SANYO DENKI

Environmental data book 2021

Message from the Major Operating Officer

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.

SANYO DENKI's product development is closely aligned with market demand and involves equipment-specific customization. The market environment surrounding products has changed significantly and the speed of change is accelerating. Even in such an environment, SANYO DENKI flexibly adjusts to these changes and delivers products that are suitable for current market conditions to customers.

This fiscal year, we expanded the facilities of the Technology Center (Ueda City, Nagano Prefecture), which is the main design and development base. We are strengthening our design development functions in conjunction with the Technology Center in SANYO DENKI PHILIPPINES, INC.

SANYO DENKI's product development is always focused on providing top-level performance in the industry. Based on this basic policy, the Group has adopted a strategy that places the highest priority on the "nature" of performance, function, and quality during the product development stage. "Strong technology" that is necessary to improve "nature" does not necessarily mean a complicated structure will result. It is, in fact, an extremely simple structure. However, to achieve this, advanced technological know-how is necessary. In addition, it is very important to hand this know-how on to the next generation. This leads to differentiation between products and maintenance required to maintain quality levels that enable high performance. SANYO DENKI develops each technology to the highest level in the industry in order to maintain and improve this level of "excellence".

The goals of the SANYO DENKI Group involve developing new technologies and new products focused on helping people achieve happiness. SANYO DENKI's products are some of the best in the industry and not only improve performance of customers equipment, but also contribute to energy saving and environmental conservation. Based on the belief that developing superb products continuously leads to social contribution, SANYO DENKI will continue to focus on product development in the future as a company that contributes to society as the business grows.

Similarly in business activities, based on the SANYO DENKI Group's corporate philosophy, the Environmental Action Committee takes the lead in manufacturing environment-friendly products, reducing use of hazardous chemical substances, reducing the environmental burden of business activities, contributing to local communities, and protecting biodiversity and ecosystems as priority themes for environmental management.

In order to play a social role in environmental conservation, we would like to promote the use of renewable energy, promote efforts to reduce CO_2 emissions, and contribute to the realization of a sustainable society.

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 2020 (from April 1, 2020 through March 31, 2021, in principle)

Environmental Policy and Environmental Management System

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.

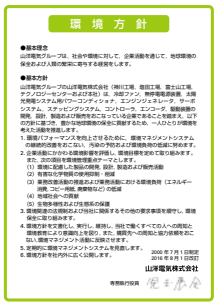
1. To enhance our environmental performance, we will continuously improve the environmental management system and work hard to prevent pollution and reduce the environmental impact of our activities.
2. We will assess the environmental impact of our corporate activities and focus on our environmental 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.

System

It has been 21 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、社会や環境に対して、企業活動を通じて、地球環境の保全および人類の繁栄に寄与する経営をします。

●基本方針

山洋電気グループは山洋電気株式会社（神川工場、飯田工場、富士山工場、テクノロジーセンターおよび本社）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、関連装置の開発、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え、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、ベストとりり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抑制・削減
(3) 事務所活動の環境および業務活動における環境負荷（エネルギー消費、ごみ・排紙、廃棄物など）の低減
(4) 地球温暖化への貢献
(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同意する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、当社で働くすべての人への周知と環境意識による意識向上を図り、また、顧客先への周知と協力依頼をおこない環境マネジメント活動に活用させます。
5. 定期的に環境マネジメントシステムを見直します。
6. 環境方針を社内外に広く公開します。

