SANYO DENKI

Environmental data book 2023

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.

In fiscal 2022, we formulated and announced "medium- to long-term goals aimed at reducing CO_2 emissions" to realize carbon neutrality.

Furthermore, as an initiative aimed at supporting biodiversity, we participated in forest conservation activities in the Ueda region of Nagano Prefecture.

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 CO_2 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

Contents

Scope of the report

Period: Fiscal 2022 (from April 1, 2022 through March 31, 2023, 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

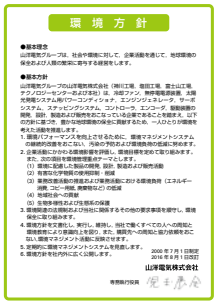
SANYO DENKI CO., LTD., comprising Kangawa Works, Shioda Works, Fujiyama Works, Technology Center and Head Office, develops, designs, manufactures and sells cooling fans, UPS, power conditioners for photovoltaic generation system, engine generators, servo systems, stepping systems, controllers, encoders, 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 23 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


環 境 方 針

●基本理念
山洋電気グループは、社会や顧客に対して、企業活動を通じて、地球環境の保全および人類の繁栄に貢献する経営をします。

●基本方針
山洋電気グループの山洋電気株式会社（神川工場、信田工場、富士山工場、テクノロジーセンターおよび3支社）は、冷却ファン、無停電電源装置、太陽光発電システム用パワーコンディショナ、エンジンジェネレータ、サーボシステム、ステッピングシステム、コントローラ、エンコーダ、製品装置の開発、設計、製造および販売をおこなっている企業であることを認識大、以下の方針に基づき、豊かな地球環境の保全に貢献するため、一人ひとりが環境を考えた活動を推進します。
1. 環境パフォーマンスを向上させるために、環境マネジメントシステムの継続的改善をおこない、汚染の予防および環境負荷の低減に努めます。
2. 企業活動にかかわる環境影響を評価し、環境目標を定めて取り組みます。
また、次の項目を環境管理重点テーマとします。
(1) 環境に配慮した製品の開発、設計、製造および販売活動
(2) 有害な化学物質の使用削減・削減
(3) 事務活動における資源および電力消費に配慮した環境負荷（エネルギー消費、コピー用紙、廃棄物など）の低減
(4) 地域社会への貢献
(5) 生物多様性および生態系の保護
3. 環境関連の法規制および当社に賛同するその他の要求事項を順守し、環境保全に取り組みます。
4. 環境方針を文書化し、実行し、維持し、当社で働くすべての人への周知と環境教育により意識向上を図り、また、顧客及一般の環境に関心を持たない環境マネジメント活動に反映させます。
5. 定期的に環境マネジメントシステムを見直します。　2000 年 7 月 1 日制定
6. 環境方針を社内外に広く公開します。　2016 年 8 月 1 日改訂

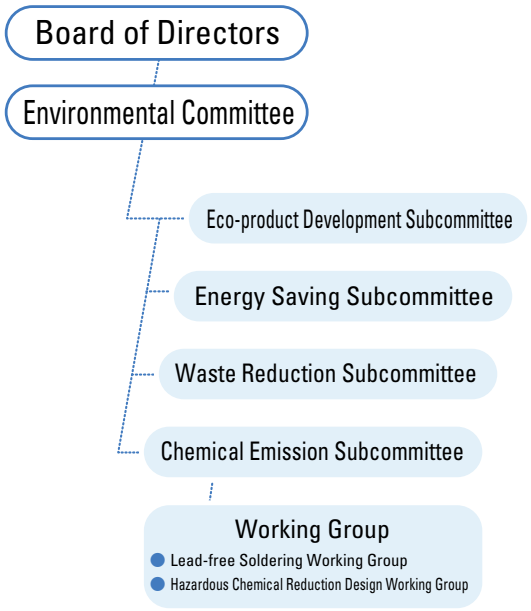
山洋電気株式会社

専務執行役員

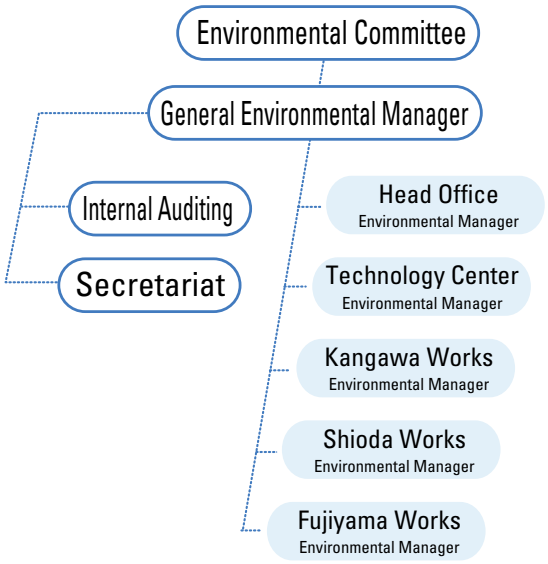
Environmental Policy Brochure

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
Engages in voluntary management aimed at curtailing emissions of hazardous chemicals and attempts to reduce environmental impact. It also complies with relevant laws and regulations by investigating new restricted substances and finding substitutes for them.

