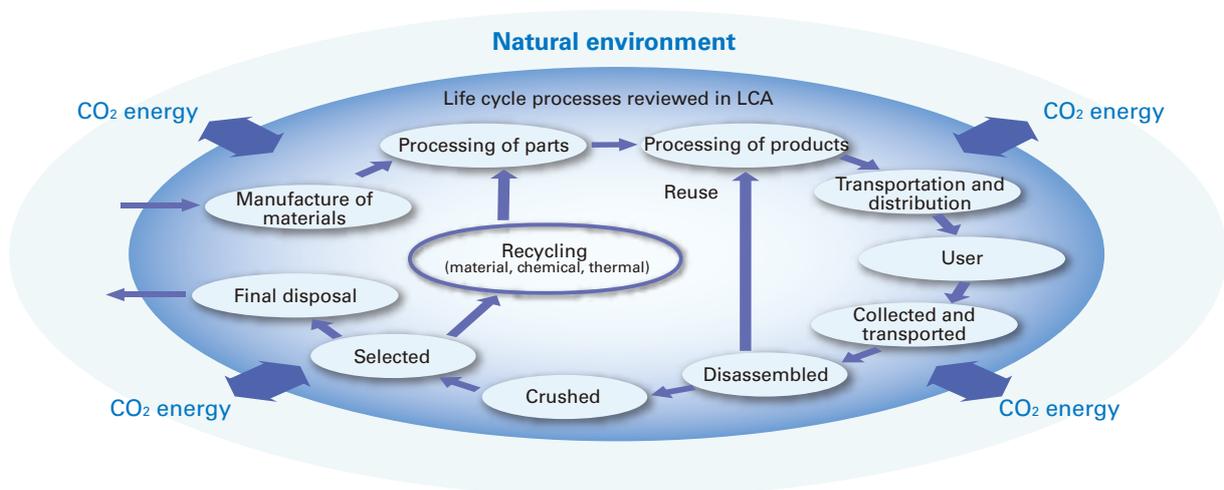
Number of products certified as eco-products  
(Total number of products in all divisions)



LCA implementation rate



### Life Cycle Processes Reviewed in LCA



Effects on the natural environment (global warming) are assessed at each stage of the life cycle, based on energy consumption and the amount of CO<sub>2</sub> emissions.

## Representative Eco-products of Fiscal 2013

### Results of LCA

Twenty-one new Eco-products were developed in fiscal 2013. We will present the results of the LCA of three representative products. The results are based on a comparison of the amounts of CO<sub>2</sub> emitted during the time of use between newly developed models and their immediate predecessors. Since these products are used for a long time, the reduction of CO<sub>2</sub> emitted during the time of use will be effective in preventing global warming.

#### 120x120x38 mm AC / DC Fan 120AD AD type



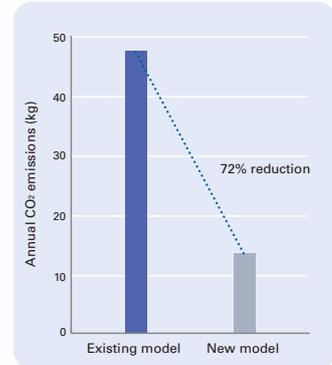
##### ■ Features

- Reduces power consumption by about 72% as compared with conventional models
- Achieves noise reduction of 3dB(A)
- Expected product life increase by 2.4 times

##### ■ Models compared for LCA

New model: 9AD1201H12  
Existing model: 109S075UL

Comparison of CO<sub>2</sub> emissions



#### Power Conditioner "SANUPS P73J"



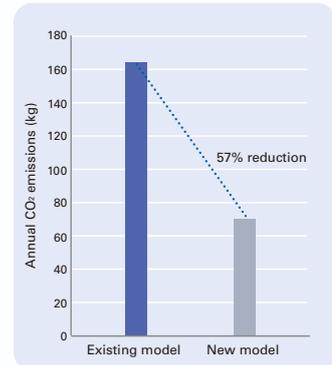
##### ■ Features

- High frequency insulating method
- Achieves the conversion efficiency of 93.5%, the industry's top level
- Reduces power consumption by 28% as compared with conventional models

