

Activities at Individual Plants

Ube Plant



Address	5253 Okiube, Ube City, Yamaguchi
Number of employees	547 (as of March 31, 2016)
Major items produced	fluorine-related products, other chemicals
	Acquired ISO 14001 certification (December 2000)
	Acquired ISO 9001 certification (December 1997)
	Acquired OHSAS 18001 certification (April 2011)

Message from the General Manager

The Ube Plant started manufacturing soda ash and caustic soda in 1936, and expanded its operations into the manufacturing of chemical fertilizers and inorganic chemical products.

In May 2015, we discontinued production of soda ash and related products, which had been our main products since the founding of the company. Going forward, we will put our full efforts into new businesses that will enable us provide environmentally friendly products such as HFO-1233zd(E), a foaming agent with a low global warming potential, in addition to the fine chemicals business, including active pharmaceutical ingredients and high-purity fluoride gas.

The plant's green spaces have been furnished with rows of cherry trees, and in spring, local residents are able to enjoy the beautiful blossoms and the natural environment that exists in harmony with us. We will continue in our efforts to be a safe and open plant that offers local residents a feeling of security.



Nobuyuki Tokunaga
General Manager Ube Plant

Regional Activities

- Cleanup activities for city and prefectural roads on our plant-wide 5S Day (once a month)
- RC Regional Dialogue Meeting in the Western Yamaguchi District (once every two years)
- Regional town hall meeting in the Ube district (once every year)
- Cleanup activities in Tokiwa Park (once a year)
- Cleanup activities around Lake Ono (once a year)
- Protection and cultivation of grasslands at Akiyoshidai (once a year)
- Cleanup activities around Ube Higashi Port (once a year)
- Forest maintenance activities to protect water resources (once a year)
- Road cleaning using road sweepers (every day)

➤ Contributing to the Community through Cleanups

In cooperation with the Labor Union, the Ube Plant carries out a variety of activities to contribute to the community.

These include: an annual cleanup in Tokiwa Park, which is a leading park in Yamaguchi Prefecture; protection of the symbols of Ube as "a city of greenery, flowers, and sculpture"; an annual cleanup of Lake Ono, which is a water source for Ube City; and active participation in an annual forestry activity to protect water as a form of forest maintenance in the Koto River system, with the aims of restoring the watershed and maintaining the forest's function in preventing global warming.

Additionally, we engage in cleanup activities with the top prior-



Ocean cleanup



Forestry activities

ity of allowing nearby residents to live comfortably. We strive to beautify the environment around the plant through an annual cleanup around Ube Higashi Port, daily road cleaning using road sweepers, and a monthly cleanup along city and prefectural roads bordering the plant on our plant-wide 5S Day, with each department sharing responsibility.

PRTR

(Unit: kg/year)

Ordinance designation No	Substance name	Emissions			Comparison with the previous year	Quantity transferred
		Atmosphere	Water	Soil		
16	2,2'-Azodiisobutyronitrile	0	0	0	→	0
33	Asbestos	0	0	0	→	8,000
41	3'-Isopropoxy-2-trifluoromethylbenzanilide(also known as Flutolanil)	0	0	0	→	0
53	Ethylbenzene	2,000	0	0	↗	0
80	Xylene	3,000	0	0	↗	1.7
81	Quinoline	0	0	0	→	0
232	N,N-Dimethylformamide	19	0	0	→	3,800
243	Dioxins	(Unit: mg-TEQ/year) 0.20	0.11	0	↗	0
281	Trichloroethylene	1,200	0	0	↗	0
296	1,2,4-Trimethylbenzene	140	0	0	↘	0
300	Toluene	1,100	0	0	↘	0
349	Phenol	83	150	0	↘	0
374	Hydrogen fluoride and its water-soluble salts	760	0	0	↗	8,100
400	Benzene	34	0	0	↗	470
411	Formaldehyde	0	0	0	→	0
438	Methylnaphthalene	39	0	0	↗	0

*Quantities emitted, discharged, or transferred are listed for those materials handled in amounts exceeding 1,000 kg in 2015 (except for dioxins)