2000 年 7 月 1 日制定
2016 年 8 月 1 日改訂

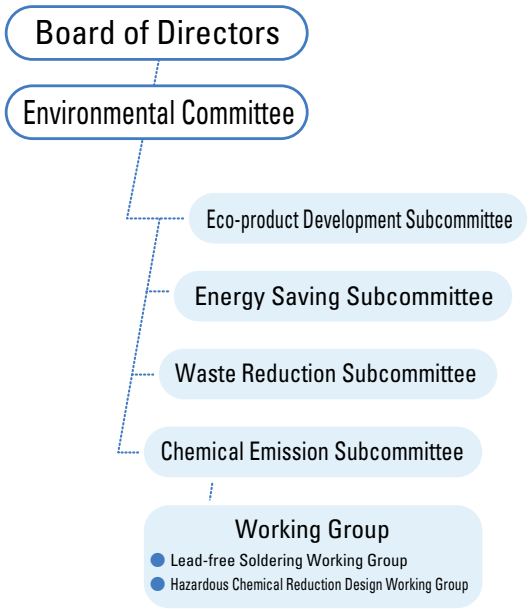
山洋電気株式会社

専務執行役員

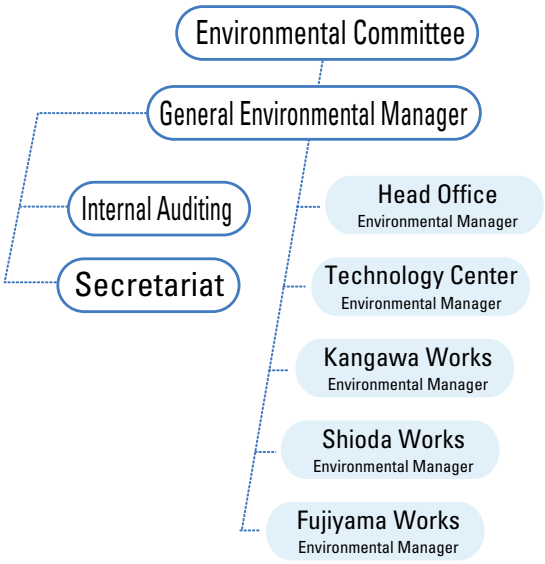
Environmental Policy Brochure

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
It strives to reduce emissions of hazardous chemical substances and minimize environmental pollution via self-management. It also works to promote the use of lead-free soldering and lead-free electric wires, reduce hazardous chemical substances, and develop measures for the PRTR (pollutant release and transfer register).

Activity Report and Goals

Activity		Fiscal 2020		Fiscal 2021
		Goal	Track record	Goal
Promotion of eco-design		Creation of Eco-products	Eighteen new products certified as Eco-products	Creation of Eco-products
Sales ratio of Eco-products (by business division)	Coolong Systems Division	46%	46%	47%
	Power Systems Division	32%	27%	33%
	Servo Systems Division	38%	46%	39%
Reduction of hazardous chemical substances		Use of lead-free soldering Development of products with reduced amounts of RoHS 10 hazardous substances 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 & REACH standards Reduction of PRTR-controlled substances
Reduction in power consumption	Kangawa Works	14%	23%	Reduced by 11% compared to fiscal 2010
	Shioda Works	65%	66%	
	Fujiyama Works	(11%)	(5%)	
	Technology Center	18%	21%	
	Head Office	10%	38%	
Reduction in fuel consumption	A-type heavy oil *Total of the Shioda and Fujiyama Works	80kl 69%	81kl 69%	Heavy oil usage 40% reduction compared to FY2010
	LPG *Total of the the Technology Center	39,000Nm^3 1%	35,000Nm^3 11%	LPG usage (Technology Center) Maintenance of FY2010 results
	City gas * Total of the the Kangawa Works	770,000m^3 7%	625,808m^3 24%	LPG usage (Fujiyama Works) Maintenance of 24% increase from FY2018
	LPG *Total of the Fujiyama Works	109,000m^3 (54%)	119,000m^3 (68%)	City gas usage 3% reduction compared to FY2018
Reduction in the use of copy paper	Kangawa Works	18%	35%	Reduced by 19% compared to fiscal 2010
	Shioda Works	85%	86%	
	Fujiyama Works	(13%)	2%	
	Technology Center	19%	40%	
	Head Office	22%	65%	
Reduction of waste	Kangawa Works	19%	32%	Reduced by 14% compared to fiscal 2010
	Shioda Works	93%	95%	
	Fujiyama Works	(5%)	8%	
	Technology Center	9%	20%	
	Head Office	35%	70%	
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 higher	99.7%	99.6% or higher

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 FY2018 as a base year. FY2010 was used as a base year for all other reduction rates.
Note 3) The number enclosed in parentheses ( ) indicates the increment.

