

In order to "achieve a sustainable society," the Noritake Group has acquired certification under the international standard ISO 14001 at all of our major domestic business sites and promotes environmental activities such as developing environmentally-friendly products and taking countermeasures on global warming. In particular, as a measure against global warming, we believe that the use of renewable energy has a significant effect on the reduction of greenhouse gases, and we have installed solar power generation facilities at our domestic offices, including Noritake Garden.



The report "12. Harmony with the environment" (P33 to 40) was created using data from NORITAKE CO., LIMITED, HIROSHIMA KENMA K.K., NORITAKE COATED ABRASIVE CO., LTD., ZEN NORITAKE CO., LTD., NORITAKE RECYCLE CENTER CO., LIMITED, KCM CORPORATION, KYORIX MIE CO., LTD., NORITAKE ITRON CORPORATION, NORITAKE TCF CO., LTD., NORITAKE GARDEN CO., LIMITED, PT. NORITAKE INDONESIA, NORITAKE SCG PLASTER CO., LTD., NORITAKE TAIPEI CO., LTD., and NORITAKE LANKA PORCELAIN (PVT) LIMITED.

Environmental action policy

Environmental Policies

The Noritake Group, as a company that manufactures products based on its founding spirit of "Good Quality, Export and Co-prosperity," positions the preservation of the global environment as an important management issue, and is contributing to the achievement of a "sustainable society" through its business activities.

- 1 We will strive to develop and provide environmentally-friendly products and services.
- 2 We will endeavor to reduce environmental burden in all processes of our business activities. In particular, we will strive to achieve the goals set for the reduction of CO₂ generation, resource saving, waste reduction, and recycling, and to manage hazardous substances appropriately.
- 3 We will build Environmental Management Systems from a global perspective and strive to reduce environmental burdens continually.
- 4 We will comply with environmental laws, regulations, and other requirements.
- 5 We will disclose information about our environmental activities and enhance our communication activities with stakeholders.

Environmental vision

The Noritake Group has taken up environmental issues in the company as one of its medium to long-term management issues, formulated environmental policies and environmental action plans, and promoted environmental protection activities.

In the 10th three-Year Environmental Action Plan that began in fiscal 2016, based on the results of previous efforts, we set targets and took action for reducing greenhouse gases and final landfill disposal as countermeasures for climate change and to promote resource recycling. In addition, in order to respond to our expanding overseas businesses, we introduced the Environmental Management Systems at our overseas production bases, aiming to comply with laws and regulations and reduce the risk of environmental pollution.

Aim

The Noritake Group as a whole will make efforts to promote voluntary environmental protection activities, actively work to reduce the environmental burdens and risks that occur in our business activities, and aim to contribute to global environmental protection. In addition, we will strive for co-prosperity with our stakeholders by implementing environmental management that balances environmental protection and generating business profits.

10th three-Year Environmental Action Plan initiatives

Under the 10th three-Year Environmental Action Plan, we promoted reduction of environmental burdens such as greenhouse gases and landfill waste by removing "Unreasonableness, Inconsistency and Waste" in our daily operations in conjunction with manufacturing enhancement activities. We also implemented appropriate management and processing of harmful chemical substances such as PCBs, and promoted the reduction of chemical substances contained in materials.

In fiscal 2018 (non-consolidated), there was a temporary increase in landfill waste, but we achieved the initial target for the entire plan period.

In the 11th three-Year Plan starting in fiscal 2019, we will continue to implement the activities of the 10th three-Year Plan and integrate business activities and environmental activities with the aim of further reducing environmental burden.

Three-Year Environmental Action Plan

10th three-Year Environmental Action Plan (fiscal 2016 to 2018 plan and fiscal 2018 results)

