



Environmental Report 2023



Top Message



In May 2023, COVID-19's category was moved to Class 5 and we are gradually returning to life as it was prior to the pandemic. However, we continue to live in a geopolitically chaotic time due to the ongoing situation of tension between Russia and Ukraine as well as the trade friction and power struggle between the USA and China. Against the backdrop of this situation, the price of various raw fuels and materials has risen sharply and the cost of living is increasing, which has created uncertainty about the future of the global economy.

Amid this type of situation, we began year 1 of the “Kureha Group's New Mid-to Long-term Management Plans” in April 2023. Kureha Ecology Management has defined its vision to be “we will contribute to building a resource recycling society through our environmental and recycling business that makes use of proprietary technology” to clearly announce its ideal state for 2030.

With a sense of responsibility as a social infrastructure that supports industrial activities, we are aware of the necessity to contribute towards reducing environmental impact, reducing the volume of waste, detoxifying waste, regenerating and recycling resources, and achieving carbon neutrality while ensuring that our company has a sustainable economic value by fully utilizing our proprietary expertise to safely and reliably implement business activities for collecting and transporting industrial waste, intermediate treatment of such waste, and its final disposal (landfills) and recycling. Based on our Health and Safety Management Policy which states “Safety takes precedence over everything else”, we will continue to contribute towards the society by promoting our industrial waste disposal business, environmental engineering business, and environmental restoration & recovery related businesses, and also through the final disposal business operated by our Group company, HIMEYURI Corporation. We will aim to be a company that gains even greater levels of trust from our customers, the local community, and all stakeholders, and boldly take on any challenge without fear of change.

I would like to thank everyone for their continued support and look forward to working with you all in the future.

Masahiro Namikawa
Member of the Board
President & Chief Executive Officer

Corporate Philosophy

1. We tirelessly endeavor to achieve a harmonious relationship between people, society and the global environment.
2. We contribute to the enrichment and growth of the society by providing safe products and services.
3. We grow and develop ourselves with the community in which we operate.
4. We comply with laws and regulations, practice high ethical standards and operate in transparent manners as a trusted corporate citizen.
5. We develop and nurture a corporate culture which values the individuality and diversity of our employees and optimizes creativity and teamwork within.
6. We bring passion to researching and developing technologies that are ahead of the times.

Editorial policy

This report introduces various initiatives including our Responsible Care (RC) activities in fiscal 2022.

■ Guidelines used as reference:

- Environmental Reporting Guidelines 2012
 - Guide to Matters Noted in Environmental Reports (3rd Edition)
- The documents above were published by Ministry of the Environment

■ Report period:

April 1, 2022 – March 31, 2023

Including some information from FY2023 and about plans

■ Reporting departments:

All Kureha Ecology Management departments

■ Disclaimer

This report includes plans and forecasts. Changes in various conditions could render these forecasts inaccurate. Please note that some of the figures in the tables and graphs presented here have been revised from previous fiscal years considering changes to calculation methods and other factors.

We will also introduce our efforts to SDGs*.



*What are the SDGs (Sustainable Development Goals)?

The SDGs (Sustainable Development Goals) are international goals adopted at the United Nations Headquarters in September 2015 that will last until 2030. They aim to realize a world in which "no one is left behind" by tackling 17 goals and 169 targets to deal with global issues such as the global economic crisis, natural disasters, the environment problems, refugees, and poverty.

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Outline of Business

Core business

① Collection, transportation, and disposal of industrial waste

We have treatment facilities at Iwaki City, Fukushima Prefecture (Waste-Tech Iwaki) and Kawasaki City, Kanagawa Prefecture (Waste-Tech Kanagawa), which enable the Kureha Ecology Management Group to batch process even difficult-to-treat waste.

Our primary consideration is the safe and proper treatment of diversified industrial waste, and we also publicize our research and development into waste treatment technology and information about new technology in this field.

② Environmental restoration business

We are cleaning up and recovering the environment based on our many achievements and expertise and the proprietary technology that we have developed over the years.

We have adopted an integrated system in which we start with investigating the level of contamination, then design and create measures to clean up the contamination, and finally monitor the situation after the cleanup is complete.

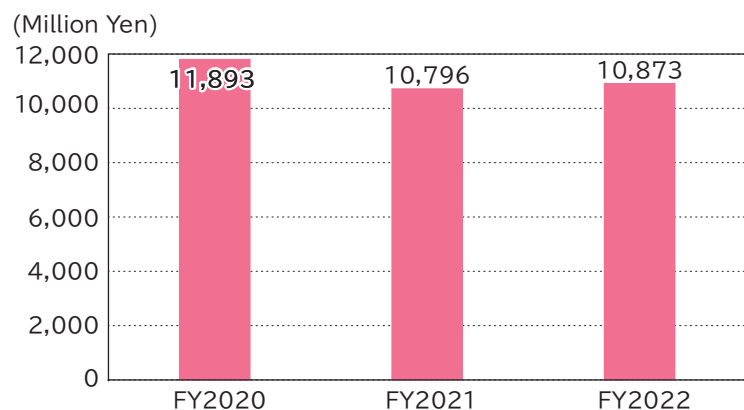
③ Environmental engineering business (construction industry)

We collect organic solvents from within exhaust gas and have exhaust gas treatment equipment that removes harmful substances that cause offensive odors. We manufacture and sell environmentally friendly equipment with the aim of achieving goals that include suitable water quality management at water purification plants and preventing corrosion at water supply facilities by improving water quality.

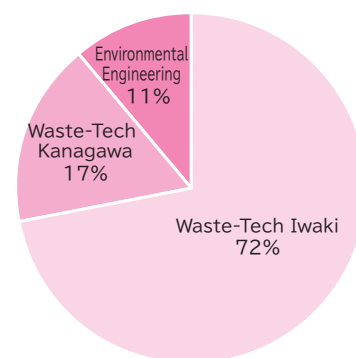
④ Power generation business

Waste-Tech Kanagawa generates power in the form of thermal recovery from the heat generated when it incinerates waste.

Sales



Sales by Business Sector (FY 2022)



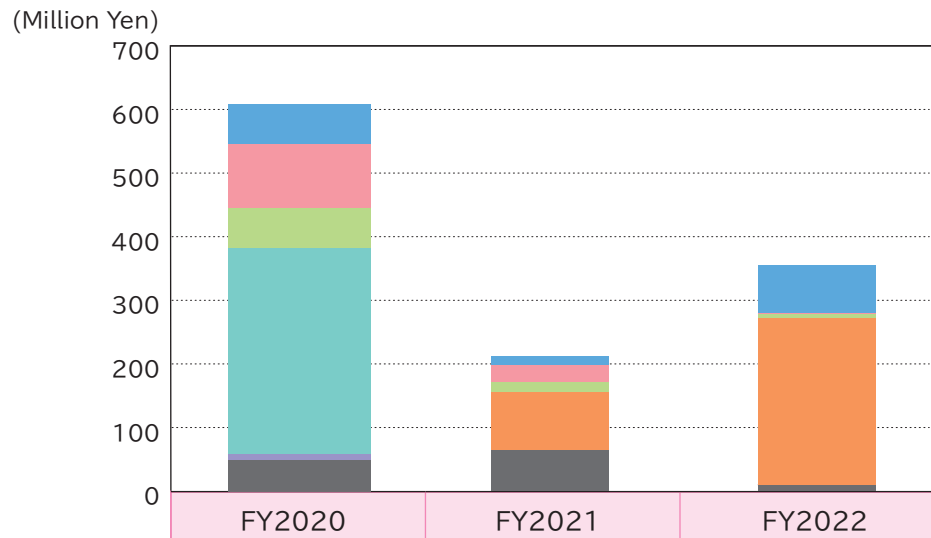
While steadily fulfilling its role as a social infrastructure in waste management, the Company will also ambitiously work toward decarbonization as part of its corporate social responsibility, thereby contributing to the formation of a sustainable resource-recycling society for future generations.

Takeshi Matsuoka
Senior Vice President General Manager,
Management Planning Division

Investment in Environmental Measures

We invested in equipment that exceeds 355 million yen as environmental measures in FY2022.

In FY2021, we continued to invest to make improvements to the performance of wastewater treatment for ① “Anti-pollution measures (water quality)” . Furthermore, we renewed some of the thermal recovery power generation equipment at Waste-Tech Kanagawa for ④ “Power saving and CO₂ emissions reduction” in order to enhance our environmental concerns and the supply of stable energy.



① Antipollution measures (water quality)	61.40	12.98	75.16
② Antipollution measures (atmosphere)	101.82	26.29	0.32
③ Antipollution measures (noise, vibration, bad odor)	61.78	16.17	7.86
④ Energy saving and reduction of CO ₂ emission	0.00	90.94	261.56
⑤ Industrial waste and recycling related measures	324.12	0.00	0.86
⑥ Countermeasures of soil and groundwater contamination	9.19	0.00	0.00
⑦ Others	48.36	64.34	9.35
Total	606.67	210.72	355.11

Management System Operational Status

Management system basic policy

- Approach, targets, and purpose

We will comply with laws, regulations, and voluntary standards, and we will strive to deepen trust from stakeholders in the community and in business as well as to improve our corporate value through various activities concerning quality, environment, and occupational health and safety based on our management system.

- Activities policy

- We will improve the quality of the products and services we provide to aim for greater customer satisfaction.

- We are committed to protecting the environment using our experience in the environmental business.

- We will create a safe, secure, and comfortable workplace based on our Health and Safety Management Policy.

We are especially committed to preventing falls from a height, chemical burns, slips and falls on the same level, and heavy machinery accidents.

Revised on May 12, 2022

Usage of the Environmental Management System (ISO 14001)

We held the Environmental Management Committee once a month to grasp the progress of our environmental activities.

Environmental objectives and results of ISO 14001

Environmental Objectives	Goal	Result	Description
<General Affairs Dept> Strive to beautify and protect the environment inside and outside the company (mainly around the company).	Community beautification activities: more than 7 times / year	Achieved	8 times against the target of 7 or more
<Sales Division> Zero: external leaks of waste	Zero	Achieved	Achieved the goal (no external leak of waste).
<Waste-Tech Iwaki> Zero of environmental complaints	Zero	Achieved	Achieved the goal (no environmental complaint)
<Waste-Tech Kanagawa> Zero of environmental complaints	Zero	Achieved	Achieved the goal (no environmental complaint)
<Environment Engineering Dept> Zero: environmental accidents in external construction	Zero	Achieved	Achieved the goal (no environmental accident).
<Environment Sales Dept> Reduction of CO ₂ emission	40 t / year	Achieved	The sale of 2 units of GASTAK* contributed to 133 metric tons per year of actual reduced CO ₂ emissions.

