

Creating a Better Future Through *Monozukuri*

 **CENTRAL GLASS CO., LTD.**

# CSR Report 2020

Corporate Social Responsibility Report



# CSR at the Central Glass Group

The Central Glass Group defines CSR as achieving our Corporate Philosophy. The Corporate Philosophy consists of the Basic Philosophy and the Basic Policies which define the specific directions for achieving the Basic Philosophy. We have established the Central Glass Group's Code of Conduct in order to sincerely practice corporate activities based in our Corporate Philosophy.

In October 2019, we revised the Group's Code of Conduct and encouraged all employees in our Group to adhere to its guidelines to enhance the comprehensiveness of measures highly prioritizing quality and safety as a *Monozukuri* company.

## Corporate Philosophy

### Basic Philosophy

## “Creating a Better Future Through *Monozukuri*\*”

The Central Glass Group will contribute to the establishment of a truly prosperous society through the spirit of *Monozukuri*.

\**Monozukuri* refers to all the business activities in which the Central Glass Group engages with the basic stance of integrity and sincerity, including R&D, quality oriented manufacturing, and sales. In Japanese, the term *Monozukuri* can be broken down into *mono* (thing) and *tsukuru* (make). The combination of these terms means “making things”, or “manufacturing” in the context of the Central Glass Group. We chose *Monozukuri* to represent the activities of the Group because the term encompasses not only the meaning of “manufacturing” but also the pride and dedication required to produce quality products that contribute to society.

### Basic Policies

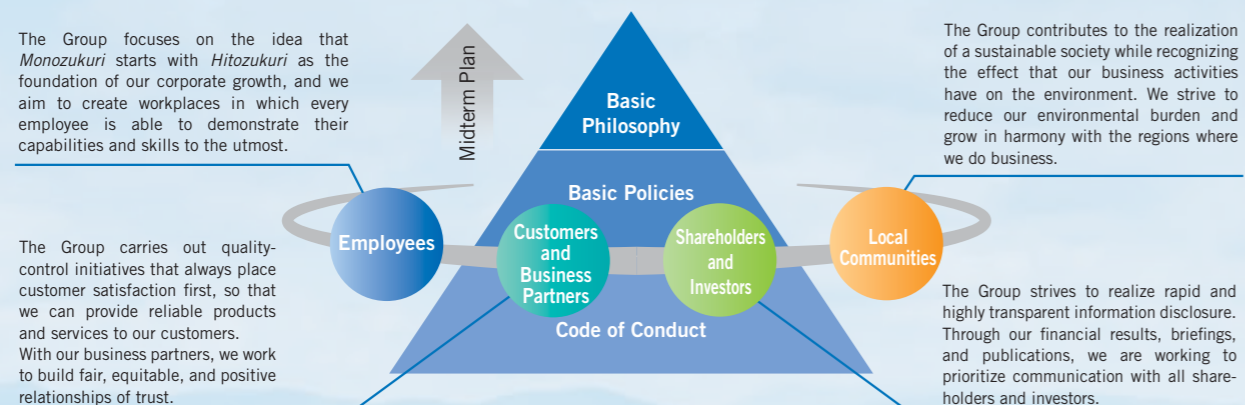
- Create new value through innovative technologies.
- Endeavor to increase corporate value with global growth as our driving force.
- Grow together with society while remaining environmentally friendly.
- Aim to be a vibrant enterprise with a pioneering spirit and respect for diversity.

### Code of Conduct

1. Be responsible for one's own actions and engage in corporate activities with integrity and sincerity.
2. Place our highest priority on the quality and safety of our products and continue to meet customer needs.
3. Continuously pursue and refine one's sense for original ideas and technologies.
4. Support the realization of a society where everyone can live in comfort and good health, and contribute to the protection of the global environment.
5. Proactively learn about different cultures and customs and create products desired by people around the world.
6. Respect the diversity of every individual and embrace the challenges of the future.

## CSR System at the Central Glass Group

The Central Glass Group will fulfill our corporate social responsibilities through continual improvement efforts utilizing the Plan, Do, Check and Act (PDCA) cycle for every activity based on the CSR system outlined below.



