

SANYO DENKI



2010

Environmental  
Management  
Report

**SANYO DENKI CO., LTD.**

# Corporate philosophy

**We, SANYO DENKI make the dreams of people  
come true for the happiness of people  
in cooperation with people.**

To carry out our corporate philosophy, we do the following

For Environment...	For society and the natural environment we help preserve the global environment and contribute to the prosperity of mankind through our corporate activities.
For Customers...	For customers and users we will create new values through technology, products and services.
For Suppliers...	For suppliers and vendors we will strive for integrated technical development and harmonious mutual prosperity through parts purchase, production contracting and joint development.
For Investors...	For investors and financial institutions we will increase our investment worth and credit through sound management policy and good access to information.
For Competitors...	For competitors and the industry we will strive to build industrial and technical development through technical alliances and competition.
For Employees...	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 covered by the report: Fiscal 2009 (from April 1, 2009 through March 31, 2010; more recent information is included in the Environmental Topics section, however)

## Message from the Chief Operating Officer

In recent years, Japan has experienced many different weather conditions that were not observed a few decades ago, such as sudden downpours, floods, reduced winter snow followed by spring snowfalls, and unseasonable heat. These phenomena have convinced Japanese people that “the Japanese climate is obviously undergoing change.” In fact, the rapidity of this change is almost alarming. This changing climate, which is just one of the many familiar environmental issues facing us at the moment, is a serious problem that affects not only human society but also natural resources and all of the earth’s ecosystems. As global environmental problems are caused by a wide variety of human activities, there are an enormous amount of challenges to tackle.

Under such circumstances, not only companies, but individuals too, need to be conscious about the significance of environmental conservation and take action to protect the global environment. Sanyo Denki is clearly committed to ecological management, with the aim of successfully combining environmental preservation with business activities, and states, “For society and the natural environment, we will help preserve the global environment and contribute to the prosperity of mankind through our corporate activities.” To be exact, we are proactively striving to protect the global environment as a business group operating in harmony with the earth’s environment.

All levels of the Japanese government are now working to promote the transition to a low carbon society by establishing a wide range of systems and implementing stricter control measures, while at the same time independent initiatives are carried out across industry to cut down on the waste of energy. For example, there is a trend towards electric cars and it is expected that natural energy, such as sunlight, will be increasingly and more actively used in future. In fact, terms like “energy-saving” and “ecological” are heard more and more frequently in Japanese daily life, suggesting a change in the attitudes of Japanese people.

One of Sanyo Denki’s development policies is “technology for using new energy sources and saving energy,” in line with which the company is working to develop new products. The Power System Division develops power conditioners, which directly involves natural energy generation, while the Cooling System Division and the Servo System Division (motor section) are also working to develop low power consumption products. The company’s product development aims to be the industry leader in terms of efficiency, functionality, precision, compactness, and reductions in power consumption. In addition, Sanyo Denki certifies newly developed products that satisfy a certain set of evaluation standards for environmental conservation, enabling them to be classified as “eco-products” (eco-design products). In fact, the development and marketing of environmentally compatible products are an essential part of the company’s environmental conservation activities.

When the Midorigaoka Works became obsolete as the result of the May 2009 opening of the Kangawa Works, we conducted a voluntary inspection of soil and groundwater at the Midorigaoka Works site. We disclose information on pollution and our environmental measures on our website and are implementing the plan which we introduced at the March 2010 briefing session on our environment improvement work.

Sanyo Denki proactively promotes and carries out environmental conservation activities, and we are fully aware of the importance of maintaining management transparency through disclosure of environmental and other information. Environmental conservation activities are intended to reduce total energy consumption during products’ lifecycles by, for example, reducing environmental impact and increasing recycling. One purpose of our Environmental Management Report is to seek understanding of and support for our environmental management initiatives.

Director and Managing Executive Officer  
Nobumasa Kodama

児玉展全



# Environmental Policy and System

## Environmental Policy

### ● Basic Philosophy

Sanyo Denki Co., Ltd. will implement business management strategies to contribute to the conservation of the global environment and human prosperity through its activities for society and the environment.

### ● Basic Policy

Recognizing its responsibilities as a company engaged in the development, design and sales of servo motors and amplifiers, stepping motors and drivers, servo sensors, system controllers, cooling fans, power supplies, and industrial machine control systems, every member of Sanyo Denki (at the Kangawa Works, Shioda Works, Fujiyama Works, the Technology Center and the Head Office) will adopt the following policy and promote activities that are environmentally friendly, with the aim of contributing to the conservation of a healthy 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 environmentally-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.

## System

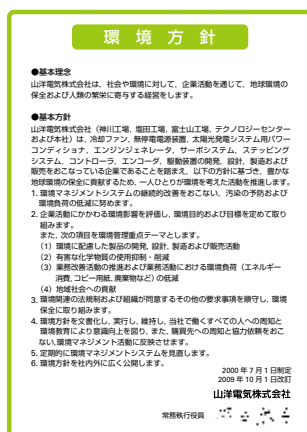
It has been eight years since the Environmental Committee was established in April 2000. The committee has been working to maintain a level of energy saving and waste reduction in factories since fiscal 2004. In addition to reducing environmental burdens, the committee is also striving to reduce the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

### ● Major Responsibilities of the Environmental Committee

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



Environmental Committee



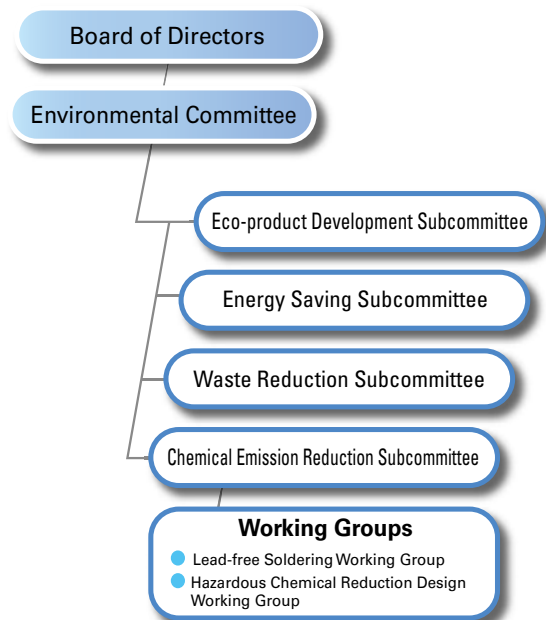
Environmental policy brochure

# Environmental Management System

## Scheme of Environmental Management System



## Position of the Environmental Committee and Its Organization



## Organization Chart for Environmental Management System



- **Eco-product Development Subcommittee**  
The subcommittee promotes the development of competitive products designed to protect the environment in accordance with eco-design standards.
- **Energy Saving Subcommittee**  
The subcommittee promotes energy saving through its daily activities for the environmental management system. It also formulates long-term energy saving strategies and proposes cost-effective investments.
- **Waste Reduction Subcommittee**  
The subcommittee works to reduce waste and disposal costs and achieve zero emissions.
- **Chemical Emission Reduction Subcommittee**  
The subcommittee 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 PRTR (pollutant release and transfer register).