Product Development

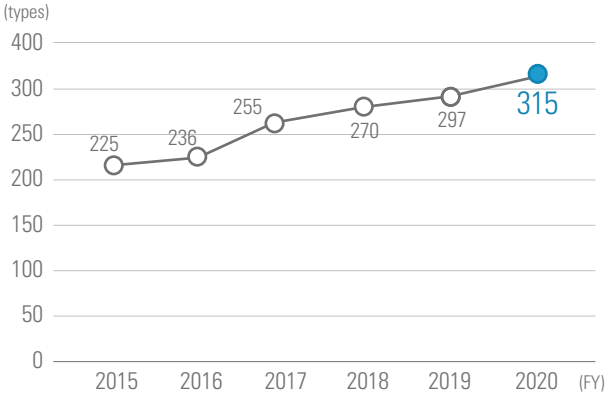
Eco-products

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 2020, 18 types of products were certified as Eco-products, bringing the total to 315. 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)

315 types



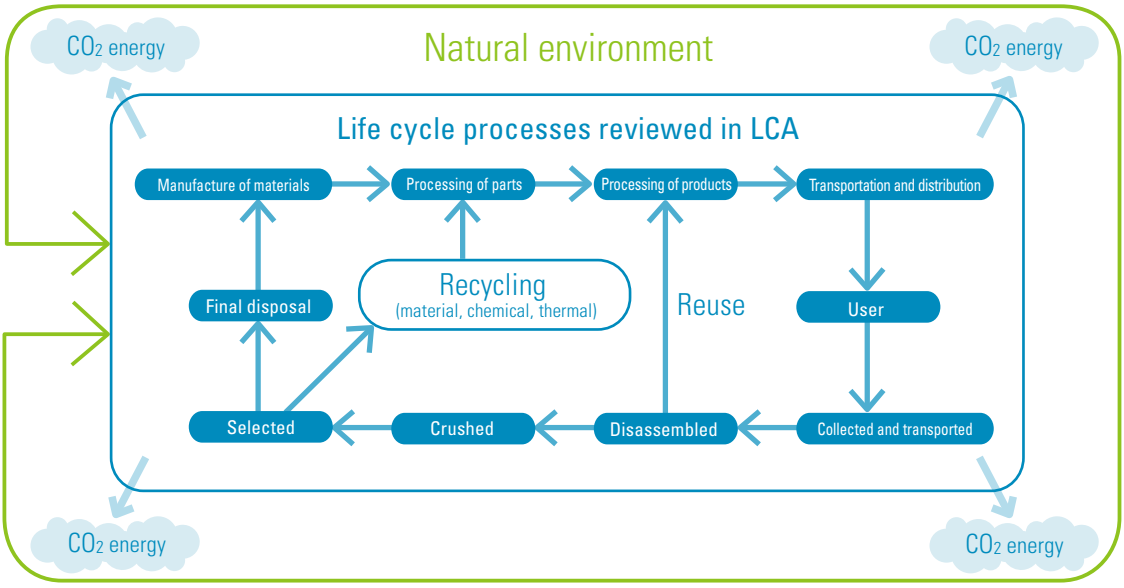
Life cycle assessment (LCA)

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 Ecoproducts was 90% in fiscal 2020.

ECO PRODUCTS

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

Life Cycle Processes Reviewed in LCA



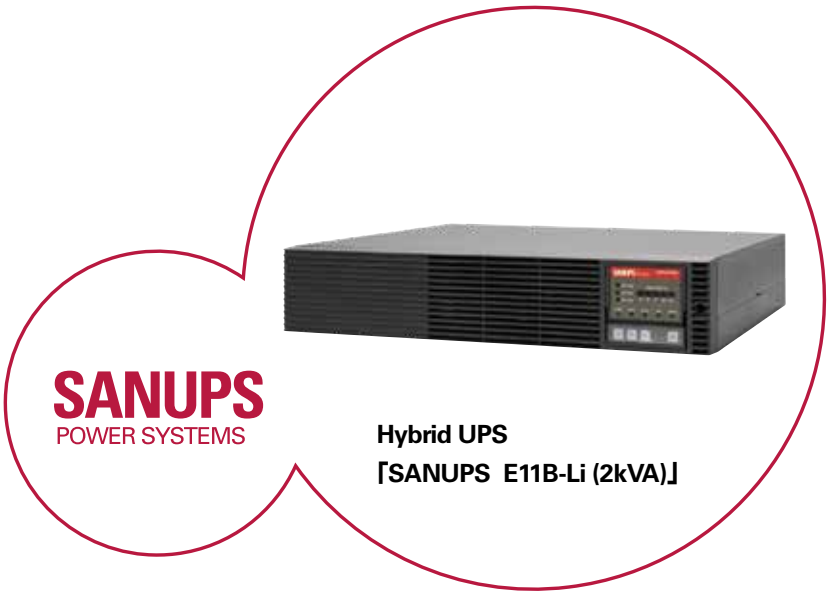
Effects on the natural environment (global warming) are assessed at each stage of the life cycle, based on energy consumption and the amount of CO_2 emissions.