Activity		Fiscal 2022		Fiscal 2023
		Goal	Track record	Goal
Promotion of eco-design		Creation of Eco-products	20 new products certified as Eco-products	Creation of Eco-products
Sales ratio of Eco-products (by business division)	Coolong Systems Division	51%	62%	56%
	Power Systems Division	34%	42%	39%
	Servo Systems Division	51%	57%	56%
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%)	7%	Maintenance of 2% increase from FY2017
	Shioda Works	(35%)	(21%)	
	Fujiyama Works	1%	8%	
	Technology Center	(14%)	(15%)	
	Head Office	3%	9%	
Reduction in fuel consumption	A-type heavy oil * Fujiyama Works	98kl 64%	82kl 70%	Heavy oil usage 64% reduction compared to FY2017
	LPG *Technology Center *Fujiyama Works	209,000m^3 (147%)	170,000m^3 (101%)	LPG usage Maintenance of 147% increase from FY2017
	City gas * Kangawa Works	795,000m^3 3%	735,000m^3 10%	City gas usage 3% reduction compared to FY2017
Reduction in the use of copy paper	Kangawa Works	11%	22%	Reduced by 15% compared to fiscal 2017
	Shioda Works	(277%)	(220%)	
	Fujiyama Works	11%	36%	
	Technology Center	2%	25%	
	Head Office	51%	66%	
Reduction of waste	Kangawa Works	(4%)	10%	Reduced by 2% compared to fiscal 2017
	Shioda Works	30%	46%	
	Fujiyama Works	34%	24%	
	Technology Center	(7%)	10%	
	Head Office	23%	38%	
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	99.7%	99.7% or more

Note 1) Target bases: Headquarters, Technology Center, and domestic plants (Kangawa Works, Shioda Works, and Fujiyama Works)
Note 2) Base year for reduction rate for FY2022 is FY17
Note 3) ( ) is an increase

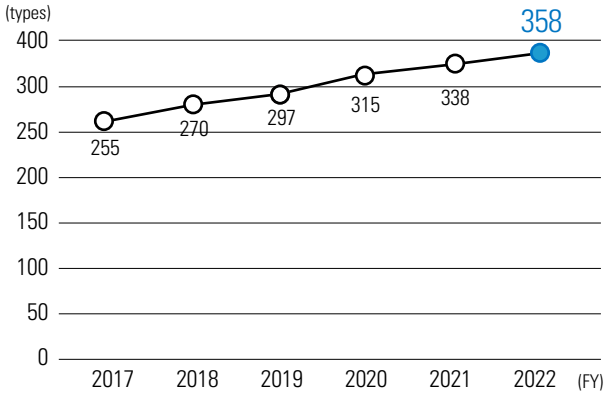
Eco-products

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 2022, 20 types of products were certified as Eco-products, bringing the total to 358. We will continue to promote the LCA-based development of products designed to reduce CO_2 emitted during their use and to be eco-friendly.

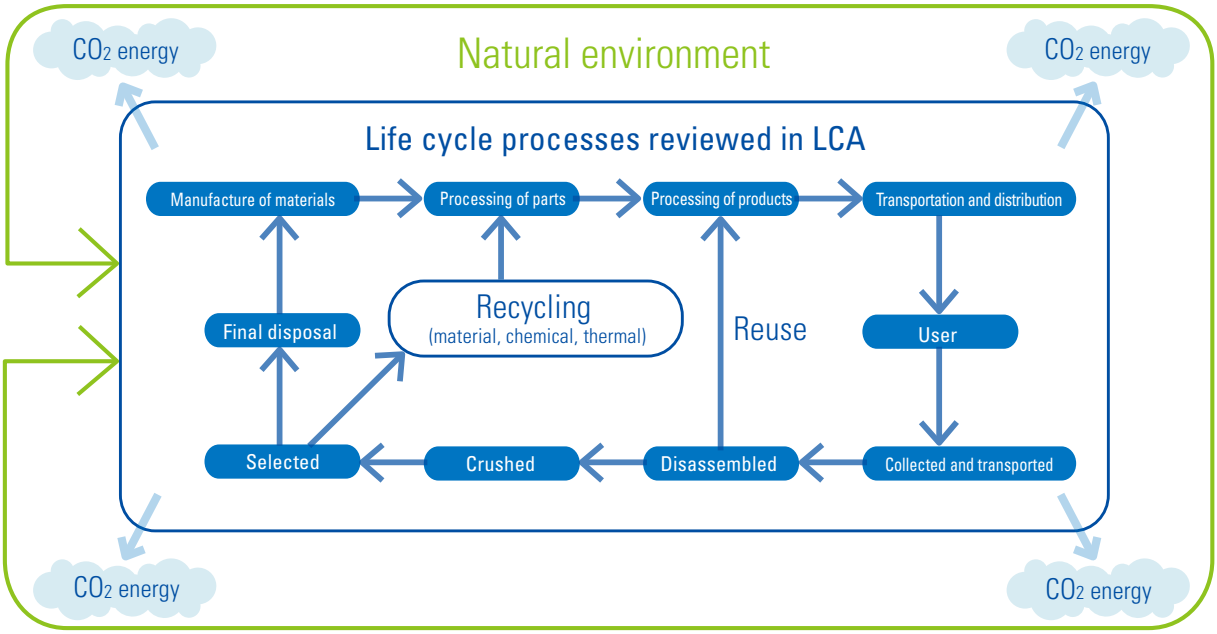
Number of products certified as eco-products
(Total number of products in all divisions)