# Activity Report for Fiscal 2009

We developed 17 new certified eco-products in this fiscal year and were also able to raise the sales ratio for eco-products to 23.0%. We achieved a 99.6% level of zero emissions for the company as a whole.

Activity	Goal for fiscal 2009	Track record in fiscal 2009		
Promotion of eco-designing	Creation of eco-products	Seventeen new products certified as eco-products		
Sales activities	Sales ratio of eco-products: 50% or higher	Sales ratio of eco-products: 23.0%		
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	The usage rate for lead-free soldering has reached almost 100% in each department, and we will continue to promote this. Nearly all types of cooling fans and stepping motors have been converted to RoHS-6 compliant devices. Other machines are also being converted to RoHS-6 compliant devices.		
Reduction in power consumption	Kangawa Works	22%	39%	
	Shioda Works	23%	36%	
	Fujiyama Works	10%	23%	
	Technology Center	(1%)	1%	
	Head Office	(4%)	7%	
Reduction in fuel consumption	A-type heavy oil : 235kl	29%	33%	A-type heavy oil : 221kl
	* Total of the Shioda and Fujiyama Works			
	LPG : 37,000m <sup>3</sup> N	55%	61%	LPG : 32,100m <sup>3</sup> N
	* Total of the the Technology Center			
Reduction in the use of copying paper	Kangawa Works	(4%)	22%	
	Shioda Works	22%	27%	
	Fujiyama Works	34%	37%	
	Technology Center	35%	52%	
	Head Office	39%	47%	
Reduction of waste	Kangawa Works	16%	46%	
	Shioda Works	(25%)	25%	
	Fujiyama Works	53%	70%	
	Technology Center	10%	12%	
	Head Office	49%	50%	
Contribution to local communities	Cleaning of areas around the Head Office, the Technology Center and the factories conducted more than once every month		Goal achieved	
Promotion of zero emission	Raising the recycling rate of waste company-wide to 99.5% or higher.		Company-wide rate: 99.6%	

Notes: 1. The reduction rate is calculated using fiscal 2000 as the base year, except for electric power and copying paper, for which fiscal 2006 and 1999 were used as the respective base years.  
2. Figures in parentheses indicate increases.

# Prevention of Global Warming

## Specific Measures for Energy Saving

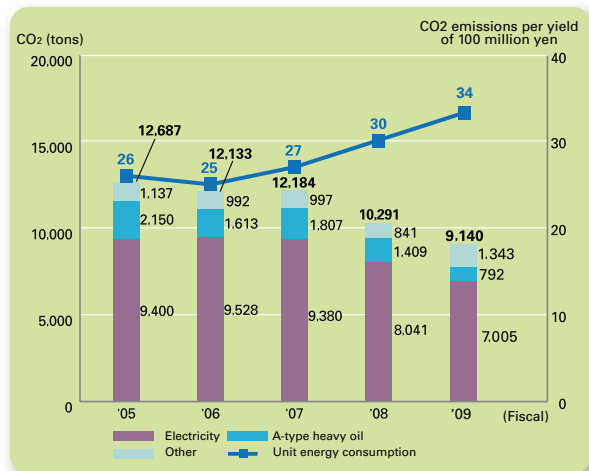
We recognize the crucial importance of energy saving activities aimed at reducing CO2 emissions as a measure to prevent global warming, and are working to promote energy saving activities by improving energy consumption efficiency and using clean energy.

In fiscal 2009, we achieved year-on-year reductions in consumption of electricity and Bunker A fuel oil, as well as in CO2 emissions, as the result of our cutting back on production. At the same time, however, there was an increase in energy consumption per production unit, due at least in part to the market climate.

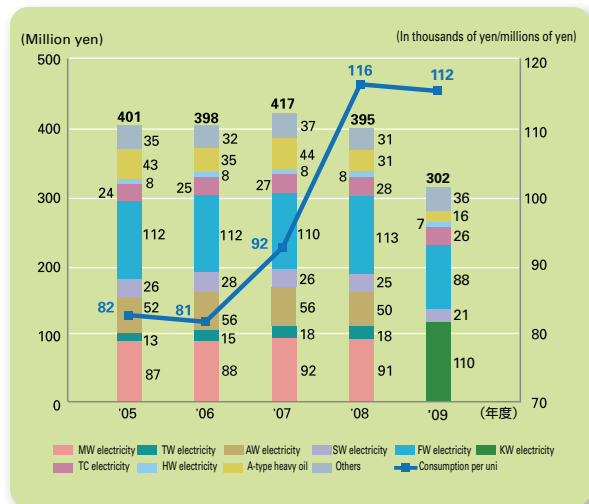
## Effects of introducing the monitoring system

- We selected and introduced energy-saving equipment at the time of the replacement of the old air-conditioning equipment in the Fujiyama Works F1 Building, resulting in reduced fuel consumption.
- We selected and introduced energy-saving equipment at the time of the replacement of the old chiller for production facilities in the Fujiyama Works F1 Building, resulting in reduced electricity consumption.
- We introduced an energy measurement system in the Kangawa Works to eliminate idle operations.