* VOC exhaust gas treatment equipment

Compliance with Environmental Regulations Status

Compliance with environmental laws and regulations

We have stated “Compliance with laws, regulations and voluntary standards” in the basic management system policy. To comply with laws and regulations, we use the international standard ISO14001, which was certified in 1998, to register laws and regulations, and to assess compliance. As a result of the assessment, we have confirmed that the compliance is maintained in FY2022.

List of major environmental laws and regulations

No.	Names of Laws, Regulations etc.	Contents (in relation with)
1	Air Pollution Control Act	Prevention measures of air and water pollutions
	Water Pollution Control Act	Measurement, investigation, notification related to air and water pollutions
	Act on Special Measures concerning Countermeasures against Dioxin	Related to odor control measures
	Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof	Measurement, investigation, and notification related to malodorous substances and industrial waste
	Environmental Regulations of Fukushima Prefecture, Kanagawa Prefecture, Iwaki City and Kawasaki City	Prevention measures for vibration noise, etc.
2	Waste Disposal and Cleaning Laws	Maintenance & management standards for waste treatment facilities
		Standards for storage of industrial waste and specially controlled industrial waste
		Permission standards for collection and transportation business of industrial waste, specially controlled industrial waste
		Status report on industrial waste management including issuance of management slip
3	Ministerial Ordinance for Establishing Criteria of Industrial Waste Containing Metals	Regular inspection of industrial waste treatment facilities by the government
		Criteria related to landfill disposal of cinders and dewatered sludge
4	Act on Promotion of Global Warming Countermeasures	Greenhouse gas emissions related
5	Fire Service Act	On-site inspection by the government of dangerous goods storage etc.
6	Act on Rationalizing Energy Use	Obligation of regularly report on energy usage by specific companies
7	Guidelines for Mercury Waste	Environmentally appropriate treatment of mercury waste
8	Guidelines for Collecting and Transporting of Low-concentration PCB Waste, Guidelines for Processing of Low-concentration PCBs	Standards for collection, transportation and treatment of low-concentration PCB waste
9	Act on Rational Use and Appropriate Management of Fluorocarbons	Report on the amount of CFC destruction

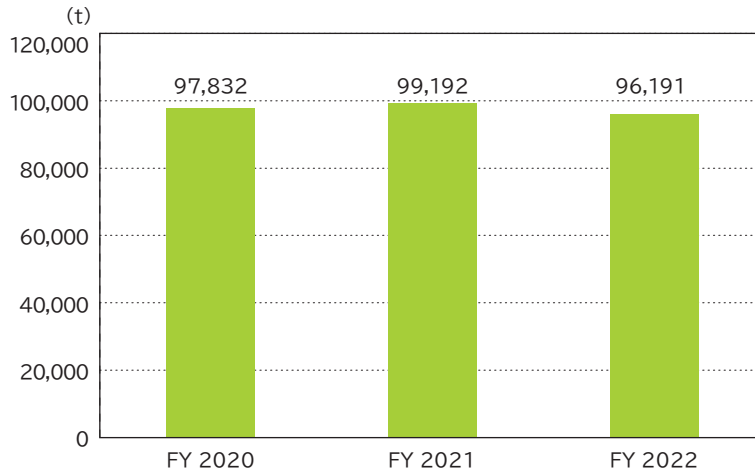
Input & Output Status

Input



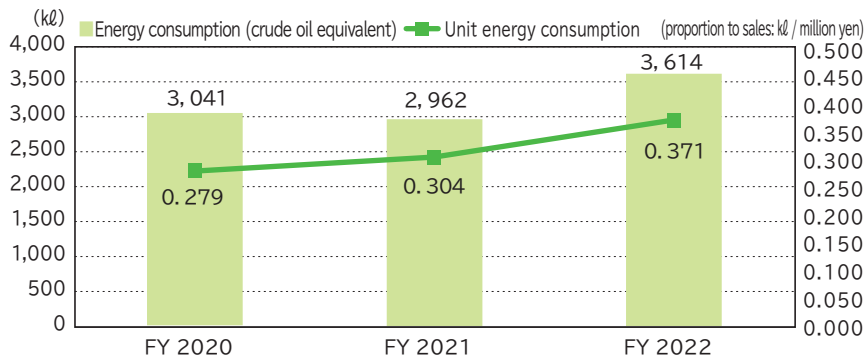
Received amount of waste

96,191t



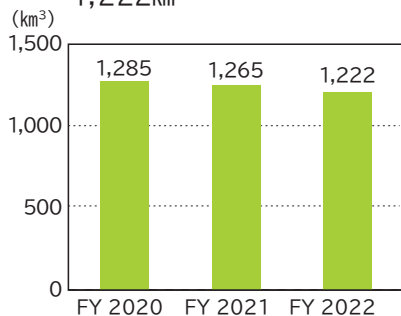
Energy consumption (Crude oil equivalent)

3,614kℓ



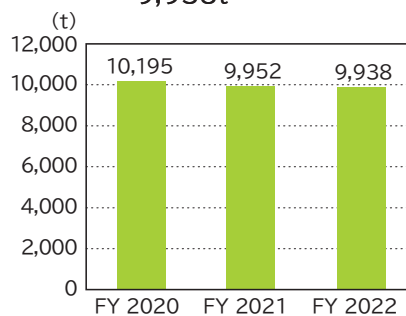
Water resource consumption

1,222km³



Raw material consumption

9,938t



Waste treatment



Waste-Tech Iwaki



Waste-Tech Kanagawa

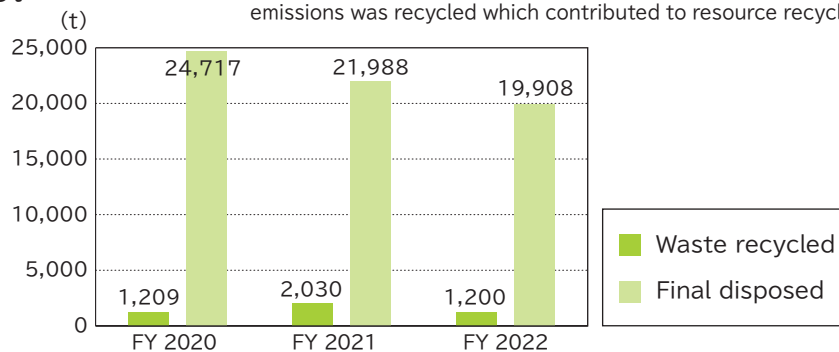
Output



Waste produced

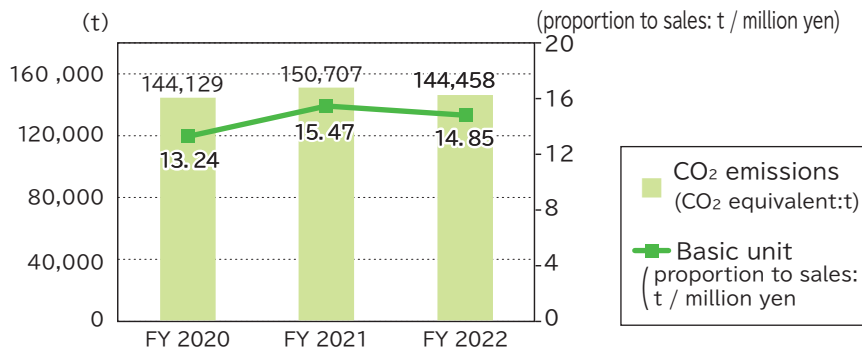
21,108t

The amount of waste emissions after intermediate treatment was reduced by up to 21.9% for the amount of waste received. Furthermore, an equivalent 5.7% of the amount of waste emissions was recycled which contributed to resource recycling.



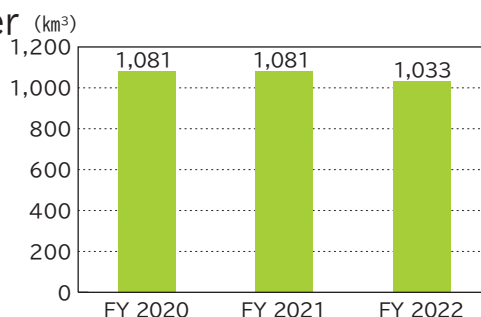
Greenhouse gas emissions (CO₂ equivalent)

144,458t



Wastewater produced

1,033km³



Since Waste-Tech Kanagawa uses a closed system (a system that recycles wastewater without letting it go outside), the amount of wastewater is only for Waste-Tech Iwaki.



The Waste-Tech Division, which is responsible for selecting appropriate waste treatment methods and for the treatment itself, will continue to contribute towards achieving a sustainable society by detoxifying environmentally hazardous substances that are considered difficult to process at Iwaki where we are highly skilled in this area, and by effectively using thermal energy generated when incinerating waste at Kanagawa.

Yasuhiro Suzuki

Vice President General Manager, Deputy Waste-Tech Division

Waste-Tech Iwaki

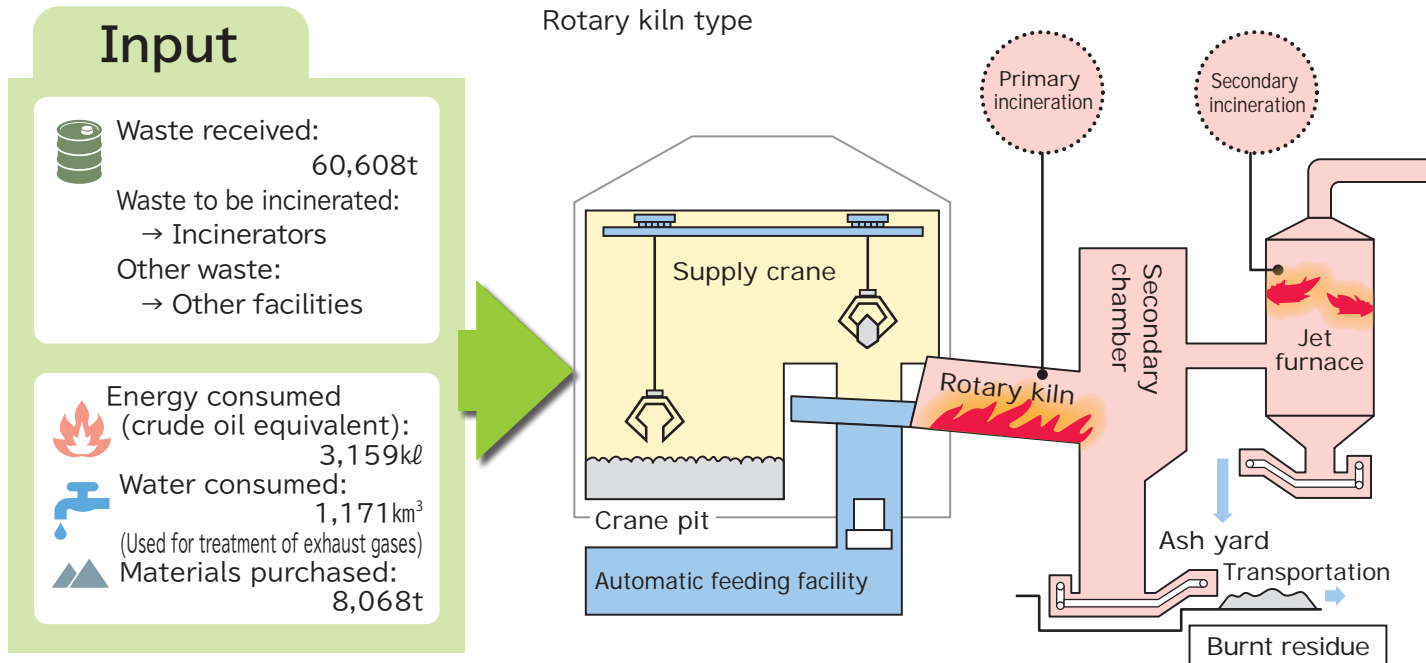
In the Unit 7 and Unit 8 incinerators of Waste-Tech Iwaki, we incinerate various kinds of waste such as sludge containing chlorine and silicon, waste plastics, waste acid, waste alkali and medical waste.



