

[Important Issues] Reduction of Wastewater and Industrial Waste

Policy and Basic Approach

The Nippon Kayaku Group has voluntarily adopted wastewater control standards that are tougher than the requirements laid out by national laws and local ordinances, and only discharges wastewater that meets our standards. The Group produces color material-related products including dyes and inkjet printer ink, and the plants that manufacture such color material-related products decolorize the colored wastewater before it is discharged.

With regard to waste, we must work toward achieving a recycling-oriented society with a low environmental impact by pushing forward with our efforts to make efficient use of and recycle different materials throughout the various life cycle stages, from production to consumption and up to final disposal. As such, the Nippon Kayaku Group elevated our goals for our recycling and zero-emissions rates in our **KAYAKU Vision 2025 (KV25)** to the status of key performance indicators (KPIs), and is striving to not only reduce waste but to also make effective use of it by considering the waste generated from our business activities as a future resource.

System

[Implementing Responsible Care](#)

Indicators

Control of Wastewater

Indicator	Scope	Unit	FY2017	FY2018	FY2019	FY2020	FY2021
COD	Non-consolidated	tons	132.1	133.7	145.2	122.6	124.2
Total phosphorus emissions	Non-consolidated	tons	1.4	1.6	4.1	3.2	2.0
Total nitrogen emissions	Non-consolidated	tons	75	93	72	83.2	70.4
SS*	Non-consolidated	tons	50.0	45.3	46.0	48.2	31.9

* SS (Suspended solids): Suspended solids. SS refers to particulate-like substances of 2 mm or less in diameter found floating or suspended in water. These include metal particles, animal and plant plankton and their carcasses, and organic and metal sediments originating from sewage and factory effluents, among others. The increase in SS causes a decline in water transparency, and affects underwater photosynthesis by preventing light penetration.

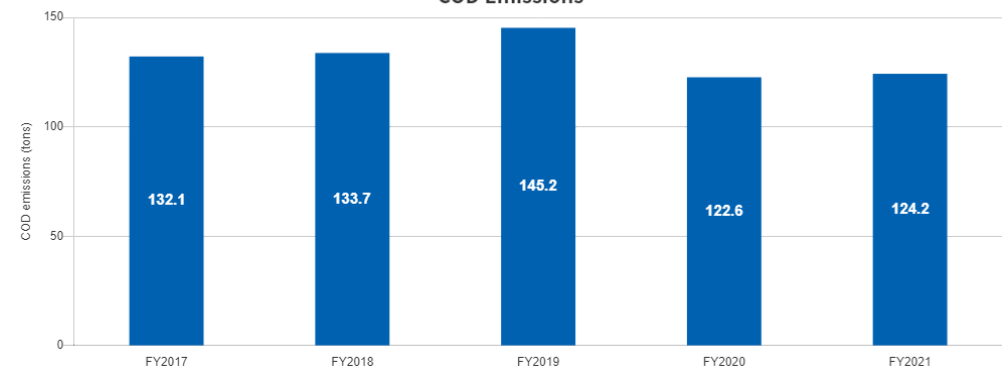
PRTR Substances

Indicator	Scope	Unit	FY2017	FY2018	FY2019	FY2020	FY2021	
Emissions of PRTR ^{*1} substances	Atmosphere	Non-consolidated	tons	15.9	17.1	18.9	16.8	25.2
	Water bodies	Non-consolidated	tons	11.5	11.4	13.3	9.1	14.7
	Soil	Non-consolidated	tons	0	0	0	0	0
	Total ^{*2}	Non-consolidated	tons	27.4	28.5	32.2	25.8	39.8

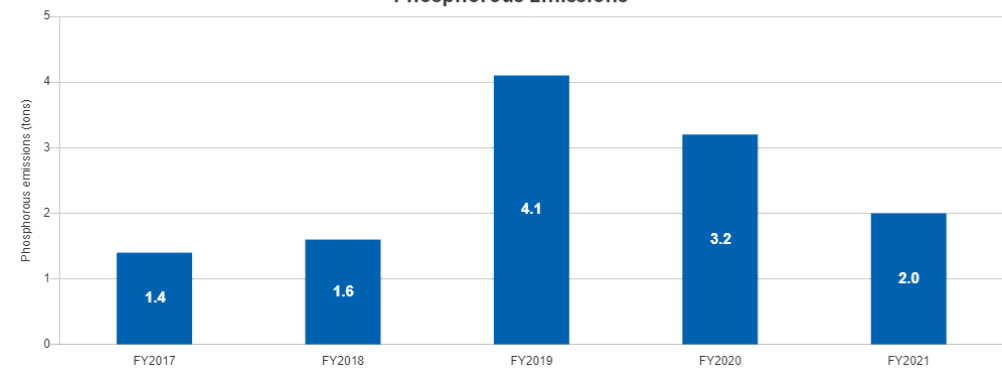
*1 PRTR (Pollutant Release and Transfer Register): The PRTR regulation is designed to prevent environmental safety incidents by encouraging businesses to voluntarily improve their own chemical substance management.