358 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 100% in fiscal 2022.



Effects on the natural environment (global warming) are assessed at each stage of the life cycle, based on energy consumption and the amount of CO_2 emissions.

Eco-products of Fiscal 2022

Results of LCA

20 new Eco-products were developed in fiscal 2022. The LCA implementation results of two typical models are shown below. The results are based on a comparison of the amounts of CO_2 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_2 emitted during the time of use will be effective in preventing global warming.

ECO PRODUCTS

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

Model case

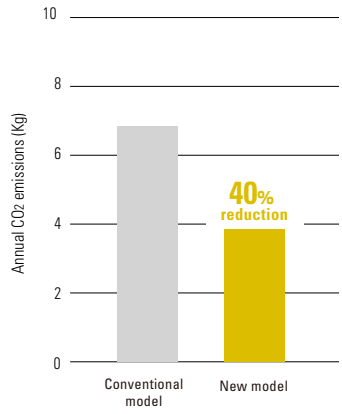
San Ace COOLING SYSTEMS

40 × 40 × 20 mm Splash Proof Fans
San Ace 40W 9WPA type

CO_2 emissions

40% ↘

Comparison of CO_2 emissions



Models used for LCA comparison

New model：9WPA0412P6G001
Conventional model：9WP0412H6001

■ To reduce CO_2 emissions

High efficiency has been achieved by the optimized design of blades and frames and the latest designs of motors and drive circuits.

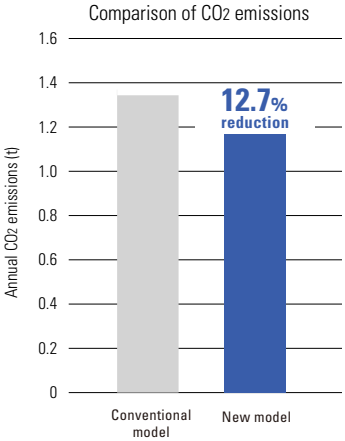
SANMOTION SERVO SYSTEMS

Linear Servo Motor
SANMOTION

CO_2 emissions

12.7% ↘

Comparison of CO_2 emissions



Models used for LCA comparison

New model：DT030CD1ANAA100
Conventional model：DS050CD1ANAA100

■ To reduce CO_2 emissions

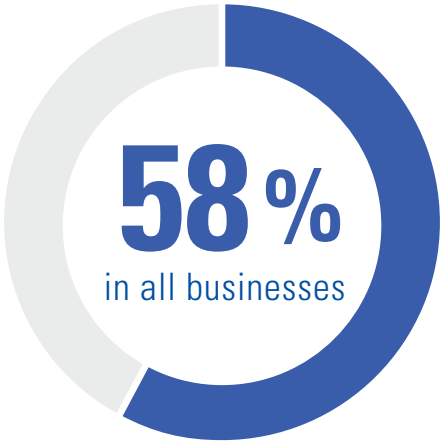
Heat loss has been reduced by improving the winding space factor.

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/CO_2 emission reduction rate
- Weight reduction
- Safety
- Recyclability
- Disposal processing
- Information disclosure

Eco-products sales ratio



Initiatives to combat climate change

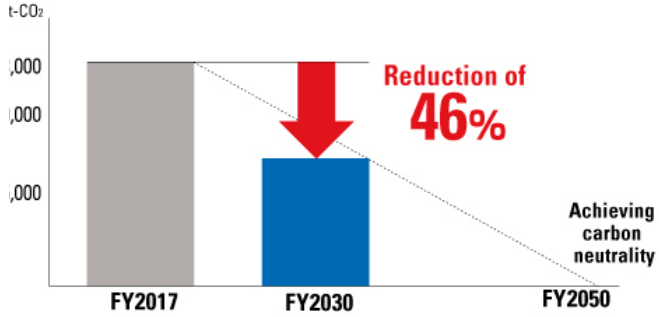
Established medium- to long-term goals aimed at reducing CO_2 emissions to realize carbon neutrality

SANYO DENKI CO., LTD. has established medium- to long-term goals to reduce CO_2 emissions from SANYO DENKI Group by 46% (using FY2017 as a baseline) by FY2030 and reduce CO_2 emissions to virtually zero by FY2050 as part of initiatives to combat climate change.