Unit 7 incinerator

Unit 7 Incinerators Unit 8 Incinerators

Rotary kiln type



Unit 7 incinerator

Incineration of sludge: 182m³ / day
 Incineration of waste oil: 110m³ / day
 Incineration of waste plastics: 104t / day
 Decomposition of cyanide compound: 202m³ / day
 Incineration of industrial waste: 238t / day

Unit 8 incinerator

Incineration of sludge: 182m³ / day
 Incineration of waste oil: 118m³ / day
 Incineration of waste plastics: 104t / day
 Decomposition of cyanide compound: 266m³ / day
 Incineration of industrial waste: 238t / day



A dehydrator was added to improve wastewater treatment performance.
(Photo: Expanded dehydrator building)



Unit 8 incinerator

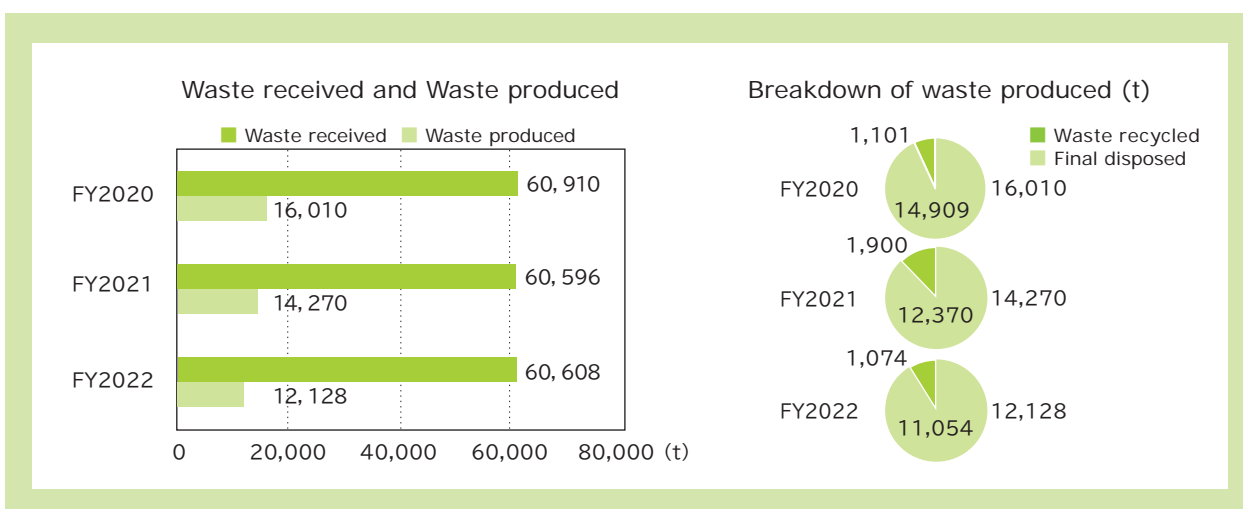
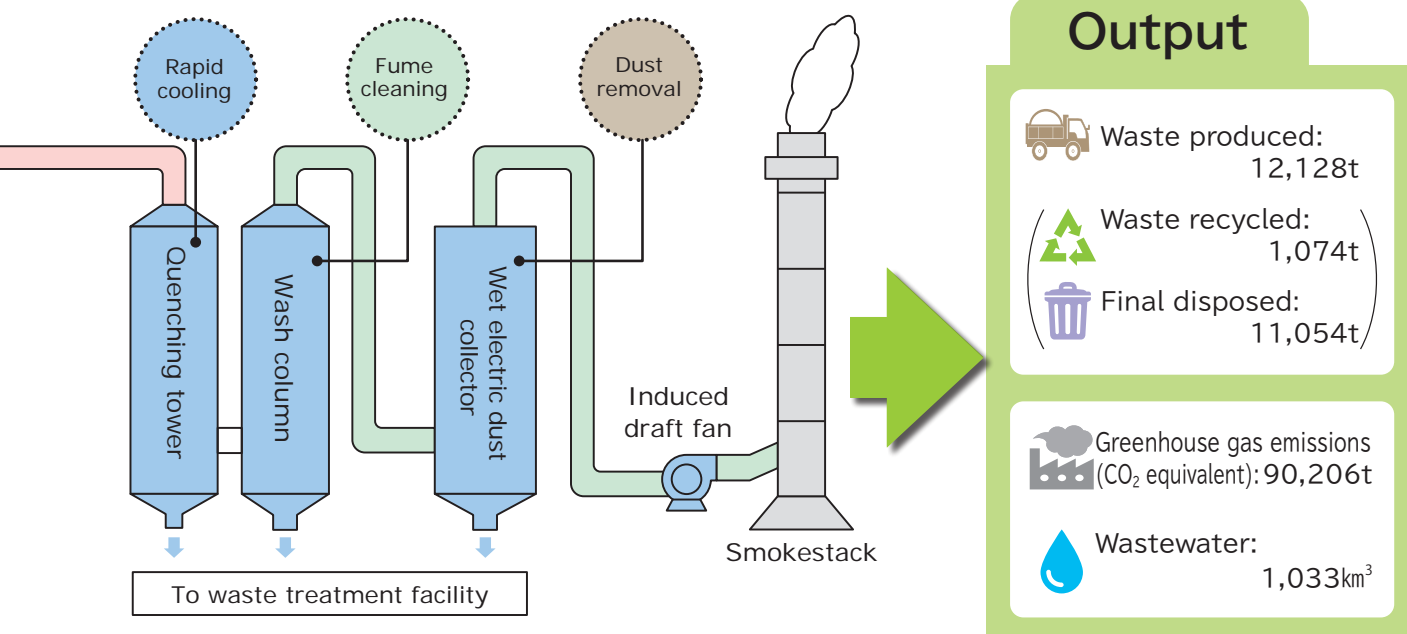


The Equipment Planning Section, Equipment Management Department is responsible for the installation of new equipment in a facility and for making improvements to the process.

We improve waste treatment technology, work on initiatives to reduce the environmental impact, and contribute to “safe, secure, and stable operation” through the improvement, and maintenance of facilities.

Shinobu Hakozaiki

Deputy General Manager, Equipment Management Department



Waste-Tech Kanagawa

At Waste-Tech Kanagawa, we incinerate industrial waste and use exhaust heat effectively to generate electricity.

We are trying to contribute to minimization of fossil fuel use by making full use of operation know-how so that we can supply more electricity from a wide variety of waste materials with different calorific values and properties.



The Pretreatment Group conducts daily checks on waste brought into our facility to ensure stable incinerator operation. We are also committed to improving services so that they are in line with customer expectations as the face of Kureha Ecology Management at the facility. The group continues to make every effort to put safety first led by our goal of achieving zero heavy machinery accidents.

Kaito Shimada

Group Leader Pretreatment Group Treatment Technology Section

Input

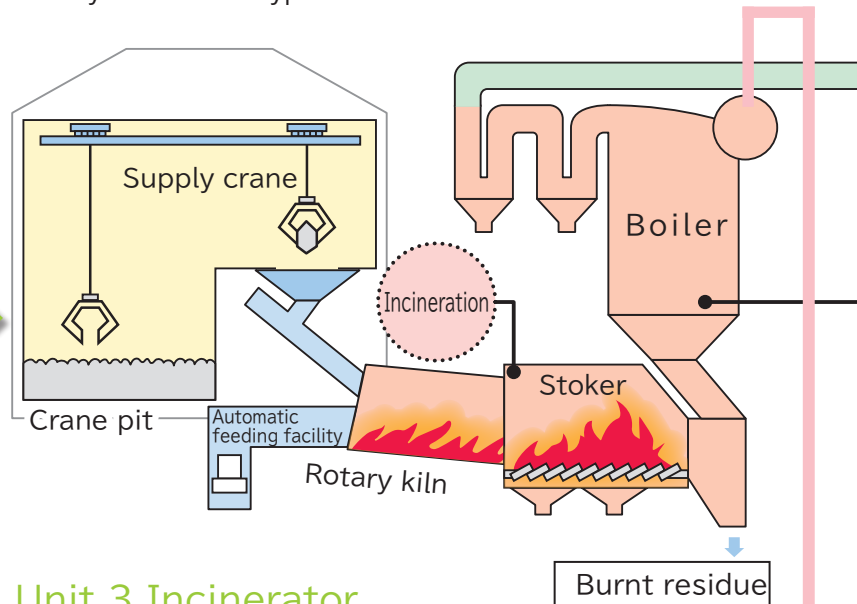
- Waste received: 35,583t
- Waste to be incinerated: → Incinerators
- Other waste: → Other facilities

- Energy consumed (crude oil equivalent): 455kl
- Water consumed: 51 km³
- Materials purchased: 1,870t