## Midterm Plan (FY2018-FY2020)

The Central Glass Group has formulated a three-year Midterm Plan from FY2018 to FY2020.

This plan raises the need to act quickly throughout the entire Group to anticipate and be ready for environmental changes after the medium term.

### Basic Policies

**Achieve new growth by strengthening our business foundations and original technologies.**

- Strengthen our business foundations by clarifying and focusing on our priorities.
- Deliver added value by anticipating the needs of customers and society.
- Ensure compliance and contribute to the development of society as a global corporation.

### Basic Strategies

**1. Return to a medium- to long-term growth path.**

- Pursue returns by selectively allocating management resources to business fields targeted for growth.
- Secure funding for investments in growing areas through restructuring according to business and organizational characteristics.
- Boost earning power and efficiency as well as improve cash flows through carefully selected investments.

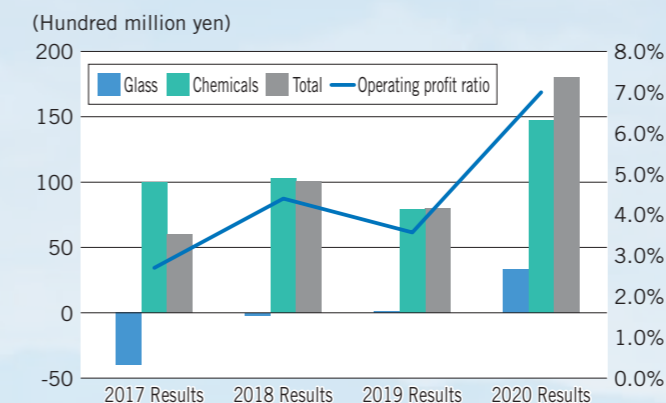
**2. Distribute cash flows based on a well-balanced consideration of shareholder returns, investments and financial discipline.**

**3. Continue strengthening R&D to ensure future growth.**

### Management Target

	2019 Results	FY2020 target in the Midterm Plan
Operating profit	7.97 billion yen	18 billion yen
Operating profit ratio	3.6%	7.0% or more
ROE	3.9%	6.0%
Total return ratio to shareholders	47.3%	At least 30%

### Operating Profit/Operating Profit Ratio



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### Editorial Policy

This CSR Report 2020 aims to accessibly provide more comprehensive information about our engagement with all of the Central Glass stakeholders from our customers, business partners, and investors to employees and members of the local communities.

### Reference Guidelines

- Responsible Care Code of the Japan Responsible Care Council (JRCC)
- ISO 26000 (Guidance on social responsibility)
- Environmental Reporting Guidelines 2018 of the Ministry of the Environment

### Report Period

April 2019 to March 2020 (Some exceptions)  
(The period for information related to health and safety as well as social and environmental activities of overseas affiliates was from January to December 2019.)

### Scope of the Report

The Central Glass Group (Data was only gathered from the plants, research centers, and headquarters of Central Glass Co., Ltd. along with some of our domestic and overseas affiliates.)

### Central Glass Group and the Sustainable Development Goals

Sustainable Development Goals (SDGs) are international objectives to be achieved by 2030 that were adopted at the United Nations Summit held in September 2015. These objectives consist of 17 goals with 169 targets to achieve a sustainable world.

The Central Glass Group works toward the targets set out by the SDGs through various business activities with the aim of contributing to society and the sustainable growth of the Group.



## Contributing to the Establishment of a Truly Prosperous Society Through *Monozukuri*



### Corporate Philosophy

The Central Glass Group has formulated a Basic Philosophy to contribute to the establishment of a truly prosperous society as part of its Corporate Philosophy to create a better future through *Monozukuri*. We will engage in our Corporate Philosophy using the Basic Policies as a guiding light to achieving this mission.

*Monozukuri* is a concept encompassed in all of our corporate activities from research and development to manufacturing and sales as a sincere business practice which forms the foundation of the Group.