CO_2 reduction goals* (using FY2017 as a baseline)

Goals for FY2030	Reduction of 46%
Goals for FY2050	Achieving carbon neutrality

*Companies targeted for reduction of carbon emissions: SANYO DENKI CO., LTD., SANYO DENKI Techno Service CO., LTD., and SANYO DENKI IT Solution CO. LTD. Targeted for Scope 1 related to CO_2 emissions (direct emissions of CO_2 from the company's activities) and Scope 2 (indirect emissions from the use of electricity, heat, and steam supplied by other companies)



Specific initiatives

To accelerate initiatives to realize carbon neutrality , we have decided to switch the power used by the Technology Center in Ueda City, a research and development facility in Nagano, to "Shinshu Green Electricity" (green power derived from hydroelectric power generation) from April 2023. This makes the power used in the Technology Center switch to almost 100% renewable energy, and there are no CO_2 emissions created through the use of this electricity. We will sequentially switch the electricity used by our domestic plants to that sourced from renewable energy sources. In addition to our existing initiatives, we will realize medium- to long-term goals aimed at reducing CO_2 emissions, or "46% reduction in CO_2 emissions by 2030 and carbon neutrality by 2050", by switching to green power derived from hydroelectric power generation.

Shinshu Green Electricity

Initiatives aimed at supporting biodiversity

Participated in a forest preservation activity called "Thriving Forest Project (Nigiyakana Mori Project)" in the Ueda district of Nagano, Japan

SANYO DENKI Group has decided to participate in a forest preservation activity called "Thriving Forest Project" conducted in the Ueda district of Nagano Prefecture. The project, which is carried out jointly with companies and government, aims to create sustainable forests that are thriving with living creatures, plants, and people. SANYO DENKI Group is participating in planting activities and debriefing sessions on survey results.

Outline of "Thriving Forest Project"

This project was launched jointly by government and companies in four municipalities (Ueda city, Tomi city, and the towns of Nagawa and Aoki) in the Ueda district, Nagano Prefecture, in 2021. The aim of the project is to create sustainable forests that are thriving with living creatures, plants, and people. As part of this project targeting SGEC-certified forests*, participants will conduct research and study forestry industry challenges, such as forest management, forest road network management, biodiversity, carbon dioxide absorption, and natural regeneration, conduct exchange activities, and disseminate relevant information. The signing ceremony took place in Ueda, Nagano, on September 22, 2022. Four companies, including ours, attended the ceremony to sign the pact.

*SGEC certified forests

Forests that have been certified that they meet certain standards related to sustainable forest management and consideration for environmental conservation in a forest certification system in which an independent third-party body evaluates and certify forests according to international standards.

Specific Energy-Saving Measures

As a countermeasure against global warming, we consider the restriction of CO_2 emissions through energy-saving activities as our top-priority task, and are promoting the improvement of energy efficiency, and energy-saving activities.
In FY2022, production volume increased compared to the previous year, but CO_2 emissions decreased.

Results of Introduction
Energy-saving activities related to factory facilities

・ Kangawa Works

Renewal of pressurized water supply pump for treated water (energy-saving effect 20%)
Renewal of one air compressor (energy-saving effect 20%)

・ Fujiyama Works

Renewal of one air compressor (energy-saving effect 20%)

・ Shioda Works

Converting outdoor lights to LED lighting (energy-saving effect 90%)

* Introduced a model equipped with the latest high-efficiency inverter.

Factory water supply pump
Kangawa Works

Compressors at the
Fujiyama Works

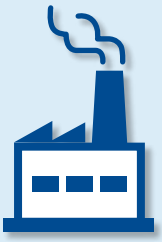
CO_2 equivalent emissions

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 CO_2 emissions not only at domestic plants but also at affiliated companies including those overseas.

Our supply chain emissions (Scope1, 2, 3)

Emissions from our plants, etc.

