

Management of pollution including waste

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Measures to prevent pollution

Hamamatsu Photonics works hard to prevent pollution. Our production facilities, most of which are located in Japan, use a range of chemicals in their manufacturing processes, some of which are specified chemicals with the potential to pollute the environment. Under Japanese law, all transfers and emissions of these chemicals must be reported to the government through the Pollutant Release and Transfer Register (PRTR) system. We appropriately report to the competent authority based on the data which stem from the chemical usage survey conducted twice a year.

The chemicals used at our sites are managed through the surveys of chemical use described above, as well as through Green Procurement Management Standard for Chemical Substances For HAMAMATSU Group¹. These substances are controlled especially carefully during the disposal phase. Japan's Environmental Basic Act lists seven typical forms of pollution that can be harmful to human health and living environments: (1) Air pollution, (2) Water pollution, (3) Soil pollution, (4) Noise, (5) Vibration, (6) Land subsidence, and (7) Odor. At Hamamatsu Photonics, we manage all of these forms of pollution according to the law and our own standards from the perspective of preventing accidents that can cause pollution. When the possibility of pollution from our business activities arises, we move promptly to identify the source of the pollution, report the matter to the competent authorities and local communities and strive to return conditions to their original state.

¹: Green Procurement Management Standard for Chemical Substances For HAMAMATSU Group: Hamamatsu Photonics' in-house standards applying to substances the Company designates as the Environment-related Substances. We also have the Green Procurement Management Standard for Chemical Substances For Suppliers which sets the same level of criteria as the standard for HAMAMATSU Group sets, which focuses on chemicals contained in products/parts supplied by suppliers and is opened to the public.

Note: The data tabulation period is based on the Company's fiscal year.
 FY2023: October 1, 2022 to September 30, 2023
 FY2022: October 1, 2021 to September 30, 2022
 FY2021: October 1, 2020 to September 30, 2021
 FY2020: October 1, 2019 to September 30, 2020
 FY2019: October 1, 2018 to September 30, 2019

Appropriate management of chemicals

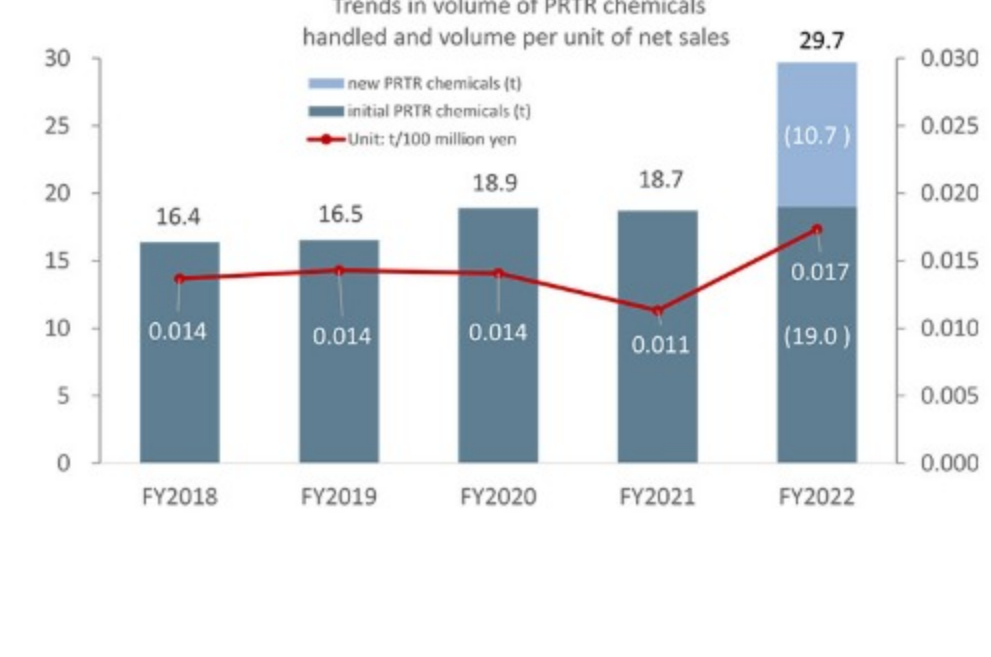
Twice a year, Hamamatsu Photonics conducts a survey of the status of chemical use, to gain an understanding of the full extent of its use of chemicals in manufacturing processes and the like. Among these are Class I specified chemicals² as designated in the PRTR system. When chemicals of this type are handled by the Company in quantities of 1 t per year or more, they become subject to reporting. In 2022 the Main Factory and Miyakoda Factory reported the use of 5 such chemicals. The chemicals reported by Hamamatsu Photonics, the volume of Class I specified chemicals handled in each fiscal year³, and their output per unit of net sales are as shown below.