Product Development

Eco-products of Fiscal 2020

Results of LCA

18 new Eco-products were developed in fiscal 2020. 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.



Hybrid UPS
「SANUPS E11B-Li (2kVA)」

CO_2 emissions

55.7% ↘

Models used for LCA comparison

New model：E11BL202A

Conventional model：E11A202A

Energy Saving

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.
However, compared to last year, energy consumption increased in FY2020 due to increased production, and CO_2 emissions and per unit consumption also increased.

Results of Introduction

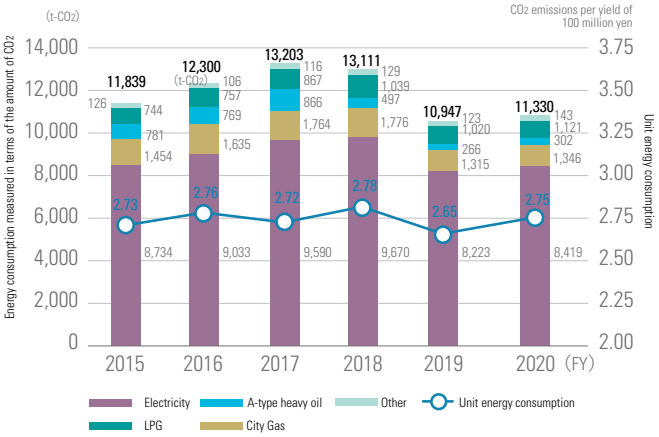
- Switching to LED lighting in F2 Wing at the Fujiyama Works
- Upgrade of two 35 kW compressors at the Kangawa Works

Switching to LED lighting at the Fujiyama Works

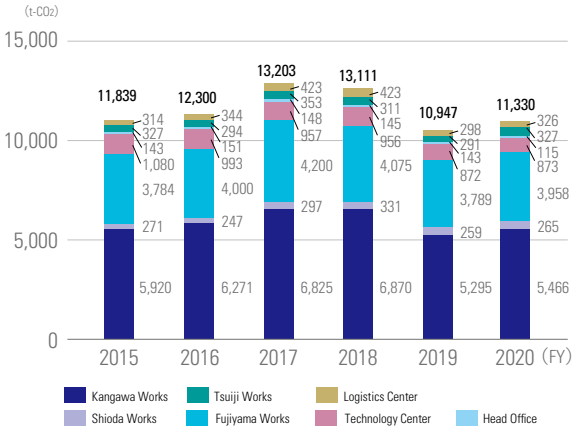
Compressors at the Kangawa Works

Energy Saving

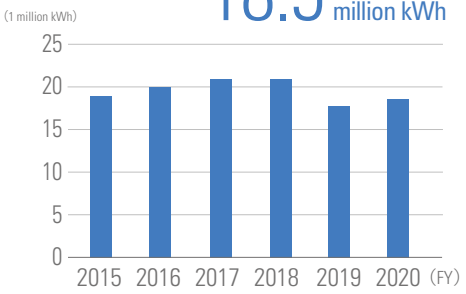
Energy consumption measured in terms of the amount of CO_2



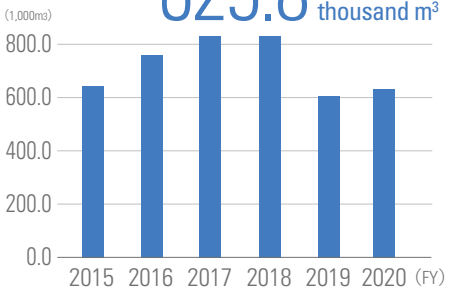
Amounts of CO_2 emissions by site



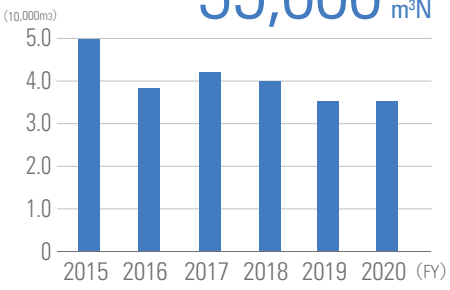
Power consumption 18.5 million kWh



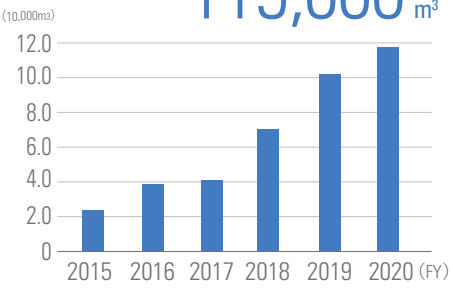
City Gas (Kangawa Works) 625.8 thousand m³