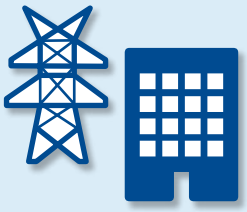
Scope 1



Fuel combustion

3,502 t-CO_2

Scope 2



Use of electricity

10,996 t-CO_2

Emissions from the supply chain

Scope 3

Raw materials
307 kt-CO_2

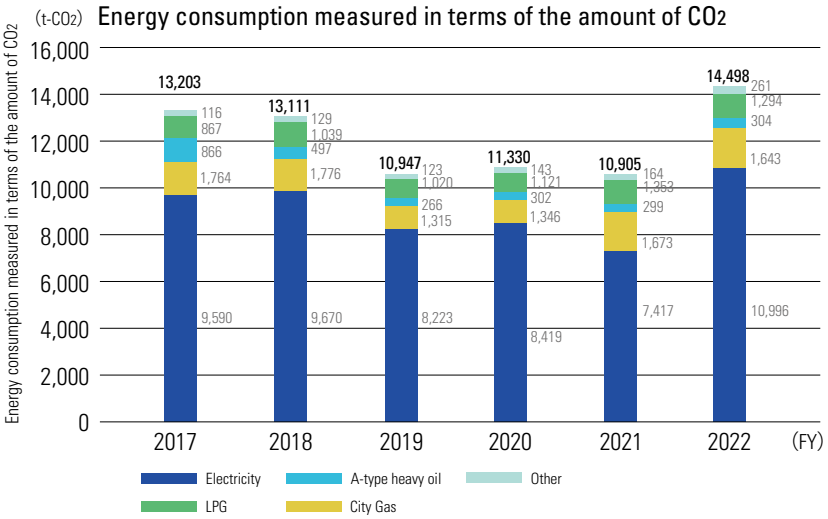
Transportation/ delivery
24 kt-CO_2

During product use
4,791 kt-CO_2

Others
3 kt-CO_2

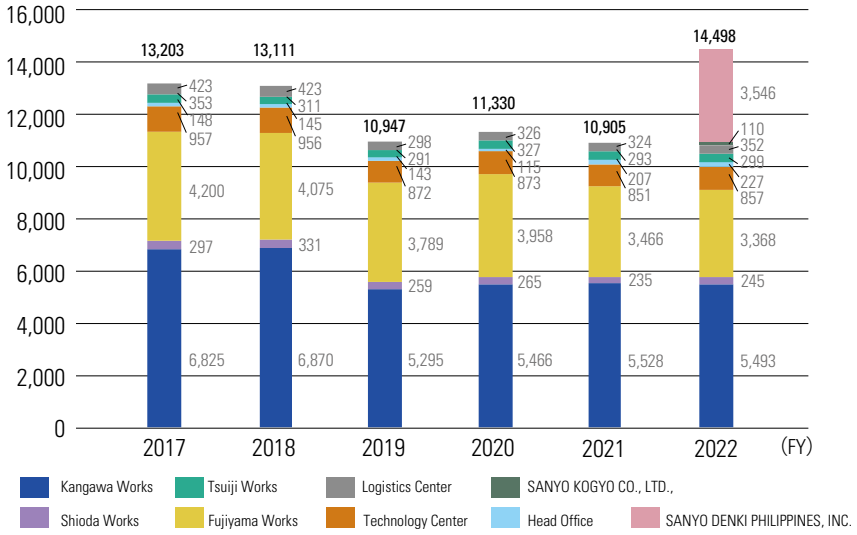
Scope1: Direct greenhouse gas emissions by businesses (fuel combustion, industrial processes)
Scope2: Indirect emissions due to the use of electricity, heat, and steam supplied by other companies
Scope3: Indirect emissions other than Scope1 and Scope2 (emissions from other companies related to business activities)
Calculated for seven categories (1, 3, 4, 5, 6, 7, 11) out of 15 categories
Target bases: Scope1, 2: All bases of SANYO DENKI CO., LTD., SANYO DENKI Techno Service CO., LTD., and SANYO DENKI IT Solution CO., LTD. are hereinafter referred to as "all domestic bases". SANYO KOGYO CO., LTD., SANYO DENKI PHILIPPINES, INC.
Scope3: All domestic bases

Energy consumption measured in terms of the amount of CO_2



Note : From FY2021, CO_2 emissions will be counted as CO_2 emissions from Scope.
Target bases: All domestic sites, SANYO KOGYO CO., LTD., SANYO DENKI PHILIPPINES, INC. will be added from FY2022.

Amounts of CO_2 emissions by site



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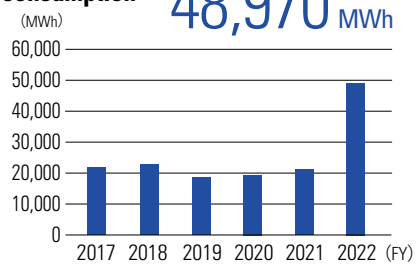
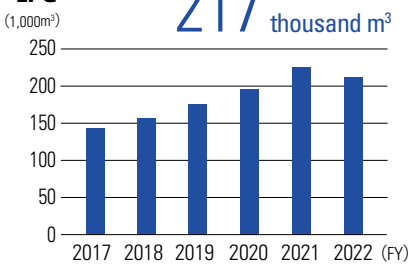
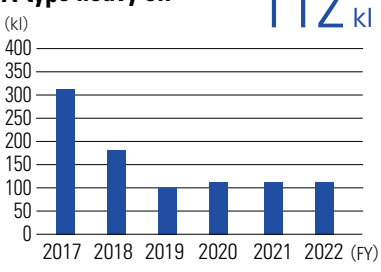
Power consumption 48,970 MWh