We have established the Central Glass Group's Code of Conduct under our Corporate Philosophy and requested all employees in our Group follow it while engaging in sincere corporate activities for the Group's stakeholders.

However, quality-related compliance issues caused by outsourcing contractors that came to light in 2017 and 2018 violate our Group's Code of Conduct and are taken as a matter of great concern.

As a *Monozukuri* company, we have implemented occupational safety for employees as a requisite action, and in addition revised the Central Glass Group's Code of Conduct in order to take the initiative to thoroughly prioritize the quality and safety of our products. We shared the importance of the Code of Conduct once again with all of our employees through a video message where I explained the background and purpose of these revisions.

In the future, we will monitor the implementation status of the revised Code of Conduct and make efforts to prevent the recurrence of similar issues throughout the entire Central Glass Group.

### Compliance

We must adhere to laws and regulations in our business activities, and therefore, compliance is an indispensable requirement to fulfilling our corporate social responsibility.

The Central Glass Group is committed to compliance. We continually heighten the transparency and fairness of all management, and have established a system that clarifies the supervisory function of directors and the business execution duties of executive officers, in order to further enhance corporate value as well as expand revenue toward achieving a society in which all people can live in comfort and good health.

In the future, we will also strive to consistently improve an efficient and rational organizational structure that can swiftly respond to changes in the business environment.

To address the problems faced in quality compliance, our Group has also established Quality Guidelines tied to the Central Glass Group's Code of Conduct above to supplement internal and external accountability from a stance of enhancing the effectiveness of future measures. We also restructured our quality assurance depart-

ments and reviewed the quality assurance system, including revising quality assurance rules, to effectively put these high-level concepts, the Guidelines and the Code of Conduct, into practice.

Furthermore, we are reinforcing governance by reemphasizing the importance of compliance throughout the Group to develop human resources as well as corporate culture on a foundation of "sincerity" in business.

### Creating a Vibrant Corporate Culture

Our Group conducts human resource development and formulates its personnel systems based on the belief that *Monozukuri* is about developing human resources (*Hitozukuri*).

Our efforts to promote diversity have led to not only actively employing non-Japanese employees and persons with disabilities but also increasing the ratio of female employees, reemployment of people past retirement age, and hiring of mid-career applicants who have gained experience at other companies.

We have also strengthened programs to support mental healthcare, child raising, and nursing care to build an environment that can bring out the full capabilities and skills of each individual. Our Group works to cultivate a vibrant corporate culture where every employee can feel themselves grow and reach their full potential while gaining motivation to work over the long term.

### Tackling Social Issues

Our Group focuses on initiatives that confront environmental issues to contribute to the establishment of a truly prosperous society.

As one of these initiatives, we are furthering development of hydrofluoroolefin products with a low global warming potential to help mitigate climate change, which has become a problem worldwide.

The Protect the Ozone Layer, Prevent Global Warming Awards held by the NK Industrial Research Institute recognized the benefits of this product line of hydrofluoroolefins by awarding HFO-1233zd (E) used in insulation foam the Grand Prize in 2014 and CELEFIN® 1233Z (HFO-1233zd (Z)) used in detergents and cleaning solvents the Minister of Economy, Trade, and Industry Prize in 2019.

Our Group will continue to take initiative toward solving environmental issues as high priority activities.

We look forward to the ongoing understanding and support from all of our stakeholders as we move into the future.

Tadashi Shimizu  
Representative Director,  
President & CEO  
Central Glass Co., Ltd.

# Business Outline of the Central Glass Group

## Major Products of Each Segment

Business Segment	Product Category	Major Products
Glass Business	Architectural Glass	Float glass, figured glass, wired glass, heat reflective glass, fabricated glass (tempered glass, heat-resistant tempered glass, laminated glass, insulating glass units, security glass), mirrors, anti-fog mirrors, decorated glass, screen glass, thin flat glass for LCDs, chemical tempered glass, glass powder and glass paste
	Automotive Glass	IR-cut glass, UV-cut glass, glass antennas, privacy glass, module glass, acoustic glass, defogging glass, head-up display glass, and other various safety glasses
	Glass Fiber	Continuous glass fiber, glass wool

\* The Glass Fiber Business shifted from the jurisdiction of the Chemicals Business to the Glass Business on April 1, 2019.

