

# [Important Issues] Improving Efficiency of Water Resource Use

## Policy and Basic Approach

Water risks can be largely divided into physical risks caused by drought, flooding and water contamination, and regulatory risks resulting from toughened water quality standards, changes in water and sewer prices, and switching to clean water due to the suspension of industrial water supply, among others. Water is a limited and precious resource, and its conservation is considered an important theme throughout the world.

The Nippon Kayaku Group produces a variety of chemical products, and water is essential for the continuation of its business activities. We are constantly aware of the importance of our water resources, and are mindful of using water carefully without being wasteful.

## System

[System for implementing Responsible Care](#)

## Indicators

[Environmental Management](#)

## Initiatives

### Compliance with Environmental Regulations

The Group has concluded various agreements with the local governments and local communities where its business sites are located. We comply with various agreements concerning the environment, pursue initiatives to reduce our environmental impact, and contribute to safety and security in local communities. There were no violations of laws and regulations relating to water quality or water volume in FY2022.

[Number of environmental violations](#)

### Usage of Water Resources

#### Water Usage by Water Intake Source

Indicator	Scope	Unit	FY2018	FY2019	FY2020	FY2021	FY2022
Municipal water	Consolidated	1,000 m <sup>3</sup>	813	706	763	805	754
Industrial water	Consolidated	1,000 m <sup>3</sup>	6,815	7,758	7,897	8,138	8,003
Groundwater (well water)	Consolidated	1,000 m <sup>3</sup>	1,733	2,388	1,918	1,947	1,819
Other (reservoirs, rainwater storage)	Consolidated	1,000 m <sup>3</sup>	0	0	0	68	81
<b>Total water usage</b>	<b>Consolidated</b>	<b>1,000 m<sup>3</sup></b>	<b>9,361</b>	<b>10,852</b>	<b>10,578</b>	<b>10,958</b>	<b>10,657</b>

#### Wastewater Discharge by Outlet

Indicator	Scope	Unit	FY2018	FY2019	FY2020	FY2021	FY2022
Sea area	Consolidated	1,000 m <sup>3</sup>	7,081	7,374	7,014	7,142	6,726
River	Consolidated	1,000 m <sup>3</sup>	1,985	2,682	2,400	2,410	2,351
Sewerage networks	Consolidated	1,000 m <sup>3</sup>	995	928	974	987	910
<b>Total wastewater discharge</b>	<b>Consolidated</b>	<b>1,000 m<sup>3</sup></b>	<b>10,061</b>	<b>10,984</b>	<b>10,388</b>	<b>10,539</b>	<b>9,987</b>

### Identifying Water-stressed Areas

The Nippon Kayaku Group is working to identify and understand risks relating to water use and link them to more effective initiatives in response to water risks. Using the water risk evaluation tool Aqeduct developed by the World Resources Institute (WRI), we have conducted a survey on the state of water stress in the countries where Nippon Kayaku's plants are located.

#### Results of Survey on Water Stress at Nippon Kayaku's Manufacturing and, Research and Development Bases (FY2022)<sup>\*1</sup>

Region / country	Unit	Water usage by water stress level				
		High	High to medium	Medium	Medium to low	Low
Asia	Japan 1,000 m <sup>3</sup> (number of sites)	0	0	2,715 (6)	7,403 (4)	0
	China 1,000 m <sup>3</sup> (number of sites)	0	13 (1)	0	0	320 (3)
	Malaysia 1,000 m <sup>3</sup> (number of sites)	0	0	0	0	56 (1)
Europe	Czech Republic 1,000 m <sup>3</sup> (number of sites)	0	0	0	13 (1)	0
	Netherlands 1,000 m <sup>3</sup> (number of sites)	0	0	0	0	3 (1)
	UK 1,000 m <sup>3</sup> (number of sites)	0	1 (1)	0	0	0
North and Central America	USA 1,000 m <sup>3</sup> (number of sites)	0	0	7 (1)	111 (1)	0
	Mexico 1,000 m <sup>3</sup> (number of sites)	15 (1)	0	0	0	0
<b>Total<sup>*2</sup></b>	<b>1,000 m<sup>3</sup> (number of sites)</b>	<b>15 (1)</b>	<b>14 (2)</b>	<b>2,722 (7)</b>	<b>7,527 (6)</b>	<b>379 (5)</b>

\*1 We conduct surveys using Aqeduct Water Risk Atlas.

\*2 Totals may not match due to rounding.

◆ Initiatives at Each Business Site

**Fukuyama Plant**

**Initiatives to Reduce Water Usage**

The Fukuyama Plant treats wastewater resulting from the colorant manufacturing process within the plant, and then releases the treated water into the Seto Inland Sea. The Fukuyama Plant has been manufacturing colorants for inkjet printers since 2000, and has been working on improving the method for treating wastewater resulting from the manufacturing process. As part of such efforts, numerous studies have been performed on implementing individualized treatment in accordance with the brand and revising the manufacturing process to reduce the environmental impact.

Through these efforts, the plant managed to reduce the contracted volume of industrial water from 24,000 m<sup>3</sup> per day to 23,000 m<sup>3</sup> per day in 2015, and further down to 22,000 m<sup>3</sup> per day in FY2018. At present, the plant is implementing even better wastewater treatment techniques, and is succeeding in continuing operations while maintaining the same contracted volume of industrial water, despite the increase in production volume. Moreover, in addition to industrial water, the plant is also working to reduce the use of public water, which is also used during the manufacturing and equipment cleaning processes.

**Kayaku Safety Systems Europe**

**Implementation of Equipment for the Effective Use of Rainwater**

Kayaku Safety Systems Europe (KSE) introduced a water storage tank system in 2017 to utilize rainwater more effectively as part of its capital investment activities to promote environmental protection. By FY2020, an equivalent of 750.5 m<sup>3</sup> of tanks had been installed. Rainwater, in addition to water discharged from air-conditioning that is used to control the humidity within the plant, is used for non-drinking purposes, which helps to not only increase the efficiency of water usage but also contributes toward reducing costs.



Due to the impact of climate change, the current drop in the amount of precipitation in the Czech Republic poses a significant concern, making the recycling of water extremely important. Since FY2020, the annual water storage at KSE amounts to more than the amount of drinking water used by all of KSE's employees and their families (approximately 4,000 people) for the year. KSE is continuing to promote this project in order to contribute toward the realization of a sustainable society.

Indicator	Unit	FY2019	FY2020	FY2021	FY2022
Water storage capacity (scheduled)	m <sup>3</sup>	-	4,877	5,040	5,040
Water storage capacity (actual)	m <sup>3</sup>	4,433	6,177	7,234	6,802
Economic effects	Ten thousand yen	282	361	411	335