Activity item		Plan (fiscal 2016 to fiscal 2018)	Results (fiscal 2018)	Evaluation
Environmental management system	Operation of Environmental Management System	Continuous improvement of Environmental Management Systems	Improved Environmental Management Systems	○
	Promote environmental activities at overseas plants	Expand introduction of Environmental Management Systems Formulate activity plans	Introduced Environmental Management Systems Fact-finding and planning	○
Countermeasures for Global warming	[Domestic] Reduce greenhouse gas emissions	Per unit of production (Compared to fiscal 2015) 3% or more reduction	Per unit of production (Compared to fiscal 2015) Reduced 10%	○
	[Global] Reduce greenhouse gas emissions	Per unit of net sales (Compared to fiscal 2015) 1.5% or more reduction	Per unit of net sales (Compared to fiscal 2015) Reduced 11%	○
Resource recycling measures	[Domestic] Reduce landfill waste generation	Per unit of production (Compared to fiscal 2015) 3% or more reduction 80% or more recycling rate	Per unit of production (Compared to fiscal 2015) Reduced 14% 85% recycling rate	○
	[Global] Reduce waste	Per unit of net sales (Compared to fiscal 2015) 0.9% or more reduction	Per unit of net sales (Compared to fiscal 2015) Reduced 13%	○
Pollution measures	Dispose devices containing PCBs appropriately	Complete appropriate processing of devices containing PCBs	Completed appropriate processing of devices containing PCBs	○
	Reduce chemical substances used	Continue appropriate management of chemical substances Reduce use of chemicals as secondary materials	Continued appropriate management of chemical substances Promotion of chemical substance usage plan for secondary materials	○
Product measures	Reduce environmental burden with environmentally-friendly products	Set a company-wide target for environmentally-friendly products	Set company-wide target for environmentally-friendly products	○
	Enhance green procurement	Operation of Green Procurement Guidelines	Continued operation of Green Procurement Guidelines	○
Environmental communication	Practice of environmental education	Perform environmental education Systematization of environmental education	Continued implementation of environmental education Systematization of environmental education (manager education setting)	○
	Disclose information to stakeholders	Issue social and environmental reports	Issued Social and Environmental Report	○

11th three-Year Environmental Action Plan (Plan for fiscal 2019 to fiscal 2021)

Activity item		Plan (fiscal 2019 to fiscal 2021)
Environmental management system	ESG Initiatives	Achievement of environmental management based on the Group management system
	Promote environmental activities at overseas plants	Promoting environmental activities at each overseas office
Countermeasures for Global warming	[Domestic] Reduce greenhouse gas emissions	Reduce emissions per unit of production (compared to fiscal 2018) by 3% or more
	[Global] Reduce greenhouse gas emissions	Reduce emissions per unit of production (compared to fiscal 2018) by 6% or more
Resource recycling measures	[Domestic] Reduce landfill waste generation	Reduce emissions per unit of production (compared to fiscal 2018) by 12% or more Increase recycling rate by 85% or more
	[Global] Reduce wastes	Reduce emissions per unit of production (compared to fiscal 2018) by 9% or more
Pollution measures	Respond to use of prohibited substances	Reduce devices that use specified mercury and specified CFCs
	PRTR chemical substance management Compliance with chemical substance regulations	Reduce use of PRTR chemicals and continue to follow chemical substance regulations
Product measures	Environmentally-friendly products	Net sales ratio 11% or more
	Enhance Green procurement	Continue operation of Green Procurement Guidelines
Environmental communication	Practice environmental education	Expand environmental education
	Disclose information to stakeholders	Issue of integrated reports and disclose information through our website

Management system

► Environmental Management System organizational structure

We have established an environmental protection promotion system having the president as the Environmental Protection Supervisor.

The "Environmental Committee," chaired by the director in charge of the environment, deliberates the activity plan based on the results of the activities and approves unified guidelines for environmental protection promotion activities at the Management Conference.

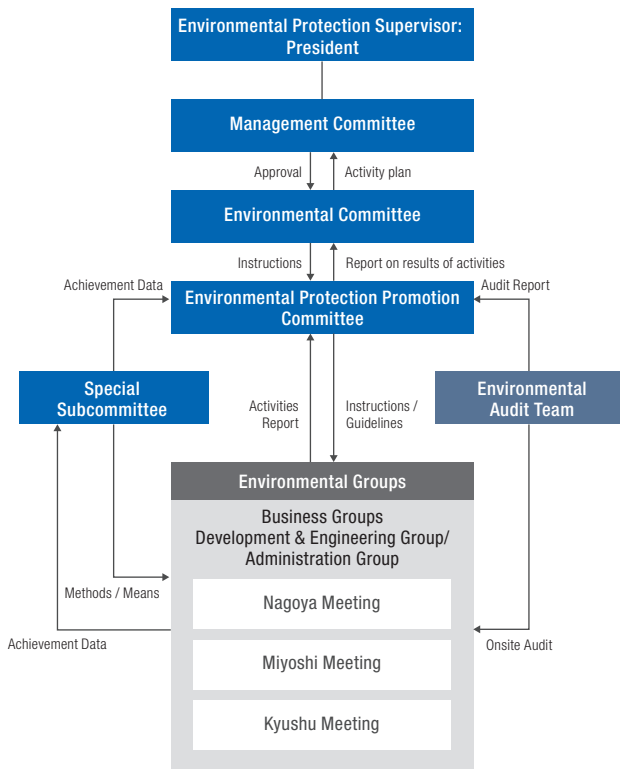
In addition, the Environmental Protection Promotion Committee is held every other month to plan and manage environmental protection activities and evaluate the results of activities.