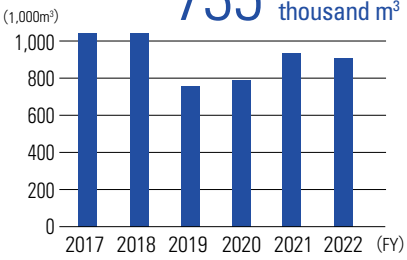
LPG 217 thousand m³



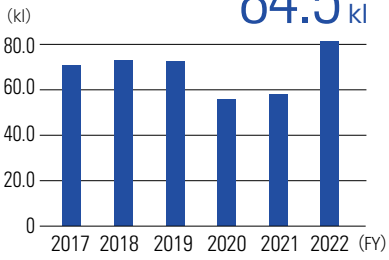
A-type heavy oil 112 kl



City Gas 735 thousand m³



Gasoline 84.5 kl



Target bases: All domestic sites, SANYO KOGYO CO., LTD., SANYO DENKI PHILIPPINES, INC. will be added from FY2022.

Energy Saving Measures Implemented in Manufacturing Processes at Factories

Works	Measures	Effects
Kangawa Works	(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.	(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	(1) Affixing calendar timers to machines (2) Promoted production equipment revisions and automation. (3) Planned operation of air-conditioning equipment by weekly calendar timer.	(1) Savings in electricity by preventing switches from being left on (2) Improved productivity, conserved electric power. (3) Curbing Electricity Usage.
Fujiyama Works	(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	(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 2022, 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

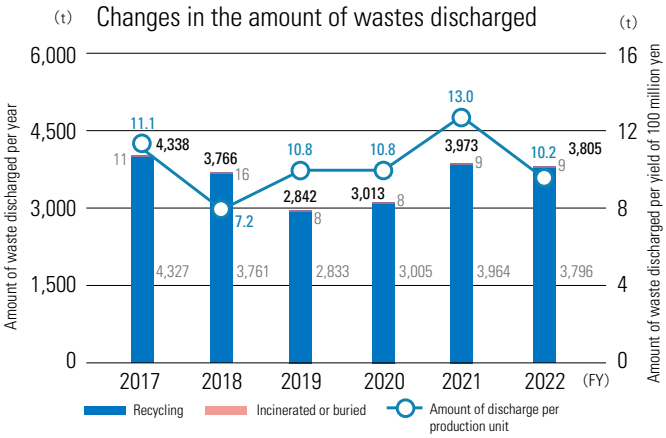
We promote in-house recycling of unneeded supplies such as OA equipment, desks, shelves and chairs.

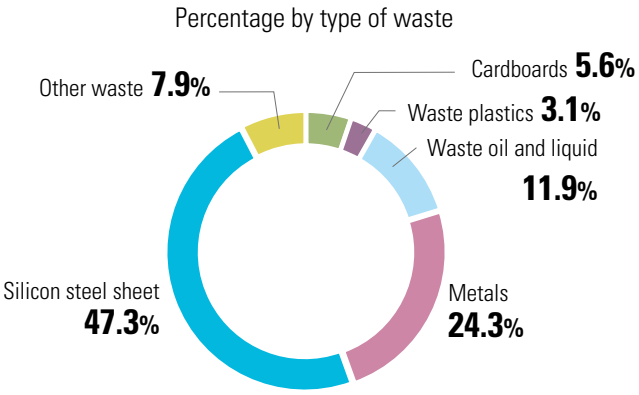
Reuse of Materials

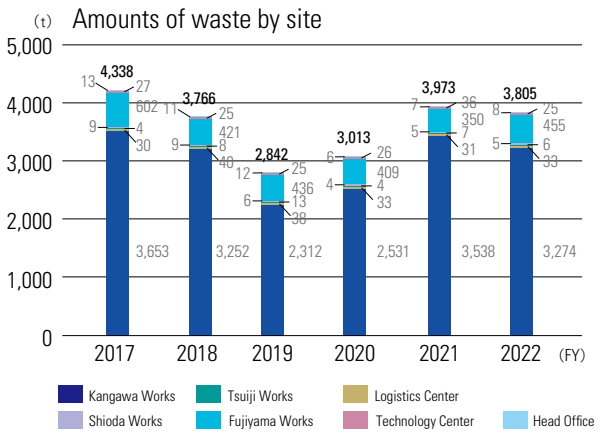
We return the wooden and plastic pallets used to transport purchased parts and materials to companies transporting them and reuse such pallets among our bases and cooperating companies. Wooden pallets are crushed into chips and used for weed control in the plant's greenbelt, and waste plastic pallets and wire reel bobbins are taken to a recycling company as valuables.

