Responsible Care Report 2017

KUREHA ECOLOGY MANAGEMENT CO., LTD.


クレハ環境
人と自然の未来のために

The 22nd session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 22) was held at the end of 2016. This was the first opportunity for international negotiations since the Paris Agreement entered into force as an agreement by countries around the world to achieve zero greenhouse gas emissions by the end of the 21st century. At the session, Japan announced its intent to actively focus on creating rules for the Paris Agreement. Furthermore, the entry into force of the amended FIT Act*1 is expected to spur grouch of renewable energy in the country. As a company whose business has focused primarily on the proper disposal of waste, we anticipate a growing range of possibilities for helping to build a more recycling-based society — possibilities that include participation in the renewable energy market by effectively utilizing waste in a way that leverages our expertise.

In fiscal 2016, Kureha Ecology Management's mainstay industrial waste treatment business added products for transshipment and interim storage (low-concentration PCBs) to the Kawasaki Logistics Center and made effective use of its facilities while striving to strengthen relationships with our business partners. To fully leverage Kureha Ecology Management's strengths, our Environmental Engineering Business has charted a course towards business involving solvent recovery, deodorization, and effluent gas treatment by utilizing our proprietary activated carbon adsorption technologies and business to propose water quality improvement solutions to prolong the life of water pipes. We have also acquired ISO 9001 (Quality) certification and deployed an ISO 14001 (Environment) integrated management system while taking steps to build internal infrastructure that makes use of ICT*2.

Since my appointment as President, I have encouraged the fostering of a corporate culture that upholds SKK — *Sabetsuka* (differentiation), *Kokyakushiten* (customer's perspective), and *Kodawari* (commitment to perfection) — as a shared set of values for the Company. By instilling these values and making them a part of our standards of behavior, our stakeholders will finally say *Sasuga Kureha Kankyo* (Kureha Ecology Management does it better than expected).

With a commitment to safety, security, and trust serving as our business foundation, every employee will adopt a challenge-seeking spirit aimed at making Kureha Ecology Management into a company that society recognizes and relies on.

*1. Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities
*2. General term given to technologies, industries, equipment, services, etc. involving information processing and communication

Human and nature of future

President
Katsuhiro Natake

Contents

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 businesses who manufacture or handle chemicals making decisions and accepting responsibility for themselves.
The Kureha Group publicly announced in 1995 that it would conduct RC activities.
This report has been issued to inform all stakeholders of Kureha Ecology Management's RC activities.

Guidelines Referred To

"Ministry of the Environment"
- Environmental Reporting Guidelines 2012
- Guide to Matters Noted in Environmental Reports (3rd Edition)

Report period

April 1, 2016 – March 31, 2017
Also included is information from FY 2016 and about future 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 in light of changes to calculation methods and other factors.

Responsible Care Policy

(Kureha Group 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

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.

Management System Basic Policy

Concept / Goals / Objectives

Strengthening the trust placed in us by stakeholders in the community and other businesses and striving to improve corporate value by observing laws, regulations, and voluntary standards by utilizing an integrated management system to engage in activities concerning quality, the environment, and occupational safety and health.

Activity Policy

- Aiming to improve the quality of the products and services we provide and enhance customer satisfaction.
- Leveraging our experience as an environmental business to preserve the environment.
- Creating safe and secure workplaces through proactive safety and health activities.

Business Overview

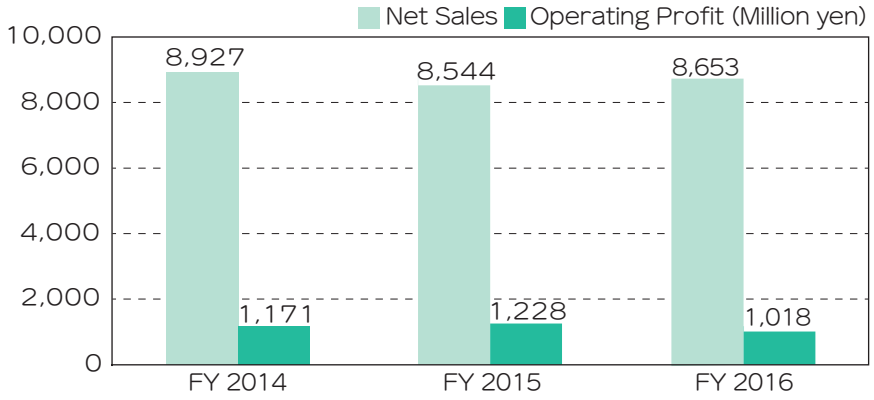
Company Profile

Company Name	Kureha Ecology Management Co., Ltd.
Headquarters	30 Shitanda, Nishiki-machi, Iwaki-shi, Fukushima, 974-8232 Japan
Main Business Sites	Headquarters, WASTECH Iwaki, WASTECH Kanagawa
Established	December 1, 1971
Paid-in Capital	¥240 million
Employees	351 (as of March, 2017)

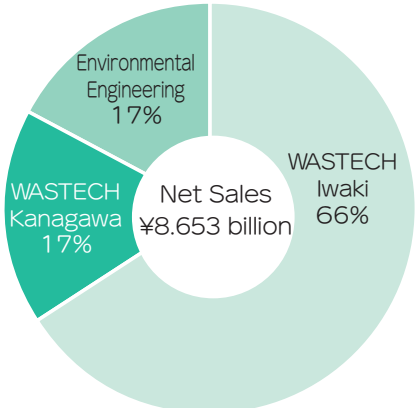
Business Overview and Results

Main Businesses	Primarily the collection, transport, and disposal of industrial waste, construction (environmental engineering), and electrical power generation

Sales and Profits



Sales by Business Sector (FY 2016)



To make Kureha Ecology Management a model ESG company, we will spare no effort to reduce environmental impact, contribute to society, and strengthen our governance on the path to making every necessary reform.

Management Planning Division
General Manager, Management Planning Department
Takeshi Taniguchi (at left)
General Manager, Procurement Department
Yuji Sakamoto (at right)

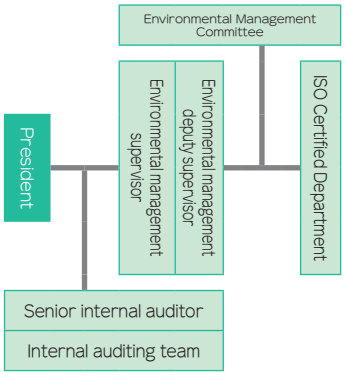
Goals and Objectives of Our Environmental Preservation Activities

Creation and Usage of an Environmental Management System (EMS)

ISO14001 certification is renewed to 2015 version on March 24, 2016.
The Committee meets once a month to check the progress of environmental activities. Weekly meetings of the Environmental Impact Investigative Commission are also held prior to this as a means to discuss issues and check up on progress.

Environmental Objectives	Goals	Results	Details
Communicate with community members more frequently and improve quality	20 times/year or more	Achieved	Communication and stakeholder support activities continue on last year's efforts.
Conduct community beautification activities more frequently and effectively	10 times/year or more		
Conduct environmental awareness activities 5 times/year	5 times/year	Achieved	Environmental education by way of an in-house newsletter.
Prepare RC Report 2016	Once/year each for Japanese and English versions	Achieved	Japanese and English versions of the 2016 RC Report will be issued.
Reduce environmental impact assessment score by at least one point	Reduce by 1 point or more	Achieved, Ongoing	The Waist-Tec Division aims to reduce environmental impact assessment scores by one or more points. A "review of procedures" is among the specific measures planned for this objective.
Prevent traffic accidents that occur during waste pickup and prevent waste dispersal and leakage accidents attributable to equipment defects or packing mistakes	0 leakage accidents	Achieved	The goal is to provide education and training and reduce leakage accidents to 0.
Stably operate existing environmental equipment	–	Achieved	The environmental goal of the Environmental Technology Section out of the scope of registration for ISO 14001. To maintain performance during periodic inspections, frequency targets have been set for specific criteria.
Reduce odors from silicon waste oil at WASTECH Iwaki	–	Achieved	This goal serves to support equipment at WASTECH Iwaki.
Conduct activities to raise awareness among waste producers	Once/year	Achieved	Like last year, a lawyer will deliver a lecture aimed at raising awareness among waste producers and waste collection and transport contractors (see page 29).

Framework for Initiatives



Internal Control Concerning Environmental Reporting Reliability

WASTECH Iwaki has acquired ISO 14001 certification for its industrial waste treatment business.
In fiscal 2016, updates made to the ISO 14001 2015 edition were done to coincide with the new acquisition of the ISO 9001 2015 edition. Therefore, internal audits were conducted for both standards. Furthermore, we are audited by an independent organization, and no nonconformity in fiscal 2016.

Certificate of Registration

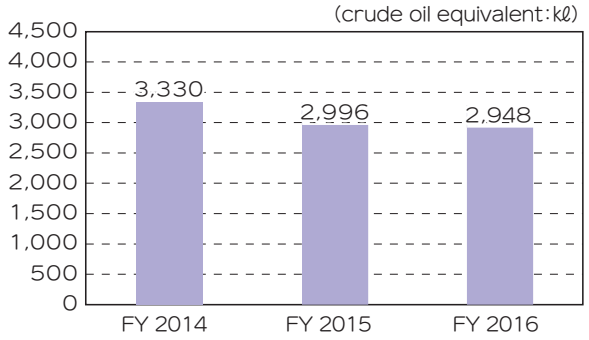
ISO 9001 certification is acquired

*The content of the ISO 14001 appendix is omitted here as it is identical to that for the "scope of registered activities" and "related business sites" in ISO 9001.

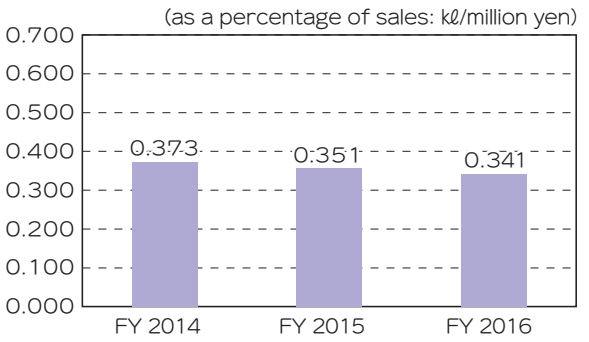
Energy Consumption

Compared to FY 2015, FY 2016 energy consumption fell by about 2% while specific energy consumption saw a roughly 3% decrease.