Also, in order to promote initiatives effectively according to activity themes, we have established a "Special Subcommittee" comprised of managers from each department, which considers measures across the entire company.

For environmental protection activities in each business, Environmental Groups are established in each Business Groups to plan initiatives and manage progress.

In addition, in order to operate the Environmental Management System in cooperation with each region, we hold "ISO Meetings" in various locations.

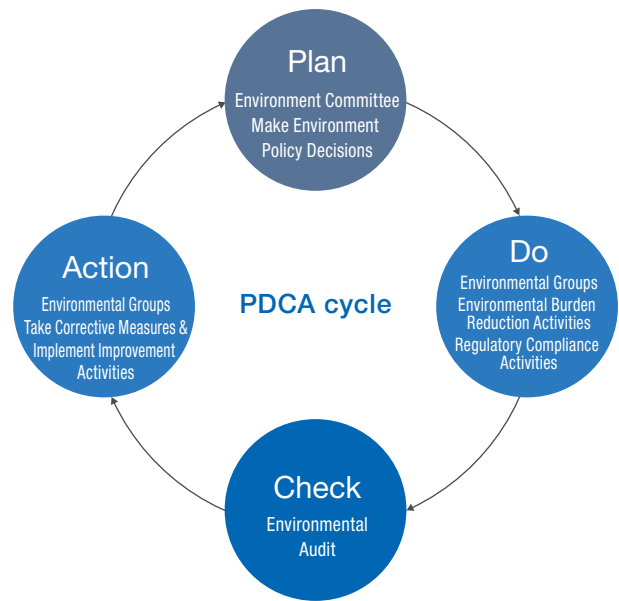
■ Environmental management organization and structure



► Operation of Environmental Management System

In order to realize a sustainable society, we have established an Environmental Management System based on the international standard ISO14001 and are continuously promoting environmental protection activities. We have received ISO14001 certification from a third-party organization at all domestic production sites, and in 2017, we completed the transition to the latest ISO14001: 2015.

■ PDCA cycle



ISO14001 certified offices

(Situation as of March 2019)

NORITAKE CO., LIMITED (JQA-E-90071 was obtained in 1997)

- NORITAKE CO., LIMITED
Head Office, Miyoshi Site, Kamimori Plant, Komaki Plant, Minato Plant, Matsusaka Plant, Yasu Plant, Kurume Plant, Imari Plant
- ZEN NORITAKE HEAD OFFICE
- HIROSHIMA KENMA
- NORITAKE RECYCLE CENTER
- NORITAKE TCF
- NORITAKE GARDEN
- NORITAKE ITRON
Omiya Office/Ouchiyama Office
- TONO KENMA
- NORITAKE COATED ABRASIVE
Head Office/Noto Plant

KCM (JSAE393 was obtained in 2001)

- KCM
Head Office/Head Office Plant
- KYORIX MIE
Mie Plant

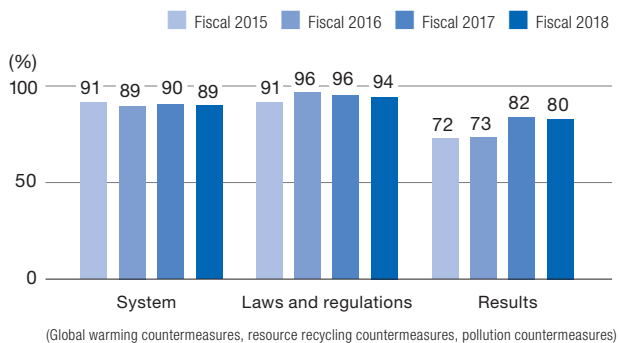
Overseas offices are also establishing Environmental Management Systems to promote environmental protection activities in the same way as in Japan. They are setting up environmental systems considering the regional characteristics of each country, such as laws and regulations.