Unit 1 Incinerators

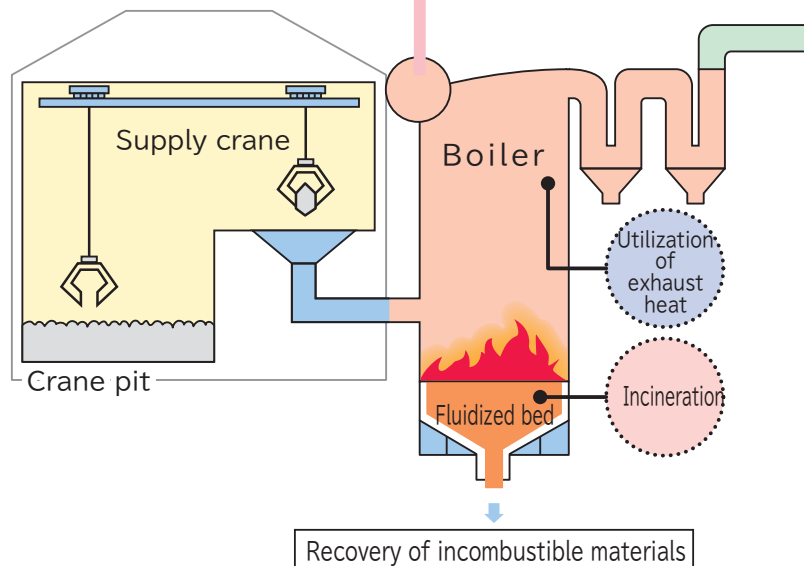
Unit 2 Incinerators

Rotary kiln stoker type



Unit 3 Incinerator

Fluidized-bed type

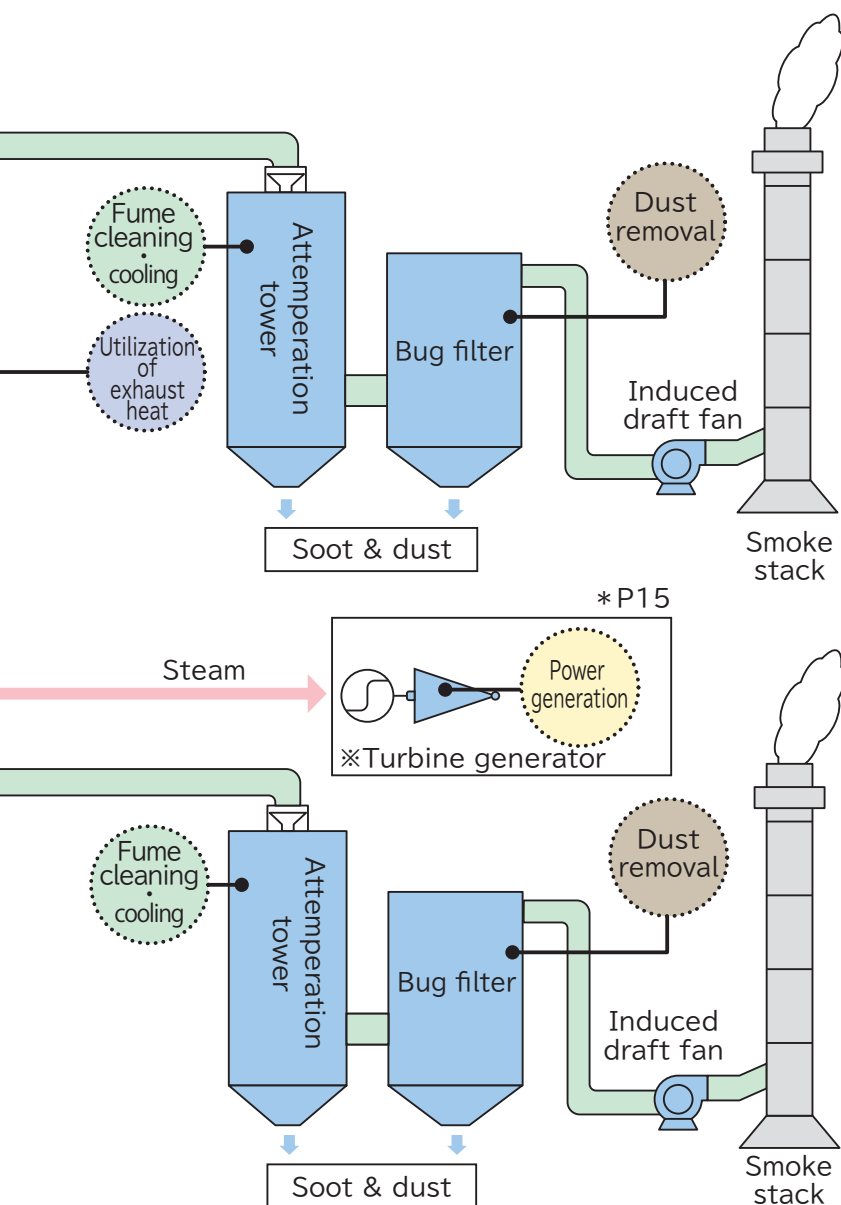
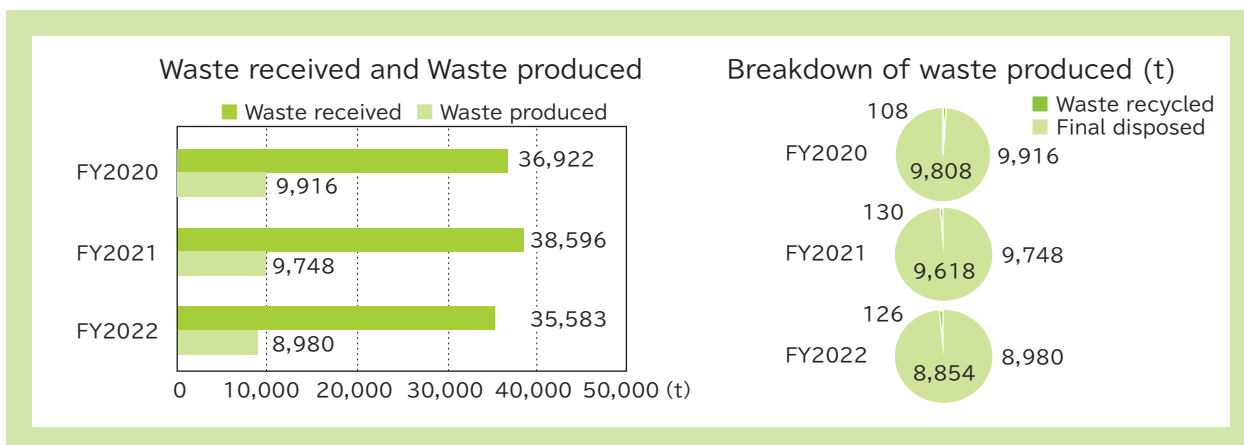


Total of Unit 1 & 2 incinerators

- Incineration of mixture: 140t / day
- Incineration of sludge: 112m³ / day
- Incineration of waste oil: 150m³ / day
- Incineration of waste plastics: 80t / day
- Incineration of other industrial wastes: 230t / day

Unit 3 incinerator

- Incineration of mixture: 70t / day
- Incineration of sludge: 48m³ / day
- Incineration of waste oil: 75m³ / day
- Incineration of waste plastics: 40t / day
- Incineration of other industrial wastes: 115t / day



Output

- Waste produced: 8,980t
- Waste recycled: 126t
- Final disposed: 8,854t

- Greenhouse gas emissions (CO₂ equivalent): 54,247t
- Wastewater*: 0km³

(Note) In Waste-Tech Kanagawa, we use a closed system (a system that reuses wastewater without discharging it outside).

Kawasaki Logistics Center



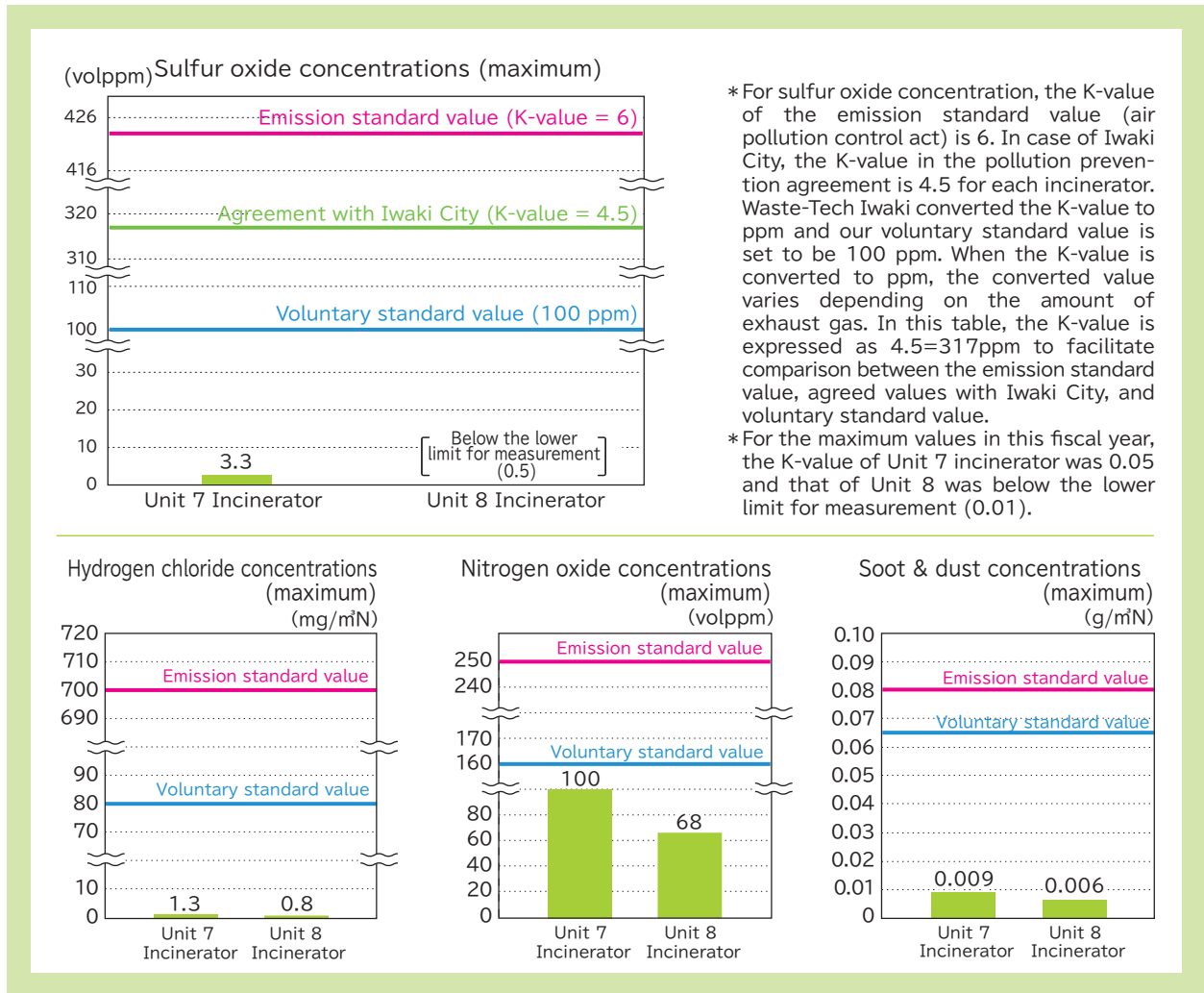
This is a waste transshipment and storage facility adjacent to Waste-Tech Kanagawa. Waste carried in by small vehicles will be transported to Waste-Tech Iwaki by our large vehicles for disposal. We operate the facility considering transportation efficiency.



