

SANYO DENKI

Environmental data book 2022

A Company that Contributes to Society

Under the corporate philosophy to "aim to help all people achieve happiness", the SANYO DENKI Group focuses on six areas: medical, information and communication, industrial, environmental protection, home automation, and energy utilization based on the following three technical themes: "technology for protecting the global environment," "technology for using new energy sources and saving energy," and "technology for protecting people's health and safety." The Group engages in the development of new technologies and products in line with these areas and technical themes. In order to carry out our corporate philosophy, we follow an environmental policy that helps us manage our business in a manner that contributes to global environmental conservation and the prosperity of mankind through corporate activities focused on the society and the environment.

There are three main types of environmental challenges as follows.

The first challenge is to reduce environmental load and power consumption through the development of products certified as eco-products. As part of product development, we are working to develop products that incorporate the latest energy-saving technologies. Newly developed products are compared with commercially available and existing products, and those that satisfy the specified evaluation standards are certified as "eco-products" that reflect the fact they are environmentally-compatible products. The more products that are certified as eco-products, the greater their contribution to the environment will be.

The second challenge is to conserve energy at plants. We are actively introducing PV inverters that we produce. All bases in Japan have a power generation capacity of 2,520 kW. In addition, we have been able to significantly reduce power consumption by changing the lights used in plants to LED lights.

The third challenge is to continue waste reduction activities. We are significantly reducing the amount of general and industrial waste generated by production activities and recycling them as part of zero-emission activities. This has significantly increased the waste recycling rate.

In addition, the Environmental Action Committee established in 2000 took the lead in promoting the following priority themes for environmental management: reducing the use of harmful chemical substances, reducing the environmental load generated by business activities, contributing to the local community, and protecting biodiversity and ecosystems.

Regarding these environmental challenges, we publicize specific activities and present the results we have obtained in our "Environmental Data Book" every year.

To serve a social role in environmental conservation, the SANYO DENKI Group will help realize a sustainable recycling-oriented society via corporate activities aimed at achieving both business growth and environmental conservation by promoting the use of renewable energy and striving to reduce CO2 emissions, and also making full use of technologies developed to date. As an attractive company that aims to help all people achieve happiness, we will accelerate our environmental conservation efforts.



Chihiro Nakayama

Director
Senior Executive Operating Officer for Manufacturing

- 01 Message from the Major Operating Officer
- 03 Environmental Policy and Environmental Management System
- 04 Activity Report and Goals
- 05 Product Development
- 08 Energy Saving
- 11 Reuse & Recycling
- 12 Chemical Substance Management
- 14 Environmental Accounting
- 16 Activities at Offices and Works / Environmental Managers
- 18 Data Summary

Scope of the report

Period: Fiscal 2021 (from April 1, 2021 through March 31, 2022, in principle)



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.

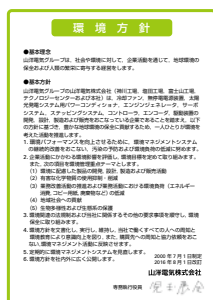
1. To enhance our environmental performance, we will continuously improve the environmental management system and work hard to prevent pollution and reduce the environmental impact of our activities.
2. We will assess the environmental impact of our corporate activities and focus on our environmental 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
 - (5) Protect biodiversity and ecosystem
3. We observe environmental laws, restrictions and other rules relevant to our company 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.



It has been 22 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 sites 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