▶ Results of fiscal 2018 group environmental supervision

In order to properly promote environmental protection activities, the Environmental Audit is conducted every year by the Environmental Protection Promotion Committee.

The Audit investigates the status of implementation of environmental activities at all plants and evaluate the results. In particular, in order to prevent environmental pollution, it focuses on on-site confirmation of production processes and facilities. In addition, by conducting this Audit, we are working to resolve problems and issues related to environmental burden reduction activities, and to help improve the overall system.

Average score rate for each audit item



The Environmental Audit in fiscal 2018 evaluated the results of the environmental burden reduction activities in the Environmental Management System, legal and regulatory management, and the 10th three-Year Environmental Action Plan.

As a result, we were able to confirm that the Environmental Management System and legal and regulatory management are being operated based on the established procedures. We also confirmed that the environmental burden reduction activities are generally carried out according to the three-Year Environmental Action Plan, although there were some delays.

However, the integration of core business issues and environmental issues, which is necessary to promote more effective environmental activities, is lacking, and this is a priority issue for the 11th three-Year Environmental Action Plan starting in fiscal 2019.



Environmental internal audit

▶ Environmental communications

In order to promote environmental protection activities throughout the company, it is important for each person, from management to new employees, to correctly recognize environmental issues and to raise awareness of environmental protection. Therefore, in addition to providing environmental education by qualification, we regularly disseminate information on environmental activities through our in-house newsletter to publicize environmental initiatives. We also hold specialized education for personnel who require specialized knowledge such as laws and regulations.

In order for as many people as possible to understand the Noritake Group's approach to the environment, we disseminate information in this report and on our website.



In-house environmental education

▶ Regulatory compliance and complaints

Regulatory compliance and complaints

In fiscal 2018, there were no deviations or complaints regarding environmental regulations or standard values.

In addition, there were no penalty or lawsuits from the supervisory authorities regarding the environment.

Devices containing PCB

For equipment containing PCB, we implement strict storage management, and proceed with appropriate processing sequentially based on the processing plan.