Business Segment	Product Category	Major Products
Chemicals Business	Basic Chemicals	Hydrofluoroolefin, polyaluminum chloride, gypsum, and hydrofluoric acid
	Fine Chemicals	Active ingredients & intermediates for pharmaceuticals/agrochemicals, fluorine organic/inorganic compounds, high purity fluorine gases, electronic materials, electrolytes for lithium-ion batteries, fluorine organic/inorganic reagents
	Fertilizers	NPK compound fertilizer, NK compound fertilizer, coated fertilizer, organic chemical fertilizer, fertilizer materials, microbiological agents/materials

## Europe

Company Name	Location	Main Business Operations
<b>Glass</b>		
Carlex Glass Luxembourg, S.A.	Luxembourg	Manufacture and sale of automotive glass
<b>Chemicals</b>		
Central Glass Germany GmbH	Germany	GMP contract manufacturing of active pharmaceutical ingredients
Central Glass Europe Limited	UK	Investigation and information services
Apollo Scientific Limited	UK	Manufacture and sale of fluorinated chemicals
Central Glass Czech s.r.o.	Czech Republic	Manufacture and sale of electrolytes for secondary lithium-ion batteries



## Asia

Company Name	Location	Main Business Operations
<b>Glass</b>		
Taiwan Central Glass Co., Ltd.	Taiwan	Manufacture and sale of processed glass for electronic materials
Yue Sheng Industrial Co., Ltd.	Taiwan	Manufacture and sale of automotive glass and interior parts for automotive
Saint-Gobain Central Sekurit (Qingdao) Co., Ltd.	China	Manufacture and sale of automotive glass
<b>Chemicals</b>		
Giga Gas & Electronic Materials Company	Taiwan	Sale of special gases for information and electronic industries, and chemical products
Giga Gas & Electronic Materials (Singapore) Pte. Ltd.	Singapore	Sale of special gases for information and electronic industries, and chemical products
Giga Gas & Electronic Materials Trading (Shanghai) Co., Ltd.	China	Sale of special gases for information and electronic industries, and chemical products
Zhejiang Central Glass Chemspec Company Ltd.	China	Manufacture and sale of electrolytes for secondary lithium-ion batteries and fluorinated chemicals
Central Glass Trading (Shanghai) Co., Ltd.	China	Wholesale and import/export of glass products, chemical products, chemical fertilizers, glass fiber, and other products
Jiangxi Tinci Central advanced materials Co., Ltd.	China	Manufacture and sale of raw material for electrolytes for secondary lithium-ion batteries
Zhejiang Britech Central Glass Co., Ltd.	China	Manufacture and sale of special gases for semiconductors
JCEL Co., Ltd.	South Korea	Manufacture and sale of and technical service for electrolytes for secondary lithium-ion batteries
Central Glass Korea Co., Ltd.	South Korea	Wholesale and import/export of glass products, chemical products, chemical fertilizers, glass fiber, and other products
Central Glass Company India Private Limited	India	Wholesale and import/export of glass products, chemical products, chemical fertilizers, glass fiber, and other products
Japan Vietnam Fertilizer Company	Vietnam	Manufacture and sale of chemical fertilizers

