

Denyo

Environmental Report

2017

 **Denyo Co., Ltd.**

Contents

Editorial Statement...p.3

Eco-Friendly Products...p.10

Developing Products with
High Environmental Performance

Management ...p.4

Eco-Friendly Production ...p.12

Message from the President
Environmental Philosophy
Environmental Policies
Environmental Management Structure
Environmental Targets and Achievements
Environmental Impact Overview

Global Warming Prevention
Formation of a Recycling-based Society
Managing Chemicals

Topics...p.15

Environmental Measures for Production Base

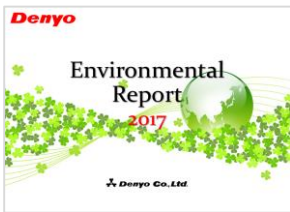
Editorial Statement

Information Disclosure

Denyo Co., Ltd. will use the media shown below to disclose information to all stakeholders about its environmental initiatives aimed at delivering a sustainable society.

【Annual Environmental Report】

<http://www.denyco.co.jp/english/>



Reporting Period

Fiscal 2017 (April 2016 to March 2017) and for some content, the periods before and after.

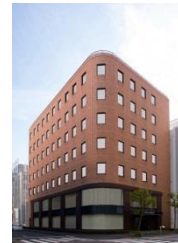
Publication Date

October 2017

Guidelines

Environmental Reporting Guidelines (2012), Ministry of the Environment

Contact



Denyo Co., Ltd.
2-8-5, Nihonbashi-Horidomecho, Chuo-ku,
Tokyo 103-8566
Website: <http://www.denyco.co.jp>
Planning & Coordination Department:
Phone: +81-3-6861-1111
Facsimile: +81-3-6861-1185

Disclaimer

This Environmental Report may contain predictions or forecasts about the future. Actual results may vary from forecasts due to a variety of factors.

Management

Contents

Message from the President	...p.5
Environmental Philosophy	...p.6
Environmental Policies	...p.6
Environmental Management Structure	...p.7
Environmental Targets and Achievements	...p.8
Environmental Impact Overview	...p.9



Management

Message from the President



In September 2015, at the United Nations summit, member countries adopted the Sustainable Development Goals (SDGs), and in November 2016, the Paris Agreement on climate change entered into force. This movement was inspired by the urgent need to take global measures against the greenhouse gas emissions caused by human activities, which affect climate change and result in serious damage to the environment. As a company operating a global business, we, the Denyo Group, believe that we are responsible for dealing earnestly with environmental issues and positively carrying out activities and developing products that are environmentally friendly.

Given this situation, we have been introducing energy-efficient facilities, promoting the 3R activities and greening, and making other efforts to reduce CO₂ emissions and waste materials in our business activities. In product development, we are developing hybrid products and expanding the lines of products that are equipped with automatic idling stop function, which reduces CO₂ emissions, and Eco Base as standard, which minimizes oil outflow if oil ever leaks.

All members of the Denyo Group will continue to carry out business activities while addressing global environmental issues to contribute to building a rich society.

Meanwhile, we are taking steps to shift to the ISO 2015 standards. We are striving to provide greater satisfaction and earn the enhanced trust of our stakeholders by improving our quality assurance system and environmental efforts. We would greatly appreciate your continued understanding and support.

October 2017

Shoichi Shiratori,
President
Denyo Co., Ltd.

A handwritten signature in black ink that reads "S. Shiratori".

Management

Environmental Philosophy

As well as contributing to social infrastructure upgrades worldwide through our power source products, Denyo is profoundly aware of its corporate social responsibility to conserve the environment, and tirelessly promotes environmentally sound business activities.



Environmental Policies

1. In our business activities, we strive to prevent pollution and to promote eco-friendly products while seeking ways to maintain a healthy environment by conserving materials and energy, cutting back on solid waste, and reducing odors and noise.
2. We comply with environmental regulations and other agreed requirements, and we respect related demands from society.
3. As well as building a system of management to engage with environmental conservation and finding ways to make continual improvements, we set environmental goals and targets, and improve environmental performance by carrying out reviews.
4. As well as documenting the environmental policies to inform employees and everyone who works on behalf of the company, we disclose the information in the public domain.