##### ■ Models compared for LCA

New model: P73J992RA010  
Existing model: P73H103R+TRPMB100T08

Comparison of CO<sub>2</sub> emissions



#### "SANMOTION R 3E" Model (10, 20, 30, 50A)



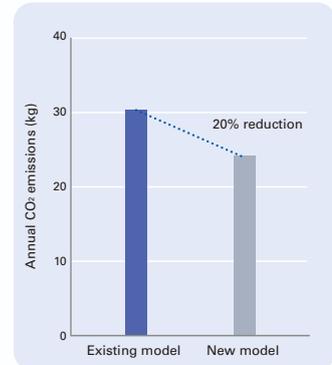
##### ■ Features

- New-generation power device that reduces loss by 5 to 7%
- Requires 10% less standby power as compared with conventional models
- Power consumption monitor to raise users energy-saving awareness
- 10% reduction in weight

##### ■ Models compared for LCA

New model: RS3A02  
Existing model: RS2A03

Comparison of CO<sub>2</sub> emissions



Above data indicate annual CO<sub>2</sub> emissions, which are calculated by dividing LCA results the designed lifetime.

## Promoting Green Supplies

### Establishment and Use of Chemical Substance Management Guidelines

In August 2005, we established our Chemical Substance Management Guidelines for the management of hazardous substances, concerning parts and materials used for our company's products.

Our Guidelines provide management rules concerning substances specified in various laws and regulations, such as substances whose use is restricted or prohibited by the RoHS Directive\*<sup>1</sup>, SVHC (high-concern material) in REACH\*<sup>3</sup>, substances banned by domestic and foreign legislation, and substances designated by the Japan Green Procurement Survey Standardization Initiative (former JGPSSI).

We keep these guidelines up-to-date by making necessary revisions in response to changes in relevant laws and regulations (last updated in January 2014). These include definitions of terms, RoHS threshold values, survey questionnaires for our suppliers on chemical substances that affect the environment, and a guarantee form to assure that no RoHS-restricted substances are included in the materials we use.

Currently, we request that our suppliers agree to abide by our Guidelines, and that they submit a survey questionnaire and a guarantee form to assure that their supplies contain no RoHS-restricted substances.

### Green Purchases

Our company actively purchases stationery and office supplies that are environmentally friendly, such as products using recycled materials, substitute materials and waste materials, refillable products, products with replaceable parts, and products designed for recycling.

## Reduction of Hazardous Chemical Substances

The Hazardous Chemical Reduction Working Group, a subordinate body of the Chemical Substance Emission Reduction Subcommittee, is working together with the design sections of individual divisions to focus on eliminating all substances banned by the RoHS directive.

- Compliance of applicable products with the RoHS directive cooling fans and stepping motors are now compliant. Servo motors, servo amplifiers, stepping motor drivers, and power supply systems are on their way toward becoming compliant. Models complying with the RoHS directive are expanding.
- An examination of substances will be conducted upon the request of the customer.
- An examination of hazardous chemical substances contained



An X-ray fluorescent analysis device at the Kangawa Works

in our products is under way, based on the Chemical Substance Management Guidelines.

- Our company guidelines concerning China RoHS\*<sup>2</sup> and countermeasures for substances banned by the revised RoHS directive and REACH have been disseminated inside our company.
- Using an X-ray fluorescence analyzer (XRF), RoHS-6 substances contained in materials are being analyzed.
- SVHC materials (high-concern materials: 151 substances) listed in REACH are being investigated to provide information for our customers.

\*<sup>1</sup> RoHS Directive (DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restrictions on the use of certain hazardous substances in electrical and electronic equipment): Six substances (lead, chromium hexavalent, cadmium, mercury, and two specific brominated flame retardants [PBD, PBDE])

\*<sup>2</sup> China RoHS: A Chinese government regulation banning the use of specified hazardous substances in electronic information devices

\*<sup>3</sup> REACH (Registration, Evaluation, Authorization and Restriction of Chemicals): A comprehensive system for registration, evaluation/approval, and restriction of chemical substances in Europe

## Lead-free solder

The Fujiyama Works, which manufactures cooling fans, has been using lead-free solder for high-temperature soldering since March 2006, following the introduction of lead-free solder in all manufacturing processes in January 2004 (except for high temperature soldering exempted from the RoHS standards.) As for production lines mounting substrates for servo amplifiers and power supply systems, lead-free soldering facilities were first installed in fiscal 2004, and full installation has finally been completed.