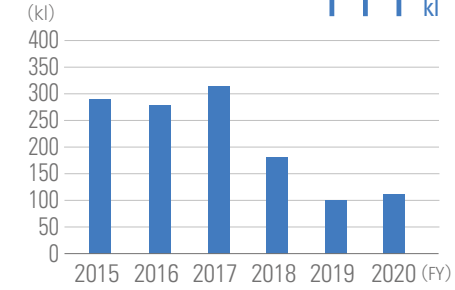
LPG (Technology Center) 35,000 m³N



LPG (Fujiyama Works) 119,000 m³



A-type heavy oil (Shioda Works and Fujiyama Works) 111 kl



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

Energy Saving

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) Systematic operation of boilers according to weekly calendar timers	(1) Savings in electricity by preventing switches from being left on (2) Improved productivity, conserved electric power. (3) Control of the use of A-type heavy oil
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 heavy oil A. (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

Reuse & Recycling

Zero-emission Activities

In fiscal 2020, 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

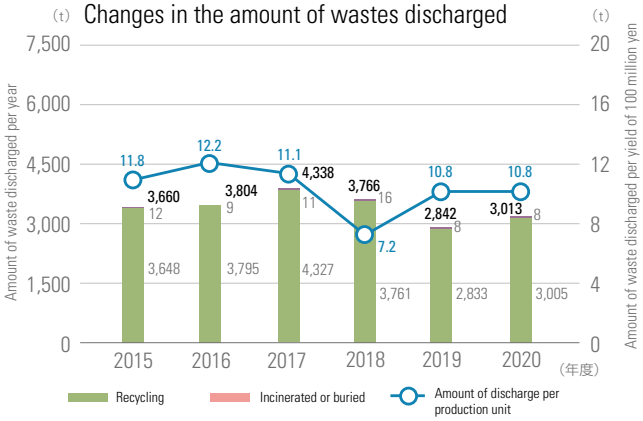
We promote in-house recycling of unneeded supplies such as OA equipment, desks, shelves and chairs.

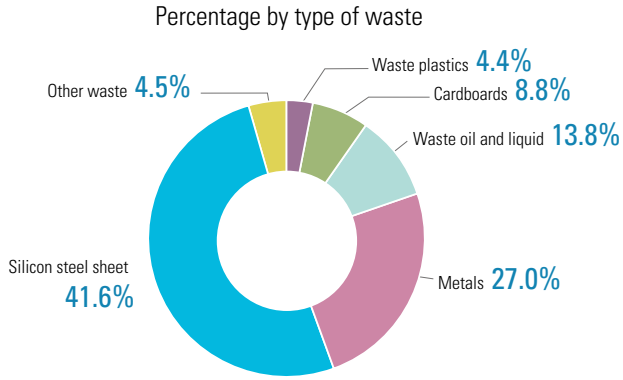
Reuse of Materials

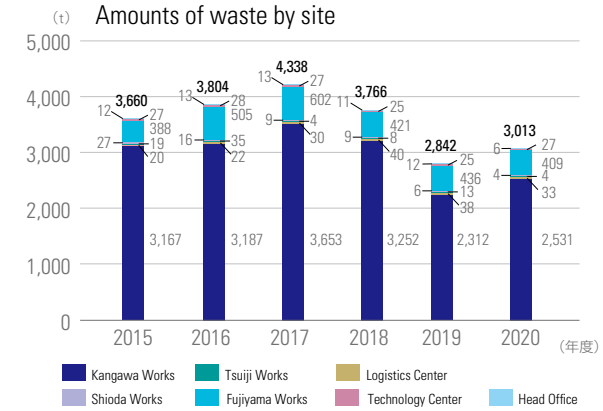
We return the wooden and plastic pallets used to transport purchased parts and materials to companies transporting them and reuse such pallets among our bases and cooperating companies. We also crush wooden pallets into chips, which are used for mulch at greenery around our sites.