Measurement & Analytical Values for Various

The concentrations of sulfur oxide, hydrogen chloride, nitrogen oxide, and soot & dust of the incinerators' exhaust gas in FY2022 are below the voluntary standard values owing to appropriate maintenance of waste disposal facilities, and compliant with the emission standards of laws & regulations.
 * The emission standard values are the emission standard values in the Air Pollution Control ACT.

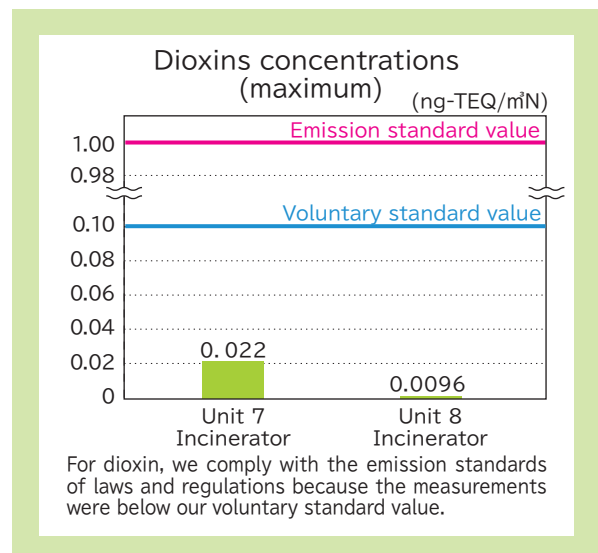
Waste-Tech Iwaki



Release and transfer of chemical substances

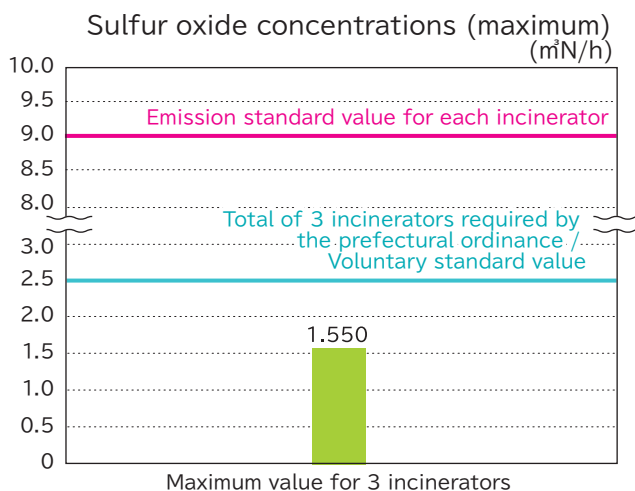
There are 31 substances applicable to Pollutant Release and Transfer Register Law (PRTR Law), and we properly submitted notifications. In this report we picked up dioxin, among priority substances and benzene, trichloroethylene and tetrachloroethylene among designated substances of the Supplementary Provisions to the Air Pollution Control Act.

Transfer of dioxins: 503mg-TEQ/year	Release of benzene: 5.2kg/year
Release of trichloroethylene: 5.2kg/year	Release of tetrachloroethylene: 5.2kg/year

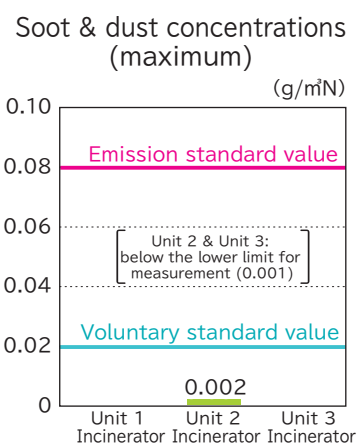
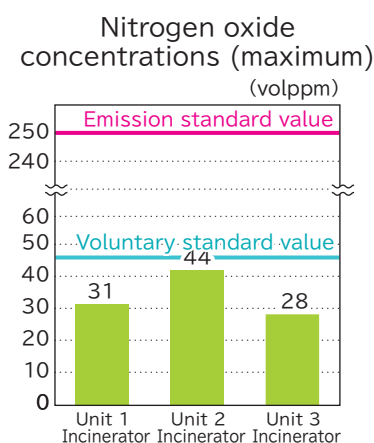
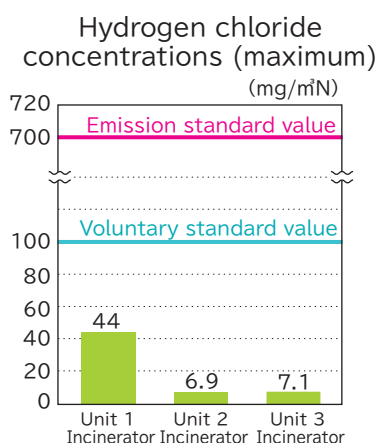


Discharges

Waste-Tech Kanagawa



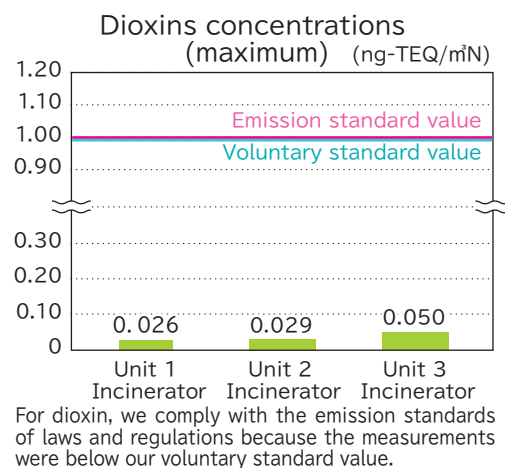
*The sulfur oxide emission is regulated by total amount, so we must comply with the emission standard based on the K-value. The standard value required by the Air Pollution Control Law is 9.07m³N/h for each incinerator, but Waste-Tech Kanagawa uses a stricter standard value of 2.52m³N/h for the total of three incinerators as a voluntary standard according to the Kanagawa Prefecture ordinance. In FY2022, the daily maximum value for all three incinerators was as shown on the left.



Release and transfer of chemical substances

There is 1 substance applicable to Pollutant Release and Transfer Register Law (PRTR Law), and we properly submitted a notification.

Transfer of dioxins:
5,711mg-TEQ / year



For dioxin, we comply with the emission standards of laws and regulations because the measurements were below our voluntary standard value.

Detoxification of Low-Concentration PCB Waste Treatment

Detoxification overview

We are processing at the following facilities that have been certified as harmless by the Minister of the Environment.




Topic	Details
Facility name	Unit 7 incinerator (rotary kiln incinerator) Unit 8 incinerator (rotary kiln incinerator, fixed bed incinerator)
Facility types	Facilities that incinerate waste polychlorinated biphenyl or other polychlorinated biphenyl contaminants or material processed from polychlorinated biphenyl
Facility location	Waste-Tech Iwaki
Waste collection and transport?	Yes

Building for pretreatment of housing/chassis/enclosure



Fixed-bed incinerator

We can treat all the low-concentration PCB wastes in the table below.

	Low concentration PCB waste	
	Waste electronic equipment, etc. with trace-level PCB contamination	Waste containing low-concentration PCBs
Low concentration PCB waste oil 	<u>Insulation oil with trace-level PCB contamination</u> Electrical equipment or insulating oil (used in OF cables) with PCB micro contamination	<u>Waste oil containing low-concentration PCBs</u> Waste oil, etc. with a PCB concentration of 5,000 mg/kg or less (mainly fluid)
Low-concentration PCB waste 	<u>Trace-level PCB contaminants</u> Objects contaminated through insulation oil with trace-level PCB contamination	<u>Low concentration PCB contaminants</u> Sludge, paper waste, wood waste, textile waste and plastic waste with PCB concentrations of 100,000 mg/kg or less (*). Unwanted items such as metal scraps, ceramic scraps, concrete debris, etc. with a PCB concentration of 5,000 mg/kg or less.
Low concentration PCB-treated Materials 	<u>Trace-level PCB treated materials</u> Objects treated to dispose of trace-level PCB waste oil or low concentration PCB contaminants	<u>Treated materials containing low-concentration PCBs</u> These are treated to dispose of PCB waste, and have a PCB concentration of 5,000 mg/kg or less (for scrap metal, etc., the PCB concentration of deposits is considered)

Large-scale waste electrical equipment disassembly facility W.I.L Center*

* W.I.L Center is an abbreviation of Waste-Tech Iwaki Logistics Center.

The center proposes the best solutions to meet customer needs concerning the treatment of small to large-scale waste electrical equipment.

We can provide faster and more flexible treatment services at the W.I.L Center by improved workability using machine disassembly and the use of storage space.

Using our treatment technology developed over many years and the W.I.L Center operation, we contribute to low-concentration PCB detoxification treatment within the time frame stipulated by law.



Improved workability using machine disassembly

W.I.L Center



The Low-Concentration PCB Treatment Section is responsible for receiving, storing, pretreating, treating, and removing waste contaminated by low-concentration PCB and ensuring that all stages of this process are conducted promptly and prioritize safety so that it can strive to deepen trust from stakeholders in the community and business as well as to improve our corporate value.

We will take care of your low-concentration PCB waste treatment needs. And ensure that the work is carried out safely.

Hisatomo Igura

Manager, Low-Concentration PCB Treatment Section, Iwaki Treatment Department

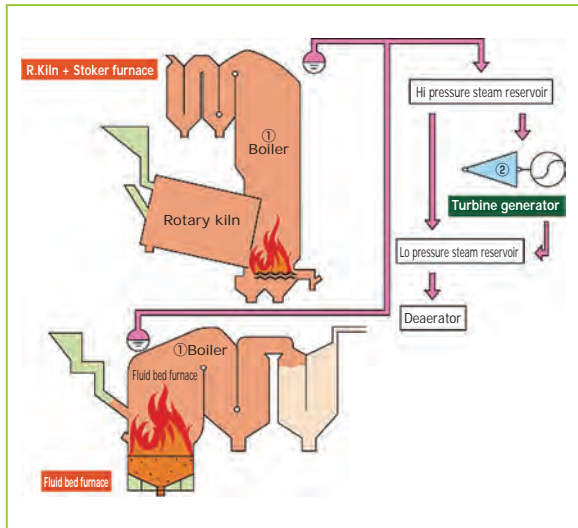


Recycling Initiatives

Waste Power Generation (Thermal Recovery) at Waste-Tech Kanagawa

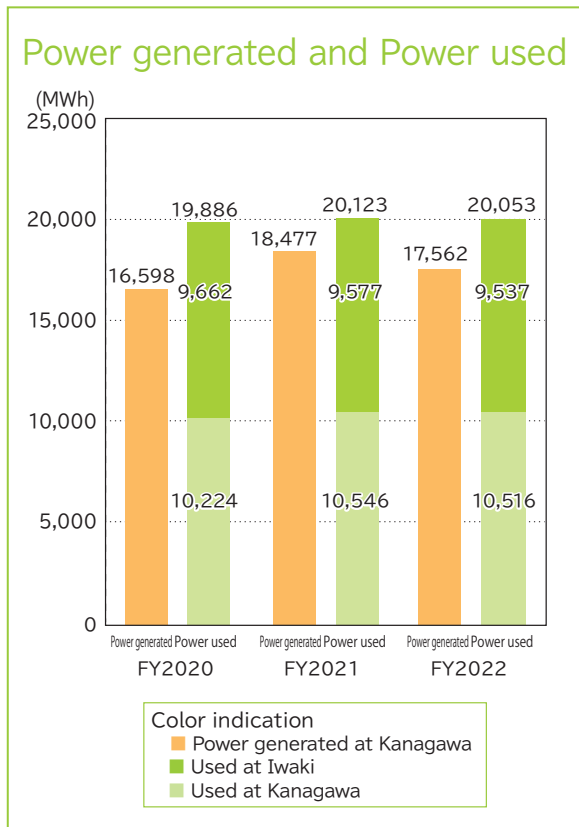
Waste-Tech Kanagawa has a maximum power generation capacity of 4,800kW by thermal recovery that recovers the exhaust heat of three incinerators.

