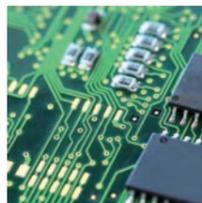


The Group collects and recycles scrap containing precious metals from various industries. By recovering and providing gold, silver, palladium, platinum and other precious metals indispensable to modern manufacturing, we are contributing to the effective utilization of resources and the development of industry.



## E-scrap

Gold Silver Palladium



Electronic substrates used in personal computers, smartphones and home appliances contain gold, silver and palladium. We collect manufacturing process scrap and electronic substrates from used products. We then put them through various processes such as crushing and sorting to recover and recycle precious metals. Our precise sampling and advanced analysis techniques are just some of the strengths we offer.

## Catalyst

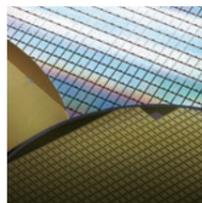
Palladium Platinum Rhodium



Automobiles are equipped with catalytic converters to detoxify harmful substances in exhaust gas, and precious metals such as palladium and platinum are used in these devices. We use our original technologies to recycle precious metals from automotive, chemical and other catalysts converters.

## Precision Cleaning

Gold Silver Palladium Platinum



We strive to ensure the quality of equipment used by customers in their electronic component and semiconductor manufacturing processes by regularly and precisely cleaning them. Customers entrust us with their equipment parts, and we perform stripping and recovery of precious metals adhering to them. The recovered precious metals are returned to the customers upon request.

## Dentistry

Gold Silver Palladium Platinum



Gold-silver-palladium alloys are the main materials in dental prostheses such as crowns and inlays, and the percentage of precious metal content varies by type. Customers such as dental clinics and laboratories provide us with waste containing these metals and we recycle them. We offer high-value recovery with our own system for integrated management of collection, assay and reporting.

## Plating Treatment

Gold Silver Palladium



Since precious metal plating is an excellent way to prevent corrosion and enhance electrical conductivity, it is used in various applications from industrial to decorative products. Utilizing a proprietary electrolytic precious metal recovery system, we recover and recycle the precious metals remaining in plating solutions. We also return the recovered materials to customers in the form of the precious metal compound of their request.

## Jewelry

Gold Silver Palladium Platinum



We collect and recycle precious metals from jewelry and ornaments that are no longer needed as well as precious metal scrap generated at each stage of the manufacturing process from purchasers, manufacturers, and processors. In addition to accurate analysis, we offer high-quality precious metal ingot products, while also returning raw materials to manufacturing and processing company customers.

## Solving social issues through business activities

Social issues relating to the Precious Metals Business

- Depletion of precious metal resources
- Environmental destruction during mining
- Human rights and labor issues related to mining
- Money laundering and terrorism financing risk etc.



## Contributing to the SDGs



Leveraging precious metal recycling to turn consumption into production, transforming waste into precious metal resources



Contributing to industrial sustainability by continually improving our highly efficient and high-quality precious metal recycling technologies



Helping to preserve terrestrial ecosystems, forests, and other land-based resources by expanding precious metal recycling, instead of mining



Promoting peaceful, inclusive societies by practicing responsible precious metal management and transparent procurement



Contributing to sustainable water use by practicing precious metal recycling without contaminant discharge



Helping to protect human rights and prevent child labor in high-risk regions such as conflict zones



Helping to prevent climate change by supplying recycled resources with low CO<sub>2</sub> emissions



Promoting high levels of sustainability by collaborating with other companies

## Collecting and Recycling Precious Metals

We have deployed manufacturing operations in Japan and elsewhere in Asia that enable the most efficient recovery of precious metals and carry out optimal processing of recyclable materials depending on the different characteristics and admixtures in the business fields where we collect materials. Furthermore, we accurately meet customer needs by fully utilizing optimal methods and efficient refining facilities depending on the type of precious or rare metal.



## R&D System



### Technical Research Center pursues original R&D

We conduct proprietary research and development and analytical technology improvement in the fields of “recycling of precious metals and rare metals” and “detoxification and recycling of industrial wastes.” We established the Technical Research Center in Kobe High-Tech Park to serve as our R&D hub. We are looking to take even greater strides forward as a company that contributes to society by improving quality and technical innovation.

### R&D

We anticipate the needs of our customers and strive to create new products and business by applying our large body of elemental technologies and developing new technologies.