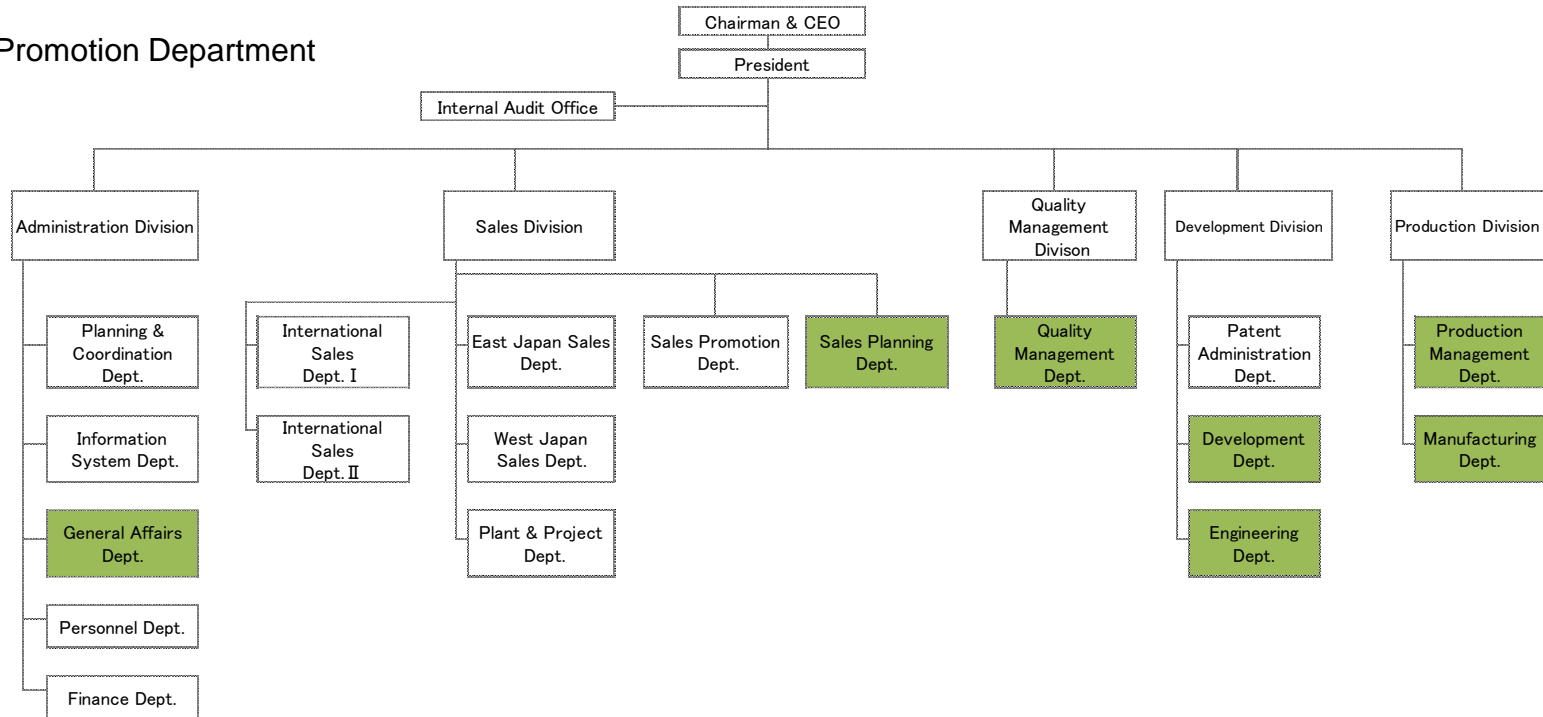
Management

Environmental Management Structure

Promotion System

Denyo is carrying out promotion activities aimed at reducing the total environmental impact by the following promotion Dept. intensively.