The power generated is used by Waste-Tech Kanagawa and surplus power is sold. Thus, we return excess energy to society in the form of electricity, contributing to the reduction of environmental load.



①Boiler

This cools the combustion gas and supplies the generated steam to the on-site equipment and power generation equipment.



②Turbine Generator

This generates power with the steam produced in the boiler. The generated power is used within the plant, and the surplus power is sold.

VOC Exhaust Gas Treatment Equipment “GASTAK”



The Environmental Sales Department assists in preserving our air and water environment to build a sustainable society by providing environmental equipment that utilizes our unique revolutionary technology. It is also actively developing new applications focused on the next generation and disseminating information on this topic.

Yuko Miyabe
Environmental Sales Department, Environmental Engineering Division
Osaka Branch Office Manager

Collecting organic solvents and removing harmful substances that cause offensive odors

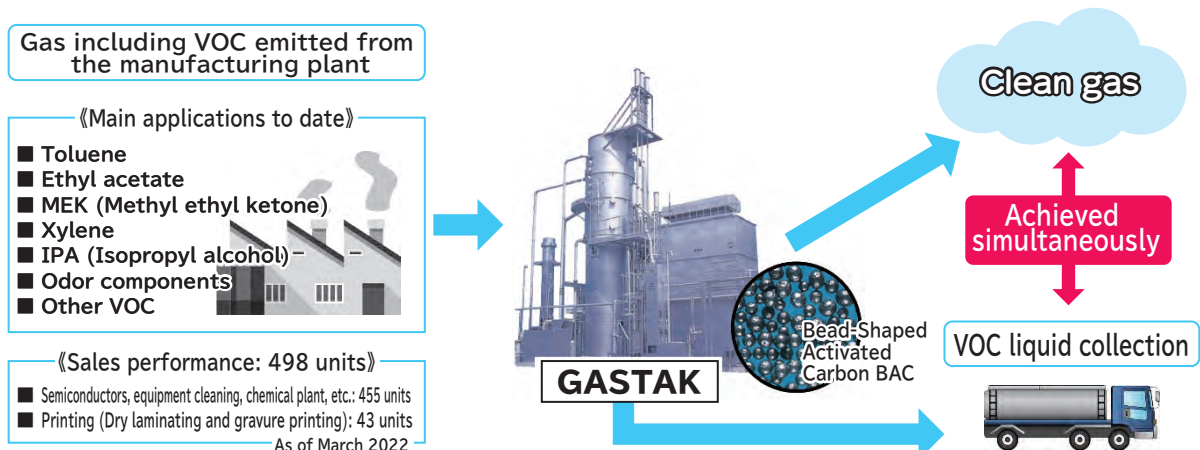
Our "GASTAK" is a revolutionary exhaust gas treatment equipment built for the purpose of collecting organic solvents contained in the exhaust gas and removing harmful substances that cause offensive odors from the exhaust gas.



GASTAK

Overview of GASTAK

GASTAK uses Bead-Shaped Activated Carbons(BAC) manufactured by Kureha Corporation as an absorption material to remove organic solvents (volatile organic compounds) contained in emissions from manufacturing plants and simultaneously collect these solvents in their liquid state. The collected VOC are of a high quality so can be reused in the plant's manufacturing process and recycled for other purposes such as cleaning equipment and for use as a combustion improver, which reduces the amount of consumed VOC.



Results of reduced CO₂ emissions expected from replacing combustion equipment with GASTAK

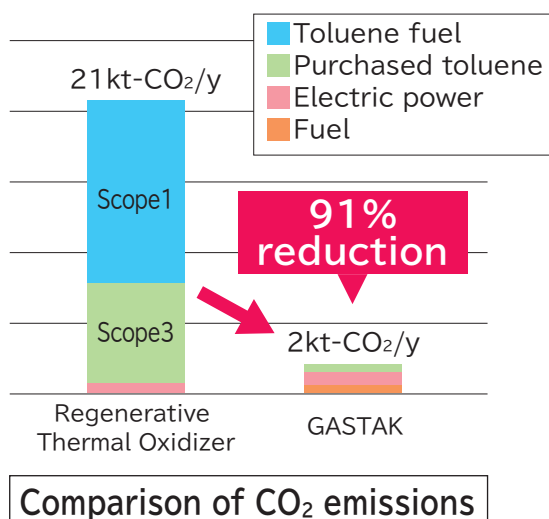
The GHG Protocol*, which is the international standard for calculating greenhouse gases, defines CO₂ emissions in the supply chain as scope 1 (direct emissions of greenhouse gas from our company's business), scope 2 (indirect emissions associated with the use of electricity, heat, and steam provided by other companies) and scope 3 (emissions from other companies relating to our company's activities).

When there are many volatile organic compounds (VOC) contained in emissions from manufacturing plants, combustion equipment is used to decompose these VOCs by thermal oxidation to produce CO₂. Replacing this combustion equipment with GASTAK provides a significant reduction in the amount of CO₂ produced by burning VOC (scope 1) and the amount of CO₂ produced from purchasing new VOC (scope 3) because the VOC is reused or recycled as a resource.

The diagram below shows a comparison of the amount of CO₂ emissions from typical combustion equipment (Regenerative Thermal Oxidizer) against those from GASTAK.

* GHG Protocol: An international standard used when calculating and reporting the amount of greenhouse gas emissions.

It was created to promote its use as an internationally recognized standard for calculating and reporting the amount of greenhouse gas emissions. The protocol was announced in October 2011 and has become the current global standard for calculating and reporting the amount of greenhouse gas emissions.



Preconditions

Exhaust gas airflow	1,300 Nm ³ /min
Entry toluene concentration	1,500 ppm
Removal rate	95%
Yearly operating hours	8,000 hours

CO₂ emissions

Regenerative Thermal Oxidizer	21 kt-CO ₂ /year
GASTAK	2 kt-CO ₂ /year
Reduction results	19 kt-CO ₂ /year

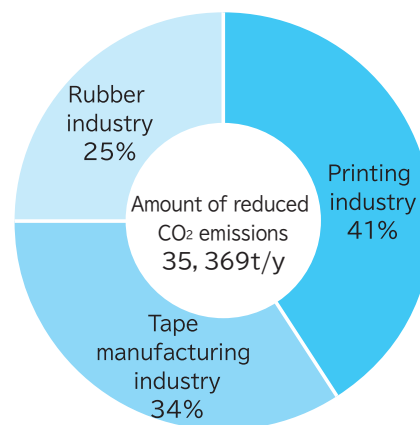
Contributing to the control of CO₂ emissions

If VOC contained in exhaust gas is released without treatment into the atmosphere, it decomposes in the air and then finally changes into CO₂.

However, if VOC is collected as a liquid using VOC collection equipment, VOC contained in the exhaust gas is prevented from changing into CO₂ and can be recycled, thus contributing towards reducing the amount of CO₂ produced from the exhaust gas treatment process.

The graph shows the estimated amount of reduced CO₂ emissions per annum based on cases we have sold equipment for the purpose of VOC collection in the past.

We will continue to reduce the environmental impact in this field as well.



Amount of reduced CO₂ emissions per annum (estimated) based on equipment sold for the purpose of VOC collection (total of 17 units)

Water Treatment Equipment Clean Up & Water Purification



The Environmental Technology Department provides planning, design, construction, trial operation, and maintenance with a responsible integrated system for air and water environment-related equipment using our proprietary technology, which contributes to the continuous preservation of the global environment and a reduction of the environmental impact.

Tetsuya Koizumi
Deputy Manager, Water Environmental Technical Section
Environmental Technical Department

Preventing corrosion at water supply facilities by improving water quality

“Honestlimer”, equipment that injects a solution of calcium hydroxide for water suppliers, has been installed in water purification plants in every region throughout Japan. (Total of 108 machines)

This equipment has demonstrated its ability to prevent corrosion and prolong the life of water supply facilities (clean water distribution equipment), and contributes to the supply of safe and delicious water.

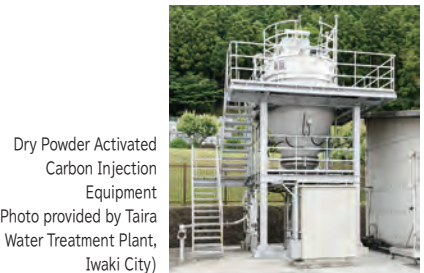


“Honestlimer”, equipment that injects a solution of calcium hydroxide
(Photo provided by Kuri Water Treatment Plant, Karatsu City)

Removing substances that cause moldy smells and offensive smells and taste from raw water

When raw water contains substances that cause moldy smells and offensive smells and tastes that cannot be removed by standard water purification treatment, it is effective to use activated charcoal to remove these substances. “Dry Powder Activated Carbon Injection Equipment” provided with Kureha's proprietary rapid slurry forming equipment creates slurry from activated carbon in a smooth manner to enable the effective absorption and removal of substances.

Furthermore, no dust is created and no blockages occur in pipes so it is easy to operate and manage.



Dry Powder Activated Carbon Injection Equipment
(Photo provided by Taira Water Treatment Plant, Iwaki City)

Appropriate water quality management of raw water

When a water purification plant must control the raw water it takes from the river at a high pH value, we provides its proprietary “Carbon Dioxide Gas Injection Equipment” with excellent safety and handling to support the water purification plant in achieving appropriate water quality management.



Carbon Dioxide Gas Injection Equipment
(Photo provided by Togami Water Source, Yonago City)

Controlling algae with consideration for the ecosystem

When rivers and lakes become enriched with minerals and nutrients (eutrophication), cyanobacteria form in lakes and reservoirs, resulting in blue-green algae, which are problematic.