Energy input



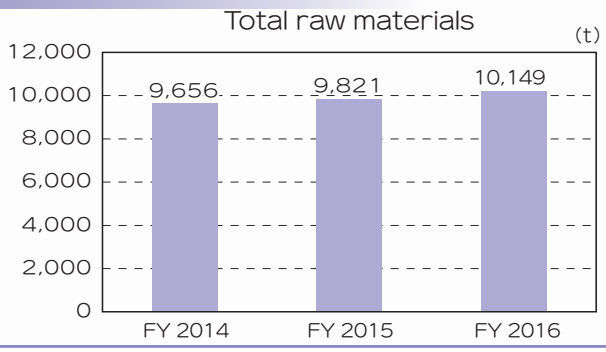
Energy consumption per million yen of sales



Total amount of adsorption and neutralization materials

Adsorption and neutralization materials are used to keep effluent gas following waste treatment, processing residue, etc. within emissions limits.

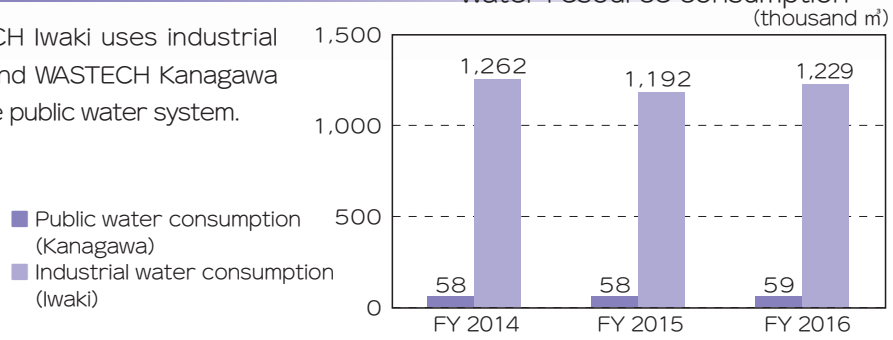
Total raw materials



Water resource consumption

WASTECH Iwaki uses industrial water and WASTECH Kanagawa uses the public water system.

Water resource consumption

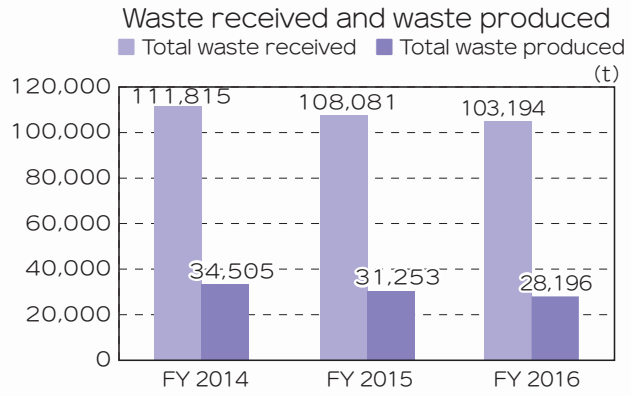


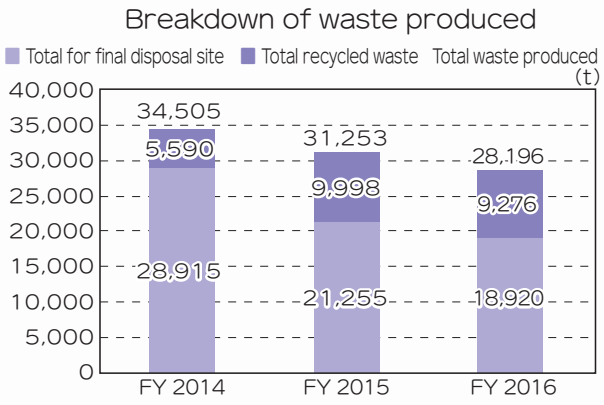
The Waist-Tec Division is working to reduce environmental impact by leveraging the characteristics of its two business sites in Iwaki and Kanagawa. Of particular note is the Kanagawa site's success in achieving a level of power generated from incinerator heat recovery that is more than sufficient to cover the power consumption needs of both the Iwaki and Kanagawa facilities, with excess power being supplied to third parties. This means Kureha Ecology Management conducts its waste disposal businesses without purchasing any power.

Executive Vice President General Manager, WASTECH Division
(Environmental Management Supervisor) Tsukasa Horiguchi

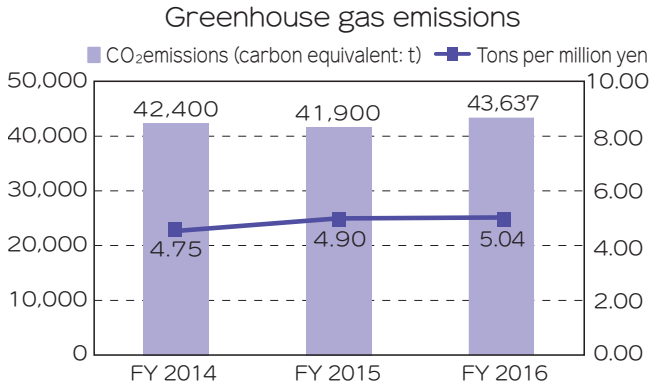
TOTAL

Waste received and waste produced





Greenhouse gas emissions



Overall environmental impact

INPUT

Energy consumption (crude oil equivalent)
2,948kℓ
Purchased raw materials
10,149t
Water resource consumption
1,288 thousand㎥
Waste received
103,194t

WASTECH Iwaki
WASTECH Kanagawa
Headquarters
Sales offices and branch offices

OUTPUT

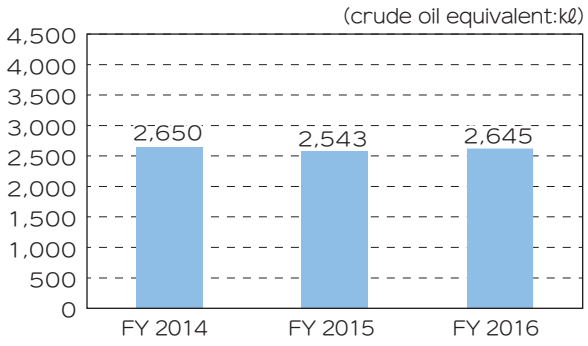
Wastewater produced
1,229 thousand㎥
Waste produced 28,196 t
Waste recycled 9,276 t
Final disposal volume
18,920 t
CO_2 emissions (carbon equivalent)
43,637 t

WASTECH Iwaki

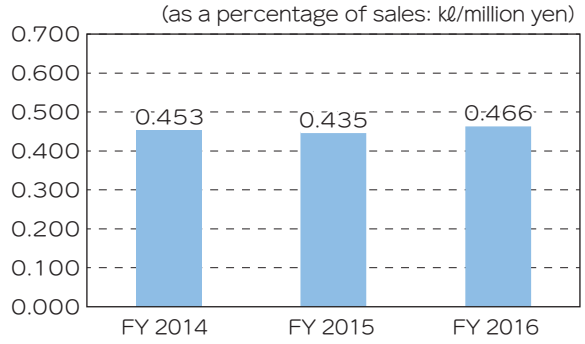
Energy Consumption

We achieved a roughly 7% year-over-year increase in unit energy consumption in FY 2016.

Energy input



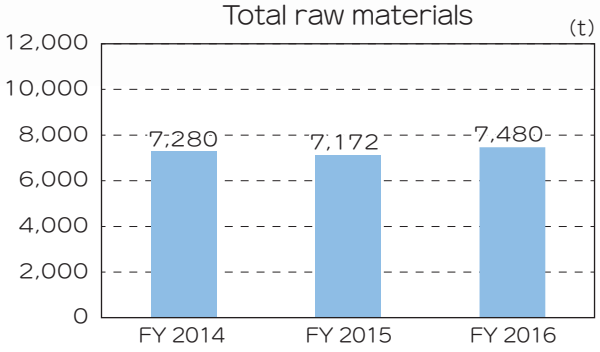
Energy consumption per million yen of sales



Total of adsorption and neutralization materials

Substances such as magnesium hydroxide and caustic soda are used to keep effluent gas following waste treatment, processing residue, etc. within emissions limits.

Total raw materials



I oversee the storage of waste materials brought on-site. To ensure these materials are disposed of safely, I sort and manage materials according to each process while regularly monitor stored waste product odors and how they are contained. I also work to prevent their off-site leakage and dispersal.
The photo shows me checking the status and quantity of stored waste materials.

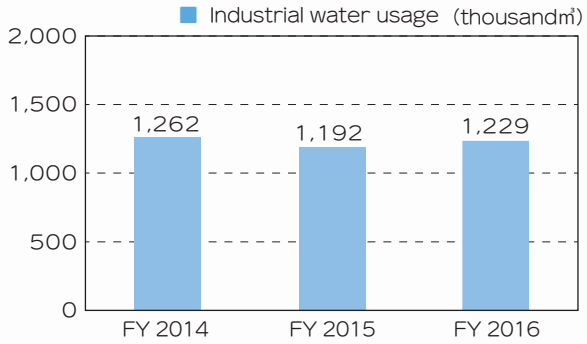
Senior Staff., Sorting Team, Pre-Treatment Section Katsuya Sato

IWAKI
1

Water resource consumption

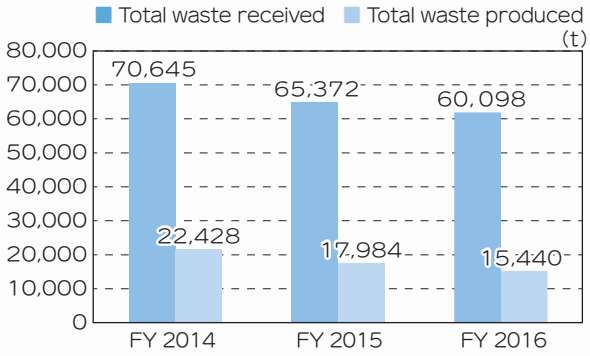
At WASTECH Iwaki, the company is using industrial water.