... Promotion Department



ISO14001 Certification

We obtained ISO14001:2004 certification for our environmental management systems on October 19, 2006. And one of the Denyo group companies, Denyo Vietnam Co., Ltd. also has obtained ISO9001, ISO14001 certification. We control CO₂ emissions by conserving resources and energy. Through our business, we also carry out activities aimed at reducing the total environmental impact.

Management

Environmental Targets and Achievements

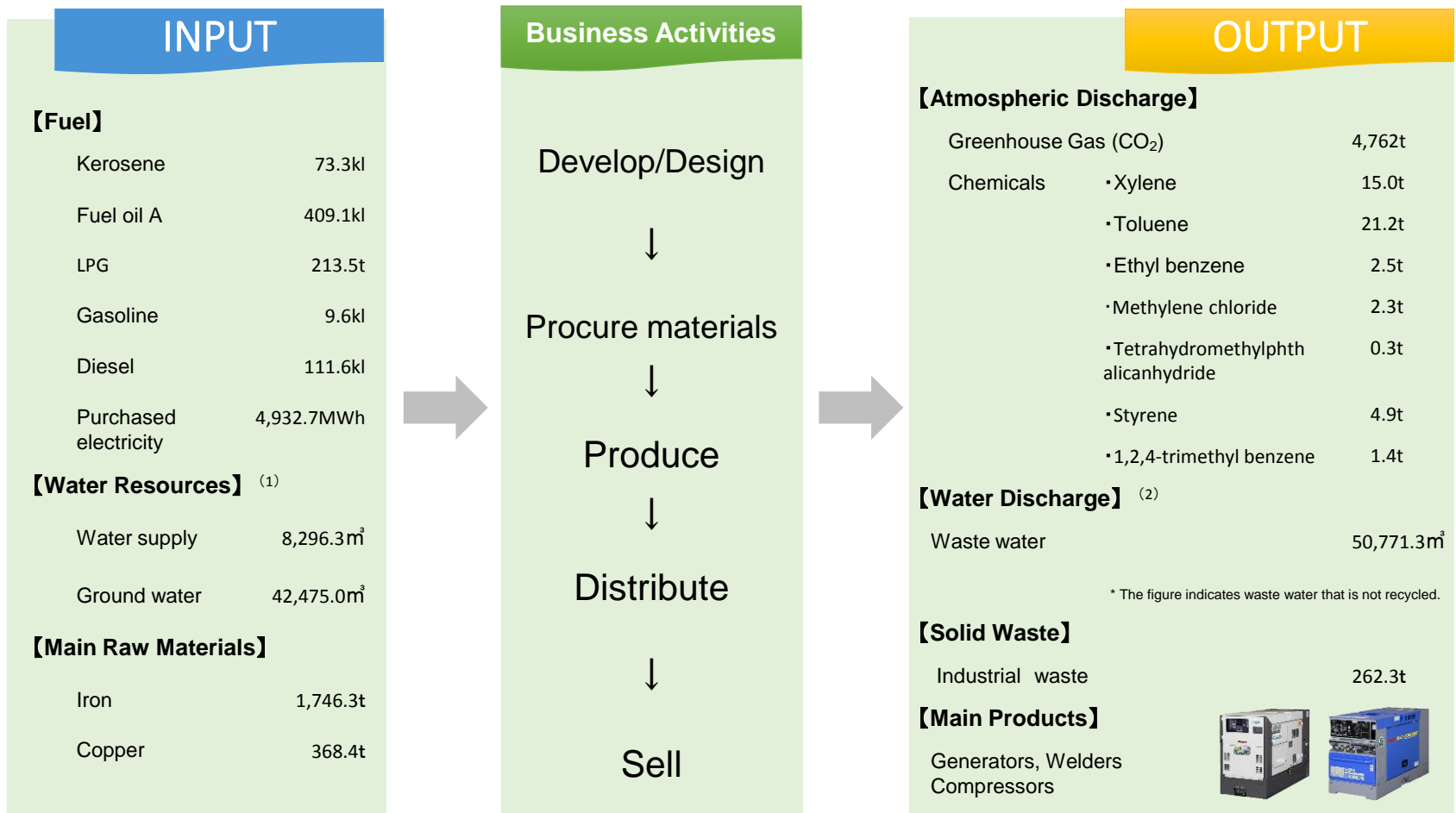
To implement environmental management, we set targets for each financial year and carry out evaluations from time to time.

