Planet

Planet priority measures in the Sustainability Medium-Term Plan

			Benchmarks	2024	2026
Planet	GHG emissions	Scope1+2	Year 2019:3.2 million tons	No increase in emissions compared to 2019	
		Scope3	Year 2019:0.9 million tons (Japan)	Target the entire Group and identify the category dominates for more than two-thirds of emission In fiscal 2023, formulate numerical reduction targets for fiscal 2024 and fiscal 2026	

Targets for 2022

			2022
Planet	GHG emissions	Scope1+2	No increase in emissions compared to 2019
		Scope3	Identify the category dominates for more than two-thirds of emission

Environmental Management
Global Warming Prevention Updated
Reduction of Environmental Load
Environmental Accounting
Environmental Data
Sustainability Medium-term Plan for Planet

Reduction of Environmental Load

Emission Management of Chemical Substances

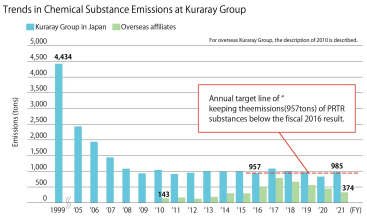
Based on the Law Concerning Reporting, etc. of Pollutant Release and Transfer Register (PRTR Law), the Kuraray Group in Japan surveys and ascertains the annual emissions of chemical substances subject to PRTR Law and reports the results to the national government. The Kuraray Group similarly discloses on its official website, etc. emissions of chemical substances not only covered by the PRTR Law, but also designated by the Japan Chemical Industry Association (JCIA). In addition to these chemical substances, we are taking the actions indicated in the table below with regard to persistent organic pollutants (POPs), volatile organic compounds (VOCs), hazardous atmospheric pollutants (HAPs), and particulate matter (PM).

> Environmental Data

Classification	Chemical substances	Actions to be taken
POPs	Polychlorobiphenyl (PCB)	Storing, managing, reporting and processing to render harmless in accordance with the Law Concerning Special Measures against PCB Waste. (Fiscal 2027 is set as a time limit for harm-free processing)
	Dioxin and the like	Emissions are measured for individual plants and other business units (Please visit Kuraray website)
	Substances other than the above	Not applicable to Kuraray manufacturing and use

Classification	Chemical substances	Actions to be taken
VOC HAP		Included as substances in the pollutant release and transfer register (PRTR) and emissions are measured and reported as PRTR substances. (Please visit Kuraray website for emissions by each plant)
PM		Emissions of particles of soot are reported in Material Flow
PRTR		Emissions of substances applicable to the law and to the list compiled by the Japan Chemical Industry Association are measured and reported (Please visit Kuraray website for emissions by each plant)

The Kuraray Group in Japan had made a major capital investment until around 2008 to reduce chemical substance emissions, and has achieved about an 80% reduction compared to fiscal 1999. Since then, we have set limits on the amount of Japan Chemical Industry Association (JCIA)-designated Pollutant Release and Transfer Register (PRTR) substances* based on the concept that, even if the scale of business expands, we will not increase emissions outside production sites from the base year. To achieve this target, when considering construction of new production facilities, we examine and carry out investment projects with consideration of measures to prevent an increase in chemical substance emissions. In fiscal 2021, production activity recovered after being impacted by COVID-19 in the previous year, resulting in a significant increase in emissions to 985 tons from 805 tons in fiscal 2020, exceeding the target of less than 957 tons. Going forward, we will continue to take measures to prevent an increase in emissions.



The policy of the Kuraray Group outside Japan is to continue to comply with the rigorous environmental regulations of the respective countries and regions where each production site is located and to conduct quantitative control. Until fiscal 2017, total emissions were on an upward trend due to the incorporation of businesses and the construction and expansion of production facilities. However, emissions have been decreasing since fiscal 2018 due to measures to expand exhaust gas treatment equipment at some sites and improve operational control. Emissions in fiscal 2021 were 374 tons.