## Energy consumption measured in terms of the amount of CO2

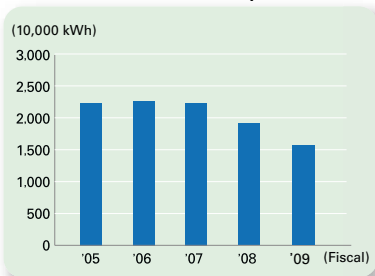


## Consumption value per production value

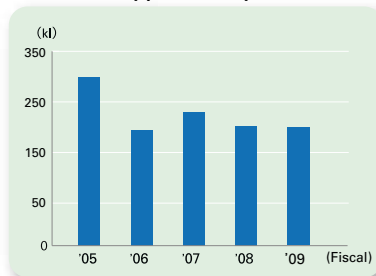


Energy measurement system

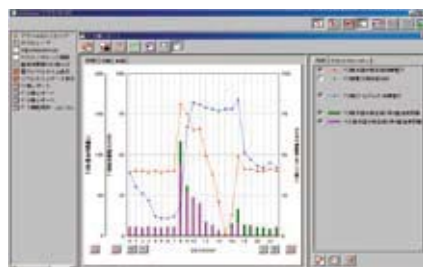
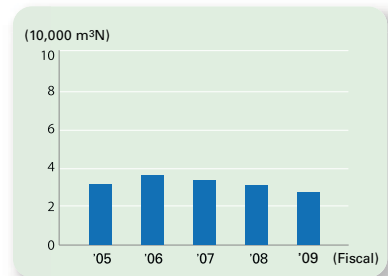
## Power consumption



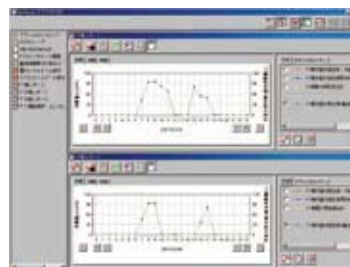
## A-type heavy oil



## LPG



Screen to show the power consumption of building F3



Comparison with past records

# Environmental Accounting

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) and analyze these costs and effects in order to improve the efficiency and activity levels of environment management.

“Environmental Accounting Guidelines” published by the Ministry of the Environment, Format for publication C  
Data range (company-wide)

Period covered: April 1, 2009 to March 31, 2010

## Track records for fiscal 2009

### (1) Environmental conservation costs

Environmental conservation costs in fiscal 2009 were 914 million yen in total, comprising 190 million yen in investment and 724 million yen in expenditure. The investment consisted of global environmental conservation costs, including capital investment for photovoltaic power generation facilities, and research & development costs, including the development of environmentally compatible products. This expenditure was accounted for mainly by research & development costs (61.7%) and administration costs (23.9%).

### (2) Effects of environmental conservation

Our production cut-backs have brought about a positive effect on our resource consumption for business, including a 1,669-ton reduction in CO<sub>2</sub> emissions, 3,242,000-kilowatt-hour reduction in electricity consumption and a 537,000-sheet reduction in copy paper used. In addition, the percentage of renewable energy generated by solar power, which was 0.031% in the previous year, rose to 1.245%, after the introduction of a photovoltaic power generation system at the Kangawa Works.

### (3) Economic effects

The cutting back of production has also brought about financial benefits: revenues from sales of valuable resources were 38 million yen, a year-on-year decrease of about 50%, while the cost reductions resulting from our energy-saving initiatives were 87 million yen, four times greater than the savings made the previous year.

## 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	20,368
	2. Global environment conservation costs	Periodical electricity checks	138,450	29,929
	3. Resource recycling costs	Reduction of waste, recycling, and proper waste disposal	0	39,161
	Total of items 1 through 3			138,450
(2) Upstream and downstream costs		Green procurement of office supplies and commissions for refurbishing and reconditioning product	0	11,963
(3) Administration costs		Development and operation of the EMS and environmental training for employees	0	173,411
(4) R&D costs		Development of eco-products (such as testing equipment and making molds)	51,980	446,740
(5) Social activity costs		Annual membership fee for the Japan Environmental Management Association for Industry, and other fees	0	2,810
(6) Environmental remediation costs			0	0
<b>Total</b>			<b>190,430</b>	<b>724,382</b>

Expenses include depreciation of facilities and personnel costs.

## Effects of Environmental Conservation

(Note) Triangles indicate that there was no difference compared to last year.

Classification	Indicators for the effects of environmental conservation		
	Indicators for environmental burdens	Indicators	Indicator value (Note2)
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> : 1669 tons of CO <sub>2</sub> Electricity consumption: 3,242,000kWh A-type heavy oil consumption: 251.3kL LPG consumption: 135.9t Kerosene consumption: △ 2.0kL Light oil consumption: △ 14.5kL Town gas consumption: △ 3,690Nm <sup>3</sup>
		Increase in the percentage of renewable energy in total energy consumption	Photovoltaic power generation: 1.245% (company-wide)
	Input of water	Decrease in water consumption	Water consumption: 28.500m <sup>3</sup>
	Input of other resources	Decrease in the input of other resources	Copying paper consumption: 53.7 million sheets
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	Total discharge of waste: 623.9 tons
		Increase in the percentage of recyclable materials in the total discharge of waste	Recyclable materials and useful materials: 0.12%
		Decrease in the discharge of hazardous waste	Discharge of hazardous waste: 67.8 tons

## Economic effects of environmental conservation measures (substantive effects)

(In thousands of yen)

Classification		Amount
Profits	Sales of useful materials	38,065
	Reduction of costs by energy saving	87,150
Reduction of costs	Reduction of waste disposal costs by recycling	17,551
	Reduction of expenses for copying paper	5,498



# Product Development

## Eco-products

### Specific Measures for Energy Saving

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 2008, eco-products made up a total of 97 types with a sales ratio of 29.5%.

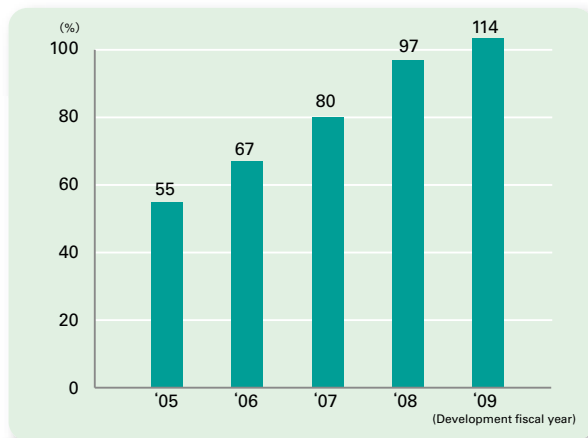
Eco-products are presented in catalogues and other materials with "LEAF symbols."