- Cooling fans, stepping motors, servo motors: Installation of equipment for surface mount soldering has been completed.
- Servo amplifiers, stepping motor drivers: Lead-free solder is being implemented and expanded to RoHS-applicable products. A shift towards lead-free products is being promoted.
- Power supply devices: Lead-free solder is being implemented and expanded to RoHS-applicable products. A shift towards lead-free products is being promoted.



Lead-free high-temperature soldering equipment at the Fujiyama Works

## Compliance with the PRTR

Our company registers and reports the amount of discharge and transportation of reportable PRTR-controlled substances when over one ton is consumed at a factory annually. In fiscal 2013, it became necessary to report the use of styrene at the Kangawa Works, as well as antimony and its compounds and triphenyl phosphate at the Fujiyama Works.

Lead has not been required to be reported for the last seven years because of the reduction of lead usage due to RoHS-compliant soldering.

PRTR (pollutant release and transfer register): A system for collecting, aggregating and publishing data on various hazardous chemical substances to see how much of these substances are released into the environment from what sources, or are transferred with waste from what facilities.

PRTR-controlled substances	PRTR-controlled substances (that are required to be reported and used in amounts of one ton or more)	
Styrene	Kangawa Works	7.5 t
Antimony and its compounds	Fujiyama Works	2.9 t
Triphenyl phosphate	Fujiyama Works	2.4 t

## Zero-emission Activities

In fiscal 2013, SANYO DENKI set out to achieve a waste recycling ratio of 99.6% as part of its recycling initiatives. This goal was achieved as a result of our efforts to stop producing wastes that are simply buried or incinerated through all-out reduction and recycling of general and industrial wastes that occur in our production activities.

## Reuse

We promote in-house recycling of unneeded supplies such as OA equipment, desks, shelves and chairs.

## Reuse of Materials

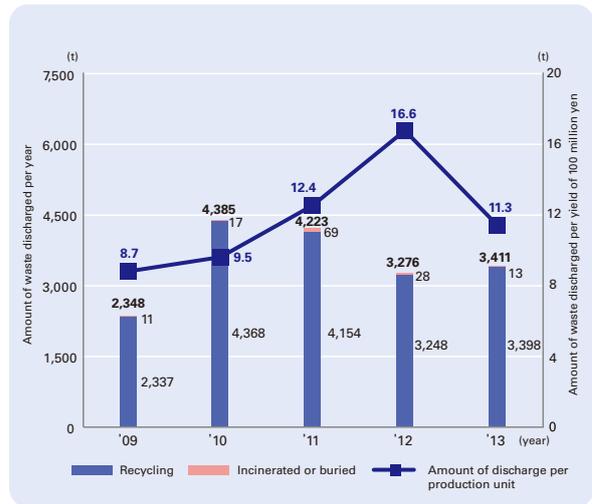
We are returning wooden pallets used to transport purchased materials to carriers in order to promote their reuse.

[Other examples of reuse of materials]