Item	FY2017 Target	FY2017 Achievements	FY2018 Target
Develop products with high environmental performance	We will develop eco-friendly products.	We expanded the products that standardly equipped with an environmentally friendly base and idling stop function, and developed the new products such as silent generator and hybrid power generator, etc.	We will develop eco-friendly products.
Formation of a recycling-based society	By the end of FY2017, we will cut the volume of industrial waste per output by at least 15% compared to FY2012 levels.	-22.7% year-on-year reduction in discharge volume compared to FY2012 levels -23.6% year-on-year reduction per output compared to FY2012 levels	By the end of FY2018, we will cut the volume of industrial waste per output by at least 1% compared to FY2017 levels.
	By the end of FY2017, we will cut the volume of crude oil equivalent energy used per output by at least 30% compared to FY2012 levels	-21.6% year-on-year reduction in consumption volume compared to FY2012 levels -22.8% year-on-year reduction per output compared to FY2012 levels	By the end of FY2018, we will cut the volume of crude oil equivalent energy used per output by at least 1.5% compared to FY2017 levels.
Contribute to society	Enhance maintenance in green belts adjoining the areas around our business facilities.	-We carried out the first phase of planting on the south side of the entrance to the Fukui Plant and mowed the weed zones , increased the planter ,created the green curtains made of bitter melons, etc. -We did the maintenance and cleaning in Shiga Plant with the aim of creating harmony with nature. - We did the planting, cleaned and mowed surrounding the Laboratory & Training Center.	Enhance maintenance in green belts adjoining the areas around our business facilities.

Management

Environmental Impact Overview

At Denyo, we understand the material input for our business activities and we endeavor to reduce the environmental impact.



N.B.
(1) and (2) are totals for the Fukui and Shiga Plants.

Eco-Friendly Products



Contents

Developing Products with High
Environmental Performance

...p.11

Silent Generator "Mālie"

Hybrid Power Generator

Eco-Friendly Products

Developing Products with High Environmental Performance

● Silent Generator “Mālie”

Mālie ※1 is the industry’s first silent generator with a noise value of just 43 dB ※2, which was developed in an effort to minimize noise as much as possible in response to increasing demand for noise-reduction functions in recent years.

To achieve quietness, we used various means such as removing the engine fan, which was the source of the noise, and attaining cooling with only two electric fans and creating a double structure of the muffler and resonator to maximize the effect of reducing the noise from the intake and exhaust system in a limited space.

The noise value of 43 dB achieved through these efforts is almost equivalent to the quietness of a library, which eliminates user stress. We will continue to actively develop products that offer not only high noise-reduction performance, but also environmental friendliness.

※1: Mālie is the Hawaiian word for “quiet” or “calm.”
※2: Averaged value of 50Hz no-load machine with 7 meters of four directions.



DCA-25MZ

● Hybrid Power Generator

Our hybrid power generator is an environmentally-friendly product that combines a battery and power generated with a diesel engine.

The battery supplies AC power when it is charged, and when the battery power runs low, the generator automatically activates the engine and switches the power source to the generator and starts charging the battery.

When the battery is fully charged, the engine stops and the power source changes back to the battery. We have achieved low fuel consumption based on the new idea of storing the efficiently generated electricity in a battery and outputting it.

This has enabled continuous operation for approximately twice as long as conventional engine-based generators. Additionally, the power generation from the battery allows silent operation, which can be used at night time or in a housing area without stress.