- Technology for separating and refining precious and rare metals
- Environmental preservation and resource recycling technology
- Precious metal molding and refining technology

#### Refining Technology

In addition to wet precious metal refining technology, which is particularly effective for recycled material processing, the Group is developing dry precious metal refining technology effective for the primary raw material processing it is performing in North America. By advancing and combining both wet and dry refining technologies, we are creating effective precious metal refining techniques for handling all kinds of raw materials.

#### Release Technology

In order to collect precious metals adhered to the surfaces of parts and jigs, etc., used in the manufacture of electronic components and semiconductors, the Group is developing technology to chemically and physically exfoliate precious metals safely and reliably without damaging the parts and jigs.

### Assay

The Asahi Holdings Group's core assay function supports a diversity of corporate activities using the latest assay equipment and high-level assay technology. In addition, we play an important role in maintaining and enhancing trust with the Group's customers.

- Development of new assay technology
- Technical guidance for assay groups at each plant and sales office
- Purity assay of precious metal products
- Environmental analysis of issues such as factory wastewater discharges
- Environmental measurement certification

#### Assay Technology

The Group is developing assay techniques using X-ray and inductively coupled plasma (ICP) optical emission spectrometry with the aim of conducting rapid and accurate transactions with customers. We are upgrading our precious metal analysis at sites in and outside of Japan, including Asahi Refining.

### Engineering

Using cutting-edge technology, experts from each business area design, produce, construct and provide maintenance of facilities at subsidiaries in and outside Japan, helping to support safe and stable operation of the facilities.

- Design, production, construction and maintenance of facilities and buildings
- Maintenance control of existing facilities
- Installation and maintenance of precious metals collection facilities for our customers
- Support for installation of robotics and IoT for equipment



### Priority SDG-Related Goal

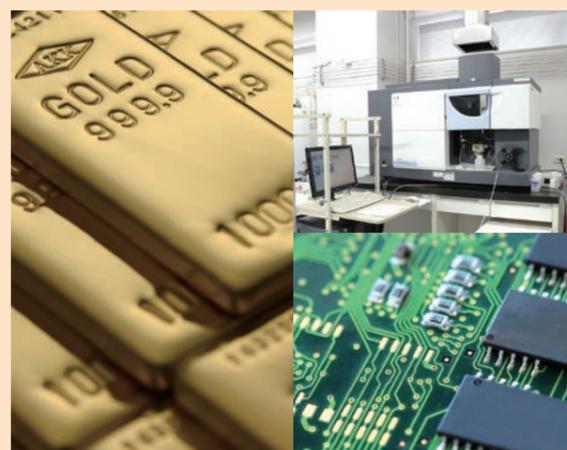
#### Expand precious metal recycling

About one-fourth\* of the world's gold supply comes from recycling. Recycled precious metals have minimal impact on the environment because they are not mined. They also help promote sustainability because they can be repeatedly reused. Recycling is an important way to ensure the stable supply of precious metals needed in many fields.

By fiscal 2030, we aim to achieve total annual recycling of 410 tons of four elements: gold, silver, palladium, and platinum.

As recycling emits less CO<sub>2</sub> compared to mining and refining, achievement of this recycling target will yield a CO<sub>2</sub> reduction effect of 1.465 million tons-CO<sub>2</sub>. (\*See page 31 for details.)