Water resource consumption

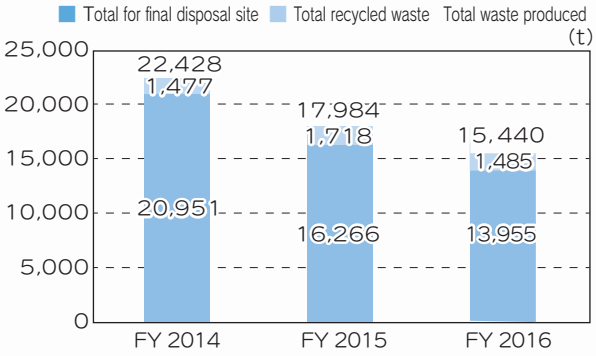


Waste received and waste produced

Waste received and waste produced



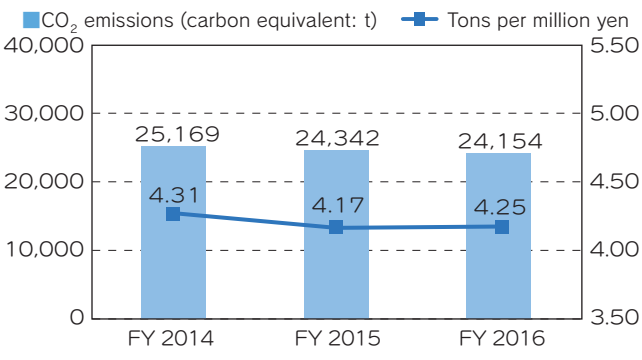
Breakdown of waste produced



Waste received and final disposal site emissions

FY 2016 CO_2 emissions (carbon equivalent) were lower than the previous year. CO_2 emission intensity increase by about 2%.

Greenhouse gas emissions

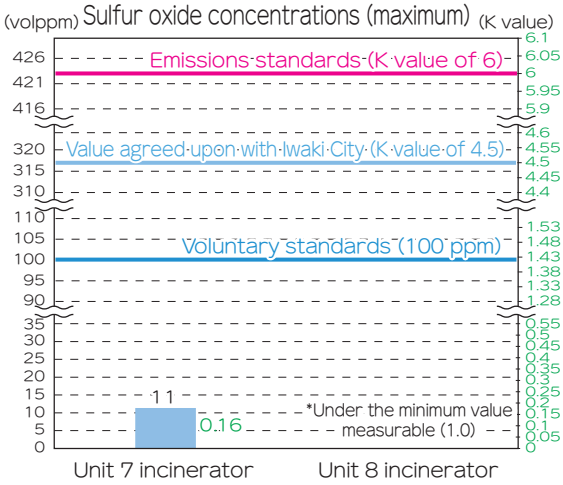


WASTECH Iwaki

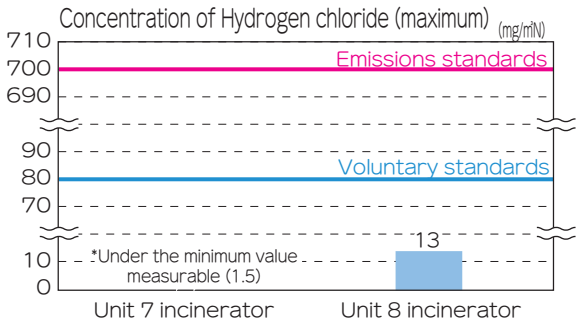
Air pollution and impact on the living environment

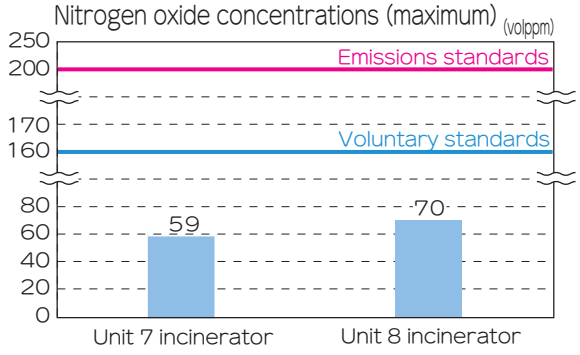
In FY 2016, we stayed within voluntary limits and complied with regulatory emissions standards for concentrations of sulfur oxide, hydrogen chloride, nitrogen oxide, and soot emitted from our incinerators through proper maintenance and management of waste treatment facilities.

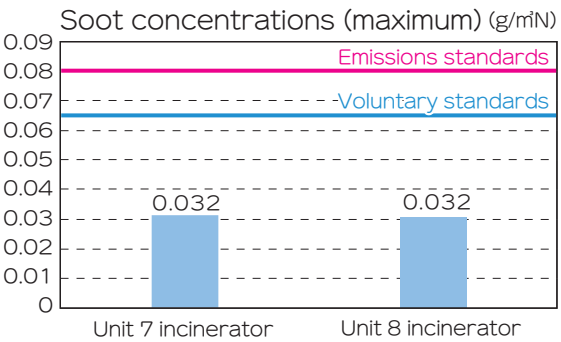
*Emissions standards presented here are those indicated in the Air Pollution Control Act.



*A K value of 6 is the standard (under the Air Pollution Control Act) for sulfur oxide concentrations.
Pursuant to the pollution control agreement signed with Iwaki City, a K value of 4. 5 is the standard for WASTECH Iwaki's incinerators.
At WASTECH Iwaki, K values are converted to ppm, and voluntary standards are set to 100 ppm.
When converting K values to ppm, onverted values may fluctuate depending on effluent gas volume.
In this table, however, the K value of 4.5 is assumed to be roughly equivalent to 317 ppm in order to facilitate comparisons among emissions standards, agreed upon values with Iwaki City, and voluntary standards.
*Maximum K values for this fiscal year were 0.16 for the Unit 7. Unit 8 was under the minimum value measurable.





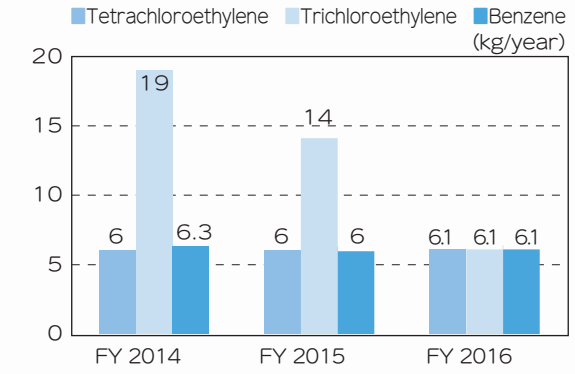


IWAKI 2

Chemical substance emissions and transfers

PRTRs (Pollutant Release and Transfer Registers) are systems wherein companies that emit or transport chemical substances ascertain and publish the volumes of such substances.

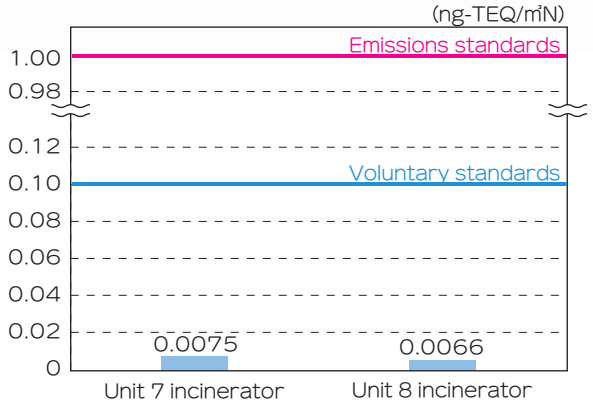
Volume of PRTR-listed substances emitted and transferred



Toxic substance emissions

All dioxins were Dioxins in the exhaust gas are controlled under to be within the voluntary limits.

Dioxins (maximum)



Overall environmental impact

INPUT

Energy consumption (crude oil equivalent) 2,645kℓ
Purchased raw materials 7,480t
Water resource consumption 1,229 thousandm³
Waste received 60,098t

WASTECH Iwaki

Incineration Facilities
Unit 7 incinerator
Unit 8 incinerator
Neutralization facilities
Toxic substance decomposition facilities
Crushing facilities
Water treatment facilities

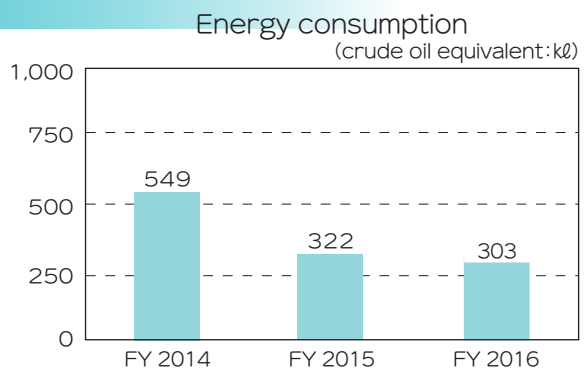
OUTPUT

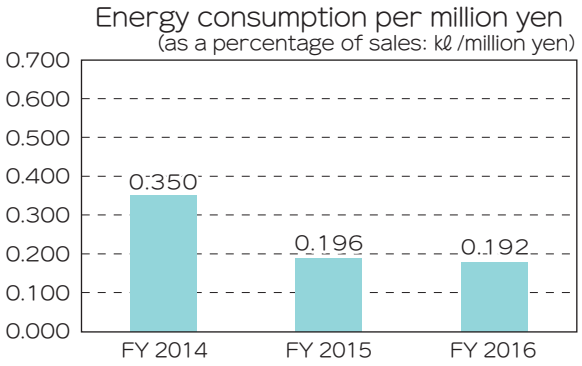
Wastewater 1,229 thousandm³
Waste produced 15,440t
Waste recycled 1,485t
Final disposal volume 13,955t
CO_2 emissions (carbon equivalent) 24,154t

WASTECH Kanagawa

Energy Consumption

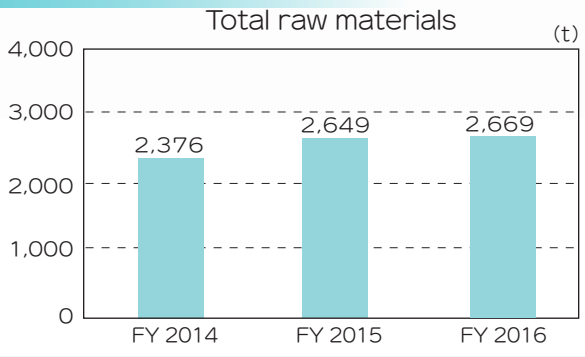
FY 2016 energy consumption dropped roughly 9% over FY 2015, and energy intensity decreased by the same 2%.