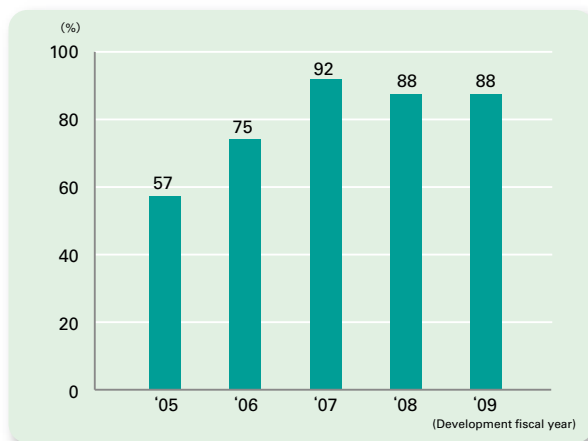
### Life Cycle Assessment (LCA)

LCA is one of the techniques used to provide a general quantitative measure of levels of environmental impact, including global warming, and evaluate the impact of products through their life cycles. We evaluate the environmental compatibility of a product using this method. Our rate of implementing LCA in our eco-products has been about 90% since fiscal 2007.

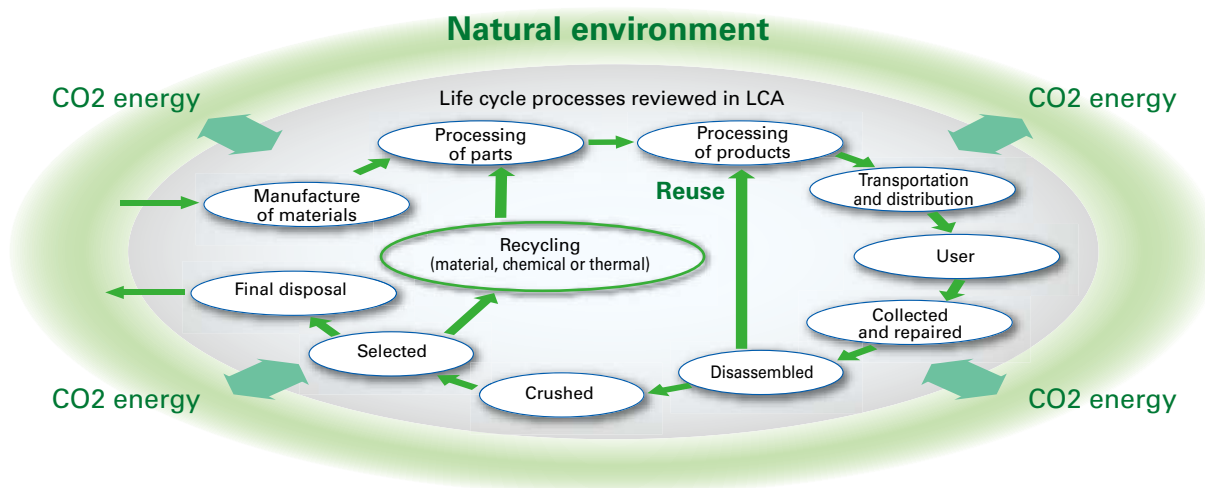
Number of Products Certified as Eco-products  
(Total Number of Products in All Divisions)



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 the energy consumption and the amount of CO2 emission.

# Product Development

## Representative Eco-products of Fiscal 2009

### ● Results of LCA

Seventeen new eco-products were developed in 2009. 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. The following results show the CO<sub>2</sub> emission volumes for one year (result of LCA divided by the service life of a product).

### Cooling fan San Ace 60 GA 60×60×15mm Energy-Saving and the Lowest Noise Cooling Fan



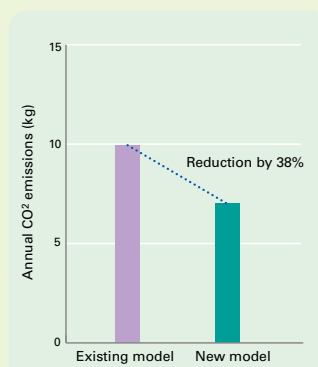
#### ■ Features

- Power consumption is reduced by approx. 38 % compared with our conventional fan
- Sound pressure level is reduced by 5 dB(A)
- Mass is reduced by 16%
- The product is RoHS compliant

#### ■ Models compared for LCA

New model : 9GA0612G701  
Existing model : 109P0612K701

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



### 100kW PV Inverter SANUPS P83C



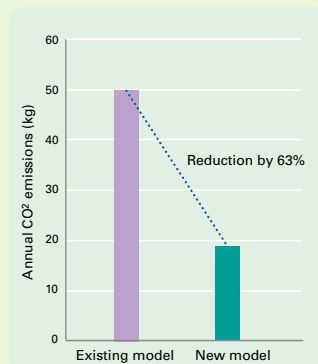
#### ■ Features

- Industry's Top Conversion Efficiency of 97.8%
- Required installation space is only 0.68m<sup>2</sup>
- No component replacement necessary for 10 years
- 3-phase 4-wire system AC400V

#### ■ Models compared for LCA

New model : P83C104RH  
Existing model : P83B104R

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



### CANopen 5-phase Stepping Motor with Integrated Driver SANMOTION F5



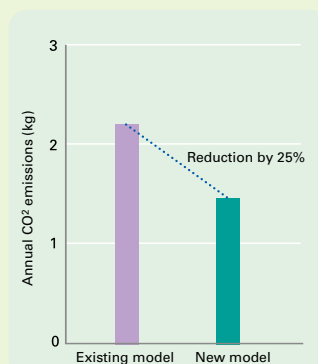
#### ■ Features

- CANopen Interface Compatible
- Reduced wiring and mounting space
- High Resolution Encoder Equipped  
Resolution: 500P/R x 4 = 2000P/R
- The product is RoHS compliant

#### ■ Models compared for LCA

New model : DPF2M562S-01  
Existing model : PMDPC1C3PA0+103F7852

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



## Promoting Green Supply

### ● Establishment and Implementation of the Chemical Substance Management Guidelines

We established in August 2005 our Chemical Substance Management Guidelines for the management of hazardous substances concerning parts and indirect materials used for our company's products and manage chemical substances in accordance with it. Our Chemical Substance Management Guidelines provide management rules concerning substances specified in laws and regulations, such as substances whose use is restricted or prohibited by the RoHS Directive, substances banned by legislation, and substances designated by the Japan Green Procurement Survey Standardization Initiative (JGPSSI). We keep these guidelines updated by making necessary revisions to them in response to changes in relevant laws, regulations, and other rules. They 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 contained in the materials we use. At present, we request that our suppliers agree to abide by our Chemical Substance Management Guidelines and submit a survey questionnaire and a guarantee form to assure that their supplies contain no RoHS-restricted substances.