\* From GFMS Gold Survey 2019



## Global Expansion

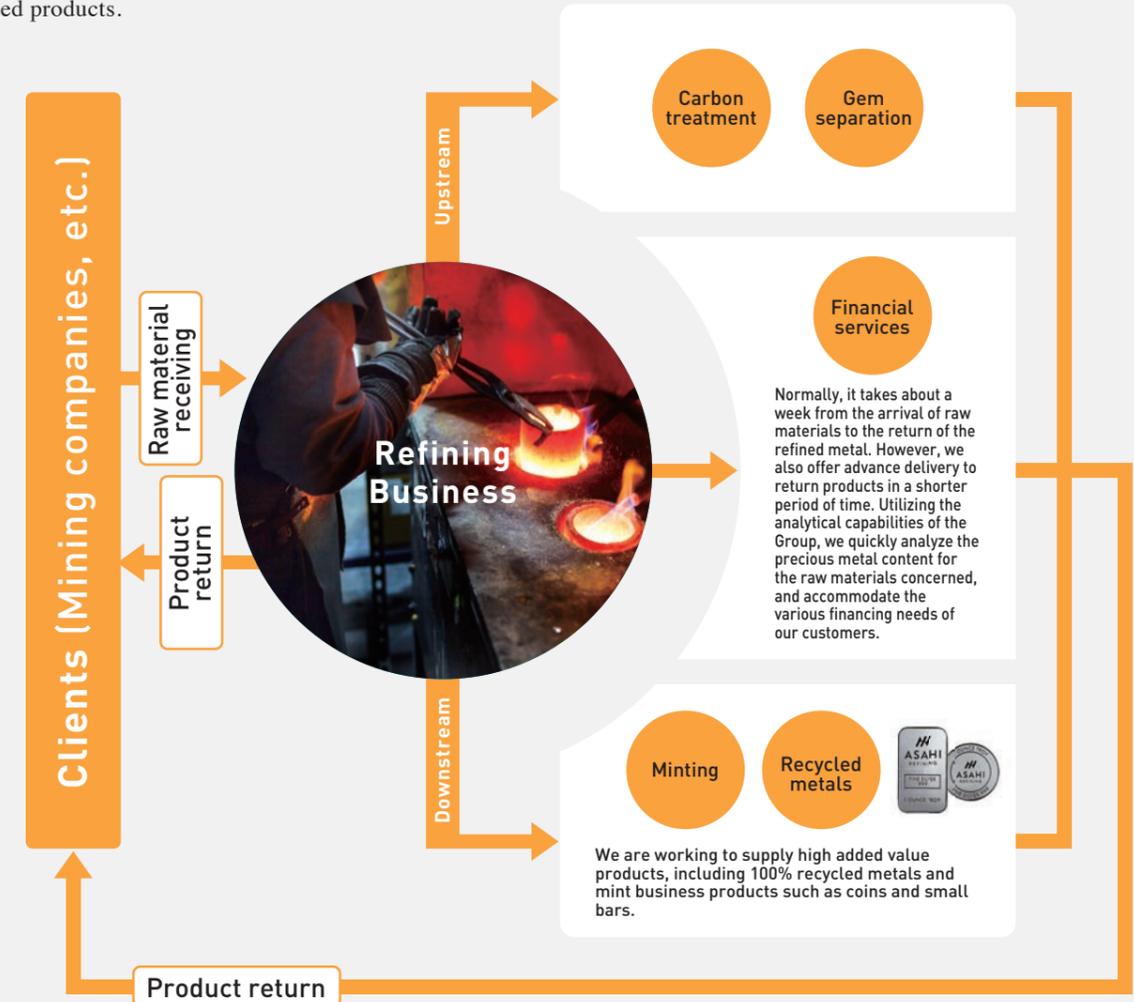
We have been expanding our precious metal recycling operations in Asia since 1994, focusing on dental and electronics waste. We have done this by developing business models tailored to local market conditions while utilizing the technology we have developed in Japan. Furthermore, with the addition of the Asahi Refining businesses to the Group in March 2015, we have expanded our operations to North America.



[As of March 31, 2020]

## North American Refining Business

In North America, we mainly refine gold and silver raw materials produced by mining companies, and we are proud of our refining volume, which is among the largest in the world. We also are striving to develop new services using our refining business as a platform, while responding to the diverse needs of our customers with financial services and high-value-added products.



### Priority SDG-Related Goal

#### Supply precious metals in ways that are friendly to people, society, and the environment

While precious metals are indispensable to many industries, various social issues have also arisen relating to mining, production, and distribution. Businesses that procure and supply precious metals must ensure they are not making these issues worse. The gold and silver produced by the Asahi Holdings Group are delivered in ways that are friendly to people, society, and the environment. We meet the responsible sourcing guidelines of the LBMA\*1 and the strict standards for RJC certification. Going forward, we will continue to promote business activities and initiatives that consider ethical, social, and environmental concerns, while fulfilling our responsibilities by supplying precious metals.



Gold and silver with a purity of 99.99% or more produced by Asahi Pretec and Asahi Refining are certified as LBMA Good Delivery Bars, while platinum and palladium with a purity of 99.95% or more produced by Asahi Pretec are certified as LPPM\*2 Good Delivery Bars.