※Substances subject to the PRTR Law and substances designated by the Japan Chemical Industry Association

【Notes】As a result of the change in months in each fiscal year, the environmental data and information contained in this report including graphs are as follows.

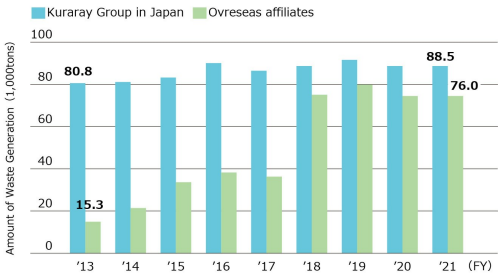
- Before fiscal 2013: Actuals in 12 months from April to March of the following year
- Fiscal 2014: Actuals for 9 months from April to December + Actuals for January to March 2014 (or estimated value) [Partially overlaps with fiscal 2013]
- After fiscal 2015 : Actuals for 12 months from January to December

Effective Use of Waste

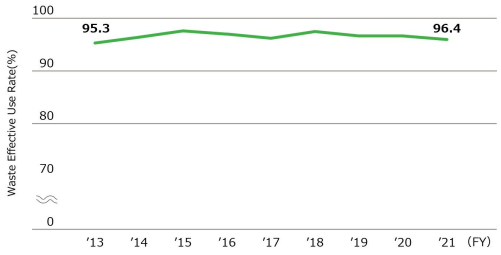
The amount of waste generated by the Kuraray Group in Japan was 88.5 thousand tons, the same as in fiscal 2020. Although production activities picked up in fiscal 2021 after having been impacted by the COVID-19 pandemic in the previous year, we took ongoing measures to reduce waste, such as improving product yields, sorting waste, and recycling of waste into raw materials through collection at each production site and affiliated company. This enabled us to keep waste generated at the previous year's level. The amount of implemented measures to reduce waste in fiscal 2021 reached 4,934 tons, far exceeding our target of 900 tons or more (at least 1% of the amount generated in fiscal 2016) through efforts to improve yields and promote collection and recycling. As a result of our efforts to effectively use most of the waste generated through recycling and energy recovery, the rate of effective use was 96.4%. On the other hand, the amount of landfill disposal increased year on year to 655 tons (a final landfill disposal rate of 0.7%), and we were unable to achieve the target of 251 tons or lower (the actual value in fiscal 2016). This was attributable to the fact that some specially controlled industrial waste was no longer treated by waste service companies for effective use, and that waste plastic recycling overseas has become difficult due to restrictions on the export of waste. We will continue to take measures to cut the amount of waste generated and strive to reduce the amount of landfill disposal by searching for waste service companies who can use waste effectively.

The amount of waste generated by the Kuraray Group outside Japan increased due to the acquisition of the vinyl acetate business in 2014 and the activated carbon business in 2018, but has remained nearly constant since then. Although production volume was up year on year in fiscal 2021, we kept the amount of waste generated to 76 thousand tons, nearly the same as the previous year. We did this through measures such as controlling the amount of waste by mitigating production-related issues through improved operation management and initiatives to collect and use waste effectively on-site at plants. Each production site complies with its own country's legal requirements, and we will continue to pursue measures to reduce waste.

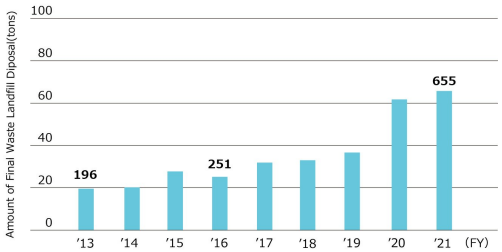
Trends in the Amount of Waste Generation at Kuraray Group in Japan



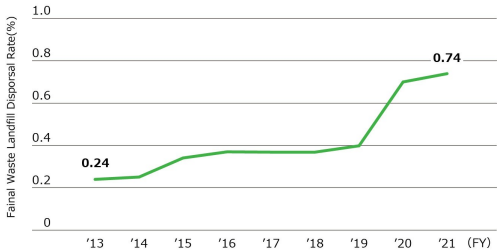
Tends in Waste Effective Use Rate at Kurarey Group in Japan