### ● Green Purchasing

We are taking the initiative to purchase stationery and office supplies that are environmentally friendly, such as products using recycled materials, substitute materials and waste materials, refillable products and products with replaceable parts, and products designed for recycling.

## Reducing Hazardous Chemical Substances

The Hazardous Chemical Reduction Working Group, a subgroup of the Chemical Substance Emission Reduction Subcommittee, is working together with design sections of manufacturing divisions to achieve the goal of eliminating substances strictly prohibited by the RoHS Directive.

### ● Compliance of applicable products with the RoHS Directive

The installation of equipment required to meet the RoHS standards for cooling fans and stepping motors has been completed.

Measures requiring compliance with RoHS standards for applicable

servo motors, servo amplifiers, and stepping motor drivers are being implemented and expanded.

● Preparations are currently underway to conduct a survey on hazardous substances designated by the JGPSSI and other organizations at the request of customer

● Based on the Chemical Substance Management Guidelines, a survey is being conducted on hazardous chemicals contained in products.

● Our company guidelines concerning China RoHS are disseminated inside our company.

● Analysis of six RoHS substances contained in materials is being conducted using an X-ray fluorescent (XRF) analysis system.

● Measures for PFOS and compliance with REACH

Assessments are underway to check for the presence of PFOS and SVHCs (substances of very high concern: 15) in compliance with the REACH.

\* RoHS Directive: The Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment adopted by the European Parliament and the European Council RoHS six substances: lead, hexavalent chromium, cadmium, mercury, and specified brominated flame retardants (PBB and PBDE)

\* China RoHS is a directive implemented by the Chinese government prohibiting the use of specified toxic chemical substances in electronic information products.

\* REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals): The regulation in Europe to totally administer the registration, evaluation, authorisation, and restriction of chemical substances.

## 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).

Also, the Shioda Works, which manufactures servo amplifiers and substrates for power supply devices, has been working since fiscal 2004 to install a series of equipment for lead-free manufacturing, and has finally completed its installation.

● Cooling fans and stepping motors: Installation of equipment for surface mount soldering completed

● Servo motors: Installation of equipment for surface mount soldering completed

● Servo amplifiers and stepping motor drivers: Changing to lead-free solder is being implemented and expanded to RoHS applicable products. A shift towards lead-free products is being promoted.

● Power supply devices: The change to lead-free solder is being implemented and expanded to RoHS applicable products.



An X-ray fluorescent analysis device at the Kangawa Works



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

# Production and Distribution

## Energy Saving Measures Implemented in Manufacturing Processes at Factories

Works	Measures implemented	Effect
Kangawa Works	(1) Cut down on compressor idling by responding to terminal pressures using unit number control panels and inverters (2) Stop use of unnecessary lighting (3) Repair air leaks (4) Promote use of solar power	(1) Save energy by eliminating unnecessary operations (2) Savings in commercial electricity (3) Savings in commercial electricity (4) Savings in commercial electricity
Shioda Works	(1) Affixing calendar timers to machines (2) Redesigning of moulder programs (3) Replacement of the general aging method used in testing by the discrete aging method (4) Systematic operation of boilers according to weekly calendar timers	(1) Savings in electricity by preventing switches from being left on (2) Savings in electricity by reducing the production cycle time (3) Savings in electricity by adopting smaller aging tanks (4) Control of use of A-type heavy oil
Fujiyama Works	(1) Economical use of lights at parking lots and passages (2) Adjustment of the operation time of air conditioners (3) Promotion of the use of photovoltaic energy (for lighting and power for facilities) (4) Saving of energy through the replacement of air conditioners	(1) Savings in electricity by reducing lighting hours (2) Savings in electricity by reducing operation hours (3) Savings in commercial electricity (4) Savings in electricity and reduced use of A-type heavy oil

## Compliance with the PRTR Law

Sanyo Denki keeps accurate records of the amounts of discharge and transportation of PRTR-controlled substances that are required to be reported and used in amounts of more than one ton in any one of the factories, and submits reports to relevant organizations.

This year, it has become necessary to report the use of bisphenol A epoxy resin (liquid) and styrene at the Kangawa Works, as the result of the integration of production of the Midorigawa, Tsuiji, and Aoki Works into the Kangawa Works. In addition, the Shioda Works has been exempted for the last three years from reporting obligations regarding lead due to our change to lead-free products for RoHS compliance.

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)	
Antimony	Fujiyama Works	4.0t
Toluene	Fujiyama Works	1.1t
Bisphenol A epoxy resin (liquid)	Kangawa Works	1.1t
Styrene	Kangawa Works	2.8t

## Transportation

We are using vehicles that comply with the regulations on diesel car exhaust in seven municipal communities to transport supplies between factories. We are also promoting activities to stop idling in order to reduce environmental burdens.

## 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



Signboard for idling stop



Vehicle that complies with the regulations on diesel car exhaust in seven municipal communities



Vehicle that complies with the regulations on diesel car exhaust

# Waste and Recycling

## Zero-emission Activities

Sanyo Denki is working as a member of the Zero-emission Promotion Committee and the Zero-emission Promotion Workshop (formed in April 2003) of the Nagano Techno Foundation\* Asama Technopolis Region Center to promote environmental conservation activities in collaboration with companies in the surrounding areas.

The Zero-emission Promotion Workshop holds sessions for activity reports and makes inspection visits to member companies to see how waste is sorted by type and processed, and carefully examines how to improve waste disposal methods. The Workshop has eight subpanels to study the cooperative collecting and disposing of waste.