\*1. LBMA: London Bullion Market Association  
 \*2. LPPM: London Platinum & Palladium Market

### Responsible Precious Metals Management

Asahi Pretec Corp. has established a Responsible Precious Metals Management Policy for the precious metals supply chain, with the aim of avoiding human rights violations in high-risk areas including conflict zones, money laundering, fraudulent transactions, and funds going to terrorists. To achieve this we have set up a responsible precious metals management system that complies with LBMA, LPPM and RJC guidance. The system is also maintained and improved by obtaining certification from a relevant third-party organization and by undergoing regular independent audits.

In order to support one of the Group's priority SDG-related goals — supply precious metals in ways that are friendly to people, society, and the environment — Asahi Pretec is striving to help build and maintain the Asahi brand. We want to ensure that our brand can be trusted by customers around the world, allowing them to procure precious metal products that help protect human rights and the environment.

### Responsible Precious Metals Management Policy

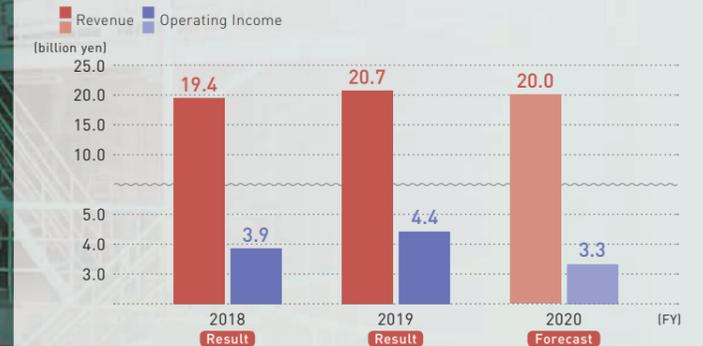
<http://www.asahipretec.com/conflictmetal/index.html>

The companies of the Asahi Holdings Group meet the diverse needs of their customers by leveraging the unique technologies they have developed over the decades in their respective fields to detoxify and properly dispose of various waste materials. As experts in waste disposal, we are helping to solve global environmental problems and playing a key role in building sustainable recycling-oriented societies.

### Business Fields

Government and public offices	Educational institutions	Hospitals, clinics, etc.
Research institutions	Glass and sash manufacturers	Chemical manufacturers
Research institutions / laboratories	Plant manufacturers	Other manufacturers

### Be a leader in the environmental business in Japan



### Waste reagents



The Group collects reagents for disposal from educational and research institutions. They are packed one by one for collection, confirming that they are stored in proper collection containers. Chemical content analysis is performed for any unidentified (poorly labeled) reagents to determine the appropriate processing method before disposal. Even small quantities of miscellaneous wastes that are difficult to handle are also processed properly.

### Waste oil and sludge



Based on analysis results, waste oils from factories are mixed and adjusted to achieve the optimal composition, before being recycled as alternative fuels. Meanwhile, sludge is recycled as raw materials for cement after adjusting content and moisture and then kneading them. The aim is to ensure and maintain the quality of all recycled materials.

### Glass



Plate glass is collected from glass and sash manufacturers, and glass bottles from municipalities. The collected glass is screened and pulverized at our own facility, and recycled as high-quality glass cullet. This is sold to manufacturers and reused to make window glass, glass bottles, or home insulation.

### Wood waste



Large amounts of scrap wood are generated by the demolition of buildings and other sites. We collect and shred this material into wood chips, which is used for fueling biomass power generation plants or for making particleboard.

### Fire-proof bricks



Fire-proof bricks are used as refractories to line glass furnaces, kilns and incinerators. Waste bricks generated by the demolishing of such facilities and periodic repair work are collected and carefully sorted. Recyclable items are reused as paving materials and fire-proof bricks.

### Waste acids, alkalis and sludge (inorganic/organic)



Waste acids, alkalis, and sludge are generated by a wide range of industries, and their properties are diverse, including inorganic and organic. Liquid waste is collected by a vacuum truck, subjected to neutralization and dewatering processes, then treated with microbes, before being discharged into the public sewer system. The residual sludge is recycled as a raw material for refining or composting, etc.