[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







Chemical Substance Management

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 2021). 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).
  - Switching to applications that are exempt from RoHS (lead in metals, etc.)
- Inclusion surveys and alternative countermeasures for US TSCA PBT5 substance regulations
- 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 high concern: 211 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)

Chemical Substance Management

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 2020, 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 14 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	12.0t
Triphenyl phosphate	Fujiyama Works	2.5t
Antimony and its compounds	Fujiyama Works	2.2t
Methylnaphthalene	Fujiyama Works	1.0t

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

Environmental Accounting

SANYO DENKI has been employing an environmental accounting system since fiscal 2003 with the aim of implementing efficient and effective measures for environmental conservation. We measure the costs required for environmental conservation in our business activities and the effects produced by these activities using quantitative indicators (measured in terms of monetary units or physical quantities) 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 2020

(1) Environmental Conservation Costs

Environmental Conservation Costs in FY2020 were 1,419 million yen in total comprising 383 million yen for investment and 1,036 million yen for costs and expenses. Regarding investment as a global environmental conservation cost, we replaced the conventional compressors with an energy-saving type at the Kangawa Works, and switched the lights to LED lighting at the Fujiyama Works. In addition, in relation to R&D costs, we worked to develop Eco-products. Regarding costs and expenses, R&D costs and management activities costs posted the high rates of 58% and 26%, respectively.

(2) Environmental Conservation Effects

Increased production at our bases resulted in an increase in CO_2 emissions of 1,044 tons, 13 KL of A heavy oil, and approximately 33 tons of LPG compared with the respective amounts for the previous fiscal year.

(3) Economic Effects

Cost savings due to energy saving increased approximately 22% from the previous fiscal year to 530 million yen. Profits from sales of useful materials were 57 million yen, up approximately 30% from the previous fiscal year. Furthermore, promotion of a paperless workplace resulted in an approximate 20% reduction in the use of copy paper and copy costs compared to the previous fiscal year, amounting to a savings of 15 million yen.

"Environmental Accounting Guidelines" published by the Ministry of the Environment, Format for publication C
Data range (company-wide)
Period covered: April 1, 2020 to March 31, 2021

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	23,346
	2. Global environment conservation costs	Periodic electricity checks	38,269	77,404
	3. Resource recycling costs	Reduction of waste, recycling, and proper waste disposal	0	60,276
	Total of items 1 through 3		38,269	161,026
(2) Upstream and downstream costs		Green procurement of office supplies and commissions for refurbishing and reconditioning products	0	3,835
(3) Administration costs		Development and operation of EMS and environmental training for employees	0	265,334
(4) R&D costs		Development of Eco-products (such as testing equipment and molds)	344,721	600,409
(5) Social activity costs		Annual membership fee for the Japan Environmental Management Association for Industry, and other fees	0	5,685
(6) Environmental damage measure costs		Assessment of soil contamination, and costs for countermeasures	0	0
Total			382,990	1,036,288

Expenses include depreciation of facilities and personnel costs.

Environmental Accounting

Effects of Environmental Conservation

Classification		Environmental performance indicators (unit)		Fiscal 2019	Fiscal 2020	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	10,286	11,330	△ 1,044
			Electricity consumption (10,000 kWh)	1,807	1,850	△ 43
			A-type heavy oil consumption (kl)	98.3	111.3	△ 13.0
			LPG consumption (t)	340	374	△ 33.3
			Kerosene consumption (kl)	2.5	2.1	0.4
			Light oil consumption (kl)	8.7	17.6	△ 8.9
			Town gas consumption (1,000 Nm^3)	611	626	△ 14
			Gasoline consumption (kl)	40.7	39.8	0.8
		Percentage of renewable energy in total energy consumption	Photovoltaic power generation (%) (company-wide)	2.79	4.35	1.56
	Input of water	Water consumption		52.9	51.8	1.1
	Input of other resources	Input of other resources	Copy paper consumption (10,000 sheets)	469.8	397.9	71.9
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)	2,833	3,013	△ 180
		Percentage of recyclable materials in the total discharge of waste	Recyclable materials and useful materials (%)	99.68	99.73	0.05
		Discharge of hazardous waste		9.4	5.8	3.6

Economic Effects of Environmental Conserving Measures (Substantive Effects)

(In thousands of yen)

Classification		Amount
Profits	Sales of useful materials	56,720
Reduction of costs	Reduction of costs by energy saving	52,979
	Reduction of waste disposal costs by recycling	△ 3,659
	Reduction of expenses for copy paper	3,674

Activities at Offices and Works / Environmental Managers

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.