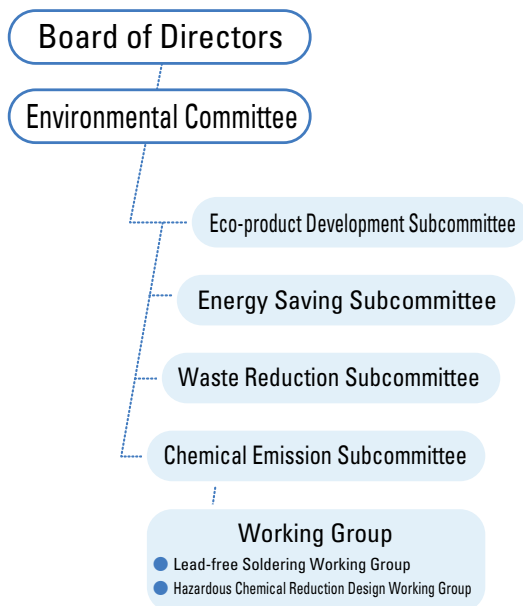


Environmental Policy Brochure

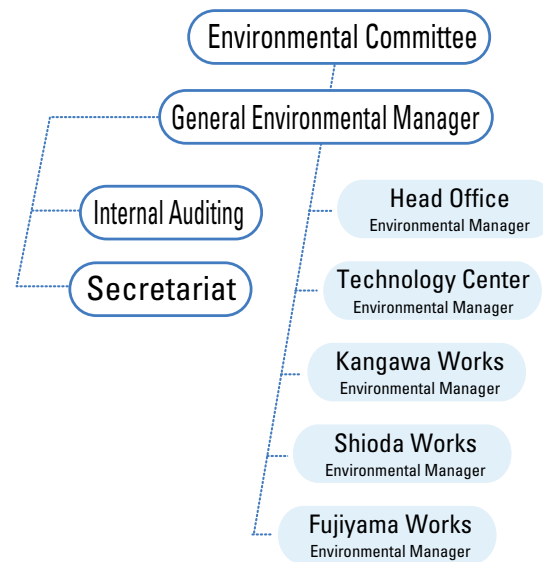


Environmental Committee

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		Fiscal 2021		Fiscal 2022
		Goal	Track record	Goal
Promotion of eco-design		Creation of Eco-products	23 new products certified as Eco-products	Creation of Eco-products
Sales ratio of Eco-products (by business division)	Coolong Systems Division	47 %	56 %	51 %
	Power Systems Division	33 %	38 %	34 %
	Servo Systems Division	39 %	57 %	51 %
Reduction of hazardous chemical substances		Use of lead-free soldering Compliance and promotion of RoHS REACH Reduction of substances defined in the PRTR Law	The usage rate of lead-free solder in each division is nearly 100% and we will maintain this level moving forward. RoHS10 substances have been replaced in almost all applicable models.	Promotion of the use of lead-free solder Implementation of measures to meet the RoHS directive, REACH regulation and so on. Reduction of PRTR-controlled substances
Reduction in power consumption	Kangawa Works	(2 %)	8 %	Maintenance of 3% increase from FY2017
	Shioda Works	47 %	64 %	
	Fujiyama Works	(8 %)	(6 %)	
	Technology Center	4 %	8 %	
	Head Office	21 %	29 %	
Reduction in fuel consumption	A-type heavy oil *Total of the Shioda and Fujiyama Works	103kl 60%	86kl 67%	Heavy oil usage 64% reduction compared to FY2017
	LPG *Technology Center	39,000Nm ³ 3%	56,000Nm ³ (41 %)	LPG usage Maintenance of 147% increase from FY2017
	LPG *Fujiyama Works	150,000m ³ (111 %)	124,000m ³ (75 %)	City gas usage 3% reduction compared to FY2017
	City gas * Kangawa Works	880,000m ³ (7 %)	749,000m ³ 9%	
Reduction in the use of copy paper	Kangawa Works	8 %	26 %	Reduced by 14% compared to fiscal 2017
	Shioda Works	79 %	84 %	
	Fujiyama Works	(10 %)	4 %	
	Technology Center	19 %	33 %	
	Head Office	46 %	70 %	
Reduction of waste	Kangawa Works	7 %	5 %	Reduced by 1.8% compared to fiscal 2017
	Shioda Works	93 %	94 %	
	Fujiyama Works	(2 %)	21 %	
	Technology Center	9 %	(9 %)	
	Head Office	50 %	67 %	
Contribution to local communities		Head Office, Technology Center, Cleaning of areas around the factories conducted at least once every month	Goal achieved	Cleaning of the area around sites at least once every month Participation in environment-related events
Promotion of zero emission	Company-wide waste recycling rate	99.6 % or more	99.8 %	99.6 % or more

Note 1) Target organizations: Headquarters, Technology Center, and domestic plants (Kangawa Works, Shioda Works, and Fujiyama Works)

Note 2) Reduction rates for city gas and LPG used at Fujiyama Works have been calculated using FY2021 as a base year. FY2010 was used as a base year for all other reduction rates.

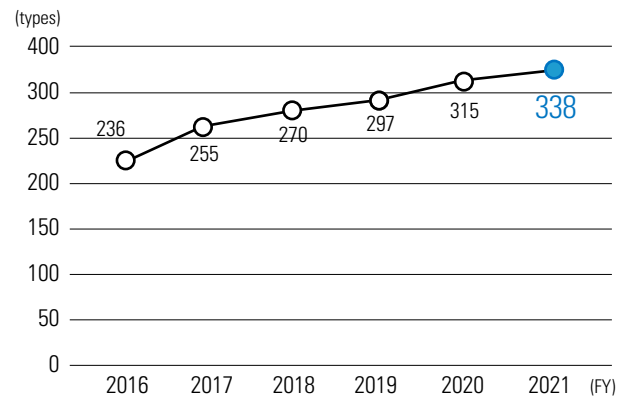
Eco-products

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 2021, 23 types of products were certified as Eco-products, bringing the total to 338. We will continue to promote the LCA-based development of products designed to reduce CO₂ emitted during their use and to be eco-friendly.

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

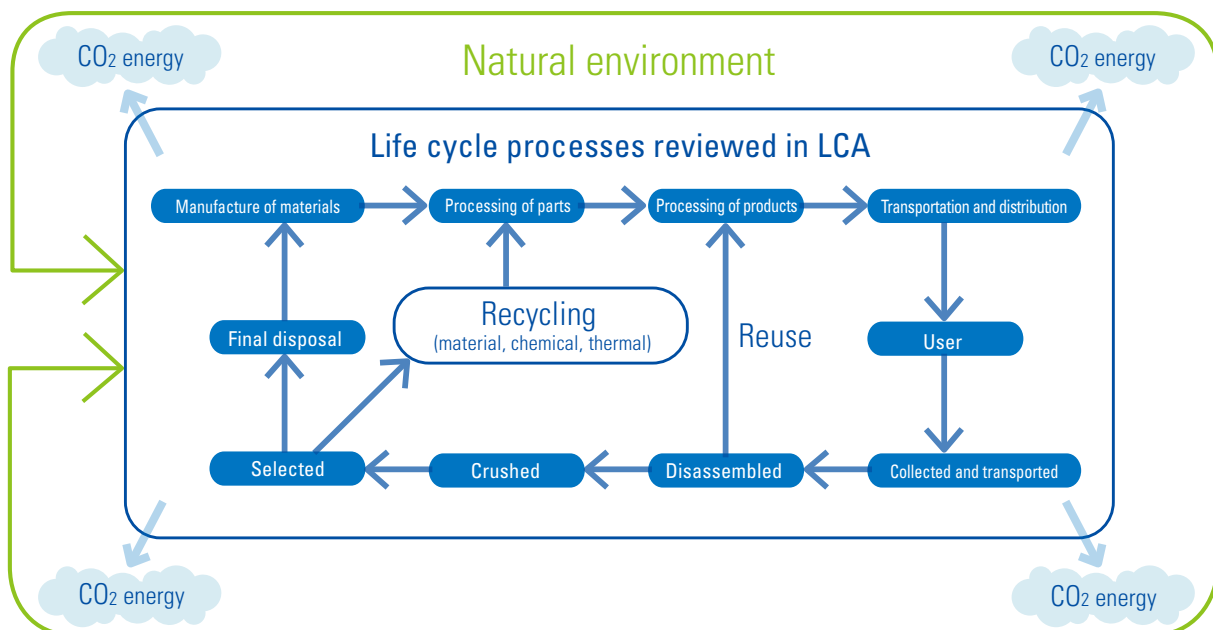
338 types



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 90% in fiscal 2021.