## Solving social issues through business activities

Social issues relating to the Environmental Preservation Business

- Contamination by hazardous waste
- Impact on land and ocean ecosystems
- Pollution of water resources

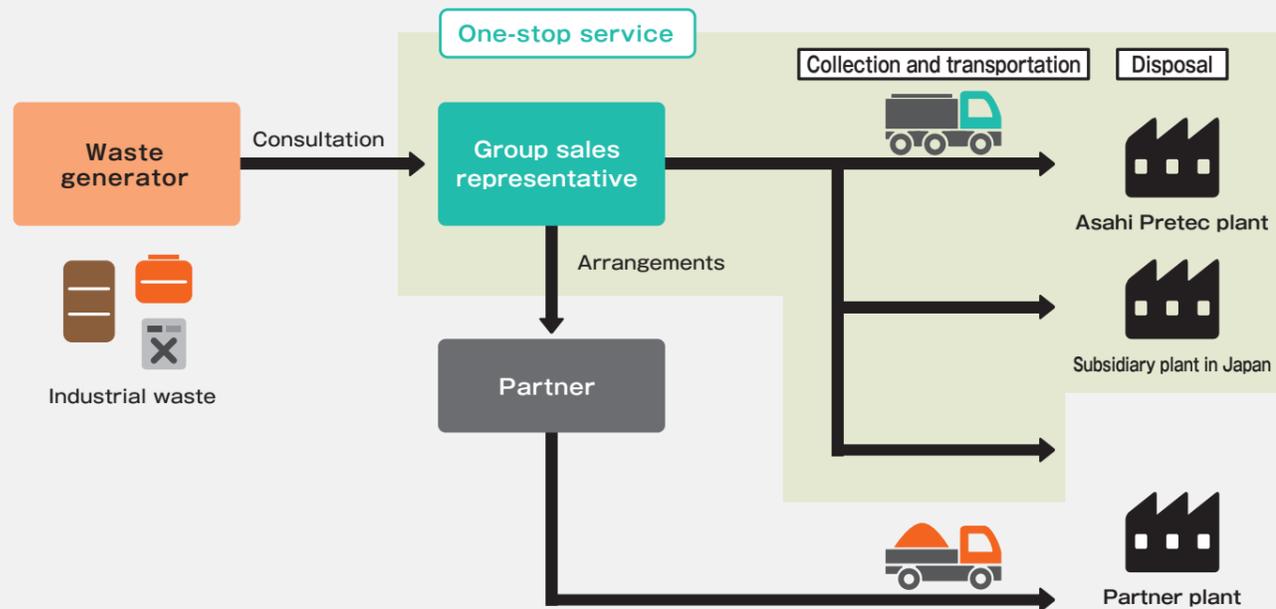


## Contributing to the SDGs

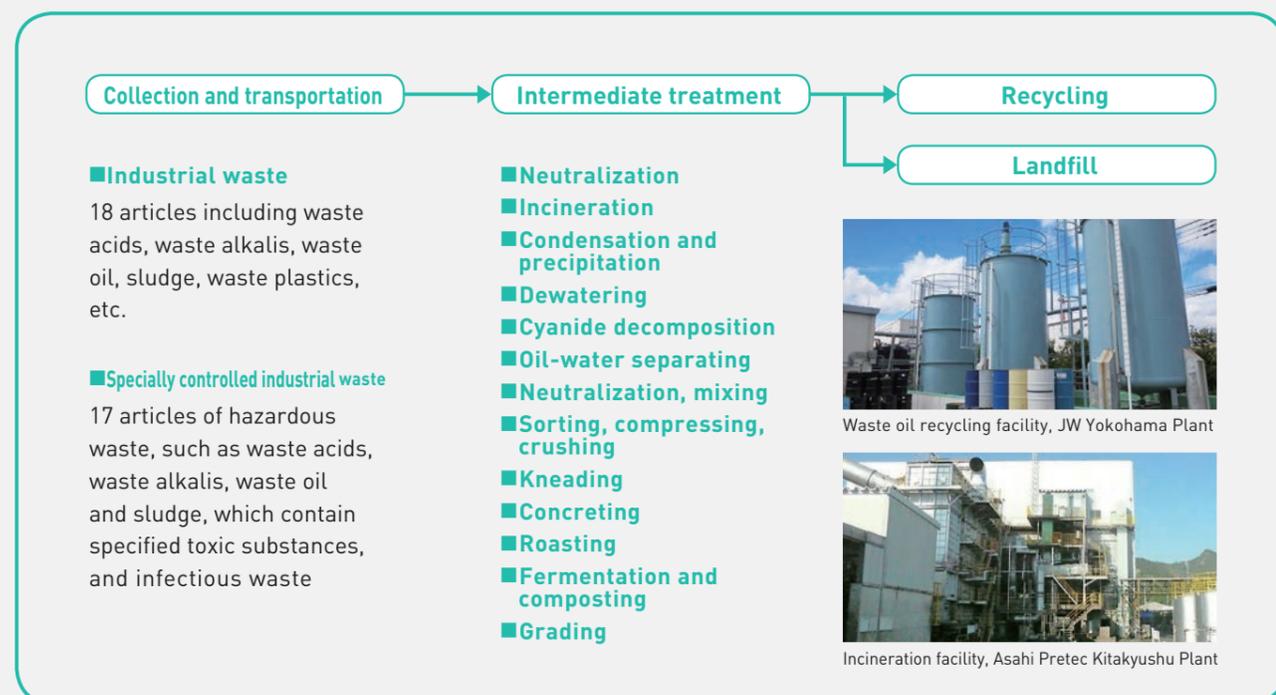
<b>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</b>	Realizing a sustainable society by recycling and detoxifying waste	<b>6 CLEAN WATER AND SANITATION</b>	Securing the sustainability of water resources by detoxifying discharge such as waste acids and alkalis
<b>14 LIFE BELOW WATER</b>	Preventing marine pollution by properly treating liquid and plastic waste	<b>15 LIFE ON LAND</b>	Preventing pollution of land environments by detoxifying waste, and extending the lifespan of final disposal sites by promoting recycling
<b>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</b>	Advancing technological innovation from the standpoint of further improving resource utilization efficiency for various waste products, and promoting global sustainability	<b>11 SUSTAINABLE CITIES AND COMMUNITIES</b>	Achieving sustainable cities and other communities by properly managing waste
<b>13 CLIMATE ACTION</b>	Helping to prevent climate change by reducing CO <sub>2</sub> emissions from waste-to-energy power generation	<b>17 PARTNERSHIPS FOR THE GOALS</b>	Promoting high levels of sustainability by collaborating with other companies

## Providing One-Stop Solutions

The Asahi Holdings Group provides one-stop support for all inquiries regarding industrial waste disposal. We provide a wide range of solutions from collection and transportation to disposal through an experienced sales team that extends across our group network. We hold relevant licenses from authorities across Japan and can handle a wide variety of materials.