Seven sub-panels were established in the Workshop last year to study the cooperative collecting and disposing of waste.

\*The Nagano Techno Foundation was established to bring new life to the local economy and provide an autonomous basis for its development. To this end, the foundation is working to improve the level of local industries through technological innovation and develop new industries by exploiting local industry resources in five areas in Nagano Prefecture. The Asama Technopolis Region Center is one of its organizations.

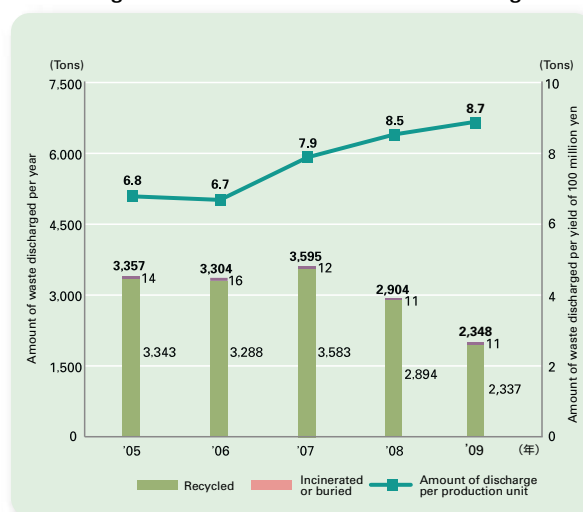
[Nagano Techno Foundation] URL: [www.tech.or.jp](http://www.tech.or.jp)

[Asama Technopolis Region Center] URL: [www.asatech.or.jp](http://www.asatech.or.jp)

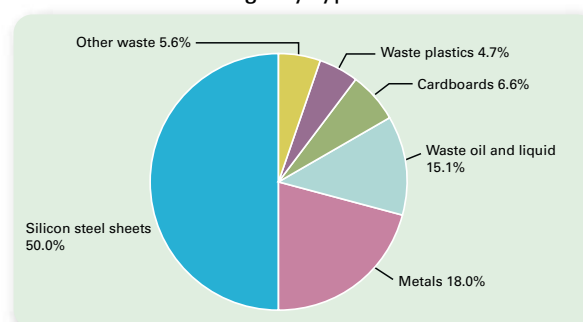
## Recycling

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

Changes in the Amount of Waste Discharged



Percentage by Type of Waste



Waste		Amount discharged (tons)	Amount recycled (tons) / Recycling rate (%)	Recycling method
Sludge	Organic sludge	3.8	3.8/100	After oil and water are separated, dehydrated residues are turned into compost.
	Inorganic sludge	4.2	2.4 /58	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 oil	Oil-based materials	11.5	11.5/100	After oil and water are separated, the material is recycled as fuel.
	Water-soluble materials (detergents, grinding liquid, etc.)	250.7	250.7 /100	After oil and water are separated, some of the treated water is released into rivers, and incinerated residues are used as cement materials.
	Volatile materials	4.0	4.0 /100	Distilled and used as recycled oil.
	Waste acid (batteries)	89.3	89.3 /100	Crushed, sorted and all recycled.
Waste plastics	OA equipment and circuit boards	26.5	26.5/100	Crushed, sorted and all recycled.
	Vinyls and films	47.7	47.5 /99.6	Turned into solid fuel (refuse derived fuel), reducing agents (using furnaces) and materials for power generation (thermal recycling)
	Molding scraps	15.9	15.9/100	
	Other solid scraps	17.1	17.1/100	
	Styrofoam	4.3	4.3/100	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	1583.8	1583.8 /100	Recycled as metal materials
	Metals (including empty cans)	11.0	11.0/100	
Paper scraps	Used paper	8.1	8.1/100	Turned into raw materials for recycled paper
	Newspapers, magazines, and other papers	44.3	44.3/100	
	Cardboards	154.5	154.5 /100	
Wood scraps	Packages and transportation pallets	57.7	57.7 /100	Crushed and turned into combustion improver
Glass and ceramic scraps	Empty bottles, glass, and ceramics	1.7	1.7 /100	Crushed and turned into road construction materials
	Fluorescent light bulbs	0	0/100	Crushed, sorted, and recycled
Other waste	Paper scraps and other waste	12.4	3.3/26.6	Incinerated and recycled
Total		2348.5	2337.4/99.6	

# For Local Communities and Employees

## 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 offices and factories more than once a month.

At the Kangawa Works and the Shioda Works, large-scale cleaning was carried out in cooperation with the neighborhood community association. The Technology Center engaged in large scale cleaning by expanding its cleaning area.



Outdoor cleaning activities

## 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 2009, we held the following company lectures and meetings:

● August 2009

Lecture on designs to reduce hazardous chemical substances (regarding RoHS compliance and REACH regulations)

● February 2010

Briefing session on 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.

#### u 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 on self-care for managers and other 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
- Lectures for dietary guidance ent.

## Results of the soil inspection at the former works site

The results of our voluntary inspection of soil and groundwater on the Midorigaoka Works site have revealed that the levels of volatile organic compounds and heavy metals in the soil and groundwater are above the threshold values.

We are planning to voluntarily develop and implement in future the best improvement measures available, for example by replacing the soil and purifying the groundwater.



AED



Training on general emergency life-saving methods

# Goals for Fiscal 2010 and Challenges for the Future

We created 17 eco-design products (eco-products) in fiscal 2009, a year during which 23.0% of our sales were accounted for by eco-products. We will continue to promote the LCA-based development of products designed to reduce CO2 emitted during their use and to be eco-friendly.