*2 The total sum may be incongruent due to rounding.

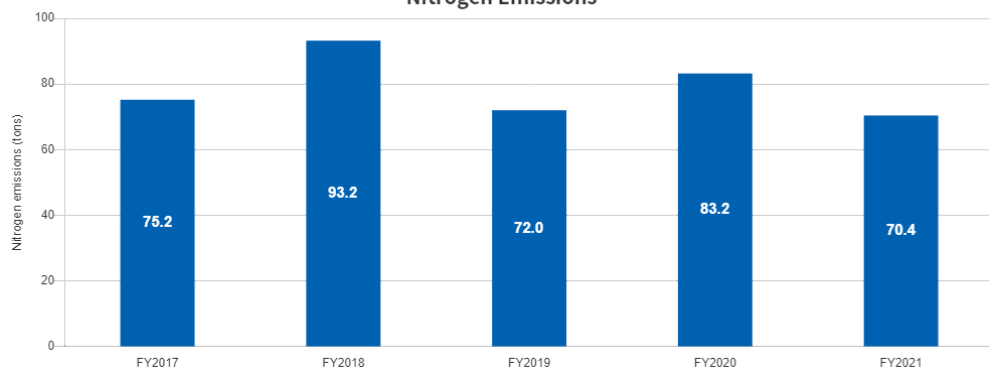
COD Emissions



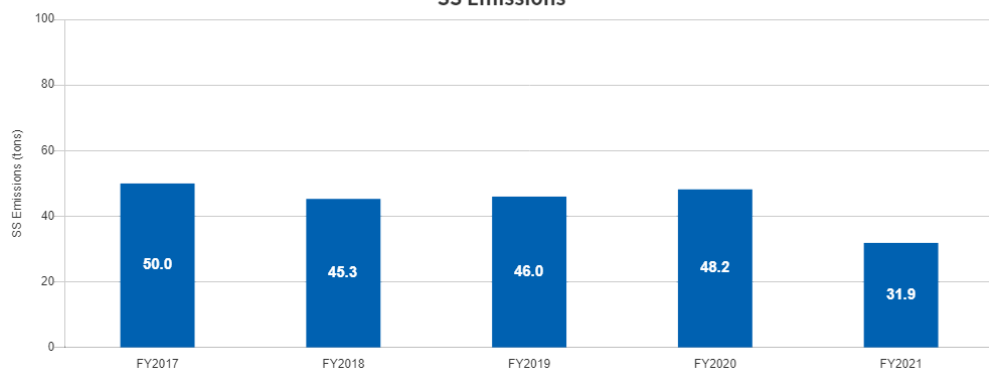
Phosphorous Emissions



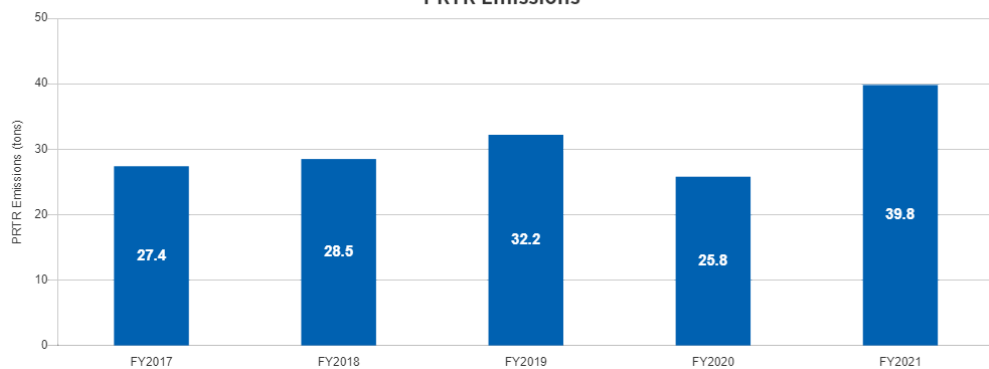
Nitrogen Emissions



SS Emissions



PRTR Emissions



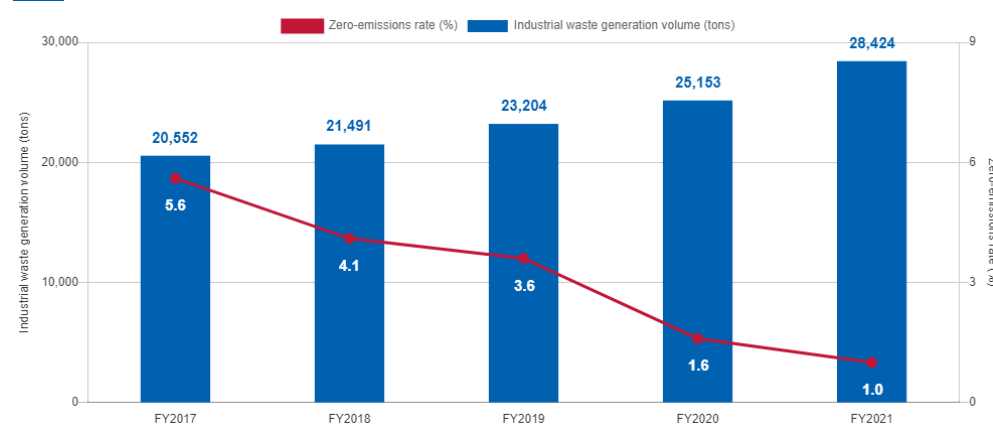
Industrial Waste

In FY2021, Nippon Kayaku generated 28,424 tons of waste, which was an increase of approximately 13% from the previous year. Meanwhile, as a result of efforts made at each of the business sites to promote recycling and implement initiatives to reduce environmental impacts, landfill waste amounted to 298 tons, or approximately 74% of the amount of the previous year, and the zero-emissions rate was decreased by 0.4 points from the previous year to 1.0%.

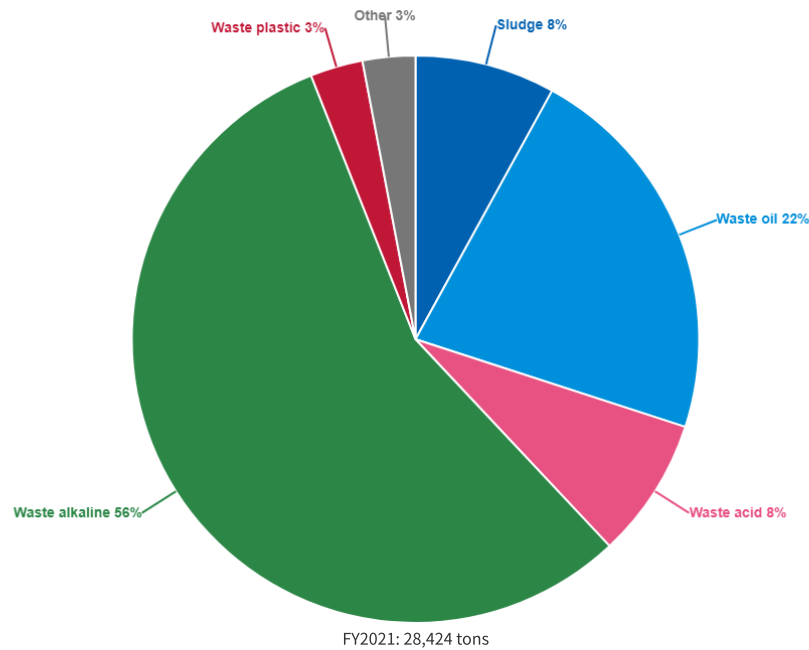
Going forward, we will keep a close watch over the production volume at each of our plants, and continue in our group-wide efforts to protect the Earth and our environment by working to reduce the amount of waste generated by our business activities and studying ways to make effective use of resources, in addition to promoting the recycling of landfill waste, which has a large impact on the environment.

Indicator	Scope	Unit	FY2017	FY2018	FY2019	FY2020	FY2021
Amount of industrial waste generated	Non-consolidated	tons	20,552	21,491	23,204	25,153	28,424
Amount of resources recovered	Non-consolidated	tons	16,380	17,493	19,584	20,449	23,290
Final disposal amount	Non-consolidated	tons	1,148	870	847	404	298
Recycling rate	Non-consolidated	%	79.7	81.4	84.4	81.3	82.3

Trend in the Volume of Industrial Waste Generated and in the Zero-Emissions Rate



Breakdown of Industrial Waste Generated



Initiatives

Fukuyama Plant Achieved Zero Emissions by Changing Sludge Treatment