In FY2023, the volume handled was increased significantly due to the change of Class I specified chemicals as designated in the PRTR system.

² Chemicals for which both submission of the volume released into the environment under the PRTR system and provision of safety data sheets (SDSs) are required. 515 substances are designated as Class I specified chemicals.
³ Chemicals of this type used by any of the Company's business locations in quantities of over 1 kg per year are subject to tabulation.

Substances subject to reporting based on the PRTR system

	FY2018	FY2019	FY2020	FY2021	FY2022
Toyooka Factory	-	-	-	-	-
Tenno Glass Works	-	-	-	-	-
Main Factory	1. 2-amino ethanol 2. Hydrogen fluoride and its water-soluble salts 3. Pyrocatechol	1. 2-amino ethanol 2. Hydrogen fluoride and its water-soluble salts 3. Pyrocatechol	1. 2-amino ethanol 2. Hydrogen fluoride and its water-soluble salts 3. Pyrocatechol	1. 2-amino ethanol 2. Hydrogen fluoride and its water-soluble salts 3. Pyrocatechol 4. Triglycidyl isocyanurate	1. 2-amino ethanol 2. Hydrogen fluoride and its water-soluble salts 3. Pyrocatechol 4. Triglycidyl isocyanurate
Mitsue Factory	-	-	-	-	-
Shingai Factory	-	-	-	-	-
Joko Factory	-	-	-	-	-
Central Research Laboratory	-	-	-	-	-
Miyakoda Factory (Compound semiconductor Fabrication Center)	Ferric chlorides	Ferric chlorides	Ferric chlorides	Ferric chlorides	Ferric chlorides
Industrial Development Research Center	-	-	-	-	-
Tsukuba Research Center	-	-	-	-	-



Advancement of collection and use of SDSs

SDSs are useful for understanding the properties of chemicals and handling them safely. Hamamatsu Photonics ensures that the latest SDSs not only for chemicals for which provision of SDSs is required under the Industrial Safety and Health Act but for all chemicals it handles. SDSs are recorded in the Company's database, playing a role in risk assessment of chemicals and in maintaining the safety of workplaces and the surrounding environment.