[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
Waste plastic pallets and wire reel bobbins: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 2023). 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.
  - Lead-free plan for applications exempted from RoHS (lead in metals,etc) and alternative measures.
- Compliance with POPs Convention PFHxS Regulation and French Mineral Oil Prohibition Ordinance
- 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 233 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 2022, 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 16 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	Amount handled/FY2022 (Reportable: 1t or more)	
Styrene	Kangawa Works	13.0t
Triphenyl phosphate	Fujiyama Works	2.7t
Antimony and its compounds	Fujiyama Works	1.5t
Methylnaphthalene	Fujiyama Works	1.0t

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 2022

(1) Environmental Conservation Costs

Environmental Conservation Costs in FY2022 were 2,003 million yen in total, comprising 635 million yen for investment and 1,368 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, Converting outdoor lights to LED lighting at Shioda Works. 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 19%, respectively.

(2) Environmental Conservation Effects

Despite an increase in production volume at our bases, energy-saving efforts reduced energy input at all domestic bases by 400 MWh of electricity, 11,000 m3 of LPG, and 14,000 m3 of city gas compared to the previous fiscal year. On the other hand, CO_2-equivalent emissions were reduced by 63t-CO_2.

(3) Economic Effects

Energy costs increased by 179 million yen from the previous fiscal year due to increased production volume and soaring electricity and fuel costs.
Profits from sales of valuables were 141 million yen, decreased approximately 4% from the previous fiscal year.
In addition, purchase costs for copy paper,etc. decreased by 0.1 million yen from the previous fiscal year.

"Environmental Accounting Guidelines" published by the Ministry of the Environment, Format for publication C
Data range (company-wide)
Period covered: April 1, 2022 to March 31, 2023

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	13,813
	2. Global environment conservation costs	Periodic electricity checks	223,802	107,949
	3. Resource recycling costs	Reduction of waste, recycling, and proper waste disposal	0	97,370
	Total of items 1 through 3		223,802	219,132
(2) Upstream and downstream costs		Green procurement of office supplies and commissions for refurbishing and reconditioning products	0	1,715
(3) Administration costs		Development and operation of EMS and environmental training for employees	0	263,401
(4) R&D costs		Development of Eco-products (such as testing equipment and molds)	410,875	877,442
(5) Social activity costs		Annual membership fee for the Japan Environmental Management Association for Industry, and other fees	0	6,717
(6) Environmental damage measure costs		Assessment of soil contamination, and costs for countermeasures	0	0
Total			634,677	1,368,407

Expenses include depreciation of facilities and personnel costs.

Effects of Environmental Conservation

Classification		Environmental performance indicators (unit)		Fiscal 2021	Fiscal 2022	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	10,905	10,842	63
			Electricity consumption (MWh)	20,720	20,320	400
			A-type heavy oil consumption (kl)	110.3	112.0	△ 1.7
			LPG consumption (1,000 m^3)	226	217	11
			Kerosene consumption (kl)	2.1	0.9	1.2
			Light oil consumption (kl)	9.0	7.0	2.0
			Town gas consumption (1,000 m^3)	749	735	14
			Gasoline consumption (kl)	58.3	54.0	4.3
		Percentage of renewable energy in total energy consumption	Photovoltaic power generatio (%)	5.57	5.43	△ 0.14
	Input of water	Water consumption (1,000 m^3)		52.8	48.5	4.3
	Input of other resources	Input of other resources	Copy paper consumption (10,000 sheets)	461	383	78
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)	3,973	3,805	168
		Percentage of recyclable materials in the total discharge of waste	Recyclable materials and valuables (%)	99.8	99.8	0
		Discharge of hazardous waste (t)		4.1	3.3	0.8

Economic Effects of Environmental Conserving Measures (Substantive Effects)

(In thousands of yen)

Classification		Amount
Profits	Sales of valuables	141,241
Reduction of costs	Reduction of costs by energy saving	△ 179,371
	Reduction of waste disposal costs by recycling	1,623
	Reduction of expenses for copy paper	141

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

General Environmental Manager　Akio Miyahara

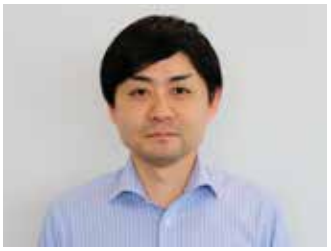
SANYO DENKI established an environmental management system and acquired ISO 14001 certification in 1999.

A general environmental management manager has been appointed under the supervision of top environmental management to promote environmental initiatives at each site. In addition to energy saving and waste reduction activities at each site, we are implementing activities that help reduce environmental impact such as reducing the environmental impact when customers use our products by developing low-loss and high-efficiency products, supplying units that reduce power receiving capacity via a maximum power peak cut function, as well as supplying power units that regenerate braking force into regenerative power. We also widely disclose our environmental information inside and outside the company, and commit to communicating with stakeholders. The Environmental Action Committee organizes environmental management managers at each site as well as specialized subcommittees to deliberate and set goals aimed at helping continuously improve the environment, and actively promote environmental preservation activities.