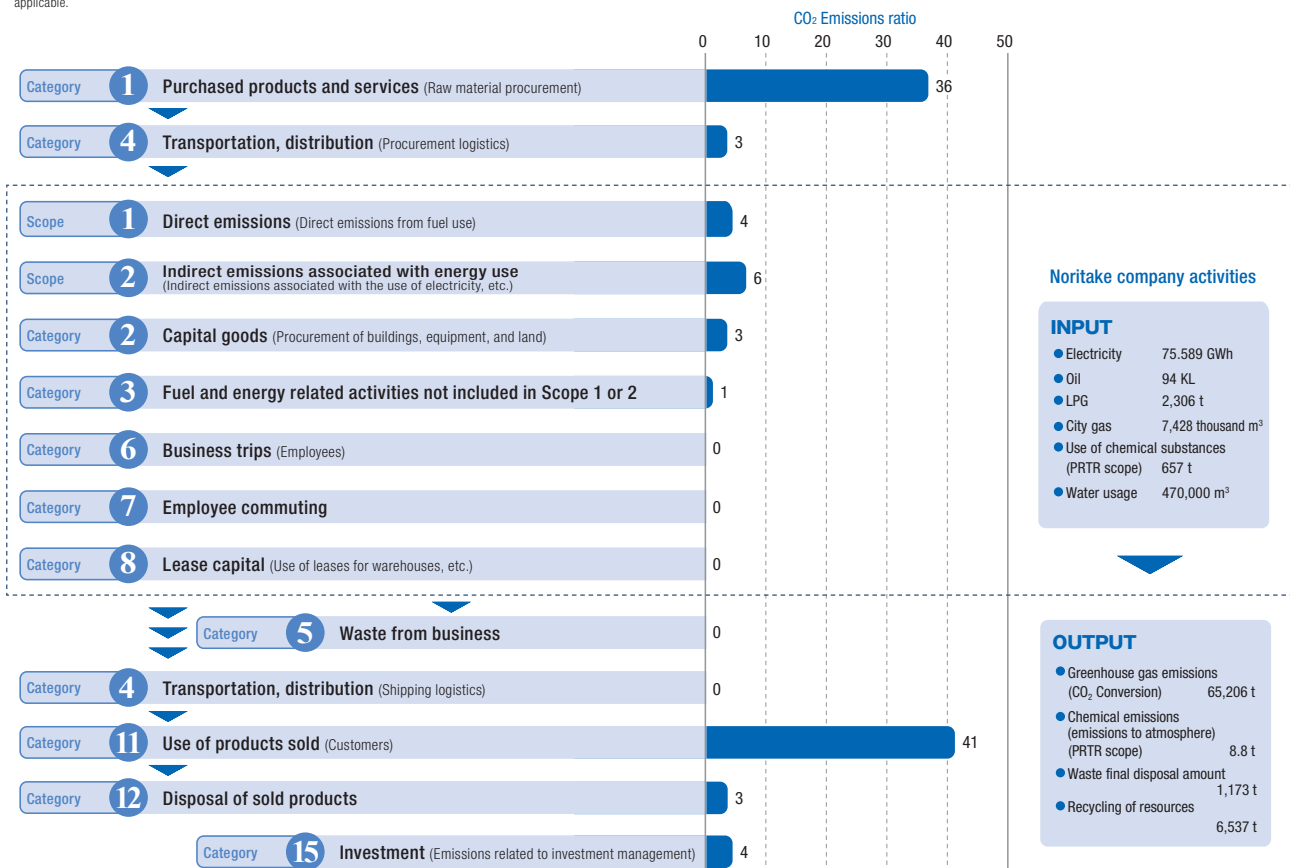
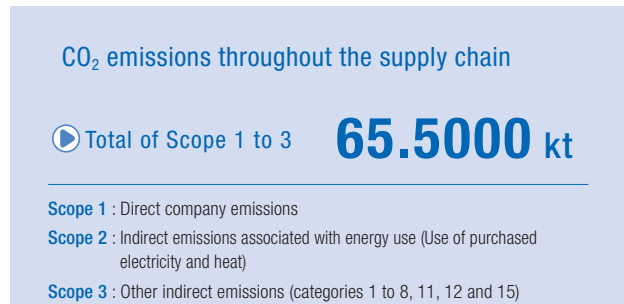
Reduce environmental burden

► Overall picture of environmental burden (Scope 3)

We are working to reduce environmental burden more effectively by monitoring the overall environmental burden of the entire product life cycle from raw material procurement to disposal after product use.

Noritake calculates greenhouse gas emissions based on the international standard Scope 3 and uses them as an activity indicator.

* Calculation method
 - Calculated in accordance with the Ministry of the Environment and Ministry of Economy, Trade and Industry's "Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain Ver 2.0."
 - Categories 9, 10, 13, and 14 out of the 15 categories of Scope 3 were excluded from the calculation because they are not applicable.



► Pollution measures

Pollution control activities

In order to reduce the risk of environmental pollution caused by chemical substances, it is important to reduce the use of substances that adversely affect the environment as much as possible and to prevent dispersal and leakage through proper storage and handling.

In the 10th three-Year Environmental Action Plan, we aimed to reduce the impact of harmful chemicals on the environment, strengthened the management of chemical substances, and promoted the reduction of chemical substances used as secondary materials.

Chemical substance management

We have established a chemical substance management system that covers chemical substance-related laws for the entire Noritake Group. Chemical substance management consists of two parts: Screening and approval rules to control new use of harmful chemical substances, and monitoring the amount of chemical substances used and transferred. In this way, we are visualizing the conditions of chemical substances used and working to reduce the use and emission of hazardous substances.

We also issue and operate the "Chemical Contamination Prevention Control Standard" that uniquely defines the structural standards and inspection standards of related facilities for the storage and use of harmful chemical substances, and we are striving to prevent the dispersal and leakage of chemical substances.

▶ Countermeasures for global warming

Global warming countermeasure activities

The Noritake Group is working to reduce greenhouse gases that cause global warming. In the 10th three-Year Environmental Action Plan, we have been working to reduce greenhouse gas emissions per production volume by 1% or more compared to the previous year. In order to reduce greenhouse gases, we are actively promoting the reduction of energy consumption by improving the efficiency of our production facilities and fuel conversion.