HYB-2000E

Eco-Friendly Production

Contents

Global Warming Prevention	...p.13
Formation of a Recycling-based Society	...p.13
Managing Chemicals	...p.14



Eco-Friendly Production

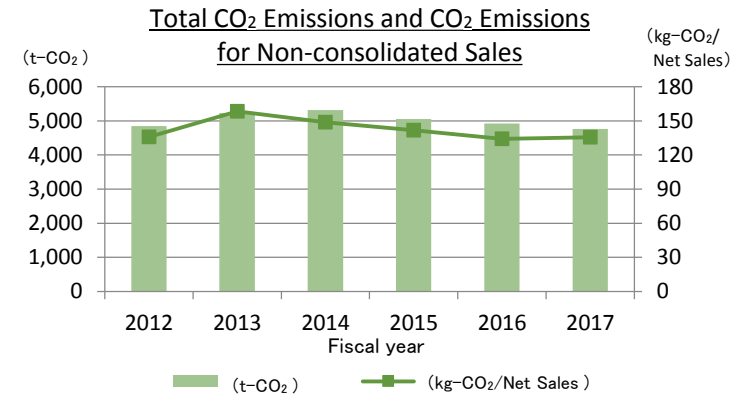
Global Warming Prevention

● Reduce CO₂ Emissions

Denyo endeavors to prevent global warming through initiatives to reduce CO₂ emissions due to business activities. CO₂ emissions in FY2017 were 4,762 tons, a decrease of 1.8% from the FY2012 levels. After the Great East Japan Earthquake, due to the conversion coefficients to CO₂ emission increased, the numeric value has improved slightly compared to FY2012, but power consumption before conversion to CO₂ emissions coefficients decreased 20.8% from the FY2012 levels. The amount of the consumption of fuels also decreased drastically, 18.3% from the FY2012 levels. We will continue to implement initiatives to cut CO₂ emissions during FY2018.

	Power consumption (thousand kWh)	Fuel consumption (GJ)	CO ₂ emission after conversion (t)	CO ₂ emissions (kg) / Non-consolidated sales (Millions of yen)
FY2017	4,932.7	34,088.2	4,762	135.6
FY2012	6,224.3	41,736.6	4,850	135.9
Change from FY2012	△ 20.8%	△ 18.3%	△ 1.8%	△ 0.2%

※Net sales is Denyo Non-consolidated Sales



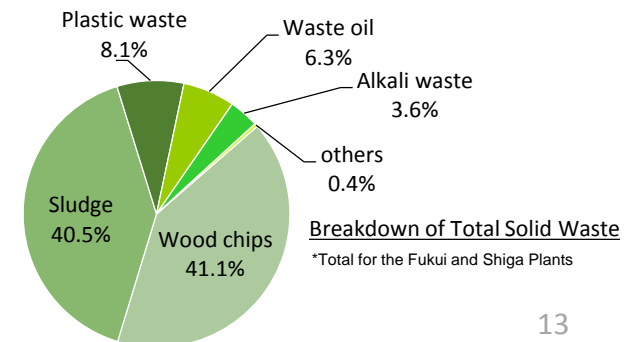
Formation of a Recycling-based Society

● Reduce Solid Waste

We manage and process solid waste appropriately and in compliance with all laws and ordinances.

In FY2017, we discharged about 262 tons of industrial waste, down by 23.6% per output compared to the FY2012 levels, which is far above the target.

We are also working toward to implement initiatives to reduce a certain amount or more of Solid Waste stably.