“Shallow Clean” focuses on “sunlight”, which is an essential element that causes blue-green algae to grow, and partially blocks only the minimum required amount of surface water. This controls abnormal algae growth without disrupting the ecosystem in the water.



Shallow Clean
(Photo provided by Negi Water Purification Plant, Oga City)

Water treatment technology and social contribution

Water circulates in the natural environment while maintaining a relationship with all living organisms. This important water resource is under serious threat from pollution in rivers and lakes. We will continue to contribute to providing and maintaining our moist water environment in a wide range of fields with its proprietary technology to prevent water pipes from corroding and forming rust-colored water so that delicious water is delivered reliably, to remove substances that cause moldy smells and offensive smells and taste from raw water so that delicious water is delivered reliably, to purify polluted wastewater so that rivers can maintain their beauty, and to eliminate blue-green algae that represent pollution in enclosed water areas so that lakes can return to their former beauty.



Building a Culture of Safety



Under the basic principle of “Safety takes precedence over everything else”, we will continue to implement health and safety activities such as effective risk assessment and communication-focused patrols with the aim of enabling every employee to continue to come to work in good spirits and go home with a smile on their face.

Yasumitsu Shirahata

Vice President General Manager, Environment and Safety Division

Safety takes precedence over everything else

We work actively to achieve our Health and Safety Management Policy of “Safety takes precedence over everything else”.

“Safety takes precedence over everything else” is defined in our Health and Safety Management Policy. We perform business activities and operation management based on ISO45001 Occupational health and safety management systems to achieve this policy and are making every effort to build a culture of safety and raise our awareness of safety.

As one of the measures to raise our awareness of safety, we focused on “having all members participate in close-call incident extraction activities” by operating a Close-call Activities Promotion Committee launched in FY2021. This involved the routine and active detection of hazards in both directly and indirectly related departments so as to raise awareness of safety in each individual, and we have been working to ensure that safety in the workplace is maintained.

We will continue to promote health and safety activities while keeping in mind that “safety takes precedence over everything else” to ensure that our employees and anyone associated with our company experiences no pain in terms of health and safety and can “come to work and go home with a smile on their face” as a matter of course.

FY2022 initiatives

- ①Extract disaster hazardous areas and implement protective measures
- ②Build a culture of safety using external knowledge
- ③Strengthen our safety management system
- ④Enhance health and safety education
- ⑤Conduct patrols by corporate hierarchy with participants such as the company president, directors, general managers, and section managers
- ⑥Enhance and upgrade risk assessment
- ⑦Promote close-call incidents education activities with all members participating
- ⑧“Morning in-house broadcasts” to raise safety awareness (rotation system)



Various Initiatives

General disaster prevention drills

On November 16, we held general disaster prevention drills at Waste-Tech Iwaki with the cooperation of the Iwaki City Nakoso Fire Department. The drills were carried out in FY2022 to respond to the two hypothetical scenarios of ① waste oil leaking and a fire outbreak and ② a crack in the protective wall around a waste oil tank both caused by an earthquake.



Photo showing fire extinguishing drill (Waste-Tech Iwaki)



Photo showing fire extinguishing drill (Waste-Tech Kanagawa)

On September 10, we held general disaster prevention drills at Waste-Tech Kanagawa with the cooperation of the Chidori District Disaster Prevention Council, Kawasaki City. The drills carried out in FY2022 included a scenario that assumed that a fire had broken out from waste material that had completed pretreatment on the premises, and activities included extinguishing fires, providing instructions to evacuate construction workers and delivery vehicles on the premises, as well as rescuing injured people.

The 3rd Safety Conference

On January 18, we held the 3rd Safety Conference in the conference room in our head office. The Environmental Safety Director started the conference by giving a report on the results of analyzing personal injury related accidents that had occurred at our company in 2022. Following this, a ceremony was held to award reports to improve health and safety, and 12 reports were awarded from among a total of 132 submissions. At the end of the session, a special lecture was given by Mr. Masamitsu Tamura, Professor Emeritus of the University of Tokyo who was invited to the event.



Recipients of the improvement report award (Waste-Tech Iwaki)



Recipients of the improvement report award (Waste-Tech Kanagawa)

Number of Disasters & Identified Near-misses (potential disasters)

In both Iwaki and Kanagawa, we take safety measures to reduce the occurrence of disasters on the premises through utilization of managerial patrols and other patrol systems as well as discovery of dangerous spots and situations from various perspectives to address them.

Number of accidents involving our employees

(Includes temporary staff and part-time workers)

Description	Year(FY)		
	2020	2021	2022
Fatal accident	0	0	0
Lost time accident	2	1	1
Non-lost time accident	6	4	3
Minor injury	0	1	4
Serious near-miss	1	2	1
Total	9	8	9

Lost time accident

Accidents resulting in lost work time of 4 days or more

Non-lost time accident

Accidents requiring 1 to 3 days off work ; no day off but requiring continuous hospital visits

Minor injury

Accidents not requiring time off from work (minor injuries requiring examination and treatment at a hospital (no continuous visit), injuries requiring first-aid treatment)

Serious near-miss

Cases in which the company determined that an extremely dangerous event had occurred, although it led to no personal injury.

Near Misses(Nearly escaped accidents)

Accident type	Year(FY)	
	2020	2021
Injuries when sandwiched	23	
Caught-in injuries	0	
Fall injuries	173	
Falls from height	48	
Puncture wounds or lacerations	35	
Contusions	81	
Falling/flying objects	41	
Eye injuries	15	
Chemical burns	51	
Electric shocks	1	
Traffic accidents	391	
Equipment damage	7	
Other accidents	64	
Total	930	

Accident type	Year(FY)	
	2021	2022
1. Fall / tumble	87	107
2. Falling down	361	395
3. Clash	150	230
4. Flying / falling	101	119
5. Disintegrate/collapse	14	39
6. Smashed	42	70
7. Sandwiched / caught in	38	53
8. Cut/scratched	49	43
9. Stepping through	7	9
10. Drowning	0	0
11. Contact with hot/cold objects	69	70
12. Contact with harmful agents	84	118
13. Electric shock	6	3
14. Explosion	0	3
15. Rupture	0	0
16. Fire	5	8
17. Traffic accident (on road)	631	731
18. Traffic accident (others)	9	4
19. Recoil of movement / unreasonable movement	42	51
20. Others	75	80
21. Unclassifiable	9	24
Total	1,779	2,157

*We changed the "accident type" to the type based on the classification of the Ministry of Health, Labor and Welfare in FY2021.

Anti-leak drills by the Environment Rehabilitation Department



Employees working on the task of wiping up oil

On June 3, the Environment Rehabilitation Department held disaster prevention drills that assumed a leak accident had occurred at the W.I.L Center.

The drill assumed that an accident occurred in which residual oil was leaking from equipment that was being transported by a forklift truck. During the drill, we checked the measures used to prevent the residual oil from spreading, the method used to direct traffic at the work site, and the contact system used to notify relevant departments in the company.

Various Initiatives

Traffic safety lecture

On December 5, Mr. Azuma, Chief of the Traffic Division of Iwaki Minami Police Station, was invited to give a lecture on traffic safety. The Police Chief talked about the details of accidents that occur in Fukushima Prefecture and recent trends in the type of traffic violations often seen by the police.



Mr. Azuma Traffic Division Chief giving a lecture

Health lecture by an industrial physician



Dr. Tsurimaki giving a lecture

On October 27, we held a lecture given by Dr. Tsurimaki who is an industrial physician at our company. Based on the theme of “Is shortsightedness bad?”, Dr. Tsurimaki explained in easy terms with illustrations how short and far sightedness, astigmatism, and presbyopia affect our eyes so that they cannot focus correctly.

Cooperating in extinguishing foam drills

On March 15, the Iwaki City Fire Department held drills using fire extinguishing foam. We cooperated with these drills by providing buildings on the premises of our Waste-Tech Iwaki as a place to conduct these drills in response to the fire department's request to cooperate in their drills continuing from FY2021.



Photo of extinguishing foam drills

Receiving a certificate of gratitude from the Minister of Health, Labour and Welfare

At the 58th National Blood Donation Promotion Campaign, we actively cooperated in donating blood and received a certificate of gratitude from the Minister of Health, Labour and Welfare as an organization that serves as a role model in its achievements for others to follow.

We cooperates with blood donation organizations to give blood twice a year in June and December. We will continue to actively work with these blood donation organizations to give blood in the future.

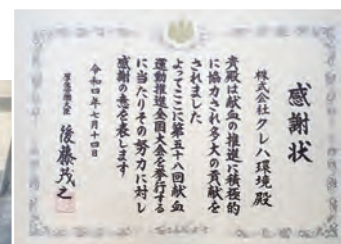


Photo of employee donating blood (December)

4 people were awarded distinguished service and Outstanding Employee Awards



Front row from left: Ms. Murooka, Mr. Ichikawa, Mr. Suzuki, Mr. Shimada (certificate of appreciation) and Mr. Fukawa

On July 19, 4 employees from Waste-Tech Kanagawa received an award from Resource Circulation Kanagawa. Katsura Murooka, Norio Suzuki, and Tomonori Fukawa received the Outstanding Employee Award while Yuji Ichikawa received the Distinguished Service Award. These awards are given for outstanding service and to employees who have made distinguished contributions to the operation of Resource Circulation Kanagawa and are awarded to employees who set an excellent example for others.

In addition, our employee also received a certificate of appreciation from the same association, recognizing their support for industrial waste disposal in Kanagawa Prefecture.

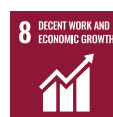
Award for outstanding safe driving at a business

On March 23, a ceremony was held at Iwaki Minami Police Station to present an award to the business that shows outstanding safety in terms of its driving. This award is given to an outstanding business that has worked to prevent traffic violations and accidents at the work site using a driving record certificate issued by the Japan Safe Driving Center.

This year the our Environmental Engineering Division received the platinum award for its outstanding achievements in preventing accidents and violations for the 3rd consecutive year. The Waste-Tech Division and Administrative Division also received the bronze award for their excellent achievements in preventing accidents and violations over a one year period.



Mr. Ezure, Police Chief of Iwaki Minami Police Station and Mr. Matsuoka Division Manager (at the time)



Various Initiatives

Food support circle Food drive activities

Waste-Tech Kanagawa has been working to spread and promote SDGs activities by collaborating with Kanagawa Prefecture as a company registered with “Kanagawa SDGs partners” .

As part of this activity, we held a food drive activity among our employees and contributed a total of 31 collected food items and daily necessities weighing 47 kg in total to Food Bank Kawasaki, which supports local people living in poverty by providing them with food items and other services.

Food drive activities

This activity involves asking families to bring in unused food items that they are unable to use, collecting these food items together, and donating them to food bank groups and local welfare services.