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 CO₂ emissions.

Eco-products of Fiscal 2021

Results of LCA

23 new Eco-products were developed in fiscal 2021. The results are based on a comparison of the amounts of CO₂ 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 CO₂ emitted during the time of use will be effective in preventing global warming.



Eco-products are presented in catalogues and other materials with a LEAF symbol.

Model case

SANMOTION
SERVO SYSTEMS

AC Servo System "SANMOTION G"

AC Servo Motors

CO₂ emissions

21.7% ↓

Models used for LCA comparison

New model : GAM2A8075F0XRK0

Conventional model : R2AA08075FXR00M

AC Servo Amplifiers

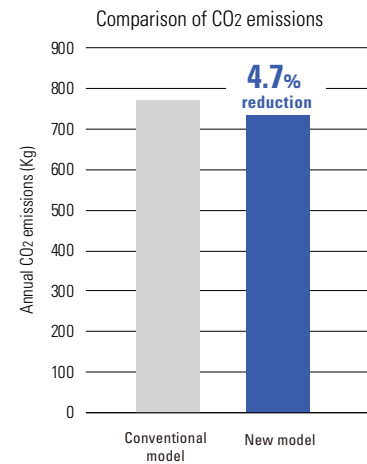
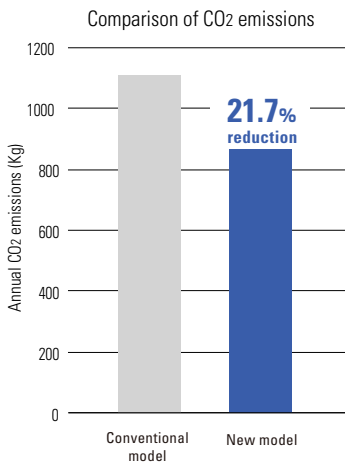
CO₂ emissions

4.7% ↓

Models used for LCA comparison

New model : GADSA03

Conventional model : RS3A03

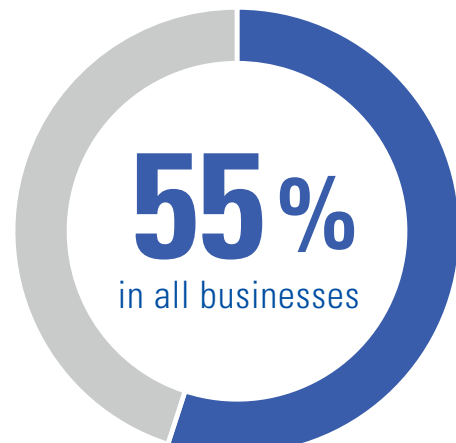


Judgment criteria of Eco-products

Judgment criterion items applicable from design to usage

- Downsizing
- Longer service life
- Environmental friendliness
- Product disassemblability
- Recovery and transportation
- Energy savings/efficiency improvement, power usage reduction rate
- LCA/CO₂ emission reduction rate
- Weight reduction
- Safety
- Recyclability
- Disposal processing
- Information disclosure

Eco-products sales ratio



Specific Energy-Saving Measures

As a countermeasure against global warming, we consider the restriction of CO₂ emissions through energy-saving activities as our top-priority task, and are promoting the improvement of energy efficiency, and energy-saving activities.

Compared to the previous year, production volume increased in FY2021, and at the same time, CO₂ emissions and primary unit rates were reduced.

Results of Introduction

- Upgrade of two 37 kW compressors at the Kangawa Works
- Upgrade of one 37 kW compressors at the Fujiyama Works

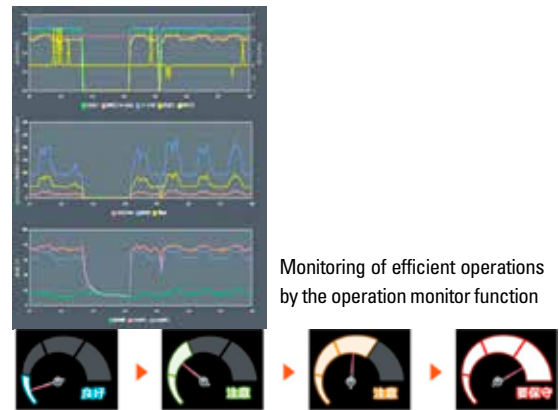
* Prevention of efficiency reduction by the equipment operation status visualization function, and energy saving effects (utilization of IoT functions)