Item	Goals for Fiscal 2010	Goals to be achieved by fiscal 2012
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: 60% or higher
Reduction of hazardous chemical substances	Promotion of the use of lead-free solder Implementation of measures to meet the RoHS-6 standards Reduction of PRTR-controlled substances	Promotion of the use of lead-free solder Implementation of measures to meet the RoHS-6 standards Reduction of PRTR-controlled substances
Reduction in power consumption	Reduction by 4% compared to 2006	Reduction by 6% compared to 2006
Reduction in fuel consumption	Maintaining the consumption of LPG at the current level (reduced by 58% compared to 2000)	Maintaining the consumption of LPG at the current level (reduced by 58% compared to 2000)
	Maintaining the consumption of A-type heavy oil at the current level (reduced by 29% compared to 2000)	Maintaining the consumption of A-type heavy oil at the current level (reduced by 29% compared to 2000)
	Gas consumption Reduction by 1% compared to 2009	Gas consumption Reduction by 5% compared to 2009
Reduction in copier paper consumption	Maintaining the consumption at the current level (reduced by 5% compared to 2000)	Maintaining the consumption at the current level (reduced by 5% compared to 2000)
Reduction of waste	Maintaining the consumption at the current level (reduced by 17% compared to 2000)	Maintaining the consumption at the current level (reduced by 17% compared to 2000)
Contribution to local communities	Cleaning of the area around factories once or more every month Participation in environment-related events	Cleaning of the area around factories once or more 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



# Activities at Offices and Works

## Head Office

- Location : 1-15-1 Kita-otsuka, Toshima-ku, Tokyo
- Area : 1,761m<sup>2</sup>
- Number of employees : 204
- ISO certificate obtained : March 2002



## Kangawa Works

- Location : 5-4, Tonoshiro, Ueda-shi, Nagano
- Area : 67,140m<sup>2</sup>
- Number of employees : 740
- ISO certificate obtained : March 2010
- Products manufactured: AC/DC servo amplifiers, stepping motor, linear servo motor, and encoders



## Shioda Works

- Location : 517 Goka, Ueda-shi, Nagano
- Area : 5,698m<sup>2</sup>
- Number of employees : 108
- ISO certificate obtained : March 2001
- Products manufactured: AC/DC servo amplifiers, stepping motor drivers, system controllers, UPS's (uninterruptible power supply devices), and printed circuit boards



## Technology Center

- Location : Ueda Research Park, 812-3 Shimonogo, Ueda-shi, Nagano
- Area : 44,908m<sup>2</sup>
- Number of employees : 298
- ISO certificate obtained : November 1999

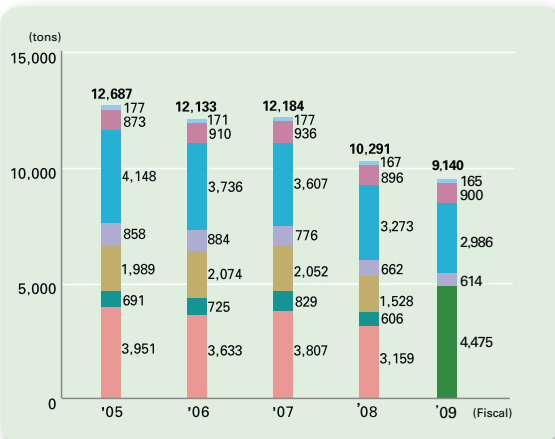


## Fujiyama Works

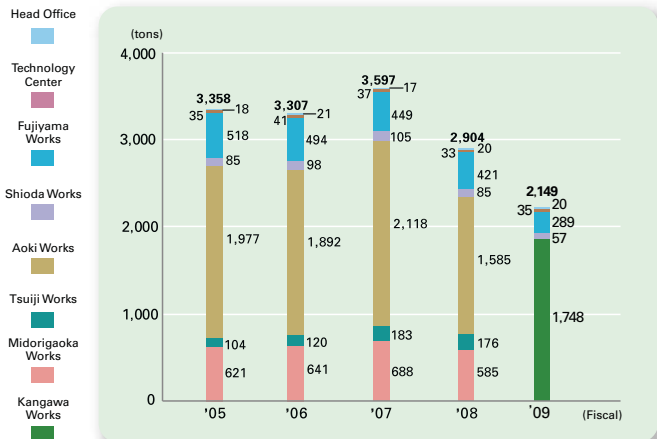
- Location : 4016 Fujiyama, Ueda-shi, Nagano
- Area : 86,260m<sup>2</sup>
- Number of employees : 554
- ISO certificate obtained : December 1999
- Products manufactured: Cooling fans, UPS's (uninterruptible power supply devices), power source monitoring systems, power conditioners for photovoltaic power generation systems, and emergency self-power generation systems



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



Amounts of waste by factory



# Environmental Managers

## General Environmental Manager

Hideyuki Takahashi

Sanyo Denki established its environmental management system and obtained an ISO14001 certificate in 1999. Our general environmental manager works in the environmental management system under the direction of top management to promote environmental activities at our Head Office and factories. By developing highly efficient products, we aim to help our customers reduce environmental burdens when using our products and to contribute to reducing global environmental burdens, in addition to saving energy and reducing waste at our factories. We also disclose environmental information to a wide spectrum of both internal and external stakeholders and place a great importance on communication with local communities and with relevant individuals. The Environmental Committee works with environmental managers at factories to organize various specialized subcommittees in order to discuss measures to make ongoing environmental improvements and to take an active part in promoting environmental conservation activities to achieve our goals.



## Head Office

Fukuichi Tamegai

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 copier 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

Hideyuki Takahashi

The Technology Center, which is engaged in designing and developing products, 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 17 new products as "eco-products" in fiscal 2009. 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 copier paper as well as the amount of waste, and cleaned areas around the Ueda Research Park for the local community. We will continue to develop ecodesign products and work to save energy and improve efficiency in order to help customers reduce environmental burdens when using our products.



## Kangawa Works

Masahiro Koyama

The Kangawa Works, a highly energy-saving and environmentally-friendly factory, went into full operation in May 2009, as an integration of three factories, namely the Midorigaoka Works, Aoki Works, and Tsuiji Works, thereby reducing transportation between the different factories.

We have introduced a 150 kW photovoltaic power generation system, rain recycling system, energy-saving lighting, GHP (gas heat pump) air conditioner, and other ecological systems while endeavoring to reduce noise, vibrations, water discharges, and odors and to improve the external environment in other ways as well. We have also carried out large-scale cleaning in cooperation with the local community association for the neighborhood of our new works. In addition, we have introduced a central supervisory control system (BEMS) to collectively monitor our energy consumption and collect data, based on which we will work in future to further reduce our impact on the environment.