Eco-Friendly Production

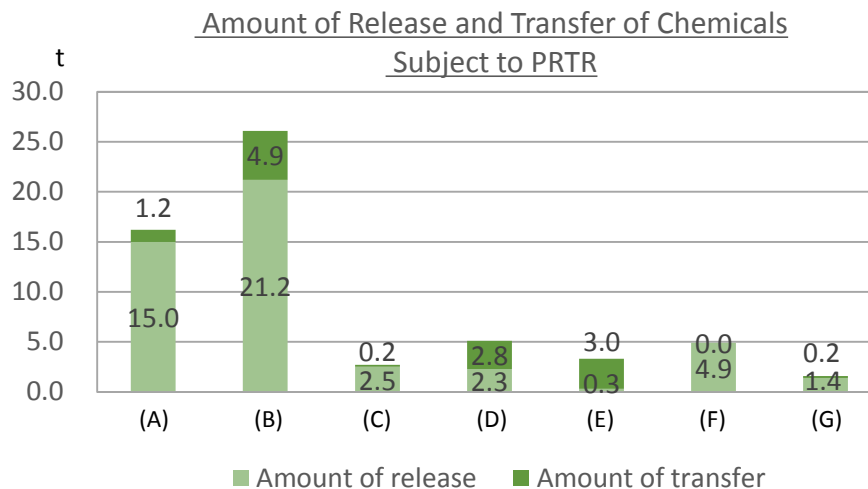
Managing Chemicals

Managing Chemicals Subject to PRTR

Based on the PRTR Law, we compile and release data on chemicals subject to the PRTR including amounts released into the environment or transferred as solid waste.

*A Pollutant Release and Transfer Register (PRTR) is a system for compiling and disclosing data on hazardous chemical substances including their sources, how much is released into the environment or transferred off-site with solid waste.

Substance	Amount released to the atmosphere	Amount of transfer
(A) Xylene	15.0	1.2
(B) Toluene	21.2	4.9
(C) Ethyl benzene	2.5	0.2
(D) Methylene chloride	2.3	2.8
(E) Tetrahydromethyl phtalicanhydride	0.3	3.0
(F) Styrene	4.9	0.0
(G) 1,2,4-trimethylbenzene	1.4	0.2
		(Unit: t)



Topics



Contents

Environmental Measures for Production Base

- Reduction of Waste Materials through the Introduction of Iron Pallets ...p.16
- Planting on the South Side of the Entrance to the Fukui Plant ...p.16
- Installation of Solar Panels ...p.17



Topics

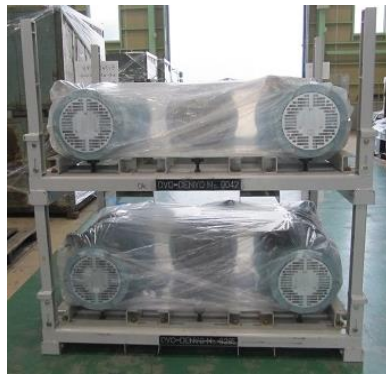
Environmental Measures for Production Base

● Reduction of Waste Materials through the Introduction of Iron Pallets

We have installed iron pallets on the loading platforms used to transport products and other goods. Conventional wooden pallets deformed every time they were used and were disposable. Iron pallets, on the other hand, can be used repeatedly and help reduce the amount of scrap wood. The pallets can be piled up in the storage area when they are not in use, which helps us to keep the storage area tidier than before. We will continue our efforts to reduce waste and actively promote the 5S activities in the factories.



Wooden pallets



Iron pallets

● Planting on the South Side of the Entrance to the Fukui Plant

We have undertaken planting on a slope to the side of the entrance to our Fukui Plant from a road in the town of Wakasa. We are improving the environment around the Fukui Plant with the aim of creating harmony with nature, and we recently completed the first phase of our planting. We planted azaleas and dwarf azaleas, and we expect them to have beautiful flowers from next year on. We are planning the second phase of the planting in fiscal year 2018, and we will continue to improve the environment with a focus on harmony with nature.



Slope where azaleas and dwarf azaleas were planted

Topics

● Installation of Solar Panels

Our subsidiary in U.S., Denyo Manufacturing Corporation, has extended and reconstructed its office building and installed 30 kW solar panels on its premises. This solar panel system supplies all the power needed for the office building, and any surplus energy can be used in the factory area. In addition, numerous large windows have been installed in the office building and cafeteria, which allow natural light to enter the building and help create a bright, comfortable space even with a small amount of electricity. The Denyo Group will continue to promote energy and power conservation and work to reduce electricity consumption and CO2 emissions.



New DMC office building



30 kW solar panels



Training room with intake of natural light

Developing Technology Tomorrow's Power Needs.

Denyo[®]

 **Denyo Co., Ltd.**

2-8-5, Nihonbashi-horidomecho, Chuo-ku, Tokyo 103-8566, Japan

Phone: +81-3-6861-1111, Facsimile: +81-3-6861-1181

<http://www.denyo.co.jp>