Environmental Management

Policy and Basic Approach

The Nippon Kayaku Group's environmental initiatives are aimed at contributing to global environmental conservation, and thus play a role in tackling the Key Sustainability Issues in the **KAYAKU Vision 2025**. They are also promoted in pursuit of targets published in our Responsible Care Policy, which are viewed as priority issues. Taken together, these initiatives constitute a companywide contribution to global environmental conservation. This involves observing both domestic and international laws and regulations related to the environment as well as any agreements we have signed, and, while picturing the environmental risks stemming from our business activities, showing consideration towards reducing environmental burdens, preventing pollution, saving energy and resources, the effects of climate change, and reducing waste.

- Our Declaration on the Environment, Health, Safety and Quality
- Nippon Kayaku Group Responsible Care Policy

System

- Responsible Care Promotion System

Environmental Management System Certification Status

Our current efforts to retain our certification status for ISO14001, the internationally recognized environmental management standard, see us consider the environment during the development and manufacture of products and the provision of services. Having first gained ISO14001 Certification for Environmental Management Systems in 1998, we have now achieved certification for all seven of our domestic plants and seven overseas Group companies. We will continue, going forward, to explore new ISO14001 certification options for Group companies, including for those based overseas.

- ISO14001 Certification

Indicators

Key sustainability issues	Corresponding SDGs	Action plans	Indicators (KPI)	FY2025 Targets	Results FY2022	Results FY2023	FY2023 Initiative-related Topics
Reducing Energy Consumption and Greenhouse Gas Emissions Reduction of Wastewater and Industrial Waste Improving Efficiency of Water Resource Use		• To achieve our FY2030 Environmental Targets by promoting energy-saving and global-warming response initiatives. • To extract issues and clarify our strategies in order to achieve carbon neutrality by FY2050.	Greenhouse gas emissions (Scope 1+2)	(Target achieved in FY2030) Under 70,598 tons (a reduction of over 46% on FY2019) (Target achieved in FY2023) Under 115,715 tons	108,301 tons	102,704 t-CO_2	• Promotion of MFCA and Solar Power Generation PPA Models sequentially introduced. • c. 24% reduction in industrial waste produced compared with FY2022. • Our development status situation for environmentally-conscious products and technologies is as reported below. [Safety Systems Business] Development of a lighter cylinder-type inflator and green propellant MGG. [Polatechno Business] Reductions in waste treatment energy and total waste produced stemming from improvements to production process and product design. [Functional Materials Business] Pilot experiments performed on aircraft-oriented CFRP/GFRP thermosetting resin prototypes with development potential. Development of a high-temperature resistant, high-reliability thermosetting resin from biomass materials. [Color Materials Business] Development of industrial inkjets (for coated paper and soft packaging). Expanded sales of non-phenol developer for thermal paper. Market debut and expanded sales for PLA (biodegradable) dye for fiber processing. [Catalysts Business] Promoting joint-research of catalysts used to manufacture hydrogen. Materials informatics techniques used to develop catalysts which can contribute to lowering amounts of raw materials used and improved yields from target objects. Development of catalysts to help manufacture basic chemicals such as propylene from biomass materials. [Pharmaceuticals Business] Environmentally-conscious wrapping initiatives started.
			VOC emissions	(Non-consolidated) Disclose results	(Non-consolidated) 38.7 tons	(Non-consolidated) 32.9 tons	
			COD emissions	(Non-consolidated) Disclose results	(Non-consolidated) 171.8 tons	(Non-consolidated) 210.9 tons	
			Total waste output	(Non-consolidated) Disclose results	(Non-consolidated) 27,621 tons	(Non-consolidated) 20,974 tons	
			Recycling rate	(Non-consolidated) 80% or higher	(Non-consolidated) 85.0%	(Non-consolidated) 83.8%	
			Zero emission rate	(Non-consolidated) 1% or less	(Non-consolidated) 0.8%	(Non-consolidated) 0.7%	
			Goal setting in line with SBT and consideration and implementation of specific measures	Disclose progress	Gained an A- rating on CDP (Climate Change) Scope 3 Calculations: Implementing improvements to accuracy	Medium-term Environmental Targets revised to 1.5°C scenario	
			Disclosure in line with TCFD recommendations	Disclose progress	Information disclosed	Information disclosed	
			Develop products and technologies with consideration for environmental issues	Disclose progress	Published in Topics	Published in Topics	