The number of employees is as of March 2021

Head Office　Satoshi Hashiguchi

- 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　Hiroyuki Nishimura

- Location : Ueda Research Park, 812-3 Shimonogo, Ueda-shi, Nagano
- Area : 44,908 m^2
- 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 18 new items as Eco-products in fiscal 2020. Currently, we are working to comply on the four additional substances specified in under the RoHS Directive and substances of very high concern (SVHC) under REACH. We have also worked to reduce the consumption of electricity, LPG and copy paper, as well as the amount of waste, and cleaned areas around the Ueda Research Park for the local community. We will continue to promote energy savings with high efficiency products designed to be environmentally friendly, reuse of electric energy using power regeneration functions, etc., in order to help customers reduce their environmental burden when using our products.

Kangawa Works　Kazuhiko Takizawa

- Location : 5-4 Tonoshiro, Ueda-shi, Nagano
- Area : 67,140 m^2
- 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.
- Made efforts to conserve energy through automation using servo systems.
- 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　Kazuhiko Takizawa

- Location : 517 Goka, Ueda-shi, Nagano
- Area : 5,698 m^2
- 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 m^2
- 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 Summary

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	—	7.9
	BOD (mg/L)	20	19	16.0
	SS (mg/L)	30	28	17.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	55

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	63

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	79
	Sox (m^3N/h)	Exempted		
Water quality Water pollution control laws, ordinance and agreements	PH (pH)	5.8 ~ 8.6	—	7.7
	BOD (mg/L)	20	19	34.0
	SS (mg/L)	60	54	40.0
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	0.0092
	NOx (ppm)	180	130	63
	Sox (m^3N/h)	5.0	2.5	0.009
Water quality Water pollution control laws, ordinance and agreements	PH (pH)	5.8 ~ 8.6	—	7.9
	BOD (mg/L)	50	48	14.0
	SS (mg/L)	60	54	18.0
Noise Laws, ordinances and agreements for noise regulation	(dB)	Exempted		

Waste Recycling Data

Waste		Amount discharged (tons)	Amount recycled (tons) / Recycling rate (%)	Recycling method
Sludge	Organic sludge	7.5	7.5 / 100	After oil and water are separated, dehydrated residues are turned into compost.
	Inorganic sludge	17.0	16.2 / 95.1	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	7.0	6.6 / 94.6	After oil and water are separated, the materi al is recycled as fuel.
	Water-soluble materials (detergents, grinding liquid, etc.)	261.1	261.1 / 100	Reuse and incinerated residues are used as cement materials.
	Volatile materials	3.6	3.6 / 100	Distilled and used as recycled oil.
	Waste acid (batteries)	69.7	69.7 / 100	Crushed, sorted, and all recycled.
Waste plastics	OA equipment and circuit boards	14.8	14.8 / 100	Crushed, sorted, and all recycled.
	Vinyls and films	70.6	70.6 / 100	Turned into solid fuel (refuse derived fuel), reducing agents (using furnaces), and materials for power generation (thermal recycling)
	Molding scraps	25.7	25.7 / 100	
	Other solid scraps	17.6	17.4 / 98.4	
	Styrofoamrecycling	2.8	2.8 / 100	Turned into raw materials (material recycling); immersed in solvent to be turned into soil, and recycled as raw material
Metal scraps	Scraps generated in manufacturing processes	2063.3	2063.3 / 100	Recycled as metal materials
	Metals (including empty cans)	0.1	0.1 / 100	
Paper scraps	Used paper	5.4	5.4 / 100	Turned into raw materials for recycled paper
	Newspapers, magazines, and other papers	40.0	40.0 / 100	
	Cardboards	264.0	264.0 / 100	
Wood scraps	Packages and transportation pallets	55.3	55.3 / 100	
Glass and ceramic scraps	Empty bottles, glass, and ceramics	2.1	2.1 / 100	Crushed and turned into road construction materials
Other waste	Paper scraps and other waste	6.6	0.1 / 2	Incinerated
Total		3013.3	3005.3 / 99.7	

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