## Shioda Works

Norio Arai

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 copier paper (use of projectors, use of electronic means for checking progress, 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 standards
- Volunteer activities for cleaning areas around the factory



## Fujiyama Works

Hirohisa Yamazaki

The Fujiyama Works is reducing environmental burdens by improving fundamental work activities and is working on the promotion of activities to save energy, reduce waste, and achieve zero-emissions. In addition, activities to eliminate hazardous substances from manufacturing processes and prevent air pollution are also being worked on.

- Energy saving (a reduction in the consumption of electricity and A-type heavy oil for air conditioning).
- The Fujiyama Works, a type-2 designated energy management factory, is reducing energy consumption every year.
- Reduction in the consumption of lead by using lead-free solder
  - Reduction of waste (reduction of waste plastics and cardboards) and zero emission activities
  - 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 Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)	Exempted		
	Nox(ppm)			
	Sox(m <sup>3</sup> N/h)			
Water Quality Laws, ordinances and agreements for water pollution prevention	PH(pH)	5.8 ~ 8.6	—	7.8
	BOD(mg/L)	20	19	19.0
	SS(mg/L)	30	28	20.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	62

Shioda Works	Item	Regulatory standard	Voluntary standard	Actual value
Air Quality Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)	0.3	0.03	0.013
	Nox(ppm)	180	130	78
	Sox(m <sup>3</sup> N/h)	1.3	0.7	0.02
Water Quality Laws, ordinances and agreements for water pollution prevention	PH(pH)	Exempted (No water disposal tank)		
	BOD(mg/L)			
	SS(mg/L)			
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	59

Technology Center	Item	Regulatory standard	Voluntary standard	Actual value
Air Quality Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)	Exempted		
	冷水水発生機 Nox(ppm)	150	130	72
	常用発電設備 Nox(ppm)	600	550	160
	Sox(m <sup>3</sup> N/h)	Exempted		
Water Quality Laws, ordinances and agreements for water pollution prevention	PH(pH)	5.8 ~ 8.6	—	7.7
	BOD(mg/L)	20	19	12.0
	SS(mg/L)	60	54	8.9
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	Exempted

Fujiyama Works	Item	Regulatory standard	Voluntary standard	Actual value
Air Quality Laws and ordinances for air pollution prevention	Smoke and soot (g/m <sup>3</sup> N)	0.3	0.03	0.0062
	Nox(ppm)	180	130	69
	Sox(m <sup>3</sup> N/h)	5.0	2.5	0.045
Water Quality Laws, ordinances and agreements for water pollution prevention	PH(pH)	5.8 ~ 8.6	—	7.8
	BOD(mg/L)	50	48	8.5
	SS(mg/L)	60	54	4.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	Exempted

# Business Profile and Company Profile

## 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 System Division

Development, manufacture and sales of cooling fans and cooling systems

### Power System Division

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

### Servo System Division

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

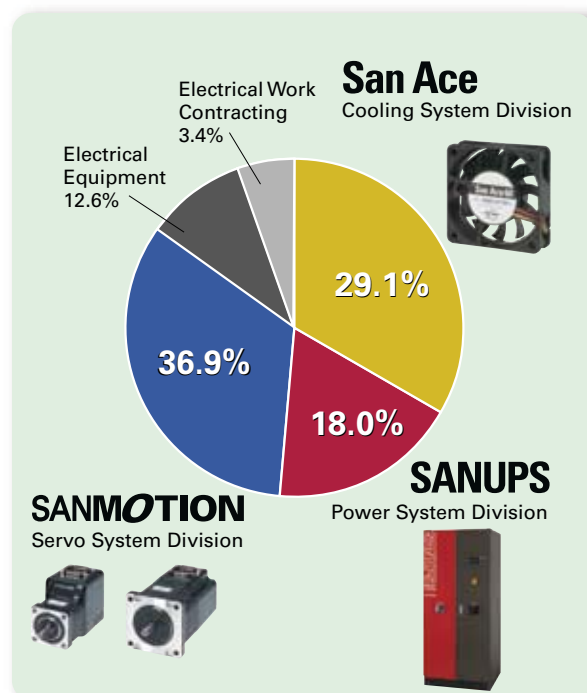
### Electrical Equipment

Sales of domestic and foreign manufacturers of electrical and electronic

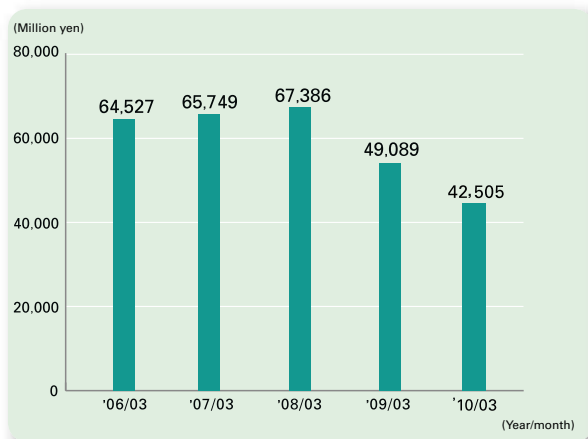
### Electrical Work Contracting

The planning, design, construction and maintenance of industrial control systems

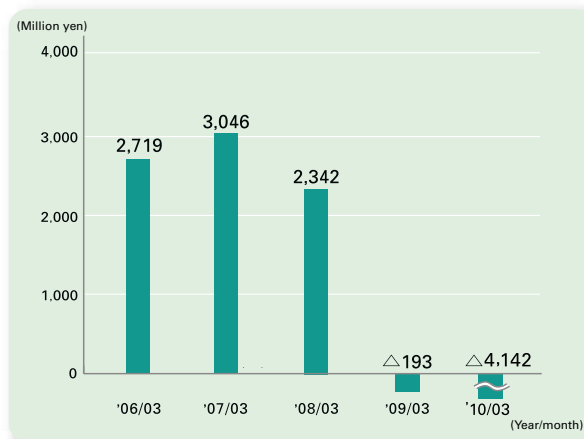
Sales Ratio (for fiscal 2009, consolidated)



Changes in Sales (Consolidated)



Changes in Current Net Income (Consolidated)



## Business Profile

**Founded:** December 31, 1936

**Capital:** 9.9 billion yen (as of April 1, 2010)

**Sales (consolidated):**

42.5 billion yen (for the period from April 2009 through March 2010)

**Number of employees (consolidated):**

2,650 persons (as of April 1, 2010)

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