Total amount of adsorption and neutralization materials

Slaked lime, heavy metal stabilizing agents, and activated carbon, among other substances, are used to keep effluent gas following waste treatment, processing residue, etc. within emissions limits.



I am in charge of receiving and pre-treating the waste that will be used to generate power. My group is in charge of checking the content of waste when it is received and crushing it to reduce its size when needed.
We also handle resource recovery, which includes sorting out metals that can be recycled.

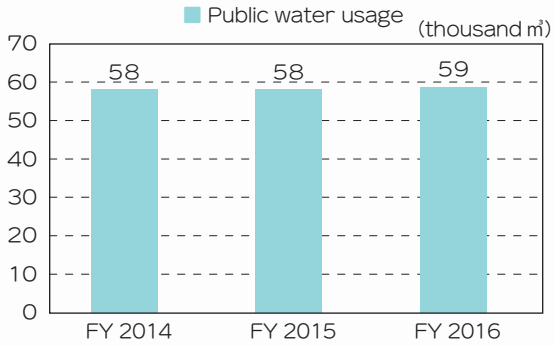
Group Leader, Pre-Treatment Group, Kanagawa Treatment Department,Processing Technologies Section Yusuke Abe

KANAGAWA 1

Water resource consumption

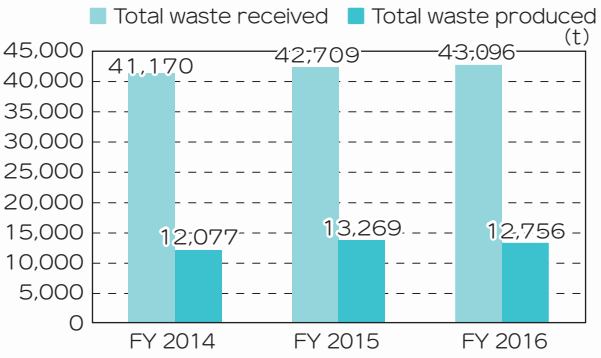
WASTECH Kanagawa utilizes a closed system. The public water system supplies water resources.

Water resource consumption

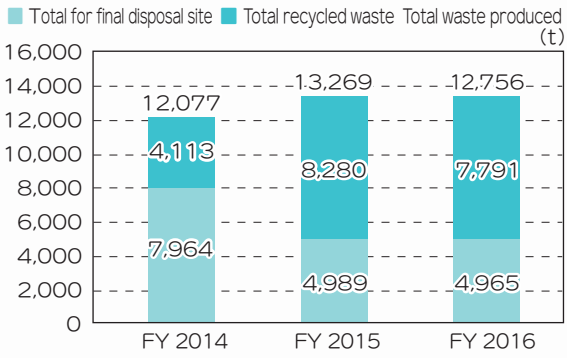


Waste received and waste produced

Waste received and waste produced



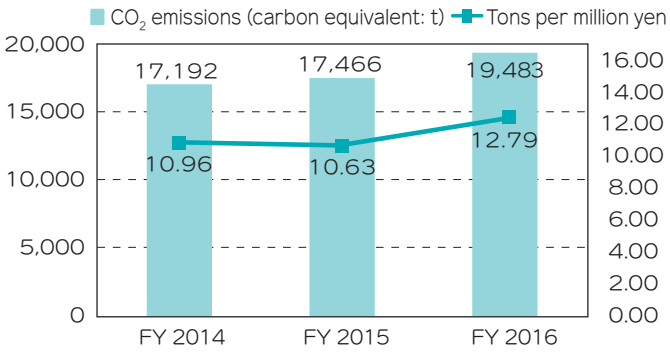
Breakdown of waste produced



Greenhouse gas emissions

Although CO_2 emissions for FY 2016 increased roughly by 12% over FY 2015, but CO_2 emission intensity increase by about 20%.

Greenhouse gas emissions

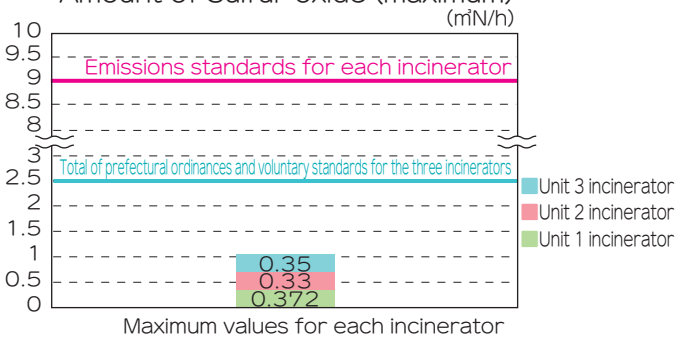


WASTECH Kanagawa

Air pollution and the impact on the living environment

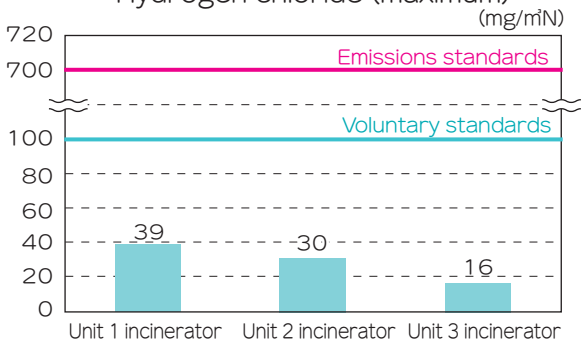
In FY 2016, we stayed within voluntary limits and complied with regulatory emissions standards for concentrations of sulfur oxide, hydrogen chloride, nitrogen oxide, and soot emitted from our incinerators through proper maintenance and management of waste treatment facilities.
*Emissions standards presented here are those indicated in the Air Pollution Control Act.

Amount of Sulfur oxide (maximum)

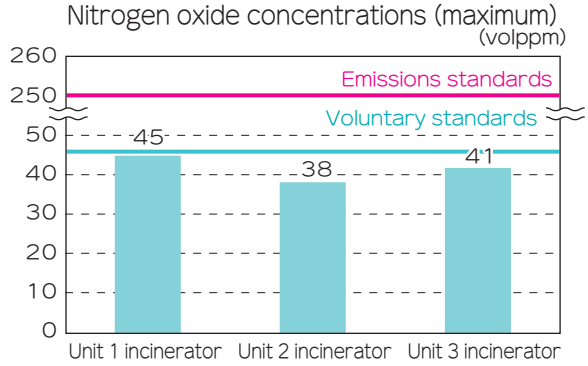


*The K value for sulfur oxide concentrations is limited to 9.07㎥N/h under the Air Pollution Control Act. A Kanagawa prefectural ordinance sets the total limit for the three incinerators at WASTECH Kanagawa to 2.52㎥N/h.
The total limit of 2.52㎥N/h at WASTECH Kanagawa is a voluntary standard.

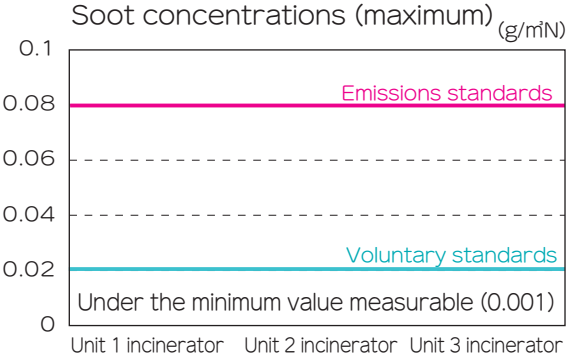
Hydrogen chloride (maximum)



Nitrogen oxide concentrations (maximum)



Soot concentrations (maximum)

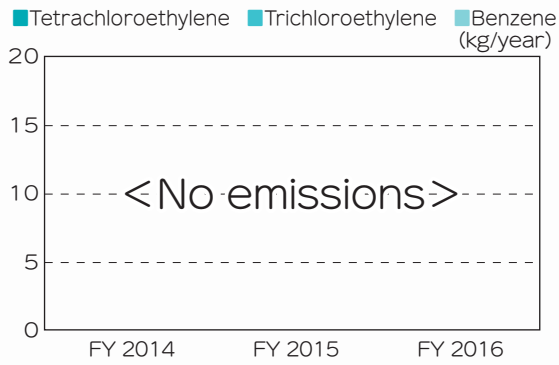


KANAGAWA 2

Chemical substance emissions and transfers

WASTECH Kanagawa does not emit PRTR-listed chemical substances such as benzene, trichloroethylene, or tetrachloroethylene.

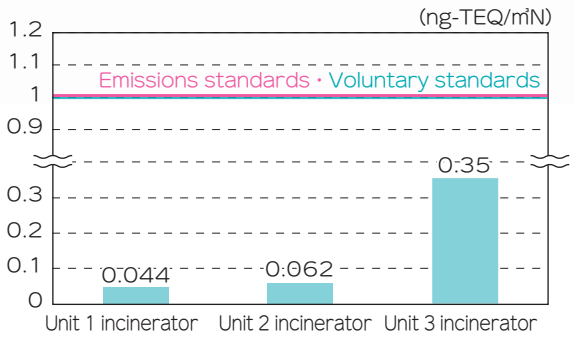
Volume of PRTR-listed substances emitted and transferred



Toxic substance emissions

All dioxins were measured to be within the voluntary limits of 1 ng-TEQ/㎥ N.