Compressors at the Kangawa Works



Compressors at the Fujiyama Works

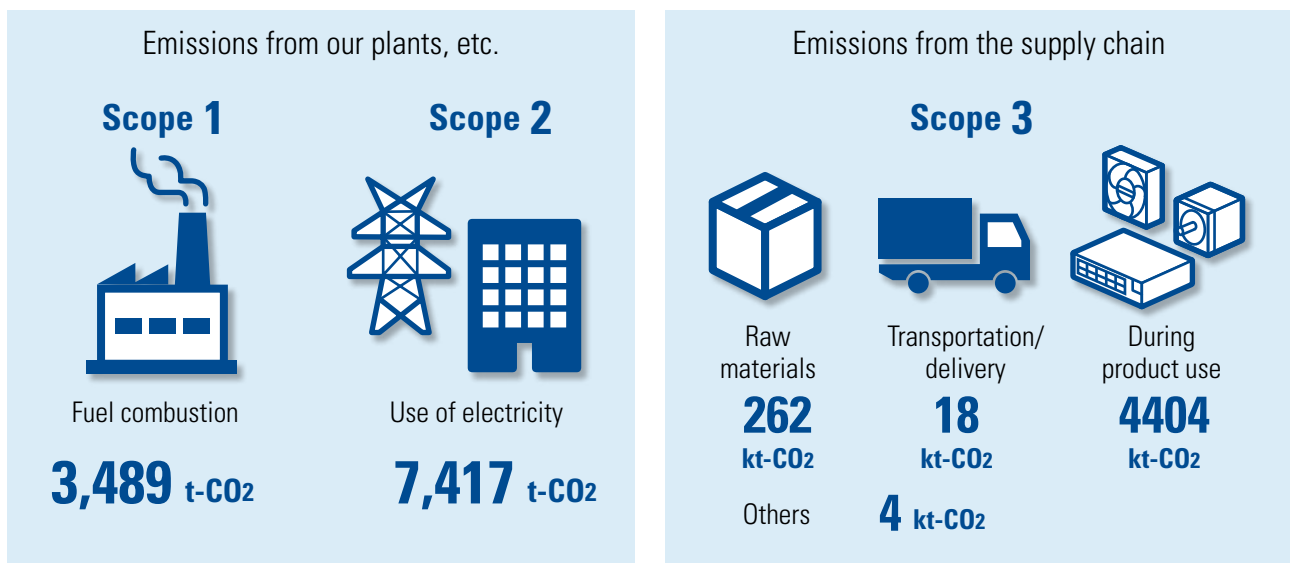


Compressors at the Fujiyama Works

CO₂ equivalent emissions

As climate change becomes more serious, we consider energy saving activities and introduction of renewable energy to be two pillars, as well as promoting the reduction of CO₂ emissions not only at domestic plants but also at affiliated companies including those overseas.

Our supply chain emissions (Scope 1, 2, 3)



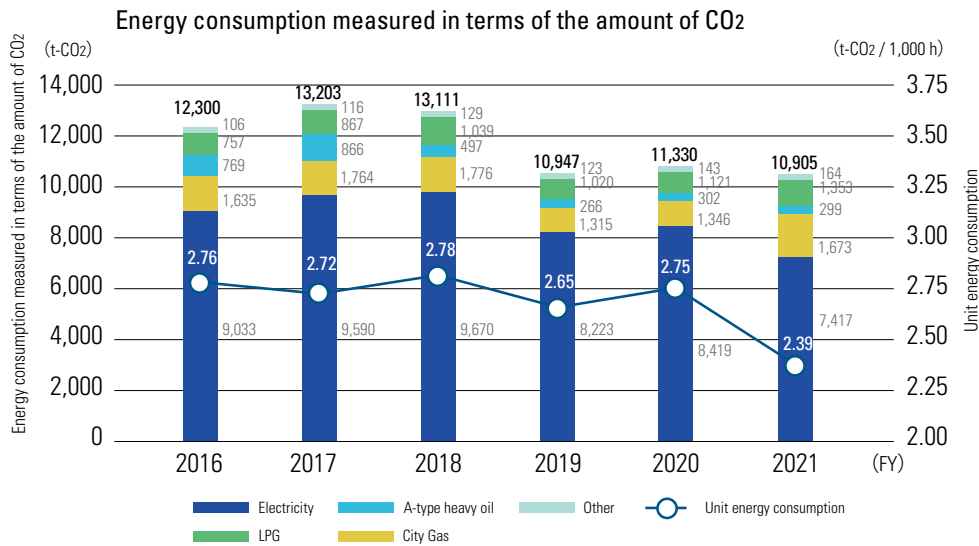
Scope1: Direct greenhouse gas emissions by businesses (fuel combustion, industrial processes)

Scope2: Indirect emissions due to the use of electricity, heat, and steam supplied by other companies

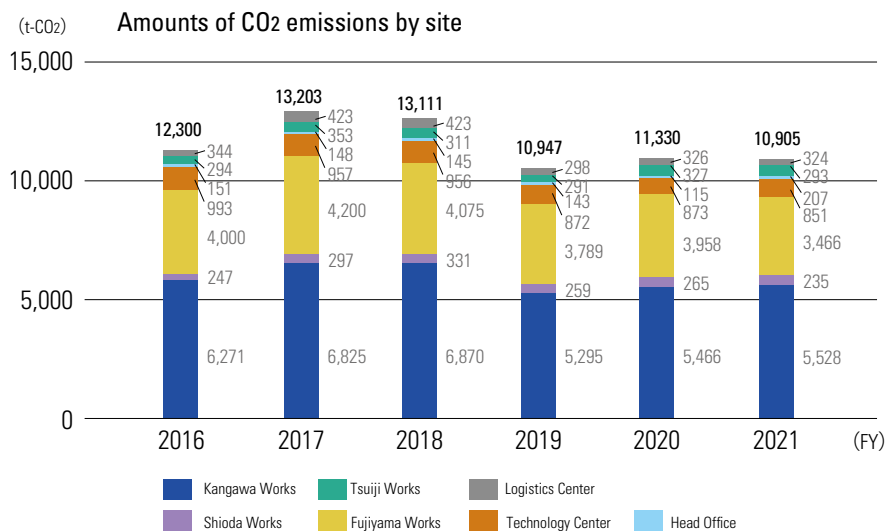
Scope3: Indirect emissions other than Scope1 and Scope2 (emissions from other companies related to business activities)

Calculated for seven categories (1, 3, 4, 5, 6, 7, 11) out of 15 categories

Target bases: All domestic bases

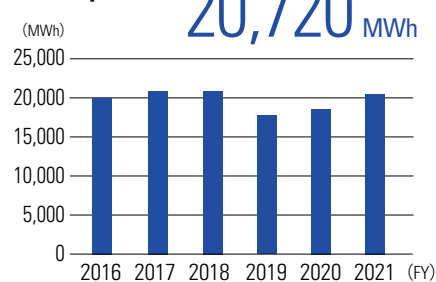


Note : From FY2021, CO2 emissions will be counted as CO2 emissions from Scope. Include Tsukiji Works, Logistic Center, and domestic branches in the calculation.