In addition, as a measure against global warming we expanded the use of renewable energy. We have promoted the installation of solar power generation facilities, making effective use of our business sites. We started operations at six locations in Japan, and have contributed over 1,500 tons of CO₂ reduction per year.



Solar power generation facility

Global Warming Countermeasures Dedicated Committee initiatives

In order to share information necessary for global warming countermeasures and work on activities with a company-wide policy, we have established a Global Warming Countermeasures Dedicated Committee in which "energy management plan promotion staff" and "energy management managers" from the main plants participate. This Global Warming Countermeasures Dedicated Committee confirms the progress of company-wide greenhouse gas reduction activities and considers ways to promote preventing global warming.

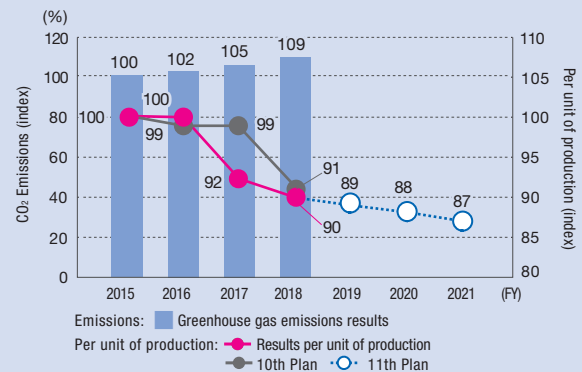
In addition, in order to spread our advanced activities and effective means to prevent global warming, we share the information within the Group. We also promote company-wide activities such as taking a local-tour at the sites where the activity is being well performed, and create guidebook on how we corresponded to each environmental cases. The main plants are taking initiatives on working on this matter.

Greenhouse gas emissions results

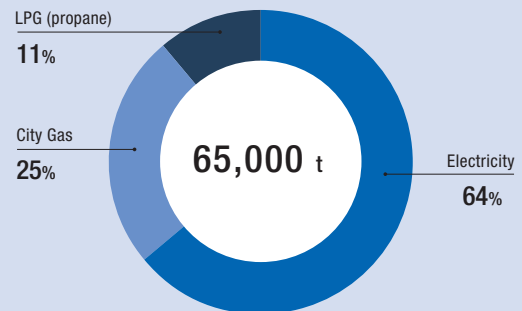
In fiscal 2018, the final year of the 10th three-Year Environmental Action Plan, we continued to improve the efficiency of our air conditioning loads and renew facilities by taking steps such as reviewing work areas. Through these activities, we reduced our emissions by about 2% compared to the previous year.

In addition, we were able to reduce emissions by approximately 10% over three years. In the 11th three-Year Environmental Action Plan, we will continue to reduce greenhouse gases.

Domestic greenhouse gas emissions results

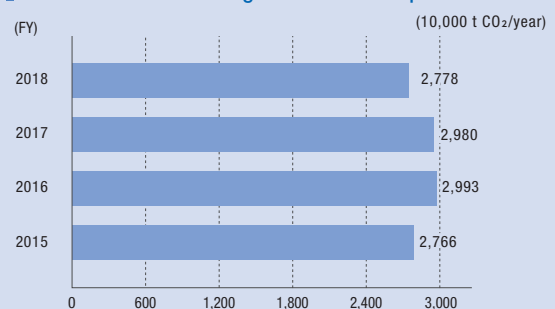


CO₂ emissions ratio by energy type



In addition, the company continuously monitors the amount of logistics transport in order to achieve efficient logistics. In fiscal 2018, our CO₂ emissions were 27.78 million tons with 15.61 million ton-kilometers.

CO₂ emissions from logistics and transport



Reduce environmental burden

▶ Resource recycling measures

Resource recycling activities

To effectively use limited resources, it is important to reduce the generation of waste as much as possible. The Noritake Group is working to reduce waste generated from its business activities through steps such as quality improvements linked to manufacturing enhancement activities.

In our 10th three-Year Environmental Action Plan, we have been working to reduce the amount of waste sent to landfill per production volume by 1% or more compared to the previous fiscal year in order to promote resource recycling.

In addition, as a main initiative, we aimed for a recycling rate of over 80% in order to promote the recycling of waste that was previously sent to landfill.

Noritake Recycling Center initiatives

Industrial grinding wheels, Noritake's main business, are consumable products, and are disposed of in landfills as industrial waste after use. This has been a major issue in terms of the effective use of resources.