Dioxins (maximum)



Overall environmental impact

INPUT

Energy consumption (crude oil equivalent) 303kℓ
Purchased raw materials 2,669t
Water resource consumption 59 thousand㎥
Waste received 43,096t

WASTECH Kanagawa

Incineration facilities
Unit 1 incinerator
Unit 2 incinerator
Unit 3 incinerator

Crushing facilities
Dehydration facilities

OUTPUT

Wastewater 0 thousand㎥
Waste produced 12,756t
Waste recycled 7,791t
Final disposal volume 4,965t
CO_2 emissions (carbon equivalent) 19,483t

The Economic Aspect of Eco-Conscious Management

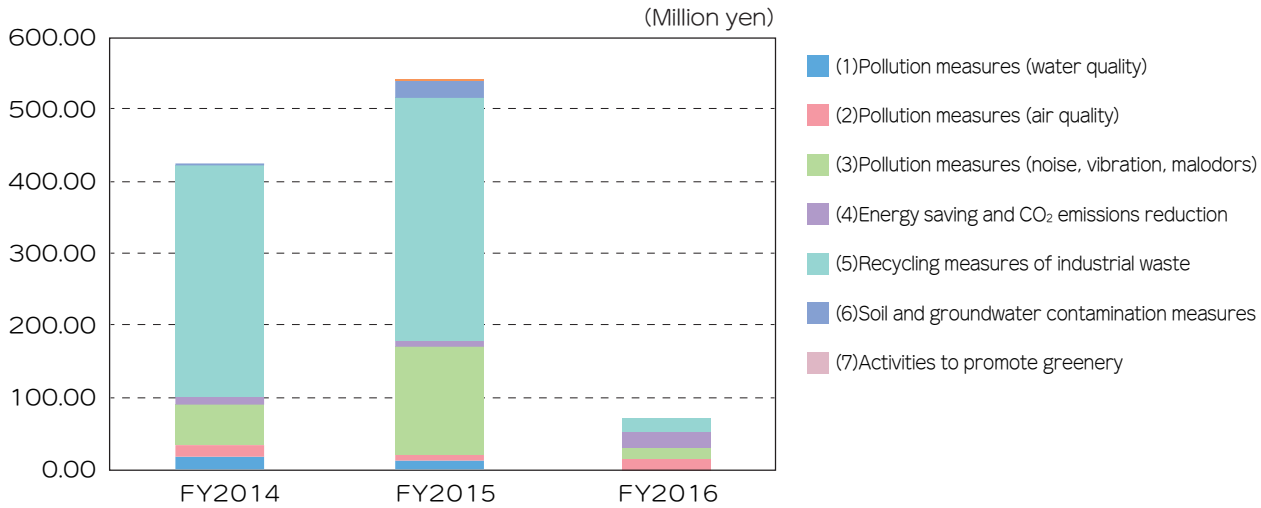
Environmental resource investment

A number of investment projects concluded in 2014 and 2015, including a low-concentration PCB enclosure building (<5>Recycling measures of industrial waste) and the installation of a sludge pit anterior chamber for the Unit 8 incinerator (<3> Pollution measures (noise, vibrations, malodors)). In fiscal 2016 we deployed hybrid heavy machinery for achieving <4>, energy saving and CO_2 emissions reduction.

INVESTMENT IN ENVIRONMENTAL MEASURES (Million yen)

Category	FY 2014	FY 2015	FY 2016
(1) Pollution measures (water quality)	17.75	12.23	0.00
(2) Pollution measures (air quality)	16.61	8.90	17.11
(3) Pollution measures (noise, vibration, malodors)	54.52	149.56	15.45
(4) Energy saving and CO_2 emissions reduction	12.35	6.84	23.20
(5) Recycling measures of industrial waste	321.48	338.06	17.06
(6) Soil and groundwater contamination measures	0.55	23.90	0.00
(7) Activities to promote greenery	0.00	2.76	0.00

INVESTMENT IN ENVIRONMENTAL MEASURES



Compliance with Environmental Laws and Regulations

Compliance with environmental laws and regulations in FY 2016

In our management system basic policy, we state our commitment to "observing laws, regulations, and voluntary standards." In order to comply with laws and regulations, we use the certification we acquired in 1998 for the International Standard ISO14001 and evaluate the registration and state of compliance of laws and regulations.

As a result of evaluation, We confirm that observance is in a state.

Main environmental laws and regulations and compliance evaluations (FY 2016)

No.	Name of Law	Subject Matter	No.	Name of Law	Subject Matter
1	Pollution control agreement (between Iwaki City and Kureha Ecology Management)	Measures to prevent air pollution	8	Article 12, Section 3, Paragraph7 of the Waste Management and Cleaning Act	Reporting the status of industrial waste management form issuance, etc.
		Measures to prevent vibration, noise, etc.	9	Article 14 and Article 14, Section4 of the Waste Management and Cleaning Act	Standards concerning industrial waste and specially controlled industrial waste collection and transport business permits
		Measures to prevent odors	10	Article 4, Section 4, Paragraph2 of the Waste Management and Cleaning Act	Periodic inspections of industrial waste treatment facilities by local government
		Air pollution measurement	11	Article 16, Section 5 of Fire Services Act	Official on-site inspections of hazardous material sites
		Odorous substance and industrial waste measurement	12	Article 5, Section 2 of the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act)	Requirements related to reporting Class I Designated Chemical Substance emissions and transfers
2	Pollution control agreement (between Kureha Corporation and Kureha Ecology Management)	Wastewater standards	13	Article 15 of the Act on the Rational Use of Energy	Requirements related to the regular reporting of energy consumption by specified business operators
		Wastewater measurement	14	Article 14, Section 5 of the Water Pollution Control Act	Periodic inspections of specified facilities using hazardous substance and specified storage facilities
3	Article 28 of the Act on Special Measures Against Dioxins	Surveys of dioxin pollution in effluent gas and wastewater	15	Article 13 of the Water Supply Act	Water quality measurement prior to the start of water supply by water suppliers
4	Article1, Ministerial Ordinance on Standards for Verification concerning Industrial Wastes containing Metals, etc.	Standards for landfill disposal for cinders and dewatered sludge	16	Guideline concerning the collection, transport of low-concentration PCB waste Guideline concerning the treatment of low-concentration PCBs	Standards for the collection, transport, and treatment of low-concentration PCB waste
5	Article 15, Section 2,Paragraph 3 of the Waste Management and Cleaning Act	Standards for the maintenance and management of waste treatment facilities	17	Act on Rationalized Use and Proper Management of Fluorocarbons	Reporting of fluorocarbon destruction
6	Article 6, Section 3, Paragraph 5 of the Waste Management and Cleaning Act	Standards for the storage of industrial waste and specially controlled industrial waste	18	Tokyo Metropolitan Ordinance on Environmental Preservation Kanagawa Prefecture Ordinance to Preserve the Living Environment Chiba Prefecture Ordinance to Limit Particle Matter Emissions from Diesel Vehicles Saitama Prefecture Ordinance to Preserve the Living Environment	Diesel vehicle operation regulations
7	Article 26, Act on Promotion of Global Warming Countermeasure	Report on greenhouse gas emissions calculated			

Working with Stakeholders

Participation in the 14th CSR Community Dialogue Meeting

On November 30, 2016, the Company took part in the 14th CSR Community Dialogue Meeting, an event organized by Kureha Corporation's Iwaki Factory.
At the event, we gave a presentation on our RC activities to the community members who attended.

Local exchange inspection

The Company regularly holds events such as inspection tours in which neighborhood council directors and residents in areas around Company headquarters participate.

Tour conducted at WASTECH Kanagawa

Every year, WASTECH Kanagawa is visited by many individuals and members of organizations including schools, companies, neighborhood councils, and women's associations.
The tour route shows the process by which waste is treated, letting visitors see processes that include waste crushing and incinerators being operated.

Efforts to Preserve Biodiversity and Sustainably Use Biological Resources

Solar panels on the roof of the Head Office building

Global Warming Countermeasures

In recognizing the importance of measures to prevent global warming and save energy, the Ministry of the Environment is conducting the Cool Biz and Warm Biz initiatives. This year, Kureha Ecology Management promoted energy saving with May 1 to October 31 Cool Biz period and November 1 to March 31 Warm Biz period.

Products we purchase

We also purchase copy paper and toilet paper that conforms with the Act on Promoting Green Purchasing.

Cleanup volunteers

More than 100 employees from the company took part in cleanup activities in Iwaki as part of a program to beautify the city every June and October.

Employees took part in Binda River embankment beautification work in this event conducted every fall.

Conducted October 22, 2016

The employees removed waste that had been illegally disposed of as part of illegally dumped waste removal activities conducted during National Illegal Waste Dumping Watch Week.

Conducted June 1, 2016

Environmental preservation activities

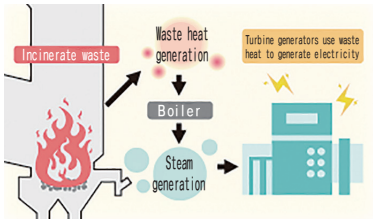
Employees took part in local recycling fairs to promote awareness of illegal waste dumping prevention.

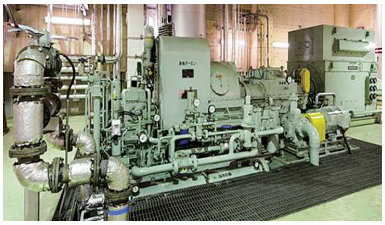
Conducted October 16, 2016

Efforts to Reduce Environmental Impact

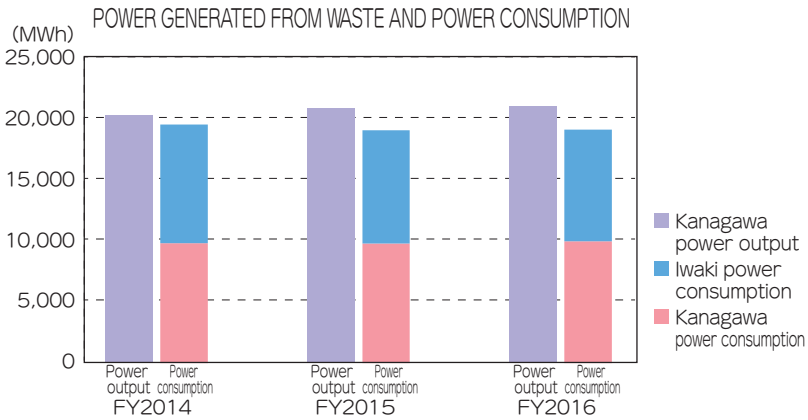
Thermal recovery efforts at WASTECH Kanagawa

WASTECH Kanagawa is capable of generating up to 4,800 kWh of electricity with a thermal recovery system that recovers combustion heat from three incinerators. The company uses the generated electricity to power its own facilities and sells the surplus to a power utility. In this way, surplus energy is returned to society in the form of electrical power and we reduce our impact on the environment.





Turbine generator



*This graph illustrates that the thermal recovery output at WASTECH Kanagawa completely covers the amount of energy consumed by both WASTECH Kanagawa and WASTECH Iwaki, with some left over.