Kawasaki Plant



Address	10-2 Ukishima-cho, Kawasaki-ku, Kawasaki City, Kanagawa
Number of employees	199 (as of March 31, 2016)
Major items produced	Inorganic chemicals, organic chemicals
	Acquired ISO 14001 certification (May 2007)
	Acquired ISO 9001 certification (July 2001)

Message from the General Manager

The Kawasaki Plant recently transitioned from the soda electrolyte business to the fine chemicals business. Our main products currently include HFC-245fa (an alternative to CFCs, pharmaceutical intermediates, cleaning gases for semiconductors, and photoresist materials). Our production system allows us to stably supply a wide range of fine chemicals products. We have also launched full-scale production of a range of environmentally friendly products, including HFO-1233zd(E), a foaming agent with a low global warming potential and superior heat insulation properties, which won an Award of Excellence at the 17th Ozone Layer Protection and Global Warming Prevention Awards, and next-generation electrolytes for lithium-ion batteries.



Yukinari Hashimoto
General Manager
Kawasaki Plant

Last year we also launched mass production of Pattern Keeper™, a water-repelling drying agent for semiconductor wafers that addresses the problem of circuit pattern collapse in the drying process associated with the increasing density and more advanced performance of semiconductors. In this way, we are actively working to manufacture new products suited to customer needs.

Regional Activities

- Roku-Cho-Kai (Regular social gatherings with residents of neighboring areas including Tono Town and the Daishi District)
- Regular cleanups of the roads around the plant
- Regular exchanges of information concerning the environment and safety with employees of neighboring plants in the Kawasaki Industrial Complex
- Activities related to environmental safety conducted to improve the local environment through the Research Society for Environmental Safety Technology in the Kawasaki Industrial Complex
- Participation in joint disaster drills with neighboring businesses in the Ukishima District
- Participation in street-level traffic safety guidance (organized by the Kawasaki Rinko Traffic Safety Association)

➤ Street-Level Traffic Safety Guidance

The Kawasaki Plant is located in an exclusive industrial zone, so we have very little contact with nearby residents. However, the Kawasaki Rinko Traffic Safety Association, of which the Kawasaki Plant is a member, conducts street-level traffic safety guidance during work and school commuting hours as part of nationwide traffic safety campaigns held every spring and summer. The Kawasaki Plant participates every year together with members of nearby plants.

As this area is an exclusive industrial zone, trucks and large vehicles loaded with hazardous materials pass through frequently. Accordingly, we provide guidance emphasizing the prevention of traffic accidents involving children and the elderly, of which there have been many in recent years, as well as bicycle safety.

Every year, the Kawasaki Plant invites instructors from the Rinko Police Station and Traffic Safety Association to raise employees'

awareness by informing them of legal changes and the current situation regarding traffic accidents in Kawasaki City, and teaching them safe attitudes when driving a motor vehicle. Keeping in mind that we too are members of the community, we utilize the information and knowledge we gained in those classes to issue alerts to neighborhood residents and people commuting to work and school with the aim of reducing traffic accidents in the area by even one incident. The Kawasaki Plant will continue to participate in this street-level guidance in order to contribute to the community by raising awareness of traffic safety.



Street-level traffic safety guidance

PRTR

(Unit: kg/year)

Ordinance designation No	Substance name	Emissions			Comparison with the previous year	Quantity transferred
		Atmosphere	Water	Soil		
81	Quinoline	0	0	0	↗	0
94	Chloroethylene (also known as vinyl chloride)	3,400	0	0	↗	0
149	Tetrachloromethane	250	0.6	0	↘	11,000
213	N,N-Dimethylformamide	12	0	0	↗	70,000
243	Dioxins (Unit: mg-TEQ/year)	0.21	0.78	0	↘	0
262	Tetrachloroethylene	0	0	0	↘	1,500
280	1,1,2-trichloroethane	0	2.4	0	↘	1,600
300	Toluene	140	0	0	↘	2,400
374	Hydrogen fluoride and its water-soluble salts	0	0	0	→	67
392	n-hexane	0.5	0	0	→	10,000
405	Boron compounds	0	0	0	→	0

*Quantities emitted, discharged, or transferred are listed for those materials handled in amounts exceeding 1,000 kg in 2015 (except for dioxins)

The Kawasaki Plant is continuing groundwater purification treatment as a result of contamination by a leak of 1,2-dichloroethane in 1982.