Our donation to Food Bank Kawasaki (right)

Donating to Nakoso Vocational Center

Nakoso Vocational Center is a facility where people with disabilities aim to become independent in the local community through various jobs and contribute towards society. In FY2022, we also donated used stamps and food to Nakoso Vocational Center.

Poster presentation at Japan Society of Material Cycles and Waste Management

At the 33rd Annual Conference of Japan Society of Material Cycles and Waste Management held at the University of Miyazaki from September 20 to 22, we presented a poster on the subject of “decomposing waste containing PFOA at industrial waste disposal facilities” .



Mr. Kato who gave the presentation (Waste-Tech Planning Department)

Participating in exhibitions

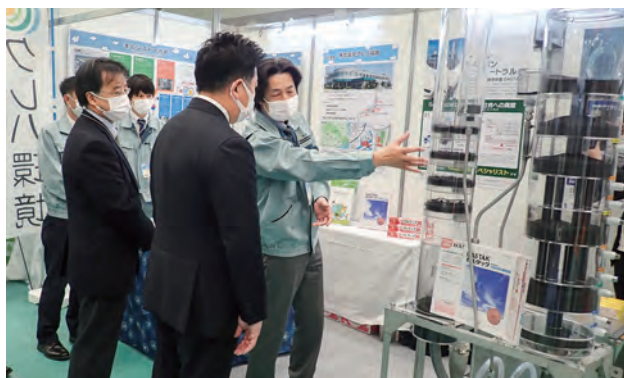
In FY2022, we also actively participated in academic presentations and various exhibitions. At the exhibitions, we presented information about proper waste disposal methods and showcased our VOC Exhaust Gas Treatment Equipment “GASTAK” and our water purification equipment.



“Sasaki-kun”

“Sasaki-kun” appears for the 1st time!

Our original character waste concierge “Sasaki-kun” made his first appearance. He explained in easy-to-understand terms the concerns relating to industrial waste disposal in a video.



The 15th Kawasaki International Eco-Tech Fair, “GASTAK” working model

“GASTAK” working model

A working model of VOC Exhaust Gas Treatment Equipment “GASTAK” was on display for the first time. The model enables you to see how the equipment actually works and was popular among visitors to our booth who showed interest and asked questions about the model.

Participating exhibitions

Chemical Material Japan 2022 -ONLINE-

Date: October 17 to 28, 2022
(Held online)

2022 Nagoya Waterworks Exhibition

Date: October 19 to 21, 2022
(Port Messe Nagoya)

15th Kawasaki International Eco-Tech Fair

Date: November 17 to 18, 2022
(Culttz Kawasaki)

EcoPro Online 2022

Date: November 25 to December 16,
2022
(Held online)

Plant Show Osaka 2022

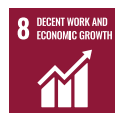
Date: December 7 to 9, 2022
(INTEX Osaka)



2022 Nagoya Waterworks Exhibition



Plant Show Osaka 2022

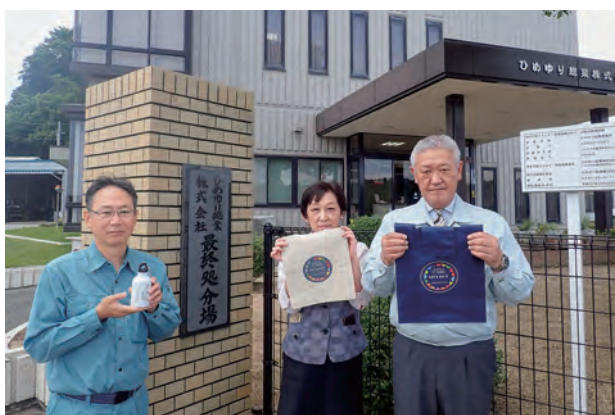


HIMEYURI Corporation Initiatives

HIMEYURI Corporation, our group company, was established in 1968 and is a company that operates and manages a management type final disposal site in Iwaki City, Fukushima Prefecture.

From FY2023, with our new management philosophy of “we will contribute to society and industry through environmental business to create abundant nature in the future”, we are properly disposing of industrial waste and our employees are united in the business of “reviving nature”.

In December 2009, we were also certified for Eco-Action 21, which is an environmental management system created by the Ministry of the Environment, and are working hard to constantly improve the environment as a registered business.



From left: Mr. Yamanobe, Management System Director, Ms. Suzuki, General Affairs Manager, and Mr. Sagawa, General Affairs Director



Heitarou Tertiary Disposal Site

HIMEYURI Corporation SDGs declaration



HIMEYURI Corporation started SDGs activities from October 2022.

In the past, we have conducted environment related activities but this is the first time for us to work on initiatives as SDGs activities. We have organized activities that are already underway and activities that we want to do in the future and summarized them in an activity plan.

To deepen understanding among our employees, we will hold study sessions and presentations within the company to have all employees of the company work together.

In spring 2023, we created an eco-bag as part of the SDGs activities. Employees submitted their designs for the eco-bag and we held a selection event in the company.



The eco-bag we created

Himeyuri Audit Committee

HIMEYURI Corporation holds the “Himeyuri Audit Committee” twice a year so that representatives from local residents can audit the conditions for maintenance and management at the disposal site.

In FY2022, we held this committee on April 23 and October 29 while taking thorough precautions to prevent the spread of COVID-19 infection.



Photo of the audit committee

Disaster prevention drills

On October 21, we held drills to respond to an assumed fire outbreak at the landfill site on the premises of the disposal site.

During the drills, we tried something new by exchanging information while connected to a live feed showing video of the work site where the disaster struck and our head office with the aim of improving the precision of reports and instructions.



Sand extinguishing drill using heavy machinery

Traffic safety education

We provided traffic safety education twice in summer and winter.

In FY2022, using video from drive recorders that captured traffic within Iwaki City, we allowed participants of the traffic safety lecture some time to think about close-calls that might occur in places they are familiar with by stopping the video just before the close-call event and asking them what type of close-call is about to happen in the video. This lecture improved the participants sensitivity to hazardous traffic situations.

Health week slogan contest

We held an in-house contest asking employees to submit a health slogan in line with National Occupational Health week that was implemented from October 1 to 7.

The winning slogan was displayed within the company so that our employees could see it to improve awareness.

“A stress-free healthy workplace achieved through proper exercise, food and rest”



The bottle printed with the slogan was distributed to employees



Company Profile

Company Name	Kureha Ecology Management Co., Ltd.
Headquarters	30 Shitanda, Nishiki-machi, Iwaki City, Fukushima 974-8232, Japan
Main Business Sites	Headquarters, Waste-Tech Iwaki, Waste-Tech Kanagawa
Established	December 1, 1971
Paid-in Capital	¥240 million
Employees	389 (as of March 31, 2023)
Main Businesses	Collection, transport, and disposal of industrial waste, environmental restoration, construction (environmental engineering), electrical power generation, etc.

Kureha Group Responsible Care Policy

- ① Observe international rules and laws
- ② Respect the environment and work safely
- ③ Provide society with safe products
- ④ Manage and put to good use information about the environment and safety
- ⑤ Forge a stronger relationship with society

About Responsible Care (RC)

Responsible Care involves continuously conducting self-improvement activities aimed at preserving “the environment, safety, and health” through all aspects of a chemical’s lifecycle - from the development of chemicals to their disposal and recycling following their manufacture, distribution, usage, and final consumption - as well as maintaining an open dialogue with the community. This is done based on the principle of business operators who manufacture or handle chemicals making decisions and accepting responsibility. The Kureha Group officially announced in 1995 that it would conduct RC activities.

■ Diagram of Kureha Group RC Committee



Head Office (Iwaki City, Fukushima Pref.)



"Ikoi" Plaza



Exhibition area



Regional Exchange Hall

Waste-Tech Kanagawa (Kawasaki City, Kanagawa Pref.)



Administrative building hall



Visitor passage (4F)



Training room

沿革

December 1971	Establishment of Kureha Kompo Co., Ltd.
October 1975	Changed to Kureha Gyomu Co., Ltd.
March 1977	Permission was acquired to conduct operations to collect, transport, and dispose of industrial waste in Fukushima Prefecture
July 1984	Changed to Kureha Kankyo Co., Ltd.
October 1986	Unit 7 incinerator was developed, installed, and operated in-house
May 1993	The Unit 8 incinerator is developed, installed, and operated in-house
March 1998	ISO14001 certification is acquired
April 1998	Unit 7 incinerator was renewed in-house
April 2006	Changed to Kureha Ecology Management Co., Ltd.
June 2006	Paid-in capital increased to ¥240 million
April 2010	The Kanagawa Plant was opened
April 2011	The Kawasaki Logistics Center was opened
April 2012	The Environmental Solutions Division was opened
April 2014	Waste-Tech Park becomes Waste-Tech Iwaki and the Kanagawa Plant became Waste-Tech Kanagawa
March 2017	ISO9001 certification was acquired
April 2019	HIMEYURI Corporation became our wholly owned subsidiary W.I.L. Center was opened ISO45001 certification was acquired
December 2021	Celebrating 50th Anniversary

Sales inquiries

Industrial waste inquiries
Sales Division
TEL 0 2 4 6 - 6 3 - 1 3 3 1
FAX 0 2 4 6 - 6 3 - 1 3 3 2

Environmental engineering inquiries
Environmental Sales Department
TEL 0 2 4 6 - 6 3 - 1 3 5 8
FAX 0 2 4 6 - 6 3 - 1 3 5 9

Inquiries about this report

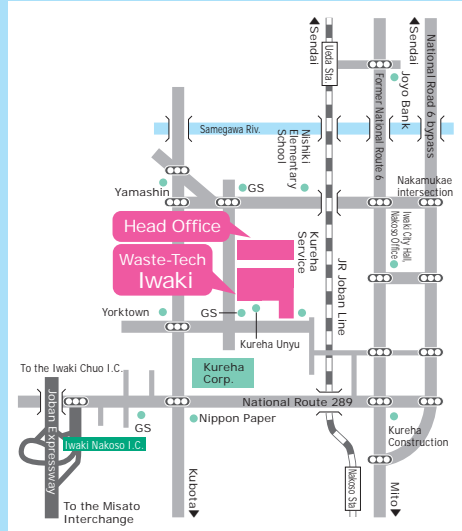
General Affairs Department TEL 0 2 4 6 - 6 3 - 1 2 3 1
FAX 0 2 4 6 - 6 3 - 1 2 3 2

The Environmental Report 2023 is also published on our website:
<https://www.kurekan.co.jp/information/>



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Waste-Tech Kanagawa
 Address: 6-1 Chidori-cho, Kawasaki Ward,
 Kawasaki City, Kanagawa Pref.



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Issued October 2023



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 (Universal Design)
 fonts are used in
 the text.



We use vegetable
 oil ink.