WASTECH Iwaki's Odor Prevention Measures

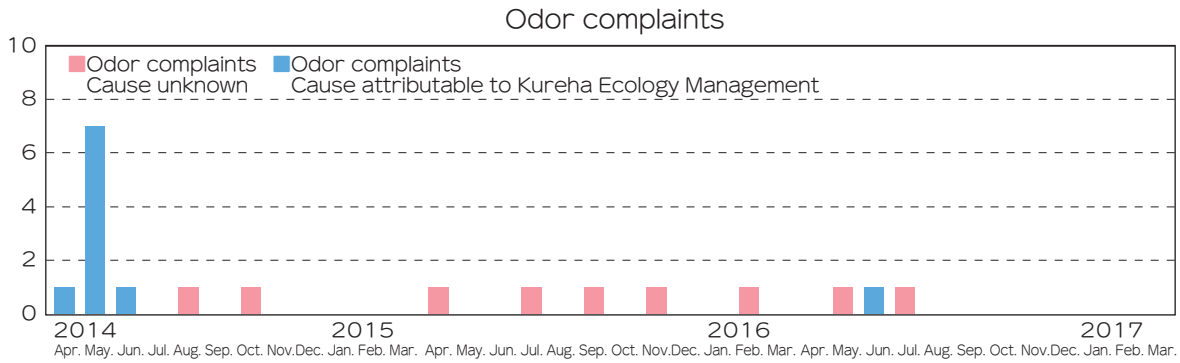
The intensive odor prevention measures in equipment were implemented in 2014 and 2015.
The following measures to control odors led to a dramatic decrease in the number of odor complaints.

ODOR CONTROL MEASURES

Measures to improve airtightness (before)
Gap between wall and roof (age-related deterioration and impact from earthquakes)

Measures to improve airtightness (after)
Sealing of all gaps, etc

Anterior chamber at the Unit 8 incinerator (completed at the end of 2015)



**"Cause unknown" in the graph refers to complaints for which Company surveys could not determine odor cause.
This includes complaints deemed to not have been caused by the Company as evident from circumstances such as wind direction at the time.

Low-Concentration and Trace-Level PCB Waste Treatment

Detoxification overview

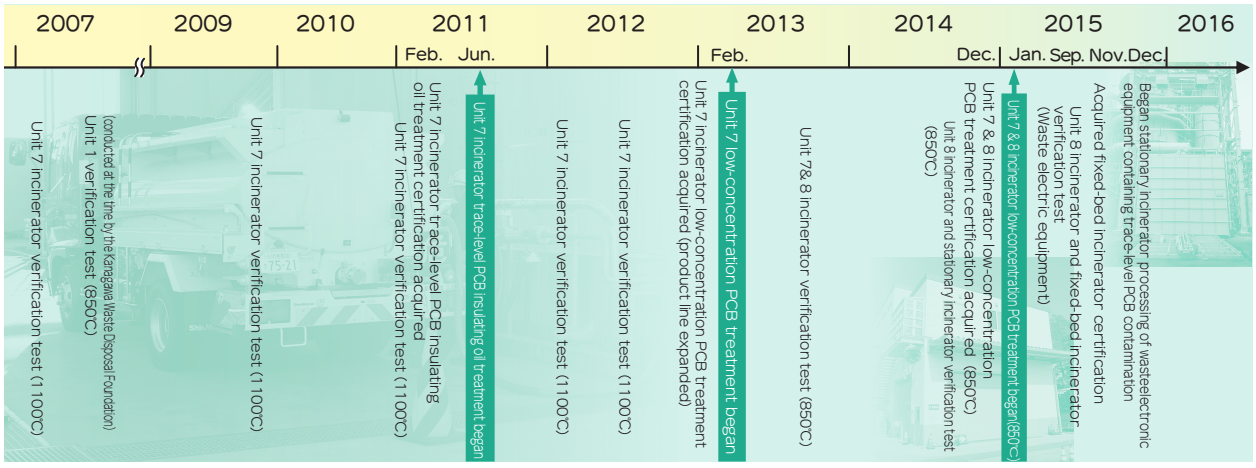
The following facilities have acquired detoxification certification and operate in a safe and reliable manner.

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	WASTECH Iwaki, 136-1 Ochiai, Nishiki-machi, Iwaki-shi Fukushima
Waste collection and transport	Yes (in Japan)

Kureha Ecology Management can treat all of the below low-concentration PCB waste.

	Low-concentration PCB waste	
	Waste electronic equipment, etc. with trace-level PCB contamination	Waste containing low-concentration PCBs
Low concentration PCB waste oil	Insulation oil with trace-level PCB contamination Electrical equipment or insulating oil (used in OF cables) with PCB micro contamination	Waste oil containing low-concentration PCBs (waste oil, etc. with a PCB concentration of 5,000 mg/kg or less)
Low concentration PCB contaminants	Trace-level PCB contaminants Objects contaminated through insulation oil with trace-level PCB contamination	Contaminants containing low-concentration PCBs Objects with PCB concentrations of 5,000 mg/kg or less deposited on sludge, paper waste, wood waste, textile waste, plastic waste, scrap metal, ceramic waste, and unwanted substances such as concrete chunks (which is included in scrap metal)
Low concentration PCB-treated materials	Trace-level PCB treated materials Objects treated in order to dispose of trace-level PCB waste oil or low-concentration PCB contaminants	Treated materials containing low-concentration PCBs 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)

The evolution of treatment methods for trace-level PCB and low concentration PCB waste



Trace-level PCB and low concentration PCB waste treated to date

FY	Amount treated (t)*
FY 2014	2, 769
FY 2015	3, 104
FY 2016	2, 543

*Total of insulating/waste oil, contaminants/treated materials

We began full-scale disposal of waste electronic equipment in fiscal 2016 and have since expanded the scope of low-concentration PCB waste products we handle. We have also assigned more staff to these endeavors and are continuing to conduct operations with care to ensure our customers feel good about our business.
Feel free to contact us — we are here to help.

Section Manager, Low-Concentration PCB Sales Section
Jun Hongo

Safety and Health Activities

2016
Safety and Health Management Policy
Kureha Ecology Management Co., Ltd.

Work in safety with a sound mind and healthy body!

- Conduct risk assessments to achieve zero-accident workplaces
- Taking a moment to assess situations by pointing and calling
- Relaxed, safe work
- Create cheery work places that emphasize good communication

Highlighted Activities in FY 2016

(1) Enforce "touch and call" act throughout the company
(2) The president and directors conduct special patrols.
(3) Managers make operators aware of certain issues
(4) Check operation plans for business vehicles
(5) Enforce and ensure practice of pointing and calling
(6) Conduct broadcasts to raise safety awareness
(7) Conduct mental health improvement activities


Touch and call act


President patrol at WASTECH Iwaki


President patrol at WASTECH Kanagawa

Risk assessment

RISK ASSESSMENTS CONDUCTED

Risk levels	FY 2016		
	Risks	Risks addressed	Risks remaining
IV Major safety/health risk	33	33	0
III Moderate safety/ health risk	326	326	115
II Minor safety/health risk	357	240	358
I Negligible safety/ health risk	152	46	344
Eliminate risks by addressed job processes			51

Risk assessments are being done throughout the Kureha Group.
Kureha Ecology Management follows the procedure below and takes countermeasures with priority given to higher risks.
(1) Identify all dangers and hazards
(2) Assume and evaluate risks arising from identified dangers and hazards
(3) Clarify what measures should be taken giving priority to worker protection
We've already addressed all level IV and III risks—the most serious risks—and have been focusing on level II and I risks successively. We also conduct additional risk assessments whenever new operations arise or there are changes to working environments or conditions.

Pointing and calling

Pointing and calling involves physically pointing to work that is to be done and calling out the name of the operation or action to be performed.
We should adapt the Pointing and calling. Employees are instructed to point and call in many different situations, including when they are working, operating a vehicle, or walking through a plant. Contractor personnel are also encouraged to point and call when performing work inside a plant.As a result of efforts to raise awareness for and educate employees about pointing and calling, the FY 2015 point and call rate came close to 100%. We continue to enforce this policy going forward.

POINT AND CALL RATES (%)

Action	FY2016	FY2015
Workers	99. 0	96.9
Forklift drivers	99.6	98.8
Large vehicle drivers	99.4	98.6
Passenger vehicle drivers	100	98.9
2 and 4 ton vehicles	99.3	97.8

*Surveys are conducted every month, and the each figures above indicate the average for the year.

Emergency drills and safety patrols

Kureha Ecology Management handles hazardous or toxic substances regulated by the Fire Services Act.
We conduct emergency drills to prepare for situations that ought never to occur, changing the locations and conditions of the situation every time to ready employees for a wide range of scenarios. The Nakoso Fire Department of the Iwaki City Firefighting Division provides support and supervision for comprehensive emergency drills conducted at WASTECH Iwaki. The Company invited representatives of local residents to observe efforts made by our employees to prepare for emergencies.

October 15, 2016
Emergency drills at Iwaki

October 21, 2016
Emergency drills at Kanagawa

Iwaki patrol (Once a month)

Kanagawa patrol (Once a month)

Managers conduct monthly patrols. Patrol members from multiple departments find problematic areas and potential risks from a variety of viewpoints, then measures are taken to address them.
A number of issues concerning trip hazards (falling down stairs) were identified in fiscal 2016, and are accounted for in the table below of fiscal 2016 near misses.

FY 2016 in Review

There were zero lost time incidents in fiscal 2016, and the number of fatal accidents decreased over the previous year. We also conducted in-house training for mental health issues and made progress in implementing a stress check system, among other efforts. However, the total number of accidents remains unchanged from last fiscal year, and further efforts must still be made. A review of safety education methods and manuals, the reconditioning of equipment and other actions are being taken to prevent the recurrence of accidents. This includes, in particular, accidents like the chemical burn suffered by a contracted worker at the Kanagawa facility and the small fire with the Unit 7 incinerator supply equipment at the Iwaki facility, both of which occurred in September.

The number of fiscal 2016 accidents changed little over the previous year. In pursuit of achieving zero fatal accidents, fiscal 2017 will see us conducting patrols of our Iwaki and Kanagawa facilities as well as third-party facilities. We will also be continuing on last year's efforts to conduct stress checks as part of efforts to prevent poor mental health among our employees.