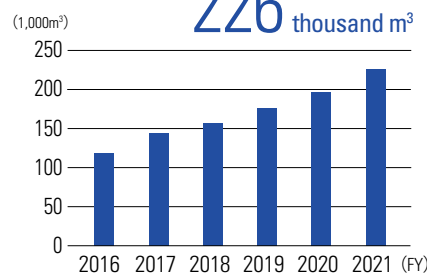


Note : Domestic branches are included in the head office.

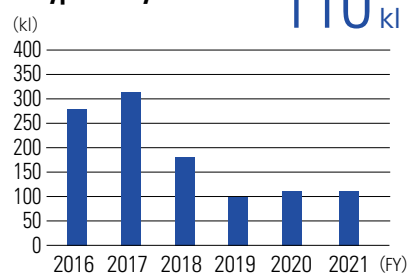
Power consumption



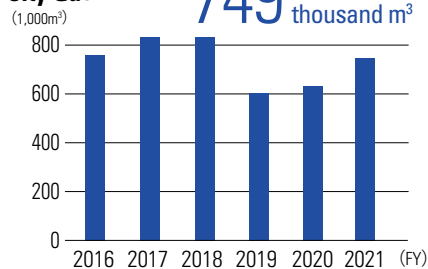
LPG



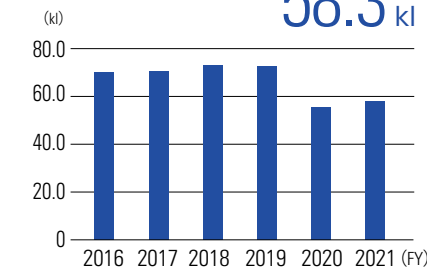
A-type heavy oil



City Gas



Gasoline



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

Energy Saving Measures Implemented in Manufacturing Processes at Factories

Works	Measures	Effects
Kangawa Works	<ol style="list-style-type: none"> (1) Unnecessary warehouse and equipment lighting is turned off (2) Promoting electricity savings when equipment is in standby status (3) Promoting the use of solar power (4) Promoted electric power conservation by introducing energy-saving equipment. 	<ol style="list-style-type: none"> (1) Saving electricity by limiting the amount of lighting (2) Reduction in commercial electricity by powering equipment down to power saving mode when materials are out or when equipment is not in use (3) Savings in commercial power use (4) Reduced commercial power through optimal condition operations.
Shioda Works	<ol style="list-style-type: none"> (1) Affixing calendar timers to machines (2) Promoted production equipment revisions and automation. 	<ol style="list-style-type: none"> (1) Savings in electricity by preventing switches from being left on (2) Improved productivity, conserved electric power.
Fujiyama Works	<ol style="list-style-type: none"> (1) Adjusting the operating hours of air conditioners (2) Shifting the operating hours of production equipment (3) Adjusting the operating hours of loading equipment for tests (4) Promoting the use of solar power 	<ol style="list-style-type: none"> (1) Energy savings through reduced operating hours and reduced the use of A-type heavy oil. (2) Savings in commercial power (3) Savings in electricity by reviewing the test run time (4) Savings in commercial power



Solar panels at Kangawa Works



Solar panels at Logistics Center



Solar panels at Fujiyama 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



Electric vehicles



Vehicle that complies with the regulations on diesel car exhaust

Zero-emission Activities

In fiscal 2021, we promoted recycling by announcing an average recycling rate of 99.6% for the entire Company.

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 return the wooden and plastic pallets used to transport purchased parts and materials to companies transporting them and reuse such pallets among our bases and cooperating companies. We also crush wooden pallets into chips, which are used for mulch at greenery around our sites.

[Other examples of reuse of materials]