In order to recycle the industrial grinding wheels that we sell, the Noritake Recycling Center collects about 500 tons of used vitrified grindstones annually.

The collected grindstones are crushed, classified, and then reborn as products such as abrasives and heat-resistant materials.

We are also actively developing applications so that used grindstones can be used effectively.

Recycling process of used industrial grinding wheels



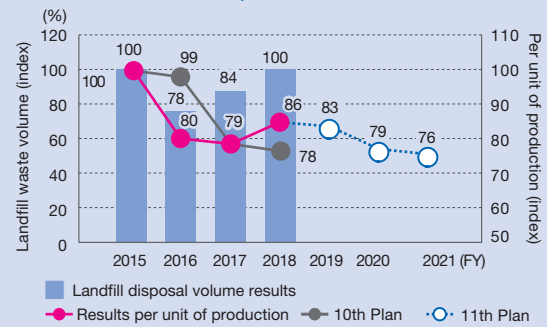
Waste emissions results

In fiscal 2018, the final year of the 10th three-Year Environmental Action Plan, we continued to promote the reduction of waste by reducing the defective rate and recycling by reviewing disposal methods. However, waste generation increased by about 7% compared to the previous year due to temporal increase of waste.

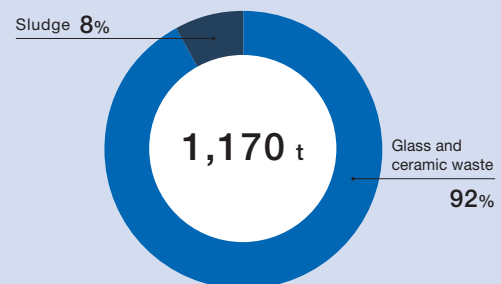
In the three-year effort, we achieved to reduce waste by approximately 14%.

In addition, as a result of promoting recycling, we were able to recycle 85% of all waste generated. In the 11th three-Year Environmental Action Plan, we will continue to recycle landfill waste.

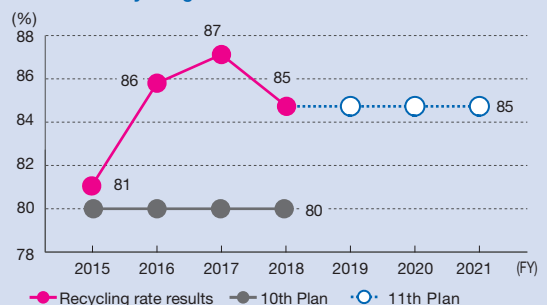
Domestic landfill disposal volume results



Landfill disposal volume rate by waste type



Trend in recycling rate



Initiative for biodiversity

In order to realize the "sustainable society" that the Noritake Group is aiming for, we are promoting initiative for biodiversity aimed at preserving nature and ecosystems. We are promoting the greening activity of our business sites, and the "Noritake Garden" adjacent to our headquarters provides an environment where wild birds and insects can flourish.



Noritake Garden (Biotope)

Water resource conservation

In order to conserve important water resources, the Noritake Group strives to prevent pollution of rivers and other areas managing wastewater from its production processes appropriately. In factories that generate a large amount of waste liquid, all wastewater from the process is collected so that they do not spread into rivers and other areas, and some process wastewater such as washing water is recycled.



Recycling system



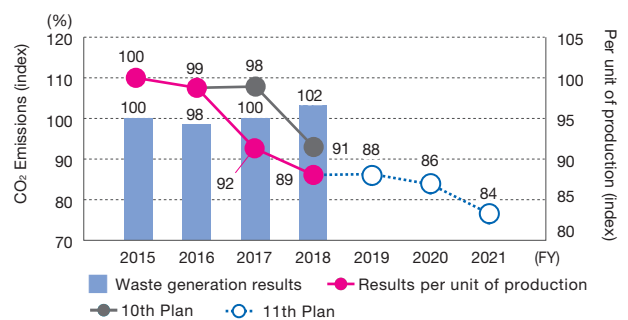
Waste liquid tank

Initiatives at overseas business sites



The Noritake Group is working to reduce its environmental impact at overseas production sites as we expand our overseas business. In the 10th three-Year Environmental Action Plan, we set global targets for greenhouse gases and waste, and activities have proceeded.

Transition of greenhouse gas emissions (global)



Transition of waste disposals (global)