Foreman, Safety and Health Section, Safety and Health Department
Tadashi Saito

FY2016 ACCIDENT OCCURRENCE

		Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	FY2016	FY2015	FY2014
Personnel disaster	Lost time accident													0	1	2
	Non-lost time accident						1							1	1	0
	Minor injury											1		1	3	8
	Major Near-Miss													0	1	0
Property damage accident		1			1		1	1	2	1	1			8	10	6
Traffic accident		1	3	3	2	1	1			1	1	2	4	19	15	25
Other							1							1	0	1
Total		2	3	3	3	1	4	1	2	2	2	3	4	30	31	42

*Included in "traffic accidents" are at-fault and not-at-fault accidents that occur during commutes on roads outside of Company premises.
*Property damage is included as damage to the equipment by vehicles at waste producers
*Does not include accidents caused by external workers.

FY 2016 NEAR MISSES (POTENTIAL ACCIDENTS)

Type	Cases	Ratio
Crush accidents	22	2.20%
Caught-in injuries	1	0.10%
Fall injuries	230	22.50%
Falls from height	25	2.40%
Puncture wounds or lacerations	42	4.10%
Contusions	59	5.80%
Falling/flying objects	40	3.90%

Type	Cases	Ratio
Eye injuries	13	1.30%
Chemical burns	107	10.50%
Electric shocks	0	0.00%
Traffic accidents	434	42.50%
Equipment damage	11	1.10%
Other accidents	37	3.60%
Total	1,021	100.00%

Work-related accidents	0
Total hours worked	681,000hours
Lost time accident frequency rate	0
Lost time accident severity rate	0

*Lost time accident frequency rate: people involved in work-related accidents÷total hours worked×1million
*Lost time accident severity rate: lost work time in days÷total hours worked×1,000

About WASTECH Iwaki

WASTECH Iwaki's unit 7 and 8 incinerators process a variety of waste consisting mainly of waste plastics, waste acid, waste alkali, and sludge containing chlorine or silicon, as well as medical waste.

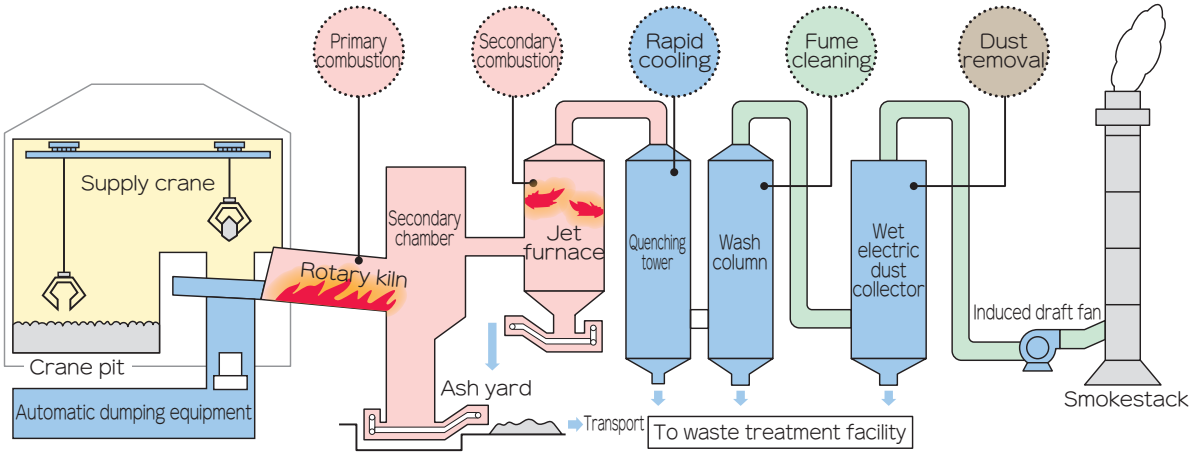
Using last year's fire as an object lesson, we will re-examine what basic safety means and foster an even more safety-focused culture. This will allow stakeholders to feel good about our company and ensure stability in our continued business operations, while making it possible to contribute to society.

Vice President / Participation, Deputy General Manager, WASTECH Division (General Manager, WASTECH Iwaki)

Hideki Kojima

Unit 7 & 8 incinerators

Rotary kiln system



Unit 7 incinerator

Sludge incineration facilities 182㎥/day
Waste oil incineration facilities 110㎥/day
Waste plastic incineration facilities 104 t/day
Cyanide decomposition facilities 202㎥/day
Industrial waste incineration facilities 238 t/day

Unit 8 incinerator

Sludge incineration facilities 182㎥/day
Waste oil incineration facilities 118㎥/day
Waste plastic incineration facilities 104 t/day
Cyanide decomposition facilities 266㎥/day
Industrial waste incineration facilities 238 t/day

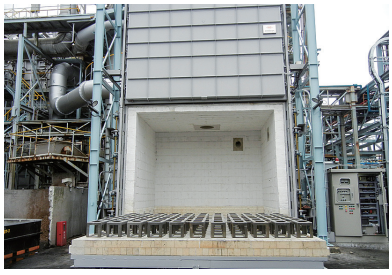
WASTECH Iwaki

Unit 7 incinerator

Unit 8 incinerator

Measuring equipment The yellow pillars next to the weighing equipment are radiation measuring instruments. They measure the radiation level of waste brought into the facility

Unit 8 rotary kiln exchange



Unit 8 low-concentration PCB enclosure processing facility

About WASTECH Kanagawa

WASTECH Kanagawa has thermal recovery equipment that produces energy from waste heat, and acquired heat recovery equipment installer certification in accordance with the Waste Disposal Act on February 7, 2012. The company has deployed automated sorting systems for iron and aluminum as pre-processing stages and installed both a kiln stoker incinerator and fluidized bed incinerator, which allow it to process a variety of waste types.

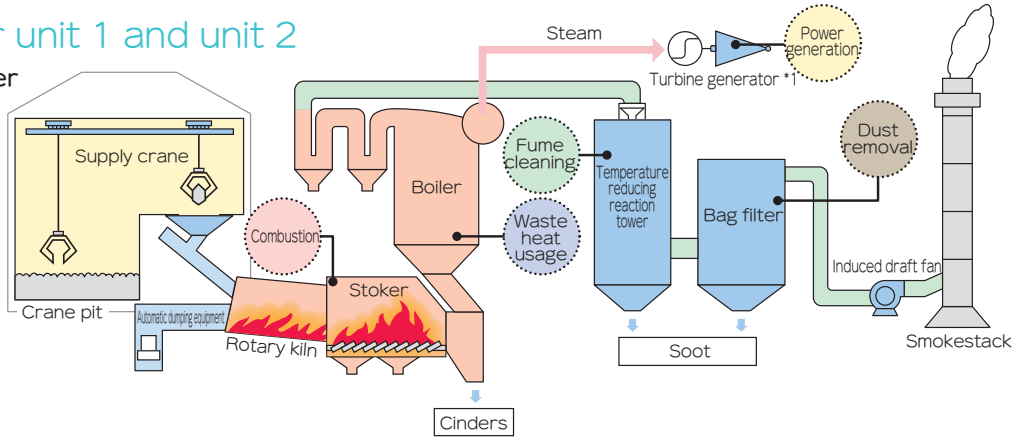
In line with its slogan of "safe, secure, and reliable operation," Kureha Ecology Management provides customers with services that offer high environmental value. These services include the proper disposal of industrial wastes, generating electricity from incinerator waste heat, and the recycling of incineration residue.

Participation, Deputy General Manager, WASTECH Division
(General Manager, WASTECH Kanagawa)

Yuji Ichikawa

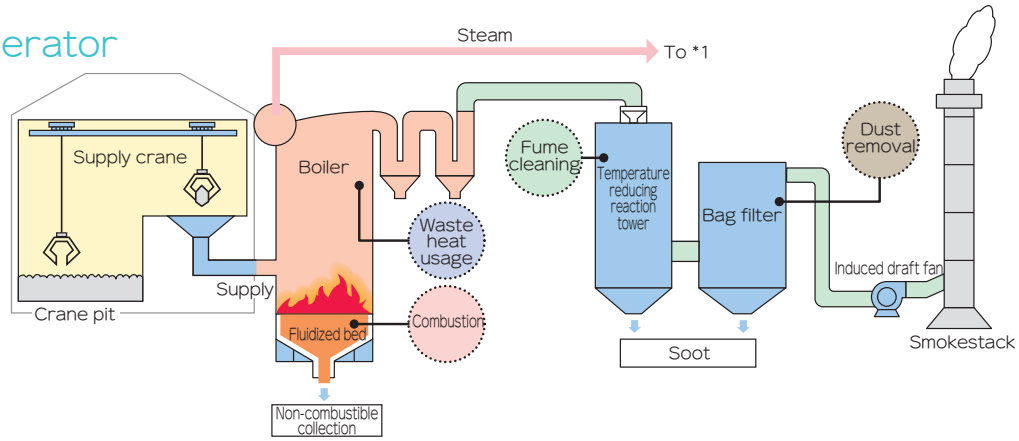
Incinerator unit 1 and unit 2

Rotary kiln stoker system



Unit 3 incinerator

Fluidized bed system



Incinerator units 1 and 2 totals

Mixed combustion 140 t/day
Sludge incineration equipment 112m³/day
Waste oil incineration equipment 150m³/day
Waste plastic incineration equipment 80 t/day
Other industrial waste incineration facilities 230 t/day

Unit 3 incinerator

Mixed combustion 70 t/day
Sludge incineration equipment 48m³/day
Waste oil incineration equipment 75 m³/day
Waste plastic incineration equipment 40 t/day
Other industrial waste incineration facilities 115t/day

WASTECH Kanagawa

The Kawasaki Logistics Center is a transshipment storage facility located adjacent to WASTECH Kanagawa. A physical distribution base in the Keihin area, the facility provides services that meet a wide range of customer needs.

Measuring equipment

In front of a lecture room open to tours

Environmental Engineering Business

As the department handling the core operations of the Company's Environmental Engineering Business, the Environmental Sales Department seeks to preserve and protect the global environment through operations conducted in Japan and overseas, working to drive further adoption of environmentally-friendly equipment that uses our proprietary technologies.

General Manager Environmental Sales Department Akihiro Shirato

VOC effluent gas treatment equipment

We contribute to global environmental preservation by manufacturing and supplying environmental equipment & facility.