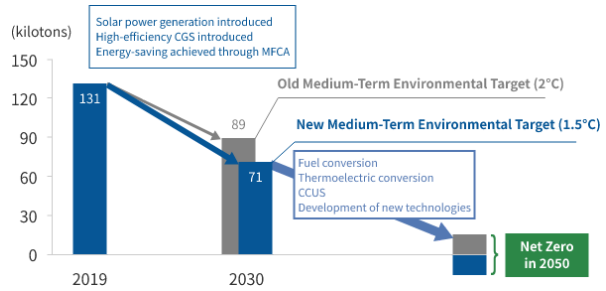
Medium-term Environmental Targets and Results

FY2021 saw the Nippon Kayaku Group kick-start its environmental conservation activities afresh with the fixing of its new Medium-term Environmental Targets.

Our original 2°C warming scenario Medium-term Environmental Targets saw us start out by widening compulsory participation to Group companies (consolidated) as we sought to shave at least 32.5% off FY2019 Scope 1 and 2 greenhouse gas emissions by FY2030 in the area of Holding Down Global Warming. However, with global environmental problems intensifying and moves towards carbon neutrality gaining momentum in recent years, we subsequently revised our standards to fit a 1.5°C warming scenario, committing us to a 46% reduction in FY2019 Scope 1 and 2 emissions by 2030 and an aim of carbon neutrality by FY2050. In relation to these matters, we decided to approve the proposals of the Task Force on Climate-related Disclosures (TCFD) in March 2022, and will continue to follow these proposals as we proactively disclose information on not only greenhouse gas emission status, but climate change risks and opportunities and initiatives related to the building of a Sound Material-Cycle Society.

In the area of Reducing Chemical Substance Emissions, we are yet to fix targets for emissions of Volatile Organic Compounds (VOC) and Chemical Oxygen Demand (COD), and have merely published the current data. VOC emissions are down on the previous financial year, but COD emissions are increasing due to transitions in items produced.

In the area of Reducing Waste, also, we are yet to fix target amounts for industrial waste produced and are merely reporting current figures. We are, however, working towards a fixed recycling rate target of at least 80% (excluding container re-use) and a zero-emission-rate target of less than 1%. As a result of continued waste sorting and reduction practices carried out at each of our plants and business sites, FY2023 saw an even lower volume of waste produced than FY2022. Furthermore, in terms of recycling and zero-emission rates, the continued promotion of moves towards recycling at each business site and sustained commitment to initiatives aimed at reducing environmental burdens have seen us not only meet, but also exceed, our original targets.