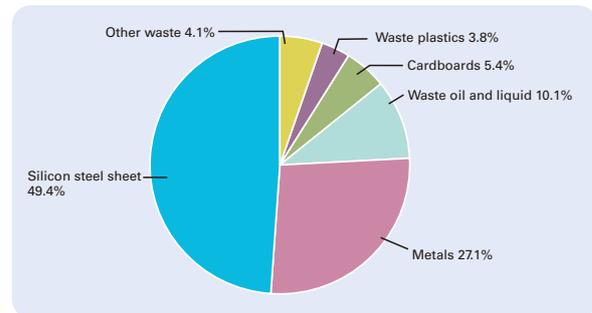
Cardboard boxes: returned to suppliers

Shock absorbers: reused within the company

Changes in the amount of wastes discharged



Percentage by type of waste



Waste		Amount discharged (tons)	Amount recycled (tons) / Recycling rate (%)	Recycling method
Sludge	Organic sludge	6.7	6.7 / 100	After oil and water are separated, dehydrated residues are turned into compost.
	Inorganic sludge	11.1	10.0 / 90.2	After intermediate treatment, some of the sludge is recycled as road construction materials. Some is also gasified by furnaces, with residues recycled as cement materials.
Waste liquid	Oil-based materials	2.3	2.3 / 100	After oil and water are separated, the material is recycled as fuel.
	Water-soluble materials (detergents, grinding liquid, etc.)	276.0	276.0 / 100	Reuse and incinerated residues are used as cement materials.
	Volatile materials	4.8	4.8 / 100	Distilled and used as recycled oil.
	Waste acid (batteries)	63.0	63.0 / 100	Crushed, sorted, and all recycled.
Waste plastics	OA equipment and circuit boards	1.2	1.2 / 100	Crushed, sorted, and all recycled.
	Vinyls and films	96.8	96.8 / 100	Turned into solid fuel (refuse derived fuel), reducing agents (using furnaces), and materials for power generation (thermal recycling)
	Molding scraps	26.6	26.6 / 100	
	Other solid scraps	0.4	0.0 / 0	
	Styrofoam recycling)	5.0	5.0 / 100	Turned into raw materials (material recycling); immersed in solvent to be turned into soil, and recycled as raw material
Metal scraps	Scraps generated in manufacturing processes	2,613.2	2,613.2 / 100	Recycled as metal materials
	Metals (including empty cans)	0.2	0.2 / 100	
Paper scraps	Used paper	9.5	9.5 / 100	Turned into raw materials for recycled paper
	Newspapers, magazines, and other papers	55.4	55.4 / 100	
	Cardboards	183.3	183.3 / 100	
Wood scraps	Packages and transportation pallets	41.7	41.7 / 100	Crushed and turned into combustion improver
Glass and ceramic scraps	Empty bottles, glass, and ceramics	2.8	2.8 / 100	Crushed and turned into road construction materials
Other waste	Paper scraps and other waste	12.0	0 / 0	Incinerated
Total		3,412.2	3,398.6 / 99.6	

## Social Contribution

### Exchange and cooperation with local communities

Members of the Head Office, the Technology Center, and the factories in Japan clean the areas around their office buildings and factories at least once a month. At the Kangawa Works, large-scale cleaning was carried out in cooperation with the neighborhood community association.

### Wrestling with diversification of living things

The preservation related to the diversification of living things is said to be an important issue, as well as countermeasure against global warming. SANYO DENKI performs energy-saving activities and makes efforts by using our resources, including our technologies and products.



Outdoor cleaning activities (Head Office)



Outdoor cleaning activities (Ueda Area)

## Education and Training

### Training curriculum

SANYO DENKI's training system is composed of training programs by employee level, career training programs, and training programs by division.

In fiscal 2013, we held the following workshops and meetings:

● August 2013

Workshop on designs to reduce hazardous chemical substances (Recent trends of chemical substances and the RoHS Directive and REACH)

● March 2014

Presentation of Eco-products



Company lecture



Product presentation meeting

## Internal Audits

We have employees conduct internal audits to check that the environmental management system created by the company is being properly implemented and effectively managed and maintained in accordance with regulatory requirements. To ensure the fairness and objectivity of internal audits, we created a certification system for internal auditors to avoid the auditing of divisions by their own members and conduct internal audits in accordance with the standards for internal audits. The results of internal audits are reported to the top management and divisions audited, with the aim of making improvements to the environmental management system.

## Safety and Health

To prevent occupational accidents and to ensure the safety and mental and physical health of employees, we formed the Safety and Health Committees and opened its branches at the Head Office and the Ueda branch office (for the Technology Center and the factories). The Safety and Health Committee aims to provide a safe and healthy working environment, and to that end, it allocates officially certified administrators and experts in environmental management to ensure occupational safety and provide health care.

### Activities of the Safety and Health Committee

#### ◆ Inspection visits to workplaces

When a monthly committee meeting is held, committee members make an inspection visit to workplaces. The committee checks whether appropriate measures have been taken to solve the problems pointed out in the previous month, and whether or not any other problems can be detected.

#### ◆ Prevention of occupational accidents

During inspection visits to workplaces, committee members check certain priority issues to prevent occupational accidents. All branch offices and factories are informed of occupational accidents that occur at workplaces so that they can implement appropriate measures to prevent any recurrence.