## Japan

Company Name	Location	Main Business Operations
<b>Glass</b>		
Central Glass Sales Co., Ltd.	Tokyo	Construction, wholesale, sale, and installation of architectural and residential glass
Central Glass Engineering Co., Ltd.	Tokyo	Contracted work and construction of architectural glass
Tohoku Glass Engineering Co., Ltd.	Miyagi	Contracted work and construction of architectural glass
Bishu Silica Sand Co., Ltd.	Aichi	Refinement of silica sand and gravel
Mie Glass Industry Co., Ltd.	Mie	Manufacture and sale of secondary fabricated products of flat glass
Central Glass Plant Services Co., Ltd.	Mie	Manufacture and sale of crates and pallets, cutting and secondary processing of flat glass, maintenance of manufacturing facilities, and manufacture and repair of machines and equipment
Central Saint-Gobain Co., Ltd.	Tokyo	Purchase, sale, import and export of automotive glass and other glass products
Central Glass Module Co., Ltd.	Tochigi	Manufacture, processing, and sale of automotive parts, etc.
Japan Tempered & Laminated Glass Co., Ltd.	Gifu	Manufacture of automotive glass and processed architectural glass
Central Glass Fiber Co., Ltd.	Mie	Manufacture, sale, and processing of continuous glass fiber, glass wool, and related products
Sowa Transportation and Warehouse Co., Ltd.	Osaka	Warehousing and freight transport services
Central Insulation Co., Ltd.	Aichi	Manufacture and processing of glass wool products
<b>Chemicals</b>		
Central Chemical Co., Ltd.	Tokyo	Manufacture, processing, and sale of coated fertilizer, ammonium chloride, chemical fertilizers and other related products
Tosho Central Co., Ltd.	Tokyo	Sale of merchandise, insurance agent business, freight-hauling business, and packaging and loading
Central Engineering Co., Ltd.	Yamaguchi	Design and construction of various plants, manufacture and repair of machines and equipment
Ube Analytical Center Co., Ltd.	Yamaguchi	Analysis services for various chemical products, fertilizers, etc.
Ube Yoshino Gypsum Co., Ltd.	Yamaguchi	Manufacture of gypsum plaster

## The Americas

Company Name	Location	Main Business Operations
<b>Glass</b>		
Carlex Glass America, LLC	US	Manufacture of float glass and manufacture and sale of fabricated automotive glass
<b>Chemicals</b>		
SynQuest Laboratories, Inc.	US	Manufacture, processing and sale of fluorinated chemical products
Central Glass International, Inc.	US	Investigation and information services, sale of goods



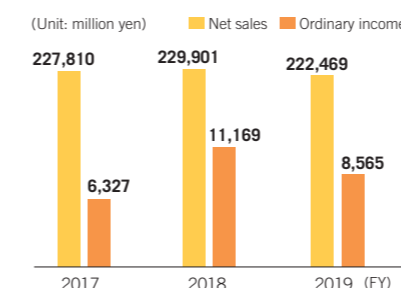
## Corporate Outline (As of March 31, 2020)

Company Name	Central Glass Co., Ltd.
Established	October 10, 1936
Number of Employees	1,631 (6,440 consolidated)
Capital	18,168.28 million yen
Listed Stock Exchange	Tokyo Stock Exchange

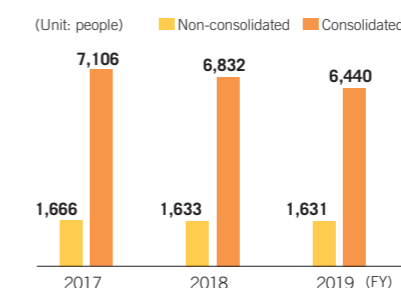
## Business Sites in Japan

Head Office	Kowa-Hitotsubashi Bldg., 7-1 Kanda-Nishikicho 3-chome, Chiyoda-ku, Tokyo
Chemical Research Center	17-5 Nakadai 2-chome, Kawagoe City, Saitama Prefecture
Chemical Research Center (Ube)	5253 Okiube, Ube City, Yamaguchi Prefecture
Glass Research Center	1510 Okuchi-cho, Matsusaka City, Mie Prefecture
Ube Plant	5253 Okiube, Ube City, Yamaguchi Prefecture
Matsusaka Plant	1521-2 Okuchi-cho, Matsusaka City, Mie Prefecture
Matsusaka Plant Sakai Manufacturing Site	6 Chikko-Minamimachi, Sakai-ku, Sakai City, Osaka Prefecture
Kawasaki Plant	10-2 Ukishima-cho, Kawasaki-ku, Kawasaki City, Kanagawa Prefecture