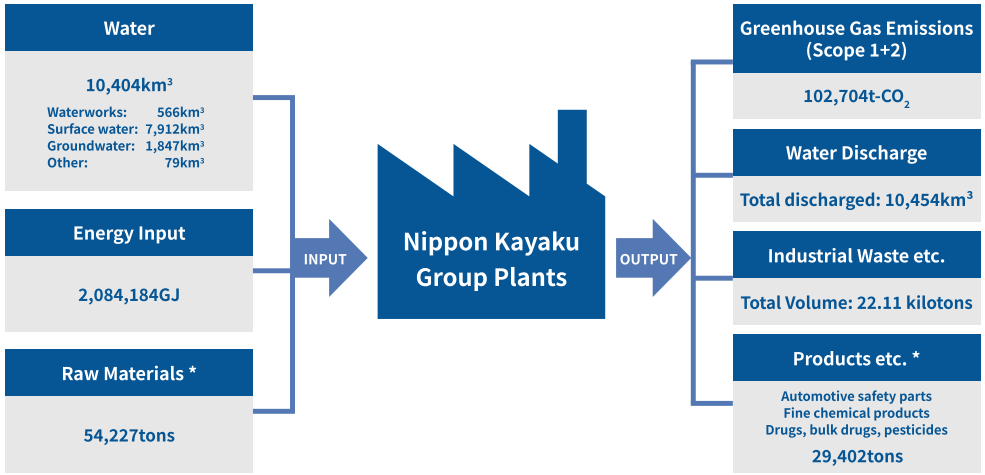


◆ Trends in Medium-term Environmental Target Results

Area	Covering	Items	Target Figures	2020*1	2021	2022	2023
Climate change prevention*2	Consolidated	Greenhouse gases, Scope 1+2*3 emissions	FY 2030 Targets No more than 70.6 kilotons (Over 46% down on FY2019) (Reference: FY2023 standards) No more than 115.7 kilotons	118.2 kilotons (10.0% reduction)	112.5 kilotons (14.2% reduction)	108.3 kilotons (17.5% reduction)	102.7 kilotons (21.7% reduction)
Reductions in amounts of chemical compounds produced	Non-Consolidated	VOC*4 (Quantities of Volatile Organic Compounds produced)	(Results Report)	33.3 tons	52.1 tons	38.7 tons	32.9 tons
		COD*5 emissions	(Results Report)	122.6 tons	124.2 tons	171.8 tons	210.9 tons
Industrial waste reduction	Non-Consolidated	Waste quantities	(Results Report)	25,153 tons	28,424 tons	27,621 tons	20,974 tons
		Recycling rates (excluding container reuse)	No less than 80%	81.6%	82.3%	85.0%	83.8%
		Rate of zero emissions*6	No more than 1%	1.6%	1.0%	0.8%	0.7%

*1 Including our Joetsu Plant. Until FY2020, under our old Medium-term Environmental Targets, the Joetsu Plant was left out of Scope emissions.
*2 Medium-term Environmental Target for FY2030: A reduction of at least 46% on FY2019 levels (from 131.2 kilotons to no more than 70.6 kilotons)
*3 Scope 1: Greenhouse gas emissions directly produced by our company itself (through fuel combustion, manufacturing process emissions, etc.)
Scope 2: Emissions our company indirectly produces through the use of electricity, heat and steam supplied by other companies
*4 The total of VOCs (Volatile Organic Compounds) includes not only those that must be reported under government ordinances (the PRTR Law) but also those specified by the Japan Chemical Industry Association.
*5 COD (Chemical Oxygen Demand): A leading water quality index based on chemical oxygen demand and the amounts of oxygen necessary for oxidizing materials in water.
*6 Rates of zero emissions: Defined as the ratio of internal to external Nippon Kayaku waste disposed of at landfill sites.

Material Flow of Business Activities (FY2023)



Items listed below without additional notes represent combined domestic and overseas values.

* Nippon Kayaku alone

Amounts of Raw Materials Used

Indicators	Covering	Unit	2020	2021	2022	2023
Principal raw materials	non-consolidated	tons	36,614	47,583	44,211	40,707
Auxiliary materials	non-consolidated	tons	16,581	18,529	17,026	12,512
Plastic packaging materials	non-consolidated	tons	194	266	389	180
Cardboard packaging materials	non-consolidated	tons	415	529	480	395
Other packaging materials	non-consolidated	tons	461	489	470	434
Total	**non-consolidated**	**tons**	**54,266**	**67,396**	**62,576**	**54,227**

* Products not included (goods stocked at plants)

Energy Input Amounts

Indicators	Covering	Unit	2019	2020	2021	2022	2023
Amount of energy input (heat quantity equivalent)	consolidated	GJ	-	-	-	-	2,084,184
Renewable energy	consolidated	GJ	-	-	-	-	29,060
Non-renewable energy sources	consolidated	GJ	-	-	-	-	2,055,124

* When converting electricity amounts into heat amounts for fuel, heat and electricity consumed in domestic and overseas business activities, electricity purchased from electricity companies is converted at 1MWh to 8.64GJ, while renewable energy such as solar power is converted at 1MWh to 3.6GJ.

Initiatives

Use of LCAs (Life-Cycle Assessments)

We are also working to maintain and improve the environment, health and safety at every step of the product life cycle, from the research and development stage right the way through production, distribution, sale, recycling and disposal. We are trialing the design of a process which allows us to visualize the value of every Group product or service by assessing and analyzing environmental impacts and potential environmental contributions at every stage of the life cycle. Part of these activities involves promoting calculation of the carbon footprint (CFP) of every Nippon Kayaku product, which allows us to not only grasp its environmental impact but improve the accuracy of our LCA calculations for customer products. We are presently proceeding with such calculations for certain product lines, and are looking at how to systematize this process to enable emissions calculations to be made for every company product.

Disclosure of Figures for Legal Violations

We are currently working on preventing violations of environmental regulations and accidents, and are preparing a rapid response system to deal with such incidents. Across the Nippon Kayaku Group in FY2023, there were no accidents, legal violations or regulatory violations which impacted upon the environment, nor any accidents related to water quality or volume, or violations of any related rules. Furthermore, no punishments or fines were issued.

Indicators	Covering	Unit	2019	2020	2021	2022	2023
Number of violations of environmental laws and regulations	consolidated	cases	0	0	0	0	0
Number of environmental accidents	consolidated	cases	0	0	0	0	0
Violations of laws and regulations; fines issued for enrivonmental accidents; punishment costs	consolidated	yen	0	0	0	0	0