#### ◆ Reports from administrators

The committee receives reports from safety and health administrators concerning environmental measurements, inspection schedules, announcements, training sessions and revisions to laws and regulations.

#### ◆ Activities for maintaining and improving health

Medical examinations are conducted to achieve a 100% examination rate. Employees with health problems are provided with medical counseling and follow-up examinations. The committee also provides health consultant services to prevent lifestyle diseases in accordance with the annual schedules of branch offices and factories.

#### ◆ Mental health care

We provide contacts for consultant services, training sessions for managers or those on self-care for general employees, and counseling by nurses.

#### ◆ Installation of automatic external defibrillators (AED)

Automatic external defibrillators are installed at the Head Office and the Ueda branch office (for the Technology Center and the factories). In addition, to be able to act quickly in unexpected situations, training sessions on general emergency life-saving methods are periodically provided.

#### ◆ Training and drills

Emergency drills are conducted.



AED



Training on general emergency life-saving methods



Emergency drills

## Goals for Fiscal 2014 and Challenges for the Future

We created 21 eco-design products (Eco-products) in fiscal 2013, a year during which 33.7% of our sales were accounted for by Eco-products. We will continue to promote the LCA-based development of products designed to reduce CO<sub>2</sub> emitted during their use and to be eco-friendly.

Item	Goals for Fiscal 2014	Goals to be achieved by fiscal 2016
Promotion of Eco-products	Creation of Eco-products	Creation of Eco-products
Sales activities	Sales ratio of Eco-products: 40% or higher	Sales ratio of Eco-products: 45% or higher
Reduction of hazardous chemical substances	Promotion of the use of lead-free solder Implementation of measures to meet the RoHS & REACH standards Reduction of PRTR-controlled substances	Promotion of the use of lead-free solder Implementation of measures to meet the RoHS & REACH standards Reduction of PRTR-controlled substances
Reduction in power consumption	Reduction by 8% compared to fiscal 2006	Reduction by 9% compared to fiscal 2006
Reduction in fuel consumption	Consumption of LPG Maintaining it at the current level (reduced by 52% compared to fiscal 2000)	Consumption of LPG Maintaining it at the current level (reduced by 52% compared to fiscal 2000)
	Consumption of A-type heavy oil Maintaining it at the current level (reduced by 21% compared to fiscal 2000)	Consumption of A-type heavy oil Maintaining it at the current level (reduced by 21% compared to fiscal 2000)
	Consumption of town gas Reduction by 7% compared to fiscal 2010	Consumption of town gas Reduction by 8% compared to fiscal 2010
Reduction in copier paper consumption	Maintaining it at the current level (reduced by 15% compared to fiscal 2000)	Maintaining it at the current level (reduced by 15% compared to fiscal 2000)
Reduction of waste	Maintaining it at the current level (reduced by 0% compared to fiscal 2000)	Maintaining it at the current level (reduced by 0% compared to fiscal 2000)
Contribution to local communities	Cleaning of the area around factories at least once every month Participation in environment-related events	Cleaning of the area around factories at least once every month Participation in environment-related events
Promotion of zero-emission	Maintaining a company-wide waste recycling rate at 99.6% or higher	Maintaining a company-wide waste recycling rate at 99.6% or higher

The number of employees is as of March 2014.

## Head Office

- Location: 3-33-1 Minami-otsuka, Toshima-ku, Tokyo
- Area: 3,378m<sup>2</sup>
- Number of employees: 212
- ISO certificate obtained: March 2002



## Kangawa Works

- Location: Ueda Research Park, 812-3 Shimonogo, Ueda-shi, Nagano
- Area: 67,141m<sup>2</sup>
- Number of employees: 425
- ISO certificate obtained: March 2010
- Major products: AC/DC servo motors, stepping motors, and linear servo motors.