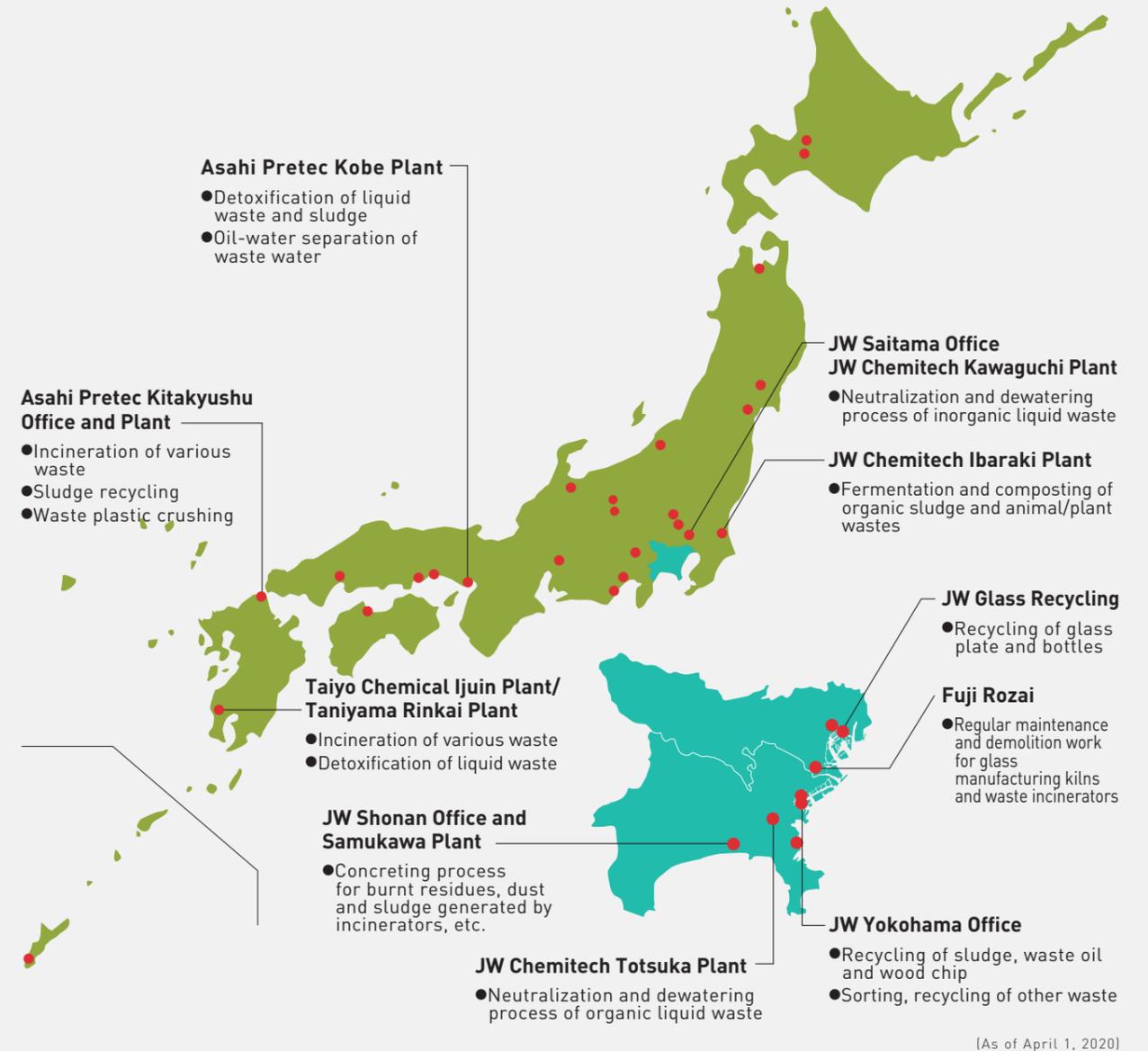


## Processes of Industrial Waste Disposal and Recycling



## Group Network

We have a system for swift and proper waste disposal based on the necessary licenses for collection, transportation, and intermediate treatment of most types of industrial waste and specially controlled industrial waste. In addition, our outstanding technology for detoxifying industrial waste offers optimal solutions for environmental preservation.



## Licenses acquired by the Group (As of April 1, 2020)

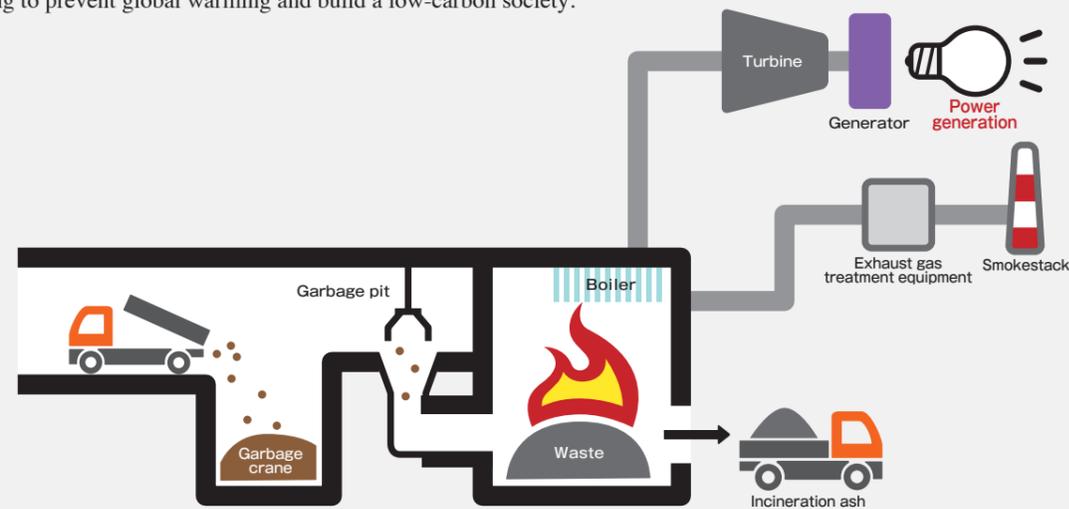
Industrial waste collection transportation license	All prefectures, 8 government ordinance cities and core cities
Industrial waste disposal license	12 prefectures and 8 government ordinance cities
Specially controlled industrial waste collection transportation license	All prefectures, 7 government ordinance cities and core cities
Specially controlled industrial waste disposal license	10 prefectures and 7 government ordinance cities
Excellent industrial waste management company certification*	Asahi Pretec: All prefectures and government ordinance cities Affiliate in Japan: 28 prefectures, 4 government ordinance cities and core cities

\* In April 2011, Japanese laws concerning industrial waste management were revised, creating a new recognition system for excellent industrial waste management companies. Prefectures and government ordinance cities select companies which meet their strict standards in areas such as operational implementation capacity and experience. All Group companies are pursuing this certification, aiming to ensure that customers can feel totally confident about doing business with the Group.