Trends in the Amount of Final Waste Landfill Diposal at Kuraray Group in Japan



Tends in Fainal Waste Landfill Disporsal Rate at Kuraray Group in Japan



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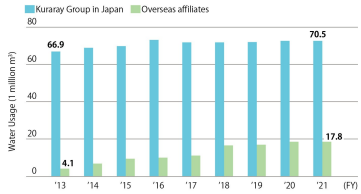
Effective Use of Water Resources

The Kuraray Group, including its oversees affiliates, is not engaged in production activities in areas where water resources are scant and where our business activities significantly affect the water sources of such areas. However, we have been engaging in business activities recognizing that water resources are vital.

In fiscal 2021, the volume of water intake (except seawater) of the Kuraray Group in Japan totaled 70.5 million m^3 per year, almost the same as those in fiscal 2020. Even though Kuraray production sites in Japan are well located in terms of water resources, we believe that it is necessary to conduct business activities by considering the long-term prospects for water supply, such as the risk of a water shortage caused by climate change due to global warming. We continue to reuse water by recovering heat from heated effluent and reusing coolant water for boiler water. We will keep track of water consumption trends while continuously reducing our water consumption and effectively using water resources.

The water consumption of the Kuraray Group outside Japan has increased since 2014 due to the incorporation of businesses through M&A, such as the acquisition of the vinyl acetate business and the activated carbon business, but has since remained nearly constant. Although production volume increased year on year in fiscal 2021, we reduced water consumption through efforts such as replacing water scrubbers that consume a high volume of water with regenerative thermal oxidizers for exhaust gas treatment at production site, and improving operation. As a result, water consumption was down slightly from fiscal 2020 to 17.8 million m^3. In addition, the water intensity index (excluding seawater) improved by 9.5 percentage points year on year, exceeding our target of a 1.0 percentage point or more year-on-year improvement.

Trends in Water Usage at Kuraray Group



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Conservation of Biodiversity

The Kuraray Group believes that continuing our efforts to implement measures in global warming prevention, control of chemical substance emissions, reduction and effective use of waste, and effective utilization of water resources will lead to biodiversity conservation. We formulated the Action Policy for Biodiversity Conservation and have been promoting activities and the development of technologies and sale of products that contribute to biodiversity conservation. For example, employee volunteers at some Kuraray plants engage in forest conservation activities, cleanup activity, and endangered species protection activities, in cooperation with local governments and others. (Refer to examples of environmental conservation activities.)

Examples of environmental conservation activities

Kurashiki Plant	-Established an area called “Kotori-no-Mori (little birds’ forest)” on the premises to conserve the forest and create an environment where wild birds can live. -Cleanup of Tamekawa Park in Tamashima (The Tamekawa Park is the home of Daruma pond frogs, an endangered species.) -Implemented proper wastewater management in compliance with the Act on Special Measures concerning Conservation of the Environment of the Seto Inland Sea
Okayama Plant	-Participated in Kojima Bay cleanup activity hosted by Okayama Prefecture -Cooperated in the fishway test conducted at Kuraray’s water source area on the premises of Okayama University of Science High School (to conserve the resources for Japanese eel, an endangered species of Asahi-gawa River)
Saijo Plant	-Joined Ehime Environmental Conservation Association and Saijo City Groundwater Conservation Association
Niigata Plant	-Participated in the “Kigyo-no-Morizukuri (development of forest by corporations)” campaign promoted by Niigata Prefecture -Participated in the cleanup activity hosted by the Tainai City Council for Social Welfare
Jointly held by labor union	-Tree planting activity on Mt. Fuji
Kuraray America, Inc.	-Supported the Texas Conservation Fund (TCF), a non-profit organization, and participated in the cleanup activity of local waterways
EVAL Europe N.V.	-Participated in the “Operation Clean Sweep” volunteer program (The program aims to prevent marine pollution caused by plastic pellets flowing into the aquatic environment.)