## Shioda Works

- Location: 517 Goka, Ueda-shi, Nagano
- Area: 5,698m<sup>2</sup>
- Number of employees: 16
- ISO certificate obtained: March 2001
- Major products: power conditioners for photovoltaic power generation systems



## Technology Center

- Location: Ueda Research Park, 812-3 Shimonogo, Ueda-shi, Nagano
- Area: 44,908m<sup>2</sup>
- Number of employees: 304
- ISO certificate obtained: November 1999



## Fujiyama Works

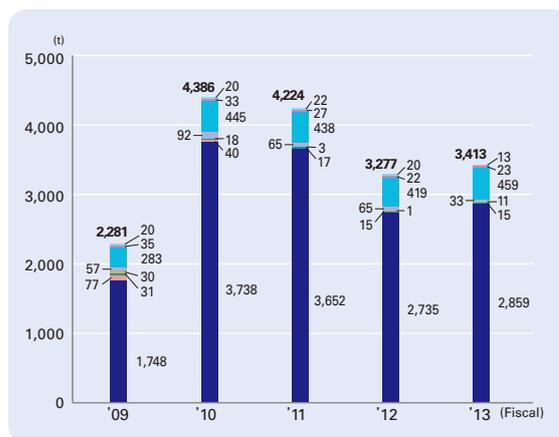
- Location: 4016 Fujiyama, Ueda-shi, Nagano
- Area: 99,828m<sup>2</sup>
- Number of employees: 395
- ISO certificate obtained: December 1999
- Major products: Cooling fans, UPS's (uninterruptible power supply devices), power conditioners for photovoltaic power generation systems, emergency self-power generation systems, power source monitoring systems, AC/DC servo amplifiers, stepping drivers and system controllers.



Amounts of CO<sub>2</sub> emissions by factory



Amounts of waste by factory



## General Environmental Manager

Hiroyuki Nishimura

SANYO DENKI established its environmental management system and obtained ISO14001 certification in 1999. Our general environmental manager works in the environmental management system under the direction of the top management to promote environmental activities at our Head Office and factories. In addition to the energy conservation and waste reduction activities at each of our factories, we aim to reduce the global environmental burden by developing high-efficiency energy-saving products for our customers and providing power equipment to reduce consumption using maximum power peak cutting functions and regenerating electric power from braking forces. We also disclose environmental information to a wide spectrum of both internal and external stakeholders and place great importance on communication with local communities and relevant individuals. The Environmental Committee works with environmental managers at our factories to organize specialized subcommittees in order to discuss measures for ongoing environmental improvements and to take an active part in promoting environmental conservation activities to achieve our goals.



## Head Office

Kazutomi Kaneko

Following its relocation, the Head Office works towards further energy saving. In addition to providing support for improving the sales ratio of Eco-products and for local environmental activities, the Head Office prioritizes measures to save energy and reduce waste and copy paper consumption.

- Improvement in the sales ratio of Eco-products by supporting sales activities
- Proper temperature management for air conditioning
- Improvement in the sorting of waste and the recycling rate
- Volunteer activities for cleaning areas around the Head Office

We will continue to promote environmental activities at the Head Office and all our sales offices and branches.



## Technology Center

Hiroyuki Nishimura

Our Technology Center is engaged in the design and development of products, and is committed to promoting eco-designs and developing products that are free of hazardous chemicals. To promote the development of products designed for the environment, we certified 21 new items as Eco-products in fiscal 2013. We have nearly completed the installation of equipment required to meet the RoHS standards for our target products, in order to achieve our goal of developing products that are free of hazardous chemicals. At the moment, assessments are underway to check for the presence of SVHCs (substances of very high concern) in compliance with the REACH regulations. We have also worked to reduce the consumption of electricity, LPG and copy paper, as well as the amount of waste, and cleaned areas around the Ueda Research Park for the local community. We will continue to promote energy savings with high efficiency products designed to be environmentally-friendly, reuse of electric energy using power regeneration functions, etc., in order to help customers reduce their environmental burden when using our products.



## Kangawa Works

Kazuhiko Takizawa

The Kangawa Works is working on process improvements for energy savings, such as cutting down on lighting, waste reduction, curtailed use of copy paper, and the promotion of zero emission.

In the motor assembly and inspection processes, a production and inspection guidance system has been introduced to prevent operational mistakes and accidental leakage of defective products so that unnecessary processes can be omitted. Also, the use of paper check sheets has been discontinued, leading to a reduction in copy paper use.