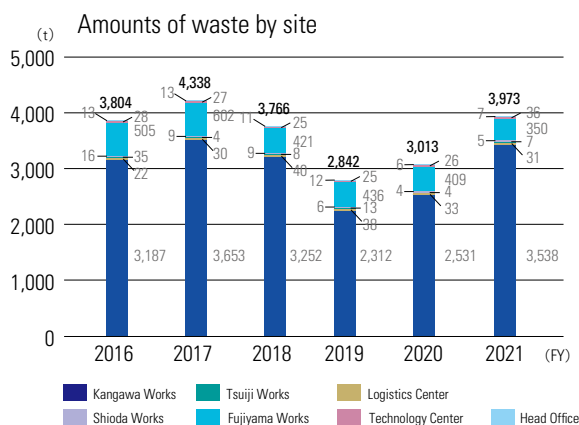
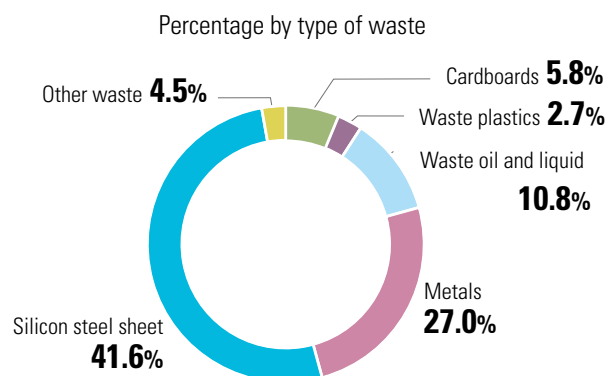
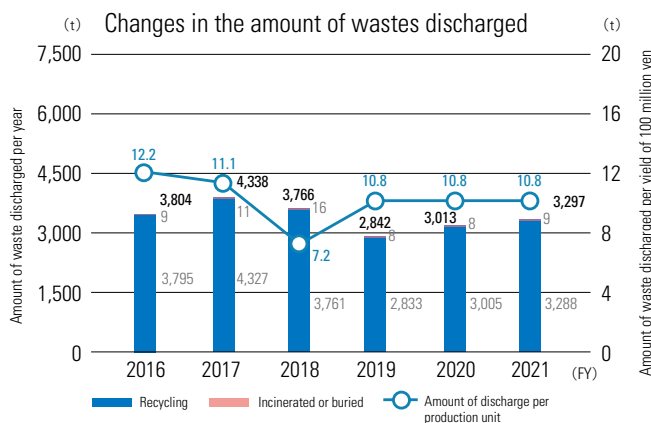
Cardboard boxes: returned to suppliers, reused as shock absorbers

Shock absorbers: reused within the company

Inscription board mounts: recycled



Wood crusher



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, SVHC (highconcern material) in REACH, substances banned by domestic and foreign legislation, and ordinance on prevention of hazards due to specified chemical substances. We keep these guidelines up-to-date by making necessary revisions in response to changes in relevant laws and regulations (revised in April 2022). 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 as well as provide chemSHERPA data.

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 Design Working Group, a subordinate body of the Chemical Emission Subcommittee, is working together with the design sections of business divisions to focus on dealing with regulated substances or those banned by the RoHS directive.

- An examination of hazardous chemical substances contained in our products is under way, based on the Chemical Substance Management Guidelines.
 - Compliance response for the RoHS directive (ten substances)
 - Compliance response for phthalic esters (four substances) that have been added to the RoHS directive
 - Screenings and analyses conducted using the gas chromatograph mass spectrometer (PY-GCMS)
 - Engaging in manufacturing process contact pollution countermeasures
 - RoHS six substances contained in procured materials are being analyzed using an X-ray fluorescence analyzer (XRF)
 - Implementation of simple analysis of hexavalent chromium by a pack test.
 - Switching to applications that are exempt from RoHS (lead in metals, etc.)
 - Compliance with US TSCA PBT5 substance regulation and REACH restricted-substance
 - Inclusion surveys and alternatives for new chemicals and additional regulated substances are being dealt with.
 - We are conducting inclusion surveys for SVHC materials (substances of very high concern 223 substances) in REACH regulations and providing information to our customers.
 - Surveys are conducted using Joint Article Management Promotion Consortium (JAMP) chemSHERPA and information is provided to customers.
 - An examination of substances will be conducted upon the request of the customer.
- Ten substances restricted under "Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment" (Annex II amended by commission delegated directive (EU) 2015/863): Lead, hexavalent chromium, cadmium, mercury, two specific brominated flame retardants (PBB, PBDE), bis (2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP), diisobutyl phthalate (DIBP)
 - REACH(Registration, Evaluation, Authorization and Restriction of Chemicals): A comprehensive system for registration, evaluation/approval, and restriction of chemical substances in Europe
 - SVHC: Substances of Very High Concern. Substances chosen as substances subject to approval listed in Annex XIV of the REACH Regulation
 - chemSHERPA: A scheme developed under guidance by the Ministry of the Environment for transmitting information on chemical substances contained in products throughout the supply chain. Operated by Joint Article Management Promotion Consortium (JAMP)



Gas chromatograph mass spectrometer



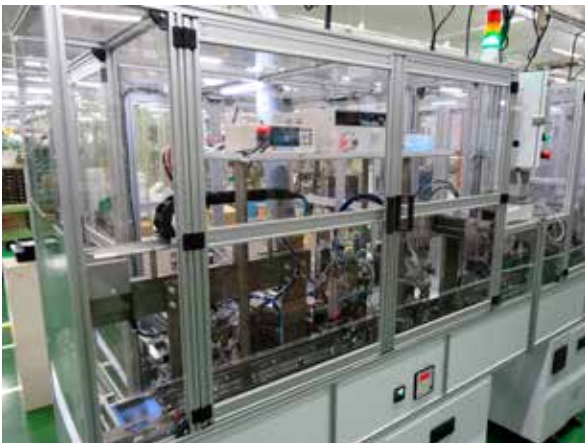
X-ray fluorescence analyzer (XRF)

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 2021, reports were submitted regarding styrene at the Kangawa Works and triphenyl and antimony phosphates at the Fujiyama Works, as well as their compounds and methyl naphthalene. Lead has not been required to be reported for the last 15 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	14.0t
Triphenyl phosphate	Fujiyama Works	2.0t
Antimony and its compounds	Fujiyama Works	1.6t
Methylnaphthalene	Fujiyama Works	1.1t



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

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 2021

(1) Environmental Conservation Costs

Environmental Conservation Costs in FY2021 were 2,002 million yen in total, comprising 804 million yen for investment and 1,198 million yen for costs and expenses. As a case of investment-related global environmental conservation, we updated the compressors at the Kangawa Works and Fujiyama Works to save energy in these facilities, and promoted efficient operations by utilizing IoT functions. Also, in the R&D case, we worked to develop environmentally compatible design products. Regarding costs and expenses, R&D costs and management activities costs posted high rates of 64% and 21%, respectively.