(As of April 1, 2020)

## Generating power from waste

Waste-to-energy is a power generation method that uses the heat generated from waste incineration. It produces high temperatures and high-pressure steam that turns a turbine and generates power. By taking advantage of the energy released during waste incineration to produce electricity, the Group can reduce the amount of fuel used, thereby reducing CO<sub>2</sub> emissions accordingly. The Group is constructing a waste-to-energy power plant in the city of Kitakyushu. By achieving advanced and highly efficient heat recovery, we are helping to prevent global warming and build a low-carbon society.



### Priority SDG-Related Goal

#### Contributing to Increased Proper Industrial Waste Disposal



Due to the increased economic activities of mass production, mass consumption and mass disposal, a shortage of final waste disposal sites has become a social issue in Japan.

In recent years, the problem of microplastics polluting the oceans and harming marine life has also become an international concern. This is often a result of the improper disposal of plastic materials, which end up in rivers and flow out to sea.

The Asahi Holdings Group disposes all wastes properly and aims to increase its total volume of properly handled industrial waste to 500,000 tons per year by fiscal 2030. We also plan to expand the detoxification and recycling of industrial waste, while helping to solve various social problems and promote a sustainable society.



## Inter Central

Inter Central, Inc. provides comfortable environments by manufacturing and selling various electric heaters and designing and installing air conditioning systems. Today's heightened awareness of health and safety means that products need to offer comfort and be user-friendly, while also being clean, energy-saving, and environmentally friendly. By pursuing the possibilities of air conditioning, Inter Central will continue to take on the challenge of creating comfortable spaces.

### Electric heaters

As a company responsible for efficient and energy-saving air conditioning equipment, Inter Central provides a wide variety of heating equipment to various buildings, including public facilities and commercial facilities.



"Sunheat"  
radiating far infrared heater



"Panel Heater (vertical type)"  
natural convection type heater



"Lucciola"  
far infrared heater

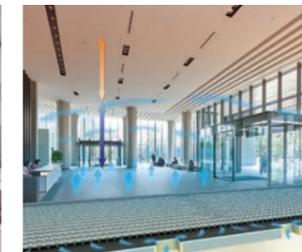


"MyHeat Seraphy"  
far infrared heater

### Radiant air conditioning systems



Ceiling radiant air conditioning systems



Floor radiant air conditioning systems

Ceiling and floor radiant air conditioning systems use hot and cold water as well as forced air in combination. By cooling or heating the entire ceiling or floor and causing those surfaces to radiate cold or heat in the room, the air conditioning system creates a pleasant space with comfortable temperatures and no noise. Ceiling radiant air conditioning systems are widely used in medical settings and offices, while floor radiant air conditioning systems are widely used in entrance lobbies such as those in government buildings and commercial facilities, as well as in libraries, art galleries and museums.

## Realizing Comfortable Energy-Saving Interiors

With the adoption of the Paris Agreement and the UN Sustainable Development Goals (SDGs) in 2015, efforts to reduce the environmental impact of societies have been intensifying worldwide. In Japan, the government aims to realize net zero energy building (ZEB) status in newly constructed public buildings by 2020, and then to achieve ZEB status on average for newly constructed public and private buildings by 2030. Therefore, new buildings including offices are required to reduce their environmental impact.

Another recent trend is the move toward creating high-quality interior work spaces to promote employee health, comfort and intellectual productivity, as part of work-style reform.

To help address this social issue, Inter Central, Inc. contributes to comfortable energy-saving interiors with its products and services for improving temperature control and air quality. These include radiant air conditioning systems, as well as air purifiers with deodorization, sterilization, and fragrance features.



Floor radiant air conditioning system installed in a multipurpose facility, "Minna no Mori" Gifu Media Cosmos  
photo by KAI NAKAMURA