We have also been engaged in the large-scale cleaning of the surrounding area in cooperation with the neighborhood community association. We will be working on further reduction of environmental burdens through the use of the BEMS central monitoring system that can oversee the energy consumption of the entire site.



## Shioda Works

Satoshi Atou

The Shioda Works is promoting activities to save energy, reduce waste, and eliminate hazardous substances from the manufacturing processes.

- Reduction in power consumption (planned operation of air conditioners by using timers and checking room temperatures, and a reduction in the operation time of production lines by improving the operation rate)
- Reduction in the consumption of A-type heavy oil (planned operation of boilers using timers)
- Reduction in the consumption of copy paper (use of projectors, use of electronic means for checking the progress of processes, and printing on both sides of printed paper) and reuse of the backs of printed paper)
- Thorough sorting of waste materials and promotion of the reuse of the delivery boxes for purchased parts
- Use of components and materials meeting the RoHS directive
- Volunteer activities for cleaning areas around the factory
- Reduction of incinerated waste (recycling cotton gloves)



## Fujiyama Works

Masami Ando

The Fujiyama Works operates its production activities in the F1, F2 and F3 buildings which are occupied by the Cooling Systems Division, Power Systems Division and Servo Systems Division, respectively. Each division is working on the reduction of environmental burdens, energy saving and waste reduction and zero emissions through improvements of their operations. In fiscal 2014, our efforts will continue toward the achievement of our environmental goals.

- Reduction in the consumption of electricity and A-type heavy oil
- Reduction in the consumption of lead by using lead-free solder
- Reduction of waste (waste plastics and cardboards) and zero emission activities
- Use of components and materials meeting the RoHS directive
- Volunteer activities for cleaning areas around the factory



# Data on Air Quality, Water Quality and Noise

Kangawa Works	Item	Regulatory standard	Voluntary standard	Actual value
Air quality Air pollution control laws and ordinances	Smoke and soot (g/m <sup>3</sup> N)	Exempted (no data)		
	Nox(ppm)			
	Sox(m <sup>3</sup> N/h)			
Water quality Water pollution control laws, ordinance and agreements	PH(pH)	5.8 to 8.6	—	7.6
	BOD(mg/L)	20	19	15.0
	SS(mg/L)	30	28	16.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	61

Shioda Works	Item	Regulatory standard	Voluntary standard	Actual value
Air quality Air pollution control laws and ordinances	Smoke and soot (g/m <sup>3</sup> N)	0.3	0.03	0.0054
	Nox(ppm)	180	130	83
	Sox(m <sup>3</sup> N/h)	1.3	0.7	0.0089
Water quality Water pollution control laws, ordinance and agreements	PH(pH)	Exempted (No water disposal tank)		
	BOD(mg/L)			
	SS(mg/L)			
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	50

Technology Center	Item	Regulatory standard	Voluntary standard	Actual value
Air quality Air pollution control laws and ordinances	Cold and hot water generator Smoke and soot (g/m <sup>3</sup> N)	Exempted		
	Power generation equipment Smoke and soot (g/m <sup>3</sup> N)	Exempted		
	Cold and hot water generator Nox(ppm)	150	130	73
	Power generation equipment Nox(ppm)	600	550	56
	Sox(m <sup>3</sup> N/h)	Exempted		
Water quality Water pollution control laws, ordinance and agreements	PH(pH)	5.8 to 8.6	—	7.6
	BOD(mg/L)	20	19	8.6
	SS(mg/L)	60	54	9.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	Exempted

Fujiyama Works	Item	Regulatory standard	Voluntary standard	Actual value
Air quality Air pollution control laws and ordinances	Smoke and soot (g/m <sup>3</sup> N)	0.3	0.03	0.0094
	Nox(ppm)	180	130	74
	Sox(m <sup>3</sup> N/h)	5.0	2.5	0.054
Water quality Water pollution control laws, ordinance and agreements	PH(pH)	5.8 to 8.6	—	8.0
	BOD(mg/L)	50	48	24.0
	SS(mg/L)	60	54	24.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	Exempted

## Business Profile

SANYO DENKI is working to develop new technologies and products, with the aim of creating “technologies to protect the global environment,” “technologies to ensure human health and safety” and “technologies to exploit new energy sources and save energy.”