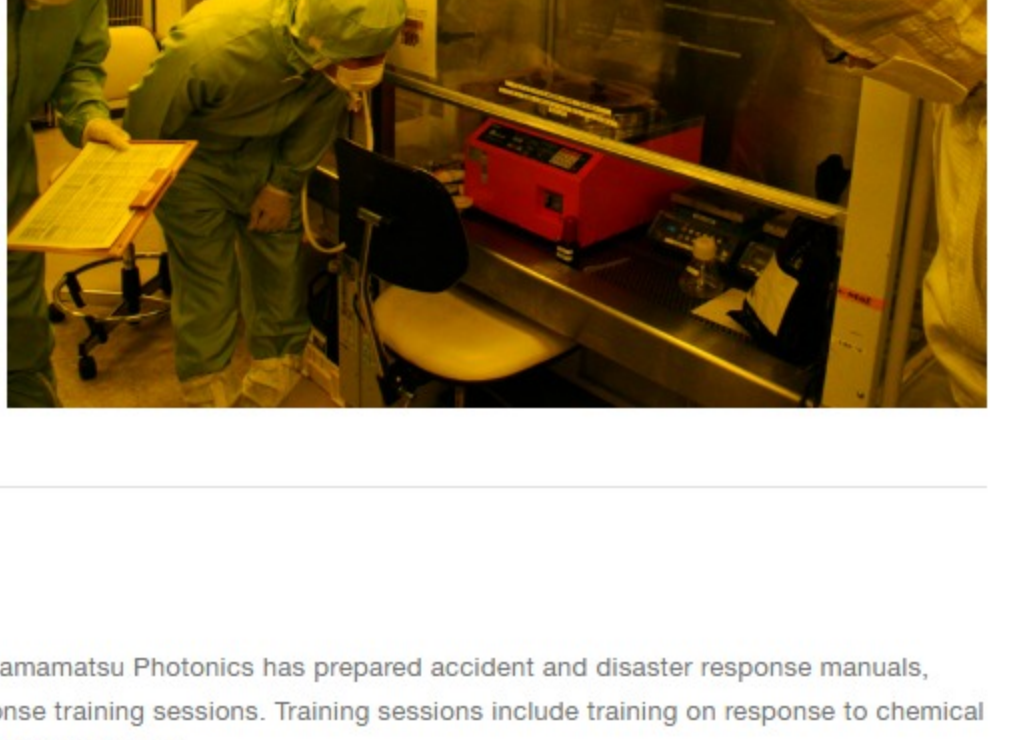
Reducing atmospheric emissions of VOCs

To reduce atmospheric emissions of volatile organic compounds (VOCs), Hamamatsu Photonics is reducing its use of these compounds and installing equipment for its recovery. VOCs are primarily used in industrial cleaning facilities, with major emissions in this category including ethanol, isopropyl alcohol and acetone.



Inspection of status of handling of chemicals

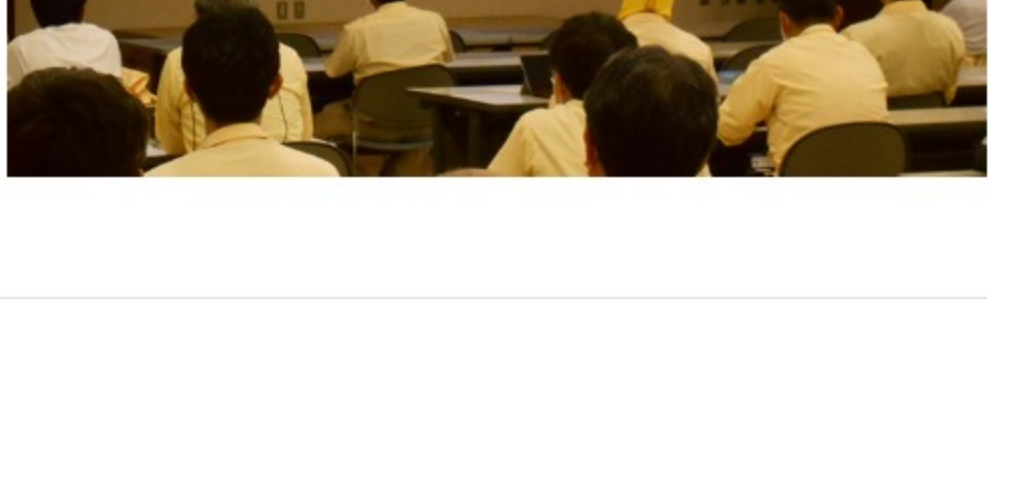
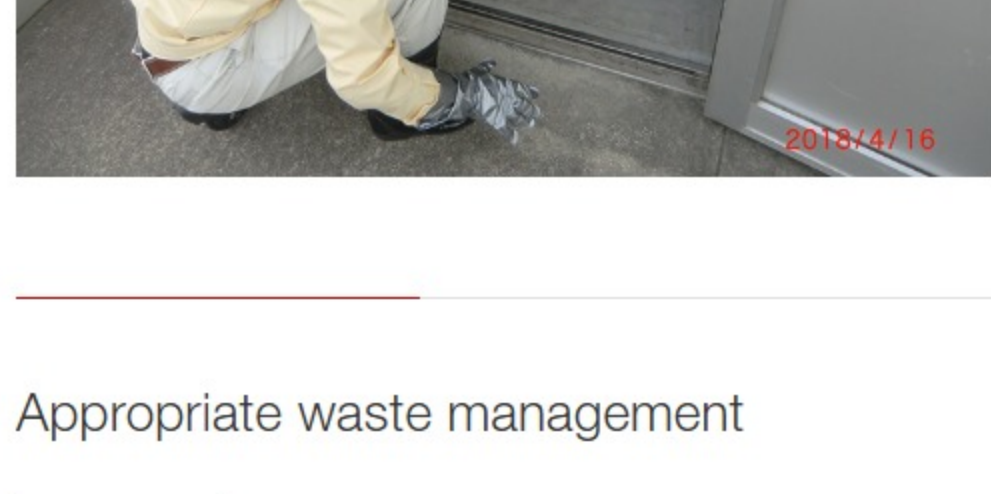
While evaluation of risks associated with chemicals is based on SDSs, the actual degree of risk is heavily dependent on the environment in which chemicals are used. At Hamamatsu Photonics, we regularly inspect the workplaces and chemical storage sites where chemicals are handled, under the Chemicals Working Group. When problems are detected through the inspection process, we correct them promptly, then report the matter to the Headquarters Chemicals Working Group and share the information appropriately.