(2) Environmental Conservation Effects

Due to the influence of increased production volumes at bases and operations in the new Technology Center, regarding energy input, electricity consumption increased by 2,220 MWh, LPG consumption increased by 35,000 m³, and city gas consumption increased by 123,000 m³, respectively, compared with the previous fiscal year. On the other hand, CO₂-equivalent emissions were reduced by 425t-CO₂.

(3) Economic Effects

Energy costs increased by 92 million yen from the previous fiscal year due to increased production volume. Profits from sales of valuables were 147 million yen, up approximately 158% from the previous fiscal year.

Furthermore, purchase costs for copy paper, etc. increased by 1.6 million yen from the previous fiscal year due to an increase in the production volume.

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

Data range (company-wide)

Period covered: April 1, 2021 to March 31, 2022

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	16,311
	2. Global environment conservation costs	Periodic electricity checks	414,310	92,878
	3. Resource recycling costs	Reduction of waste, recycling, and proper waste disposal	0	70,702
	Total of items 1 through 3			414,310
(2) Upstream and downstream costs		Green procurement of office supplies and commissions for refurbishing and reconditioning products	0	1,627
(3) Administration costs		Development and operation of EMS and environmental training for employees	0	247,009
(4) R&D costs		Development of Eco-products (such as testing equipment and molds)	389,434	763,708
(5) Social activity costs		Annual membership fee for the Japan Environmental Management Association for Industry, and other fees	0	5,425
(6) Environmental damage measure costs		Assessment of soil contamination, and costs for countermeasures	0	0
Total			803,744	1,197,660

Expenses include depreciation of facilities and personnel costs.

Effects of Environmental Conservation

Classification		Environmental performance indicators (unit)		Fiscal 2020	Fiscal 2021	Effects of Environmental Conservation
Effects on resources input for business activities	Input of energy	Energy consumption	Energy consumption measured in terms of the amount of CO ₂	11,330	10,905	425
			Electricity consumption (MWh)	18,500	20,720	△ 2,220
			A-type heavy oil consumption (kl)	111.3	110.3	1.0
			LPG consumption (1,000 m ³)	192	226	△ 35
			Kerosene consumption (kl)	2.1	2.1	0.0
			Light oil consumption (kl)	17.6	9.0	8.6
			Town gas consumption (1,000 m ³)	626	749	△ 123
			Gasoline consumption (kl)	* 56.6	58.3	△ 1.6
	Percentage of renewable energy in total energy consumption	Photovoltaic power generatio (%)	4.35	5.57	1.22	
	Input of water	Water consumption (1,000 m ³)		51.8	52.8	△ 1.0
Input of other resources	Input of other resources	Copy paper consumption (10,000 sheets)	398	461	△ 63	
Effects on environmental burdens due to emissions and waste produced by business activities	Discharge of waste and other materials	Total discharge of waste and other materials	Total discharge of waste (t)	3,013	3,973	△ 960
		Percentage of recyclable materials in the total discharge of waste	Recyclable materials and valuables (%)	99.7	99.8	0.1
		Discharge of hazardous waste (t)		5.8	4.1	1.7

*The gasoline consumption for FY2020 in the Environmental Data Book 2021 has been corrected due to an error.

Economic Effects of Environmental Conserving Measures (Substantive Effects)

(In thousands of yen)

Classification		Amount
Profits	Sales of valuables	146,564
Reduction of costs	Reduction of costs by energy saving	△ 92,272
	Reduction of waste disposal costs by recycling	△ 6,224
	Reduction of expenses for copy paper	△ 1,643

Comparison with the previous fiscal year; "△" indicates items that had no effect.

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 each of our sites. In addition to the energy conservation and waste reduction activities at each site, 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 sites 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 Toru Senoo

The number of employees is as of March 2022



- Location : 3-33-1 Minami-Otsuka, Toshima-ku, Tokyo
- Area : 3,378 m²
- Number of employees : 260
- ISO certificate obtained : March 2002



At head office, operations are conducted by the sales, administrative and business divisions. Important targets for reducing our environmental impact include increasing the percentage of sales accounted for by eco-products, conserving energy, separating and reducing trash, decreasing copy paper usage and volunteering in local area clean-ups.

- Ascertaining and increasing the percentage of sales accounted for by eco-products in each division
- Power consumption reductions
- Separating and reducing trash
- Waste recycling rate improvements
- The use of digitized forms and paperless meeting materials led to a reduction in the amount of copy paper used.
- Volunteering in local area clean-ups

Going forward, all divisions will continue to promote environmental activities.

Technology Center Hiroyuki Nishimura



- Location : Ueda Research Park, 812-3 Shimonogo, Ueda-shi, Nagano
- Area : 44,908 m²
- Number of employees : 347
- ISO certificate obtained : November 1999



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 23 new items as Eco-products in fiscal 2021. As part of product design that does not include harmful chemical substances, we are implementing measures such as indicating expiration dates of the usage items exempted from RoHS Directive and SVHC (substances of very high concern) in REACH. We also reduced use of electricity, LPG, and copy paper, as well as waste, and cleaned up the area around Ueda Research Park. 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 Toshinari Haketa



- Location : 5-4 Tonoshiro, Ueda-shi, Nagano
- Area : 67,140 m²
- Number of employees : 671
- ISO certificate obtained : March 2010
- Major products : AC / DC servo motors, stepping motors, and linear servo motors



At the Kangawa Works, we are engaged in initiatives aimed at reducing energy usage through automation and production improvements and promote energy conservation by turning off unnecessary lighting, the reduction of waste and copy paper usage and strive for zero emissions.