Matsusaka Plant



Address	1521-2 Okuchi-cho, Matsusaka City, Mie
Number of employees	Plant : 203 (as of March 31, 2016)
Major items produced	Safety glass for automobiles, architectural and industrial flat glass, fabricated glass, functional glass for electronic equipment
	Acquired ISO 14001 certification (April 2000)
	Acquired ISO 9001 certification (November 2003)
	Acquired ISO/TS 16949 certification (June 2004)

Message from the General Manager

The Matsusaka Plant manufactures polished plate glass using the world's only duplex equipment capable of employing a consecutive double-sided polishing method. We also manufacture flat glass such as high-permeability cover glass for photovoltaic cells and processed glass for automotive and industrial applications.

Because the plant consumes a huge amount of energy and resources, we have been energetically implementing environmental conservation activities for many years.

In order to conserve energy and power and reduce CO₂ emissions, we are working to reduce loss, introducing equipment that conserves energy in conjunction with large-scale renovations, and pushing ahead with improvements to our operational technologies.

We reuse almost all of our end glass, and since 2004 we have maintained zero emissions. However, we are continuing to work on deriving value from our waste (i.e. converting it into products) in order to achieve a higher standard of waste reduction activities.

Each of our employees is continually working to achieve growth and improvement, based on our motto, "The Matsusaka Plant: Everything for the sake of people and the global environment - Looking at the future through glass." We will continue to contribute to our region and work to make our plant safe and happy, never forgetting our sense of gratitude.



Akira Yuasa
General Manager
Matsusaka Plant

Regional Activities

- Participation in Mie Prefecture Kids' ISO 14000 Program activities
- Participation in cleanup of waste drifting ashore at Toshijima Island, Toba City, organized by the Mie Prefecture Industrial Waste Countermeasures Promotion Council
- Exhibition of Eco-Glass at the Matsusaka Environmental Fair held by the Matsusaka City Environmental Partnership Committee
- Opening of plant grounds to youth sports associations and other organizations free of charge
- Provision of company-owned land to neighboring municipalities as temporary parking areas free of charge
- Inviting local residents to plant's summer festival
- Participation in the Aqua Social Festival in Matsunase, organized by Mie University's Mie Global Environment Center for Education & Research (beach cleanup)
- Participation in voluntary cleanup activities at Matsunase Beach organized by the Matsusaka Taki District Workers' Welfare Council (Matsusaka Branch of the Labor Union)
- Participation in Ecocap (bottle cap collection) activities (Matsusaka Branch of the Labor Union)

➤ Danger Simulation Dojo

The Matsusaka Plant carries out danger simulation workshops with the aim of raising the danger sensitivity and safety awareness of each and every employee.

In March 2015, we opened a "Danger Simulation Dojo" equipped with original devices designed jointly by veteran and junior employees of the Engineering & Technical Section, including a falling glass weight simulation device and a glass cut simulation device. The dojo is used for a variety of educational programs, including training of new hires and job rotation training.

During these training workshops, veteran employees recount cases of accidents that they witnessed firsthand in the past and trainees experience simulated dangers. These are valuable opportunities to pass along and share awareness of disaster prevention measures.



Glass cut simulation device



Falling glass weight simulation device

PRTR

(Unit: kg/year)

Ordinance designation No	Substance name	Emissions			Comparison with the previous year	Quantity transferred
		Atmosphere	Water	Soil		
31	Antimony and its compounds	0	0	0	↘	0
132	Cobalt and its compounds	0	0	0	→	0
242	Selenium and its compounds	92	0	0	↗	0
405	Boron compounds	0	0	0	→	0
412	Manganese and its compounds	82	0	0	↗	0
438	Methylnaphthalene	45	0	0	↗	0

*Quantities emitted, discharged, or transferred are listed for those materials handled in amounts exceeding 1,000 kg in 2015.