Head Office　Toru Senoo

The number of employees is as of March 2023

- Location : 3-33-1 Minami-Otsuka, Toshima-ku, Tokyo
- Area : 3,378 m^2
- 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　Akio Miyahara

- Location : Ueda Research Park, 812-3 Shimonogo, Ueda-shi, Nagano
- Area : 44,908 m^2
- Number of employees : 354
- ISO certificate obtained : November 1999

At the Technology Center, which designs and develops products, we are working to develop products that have low environmental impact and that do not contain harmful chemical substances by specifically promoting environmentally-friendly designs. During the creation of "Eco-Products" eco-design products, 20 new products were newly certified as eco-design products in fiscal 2022. In order to design products that do not contain harmful chemical substances, we are working to comply with relevant laws and regulations around the world, such as the RoHS Directive and REACH Regulations. 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 strive to reduce the environmental load customers create when they use our products by helping them conserve energy as a result of eco-design, reduce environmental impact via increased efficiency, and reuse electricity via the power regeneration function.

The number of employees is as of March 2023

Kangawa Works Toshinari Haketa

- Location : 5-4 Tonoshiro, Ueda-shi, Nagano
- Area : 67,140 m^2
- Number of employees : 619
- 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 m^2
- Number of employees : 19
- 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 m^2
- Number of employees : 479
- 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 Air pollution control laws and ordinances	Smoke and soot (g/m^3N)	Exempted (No water disposal tank)		
	NOx (ppm)			
	Sox (m^3N/h)			
Water quality Water pollution control laws, ordinance and agreements	PH (pH)	5.8 ~ 8.6	—	7.6
	BOD (mg/L)	20	19	30.0
	SS (mg/L)	30	28	12.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	50

Shioda Works	Item	Regulatory standard	Voluntary standard	Actual value
Air quality Air pollution control laws and ordinances	Smoke and soot (g/m^3N)	Disuse due to againg of equipment		
	NOx (ppm)			
	Sox (m^3N/h)			
Water quality Water pollution control laws, ordinance and agreements	PH (pH)	Exempted (No water disposal tank)		
	BOD (mg/L)			
	SS (mg/L)			
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	61

Technology Center	Item	Regulatory standard	Voluntary standard	Actual value
Air quality Air pollution control laws and ordinances	Smoke and soot (g/m^3N)	Exempted		
	NOx (ppm)	150	130	66
	Sox (m^3N/h)	Exempted		
Water quality Water pollution control laws, ordinance and agreements	PH (pH)	5.8 ~ 8.6	—	7.5
	BOD (mg/L)	20	19	21.0
	SS (mg/L)	60	54	25.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	Exempted		

Fujiyama Works	Item	Regulatory standard	Voluntary standard	Actual value
Air quality Air pollution control laws and ordinances	Smoke and soot (g/m^3N)	0.3	0.03	0.0050
	NOx (ppm)	180	130	80
	Sox (m^3N/h)	5.0	2.5	0.017
Water quality Water pollution control laws, ordinance and agreements	PH (pH)	5.8 ~ 8.6	—	7.7
	BOD (mg/L)	50	48	14.0
	SS (mg/L)	60	54	31.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	Exempted		

Waste Recycling Data

Waste		Amount discharged (t)	Amount recycled (t) / Recycling rate (%)	Recycling method
Sludge	Organic sludge	9.1	9.1/100	After oil and water are separated, dehydrated residues are turned into compost.
	Inorganic sludge	17.1	16.1/94.0	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	41.8	40.0 /95.8	After oil and water are separated, the materi al is recycled as fuel.
	Water-soluble materials (detergents, grinding liquid, etc.)	327.0	327.0/100	Reuse and incinerated residues are used as cement materials.
	Volatile materials	3.3	3.3/100	Distilled and used as recycled oil.
	Waste acid (batteries)	16.9	16.9/100	Crushed, sorted, and all recycled.
Waste plastics	OA equipment and circuit boards	2.4	2.4/100	Crushed, sorted, and all recycled.
	Vinyls and films	49.7	49.7/100	Turned into solid fuel (refuse derived fuel), reducing agents (using furnaces), and materials for power generation (thermal recycling)
	Molding scraps	22.8	22.8/100	
	Other solid scraps	55.1	55.1/99.0	
	Styrofoamrecycling	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	1,800.0	1,800.0/100	Recycled as metal materials
	Metals (including empty cans)	0.1	0.1/100	
Paper scraps	Used paper	7.2	7.2/100	Turned into raw materials for recycled paper
	Newspapers, magazines, and other papers	49.3	49.3/100	
	Cardboards	197.7	197.7/100	
Wood scraps	Packages and transportation pallets	42.9	42.9/100	
Glass and ceramic scraps	Empty bottles, glass, and ceramics	1.5	1.5/100	Crushed and turned into road construction materials
Other waste	Paper scraps and other waste	6.9	0.1/2	Incinerated
Total		2,650.8	2,641.2/99.6	

For inquiries about the Environmental Data Book,
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