Many types of waste are produced in the course of the Fukuyama Plant's production activities. Among them, sludge that is produced from the treatment of waste liquids accounts for a considerably large portion.

This sludge is difficult to dispose of because it contains moisture. In the past, it was disposed of in landfills after undergoing appropriate treatment. However, after examining whether this sludge could be recycled to reduce environmental impacts, we found that it could be utilized as fuel for adjusting the heat used in waste incineration plants (thus reducing the amount of fuel used). This also led to our waste disposal vendor now having a source of recycled fuel, thus enabling us to both make effective use of this waste.

As a result, the Fukuyama Plant was able to reach its zero-emissions rate target (less than 1%) for the portion of its waste disposed of in landfills. Not only this, but it was also able to increase the recycling rate of waste and cut disposal costs.

Kayaku Safety Systems de Mexico

Industrial Waste Management

Kayaku Safety Systems de Mexico has been making untiring efforts to recycle solid waste, such as wood, cardboard, non-ferrous metals, aluminum and plastics, by separating them into appropriate categories and finding external suppliers that can re-use them. These different types of waste are stored for a period of two to three months at designated sites and are picked up by government-certified suppliers on a regular basis.

Of the waste that is collected, those types that can be recycled are transported to recycling companies. There, wood is made into wood pallets, cardboard is recycled into new cardboard, and plastics, aluminum and ferrous metals are used to produce new raw materials.

This program extends to non-production areas such as break areas, where organic and non-organic waste such as plastic bottles are separated to undergo proper treatment for recycling.