"GASTAK" solvent recovery, deodorization, and effluent gas treatment system

Our GASTAK product is a ground breaking effluent gas treatment system designed to recover organic solvents within, and remove toxins and odors from, effluent gas.

Units supplied
FY 2014 4 units
Treated gas
400 ~ 1300 m³/min
FY 2015 –
FY 2016 –

GASTAK®

Data from Converting Technical Institute's Convertech

Water treatment equipment

The“ HONESTLIMER,”a calcium hydroxide solution injection device

Calcium hydroxide solution injection devices "HONESTLIMER" for water suppliers have been deployed at water purification plants throughout the country. These machines prevent the corrosion of and dramatically extend the service life of water facilities (water purification and distribution equipment), improving water quality and creating safe and delicious water.

Units supplied
FY 2015 1 unit (planned)
Treated water 9,500㎥ /day
FY 2016 2 unit
(Under construction)
Treated water 123,000㎥ /day

Calcium hydroxide solution injection devices (courtesy of the Tokyo Metropolitan Government Bureau of Waterworks, Nagasawa Purification Plant)

The Engineering Technology Department continually provides engineering solutions from the customer's standpoint through a comprehensive and responsible system that handles everything from the basic planning of environment-related equipment to equipment design, construction, trial operation, and delivery.

General Manager Environmental Technical Department

Akihiro Ito

Carbon dioxide gas injection equipment

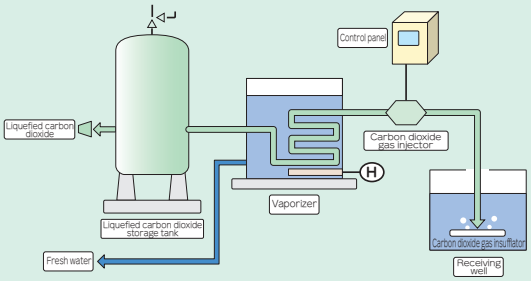
When purifying raw water with a high pH, it is necessary to properly control the raw water's pH during performing coagulation. There are many types of chemicals used to lower pH values, but our injection equipment uses carbon dioxide gas for its superiority in terms of safety and handling.

Units supplied

FY 2015 3 units Water treated 544 ~ 88,000m³/day

FY 2016–

Carbon dioxide gas injection equipment



Dry powdered activated carbon injection equipment

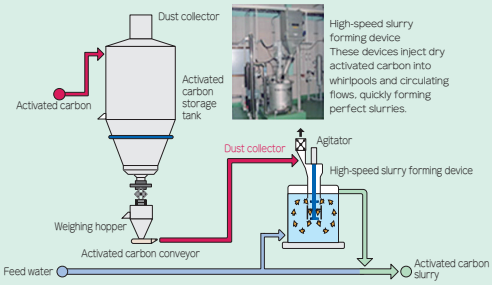
Dry powdered activated carbon injection equipment stores and injects dry powdered activated carbon useful for removing oils and taste and odor causing substances such as mold smells in raw water.

Units supplied

FY 2015–

FY 2016 4 units Water treated 7,895 ~ 164,000m³/day

Dry powdered activated carbon injection equipment



SHALLOW CLEAN

Algal bloom, which is caused by cyanobacteria in lakes, marshes, and reservoirs as a result of the eutrophication of rivers, lakes, and marshes, is becoming a problem. "SHALLOW CLEAN" focuses on light as an essential element of algal bloom, and blocks out all but the necessary minimum of light on a section of a water surface to control abnormal growth of algae without destroying the water's ecosystem.

Units supplied

FY 2015 5 units Area shaded 4 ~ 150㎡

FY 2016 1 units Area shaded 97㎡

Before installation of SHALLOW CLEAN equipment

84 days after installing SHALLOW CLEAN

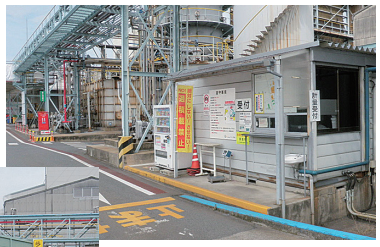
Various Initiatives

Activities to raise awareness for overloaded vehicle prevention

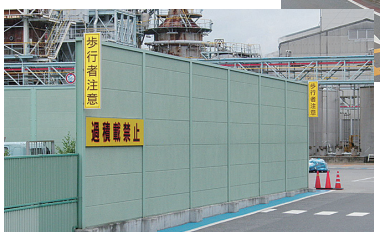
In the interest of maintaining conformance with laws as part of Responsible Care activities, we are working to prevent overloaded vehicles as is consistent with its focus on safety.

To coincide with Metrology Day (November 1st) in Japan, we are making special efforts to raise awareness for the prevention of overloaded vehicles.

Conducted since 2015, these activities have seen us call for an end to overloaded vehicles, putting up banners at weigh stations that read "Never do! Never allow! — Never overload a vehicle."



WASTECH Iwaki weigh station and banners



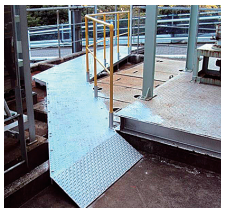
No Overloaded Vehicles signboard

Letter of appreciation for blood donors received

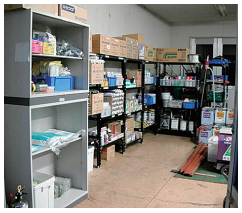
At the 15th Iwaki 21 Citizens' Rally for Health, Kureha Ecology Management was given the Silver Medal of Merit (along with a letter of appreciation to blood donors) from the Japanese Red Cross in recognition of the efforts we make every year supporting blood donations as an organizational supporter. These blood donation support activities are just one example of the efforts we will continue to make in contributing to local communities.

5S workplace organization activities

With the goal of creating comfortable workplaces where all employees can work together, Kureha Ecology Management conducts 5S (seiri (orderliness), seiton (neatness & tidiness), seiso (cleaning), Seiketsu (cleanliness), and shitsuke (training)) activities.






A team of new employees hired during FY 2016

Activities in FY 2016 were carried out by nine teams.
This year we put together a team made up of new employees, who bring fresh eyes to checking the company's workplaces.
5S Workplace Organization Activities and Reporting Sessions conducted (8 sessions)
5S Workplace Organization Activities Contest (1 event)

Lecture for waste producers

On November 4, 2016, Kureha Ecology Management held a lecture conducted by legal advisers from the Company. Entitled "Third Conference on the Responsibilities of Waste Producers — Careless Mistakes Can Be Scary, So Know the Pitfalls of the Waste Disposal Law," the lecture discussed recent incidents of note. Participants received a clear explanation of what kinds of things were problematic accompanied by an explanation of the laws pertaining to each situation.

This event was started in 2014, and more than 110 people involved for this latest talk.

The company will continue to work with all those involved in waste management to provide information aimed at encouraging a better understanding of related laws and of raising awareness regarding the importance of ensuring compliance.

Talk given by Mari Shibata, lawyer

S class evaluation as a company of energy-saving excellence

The Agency of Natural Resources and Energy of the Ministry of Economy, Trade and Industry uses a four-point scale (S, A, B, and C) to rate conservation activities that organizations have conducted in the last five years. Kureha Ecology Management was awarded the S rank, which is given to businesses that demonstrate excellence in energy conservation.

Energy conservation efforts

Kureha Ecology Management uses waste oil and recycled oil as part of efforts to contribute to using fewer heavy oil and other fossil fuel resources.

We also improve combustion efficiency (i.e., save energy) by studying the characteristics of the waste we process and ensuring our incinerators operate under optimal conditions.

WASTECH Kanagawa generates electricity using the waste heat that is produced from waste incineration. It uses this electricity to power equipment inside the facility, and sells the excess.

The entire company is engaged in a variety of energy conservation efforts that include replacing fluorescent lights with LED lights and participating in "cool biz" and "warm biz" campaigns.

Initiatives for employees

A workshop was held in the Waist-Tec Division on October 15, 2016.

Although past workshops have generally focused on a variety of themes, the theme this time was "disaster prevention." In addition to reminding employees of the risks inherent to the work they perform every day, the workshop gave participants information about the types of fire extinguishing devices and emergency equipment in their workplaces, taught participants how to use them, and worked to raise disaster prevention awareness.

In addition, since 2014 we have been conducting new employees training aimed at developing our younger employees.

New employees orientation training

In December 2016, Kureha Ecology Management celebrated 45 years as a company.
As a company that values harmonious relationships between people, society, and the global environment, we continue to tirelessly pursue achieving such relationships through our business activities.

History

December 1971 Establishment of Kureha Kompo Co., Ltd.
October 1975 Name is changed to Kureha Gyomu Co., Ltd
March 1977 Permission is acquired to conduct operations to collect, transport, and dispose of industrial waste in Fukushima Prefecture
July 1984 Name is changed to Kureha Kankyo Co., Ltd.
October 1986 Unit 7 incinerator is 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 is renewed in-house
April 2006 The company name is changed to Kureha Ecology Management Co., Ltd.
June 2006 Paid-in capital is increased to ¥240 million
April 2010 The Kanagawa Plant is opened
April 2011 The Kawasaki Logistics Center is opened
April 2012 The Environmental Solutions Unit is opened
April 2014 WASTECH Park becomes WASTECH Iwaki and the Kanagawa Plant becomes WASTECH Kanagawa
March 2017 ISO9001 certification is acquired

For Sales-related inquiries

For waste-related inquiries
Sales Division
TEL.+81(0)246-63-1331
FAX.+81(0)246-63-1332

For engineering-related inquiries
Environmental Sales Department
TEL.+81(0)246-63-1358
FAX.+81(0)246-63-1359

This 2017 RC Report is also published on our website:
http://www.kurekan.co.jp/en/

MEMO

Ikoi Plaza

Exhibition area

Regional Exchange Hall

Head Office

Address: 30 Shitanda, Nishiki-machi, Iwaki-shi, Fukushima

WASTECH Kanagawa

Address: 6-1 Chidori-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa

KUREHA ECOLOGY MANAGEMENT CO., LTD.

30 Shitanda, Nishiki-machi, Iwaki-shi, Fukushima
http://www.kurekan.co.jp/en/

◆Contact us at the RC Department◆
TEL. +81 (0)246-63-1231
FAX. +81 (0)246-63-1232

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