Chemical safety training

To ensure employees treat chemicals properly and prevent environmental accident, Hamamatsu Photonics has prepared accident and disaster response manuals, installs and inspects disaster-response equipment, and regularly holds disaster-response training sessions. Training sessions include training on response to chemical spills, evacuation drills in preparation for indoor gas leaks and training on respirator tank attachment.

We also regularly hold chemical safety educational program for employee. To understand risk about treating chemical substance, we share internal/external chemical substance accident cases or invite expert from outside to give professional lecture.



Appropriate waste management

Data on Waste

Towards circular economy society, we, having consideration of decreasing landfill volume and increasing resource efficiency, address separating wastes properly, reducing defective products, and reusing and recycling some facilities and packaging. Please refer to the table and graph below for our waste data⁴ over the past five years.



Breakdown of Waste

	FY2019	FY2020	FY2021	FY2022	FY2023
Solid waste	578	627	695	720	850
Plastic waste	163	148	161	212	188
Hazardous waste ⁵	315	311	407	358	402
Preparing for reuse	293	287	317	285	355

Breakdown of Waste-treatment

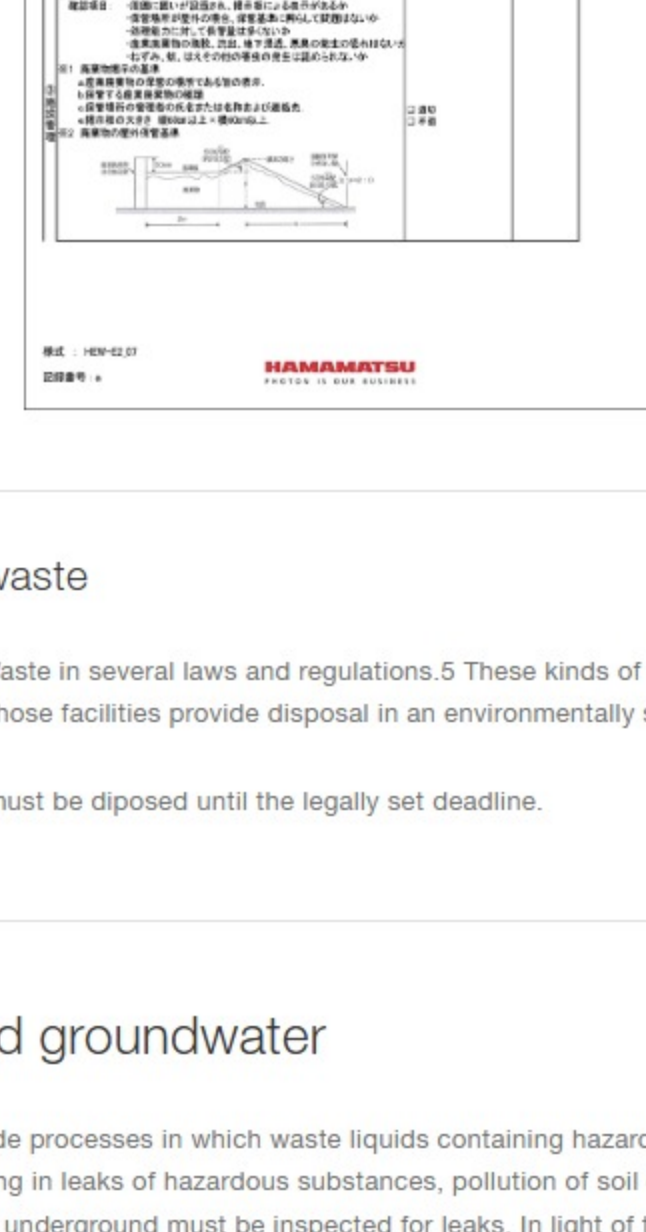
	FY2019	FY2020	FY2021	FY2022	FY2023
Reuse volume ⁶	293	287	317	285	355
Recycling volume	521	514	64	694	658
Recovery volume	104	141	145	113	108
Landfill volume	15.5	7.0	3.0	6.2	14.2
Landfill rate ⁷	1.3	0.6	0.2	0.5	0.9