In 2002, the Matsusaka Plant discovered groundwater containing arsenic and lead attributable to a past production method. It is currently continuing groundwater purification treatment.

Matsusaka Plant

- Sakai Manufacturing Site



Address	6 Chikko-minamimachi, Sakai-ku, Sakai City, Osaka
Number of employees	Plant : 47 (as of March 31, 2016)
Major items produced	Architectural and residential flat glass, flat glass for electronic equipment, architectural frosted glass
	Acquired ISO 14001 certification (December 1999) Acquired ISO 9001 certification (February 1999)

Message from the General Manager

The Sakai Manufacturing Site is located in the center of the Coastal Industrial Zone in Sakai City, Osaka, and we have been manufacturing flat glass continuously since 1959 as the birthplace of the Central Glass Flat Glass Division. In 1982, we adopted the float process as our manufacturing method and started manufacturing high-grade flat glass.

In 2007, we completed our second round of cold repair work (repairs of the entire manufacturing lines starting from melting furnaces). As part of this process, we conducted improvement work that reduced our CO2 emissions by 3%, and restarted production in April 2008. In August 2009, we conducted work to improve our float baths, and began manufacturing thin flat glass for use in electronic devices such as smartphones and other mobile terminals.

In May 2012, we completed our installation of spattering equipment that deposits thin metallic membranes on glass surfaces and began manufacturing Eco-Glass, a product that can reduce the cost of cooling and heating buildings. We are currently making ongoing efforts to reduce our fuel consumption by improving heat retention and adjusting operating conditions for our glass-melting furnace. Efforts to further reduce waste through recycling and the conversion of waste into valuables are also ongoing.

We will keep aiming to be an environmentally friendly plant that contributes to the community.



Tatsuo Kikuchi
General Manager
Sakai Manufacturing Site
Matsusaka Plant

Regional Activities

- Participation in the Osaka Bay Cleanup Project
- Activities to inform the public about fires and first aid at the Sakai Fureai Festival as a member of the Sakai City Disaster Response Committee
- Participation in comprehensive disaster drills in the Sakai/Senboku coastal area
- Support for a flea market and donation of proceeds to social welfare activities
- Response to requests for dispatch of staff for rescue, firefighting, disaster relief, etc. as a plant that cooperates with Sakai City over firefighting
- Provision of support for a project conducted by the Osaka Prefectural Seikoukai in Sakai Senboku Port to ensure the safety of ships navigating through the port and protect the environment

➤ Participation in Fiscal 2015 Osaka Bay Cleanup Project

Every year we conduct beautification activities along the Osaka Bay sea walls as part of a joint campaign organized by Osaka Prefecture to remove trash and ensure the cleanliness of the water in Osaka Bay.

We conducted a cleanup from south to north along the coast on the levee on the western side of Sakai's Second Ward, which is located to the northwest of the Sakai Manufacturing Site. While we were taken aback by the greater-than-expected amount of trash, we began the collection work with over 150 people.

There were especially large numbers of wooden pieces and PET bottles. This made us realize the importance of being careful when throwing away the PET bottles that we use so frequently in our daily lives.

After sending off numerous truckloads of trash, the sight of the clean quay wall filled us with a sense of satisfaction and joy at our

contribution to society. The cleanup also allowed us to work together with employees of the Marine Safety Station and other participating companies, even if only for a short time, which made it a very meaningful event.

The Sakai Manufacturing Site will continue to participate actively in these kinds of activities.



Cleaning up

PRTR

(Unit: kg/year)

Ordinance designation No	Substance name	Emissions			Comparison with the previous year	Quantity transferred
		Atmosphere	Water	Soil		
80	Xylene	68	0	0	➡	0
296	1,2,4-Trimethylbenzene	78	0	0	➡	0

*Quantities emitted, discharged, or transferred are listed for those materials handled in amounts exceeding 1,000 kg in 2015.