- 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.
- Saving energy and reducing labor-hours by introducing automation equipment utilizing a servo system.
- Made efforts to eliminate waste (waste plastic and cardboard boxes) and achieve zero emissions.
- Engaged in the large-scale cleaning of the surrounding area in cooperation with the neighborhood community association.
- 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 Toshinari Haketa



- Location : 517 Goka, Ueda-shi, Nagano
- Area : 5,698 m²
- Number of employees : 23
- ISO certificate obtained : March 2001
- Major products : Stepping motors



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 conserved power through increased production efficiency)
- Reduction in the consumption of A-type heavy oil (planned operation of boilers using timers)
- Reduced amount of copy paper used (promoted elimination of forms)
- Strict separation of trash
- Use of components and materials meeting the RoHS directive
- Volunteer activities for cleaning areas around the factory
- Reduction of incinerated waste (ongoing surveillance and detailed analysis of waste)

Fujiyama Works Shunsuke Niimi



- Location : 4016 Fujiyama, Ueda-shi, Nagano
- Area : 99,828 m²
- Number of employees : 510
- 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.



The Fujiyama Works operates its production activities in the F1, F2 and F3 wings 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, automation, energy saving and waste reduction and zero emissions through improvements of their operations. In fiscal 2018, 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 <small>Air pollution control laws and ordinances</small>	Smoke and soot (g/m ³ N)	Exempted (No water disposal tank)		
	NOx (ppm)			
	Sox (m ³ N/h)			
Water quality <small>Water pollution control laws, ordinance and agreements</small>	PH (pH)	5.8 ~ 8.6	—	7.9
	BOD (mg/L)	20	19	16.0
	SS (mg/L)	30	28	17.0
Noise <small>Laws, ordinances and agreements for noise regulation</small>	(dB)	65	64	48

Technology Center	Item	Regulatory standard	Voluntary standard	Actual value
Air quality <small>Air pollution control laws and ordinances</small>	Smoke and soot (g/m ³ N)	Exempted		
	NOx (ppm)	150	130	85
	Sox (m ³ N/h)	Exempted		
Water quality <small>Water pollution control laws, ordinance and agreements</small>	PH (pH)	5.8 ~ 8.6	—	7.45
	BOD (mg/L)	20	19	40.0
	SS (mg/L)	60	54	37.0
Noise <small>Laws, ordinances and agreements for noise regulation</small>	(dB)	Exempted		

Shioda Works	Item	Regulatory standard	Voluntary standard	Actual value
Air quality <small>Air pollution control laws and ordinances</small>	Smoke and soot (g/m ³ N)	Disuse due to aging of equipment		
	NOx (ppm)			
	Sox (m ³ N/h)			
Water quality <small>Water pollution control laws, ordinance and agreements</small>	PH (pH)	Exempted (No water disposal tank)		
	BOD (mg/L)			
	SS (mg/L)			
Noise <small>Laws, ordinances and agreements for noise regulation</small>	(dB)	65	64	54

Fujiyama Works	Item	Regulatory standard	Voluntary standard	Actual value
Air quality <small>Air pollution control laws and ordinances</small>	Smoke and soot (g/m ³ N)	0.3	0.03	0.0050
	NOx (ppm)	180	130	80
	Sox (m ³ N/h)	5.0	2.5	0.013
Water quality <small>Water pollution control laws, ordinance and agreements</small>	PH (pH)	5.8 ~ 8.6	—	7.9
	BOD (mg/L)	50	48	18.0
	SS (mg/L)	60	54	25.0
Noise <small>Laws, ordinances and agreements for noise regulation</small>	(dB)	Exempted		

Waste Recycling Data

Waste		Amount discharged (t)	Amount recycled (t) / Recycling rate (%)	Recycling method
Sludge	Organic sludge	8.1	8.1/100	After oil and water are separated, dehydrated residues are turned into compost.
	Inorganic sludge	19.0	18.1/95.3	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	27.2	26.4 /97.1	After oil and water are separated, the material is recycled as fuel.
	Water-soluble materials (detergents, grinding liquid, etc.)	341.7	341.7/100	Reuse and incinerated residues are used as cement materials.
	Volatile materials	4.1	4.1/100	Distilled and used as recycled oil.
	Waste acid (batteries)	56.4	56.4/100	Crushed, sorted, and all recycled.
Waste plastics	OA equipment and circuit boards	16.2	16.2/100	Crushed, sorted, and all recycled.
	Vinyls and films	57.0	57.0/100	Turned into solid fuel (refuse derived fuel), reducing agents (using furnaces), and materials for power generation (thermal recycling)
	Molding scraps	19.1	19.1/100	
	Other solid scraps	7.0	6.7/95.7	
	Styrofoam recycling	Other solids	Other solids	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	2000.0	2000.0/100	Recycled as metal materials
	Metals (including empty cans)	0.1	0.1/100	
Paper scraps	Used paper	5.5	5.5/100	Turned into raw materials for recycled paper
	Newspapers, magazines, and other papers	51.4	51.4/100	
	Cardboards	231.8	231.8/100	
Wood scraps	Packages and transportation pallets	62.0	62.0/100	
Glass and ceramic scraps	Empty bottles, glass, and ceramics	2.0	2.0/100	Crushed and turned into road construction materials
Other waste	Paper scraps and other waste	7.2	0.1/2	Incinerated
Total		2915.8	2906.7/99.6	

For inquiries about the Environmental Data Book,
please contact:

SANYO DENKI CO., LTD.

Corporate Planning Dept., Secretarial Sect.

3-33-1 Minami-Otsuka, Toshima-ku, Tokyo 170-8451

TEL : 03-5927-1020

FAX : 03-5952-1601

e-mail : ir_info@sanyodenki.com

SANYO DENKI CO., LTD.