### Cooling Systems Division

Development, manufacture and sales of cooling fans and cooling systems

### Power Systems Division

Development, manufacture and sales of uninterruptible power supplies, power conditioners for photovoltaic power generation systems, and engine generators

### Servo Systems Division

Development, manufacture, and sales of servo systems, stepping systems, controllers and encoders

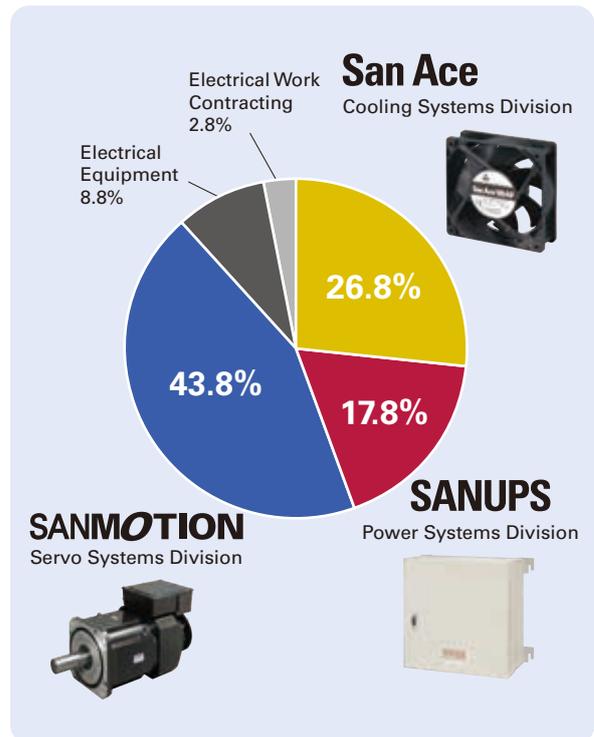
### Electrical Equipment

Sales of domestic and foreign manufacturers’ electrical and electronic products

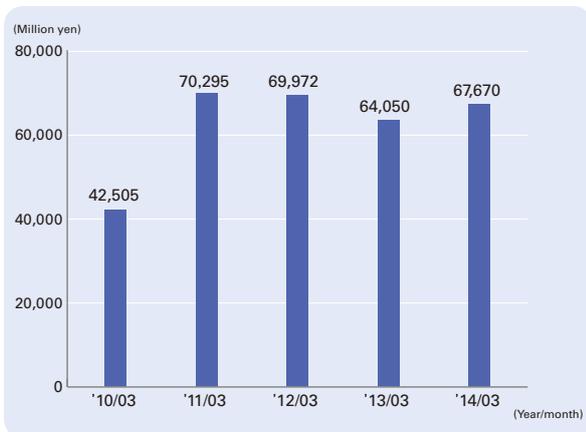
### Electrical Work Contracting

Planning, design, construction and maintenance of industrial control systems

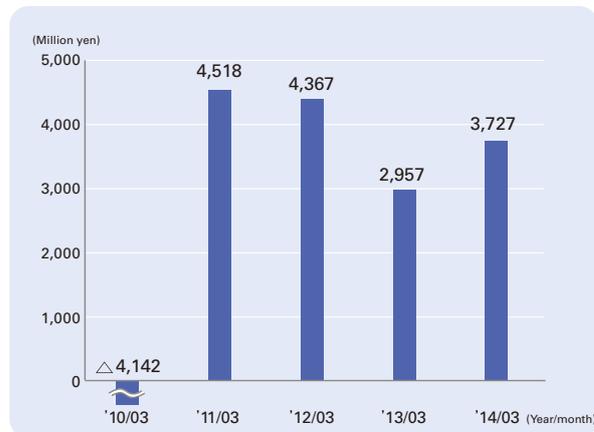
Sales Ratio (for the period from April 2013 through March 2014)



Changes in sales (consolidated)



Changes in current net income (consolidated)



## Company Profile

**Founded:** December 31, 1936

**Capital:** 9.9 billion yen (as of March 31, 2014)

**Sales (consolidated):**

67.6 billion yen (for the period from April 2013 through March 2014)

**Number of employees (consolidated):**

2,927 (as of March 31, 2014)

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