⁴ From FY2023, we changed the base concept for our waste data from the Japanese waste law to the EU waste framework directive, and also expanded our disclose area from "non-consolidated" to "consolidated." Please note that this "consolidated" means the consolidated-production sites excluding sales offices.
⁵ Waste designated in law as specified hazardous waste. These include sludge, waste acid, and waste alkali, all containing heavy metals, organic chlorides, and dioxin above a certain concentration. Also included are PCBs, asbestos, and waste mercury.
⁶ Reuse volume: The amount of reuse is covering valuables and stuff in a sense of the Japanese waste law.
⁷ Landfill rate: Landfill volume in proportion to waste volume. Our goal is the landfill rate of less than 1.8 % in consideration of the self regulatory goal towards circular society from JEITA or Japan Electronics and Information Technology Industries Association.

Ensuring proper disposal at our contracted waste facilities

Each year Hamamatsu Photonics carries out comprehensive checks of our contracted waste facilities, to ensure that waste is disposed appropriately. We confirm the details of contractors' waste-treatment licenses, compliance with requirements for treatment and storage of waste as stipulated in the Waste Disposal and Public Cleansing Act, and whether contractors maintain harmonious relationships with surrounding residential communities. In audits of contractors, we review all processes from waste transport to landfilling. If incorrect treatment occurs (an event for which the Company fortunately has no cases at this time), the Company reports the matter to the competent authorities in accordance with the law.

Number of confirmations of status of proper disposal by our contracted waste facilities



Appropriate disposal of hazardous waste

Certain industrial wastes are identified as Hazardous Waste in several laws and regulations.⁵ These kinds of wastes require special attention and needs to be disposed of properly. We have entrusted contractors whose facilities provide disposal in an environmentally sound manner. We then confirm this with a follow up visit at these sites on a regular basis. Especially, we strictly manage PCB waste, because it must be disposed until the legally set deadline.

Preventing pollution of soil and groundwater

Hamamatsu Photonics' manufacturing processes include processes in which waste liquids containing hazardous substances are emitted. If the piping that conducts this waste liquid becomes damaged or cracked, resulting in leaks of hazardous substances, pollution of soil or groundwater can result. A revision of the Water Pollution Control Act mandates that even piping buried underground must be inspected for leaks. In addition, in light of the risk of pollution with even greater concern, we exhume underground piping and tanks and place them above ground if necessary. In the lead, in view of the high incidence of earthquakes in Japan, we introduce flexible piping in certain places to prevent damage to piping due to vibration.

Placement of buried piping above ground and introduction of flexible piping