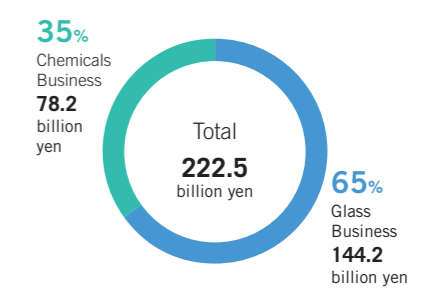
### Net Sales and Ordinary Income (Consolidated)



### Number of Employees



### FY2019 Sales by Segment (Consolidated)



# Products of the Central Glass Group

The Central Glass Group supplies products related to the fields of glass and chemicals. The Group supports many aspects of a comfortable daily life such as providing raw materials for glass products used in commercial buildings, residences and automobiles, as well as raw materials for industrial products, materials supporting industrial production processes, fertilizers, and pharmaceutical products. The Central Glass Group develops and provides environmentally friendly products and products that take people's health and safety into consideration.



## Glass Business

- Glass**
- 1 Architectural Glass**  
Glasses like eco-glass, security glass, and soundproof glass that save energy and contribute to more comfortable interiors.
  - 2 Automotive Glass**  
Laminated glass and tempered glass for automotive windows, and high-performance glass such as heat-insulating glass that contributes to environmental protection.
  - 3 Glass for Touch Panels**  
Ultra-thin glass for touch sensor panels and cover glass.
  - 4 Lead-Free and Anti-Fog Mirrors**  
Environmentally friendly lead-free mirrors that do not contain the harmful components usually used in back coatings, and anti-fog mirrors with special coatings applied to their surfaces in order to prevent fogging.

- Glass Fiber**
- 5 Resin-Reinforced Materials (Bathtubs, etc.)**  
Continuous glass fiber widely used in such diverse applications as fiber-reinforced plastics for bathtubs, housing, automobiles, ships, and electronic products.
  - 6 Automotive Sound-Absorbing Materials**  
Glass wool, a noncombustible and fire-resistant material used for heat insulation and sound absorption in automobiles, railcars, etc.

- Basic Chemicals**
- 7 Blowing Agent for Insulation Foams**  
Hydrofluoroolefin blowing agent which is used in insulation foams used for housing and freezer showcases. Hydrofluoroolefin is an environmentally friendly fluorocarbon material that has low global warming potential and does not damage the ozone layer.
  - 8 Fluorine Cleaning Agents and Solvents**  
Hydrofluoroolefin fluorocarbon materials used in cleaning agents for thorough degreasing of metal parts, in detergents for dry cleaning, as well as in solvents for special coatings.
- Fine Chemicals**
- 9 Electrolytes for Lithium Ion Batteries**  
For applications such as in electric vehicles and hybrid vehicles.
  - 10 Active Ingredients & Intermediates for Pharmaceuticals**  
Active ingredients and intermediates for pharmaceuticals such as anesthetics and antiulcer drugs utilizing fluorine

- Chemicals Business**
- chemicals and other technologies developed in-house at Central Glass Co., Ltd.
- 11 Fluorine Products for Electronic Materials**  
Fluorine-based process gases, cleaning gases, and resist materials employed in the production of semiconductors and LCD panels used in computers and smartphones.
- Agri-Bio**
- 12 Environmentally Friendly Agricultural Materials Coated Fertilizer Cera-coat®**  
A controlled-release fertilizer developed based on the concepts of ideal fertilizing effect, saving labor, low cost, and environmental friendliness. Highly effective, so less of the product needs to be used.
- Microbial Control Agents**  
Anti-microbial agricultural chemicals suitable for organically or specially cultivated agricultural products. Extremely safe for humans, animals, and crops. Can be used until just before harvest, without being counted as pesticide use.

# Initiatives to Address Social Issues at the Central Glass Group

The Central Glass Group strives to find various solutions to address social issues. This special feature introduces our products developed through the success of years of research that contribute to reduce the Group's environmental impact.

## Glass Business

### Initiatives to Transition from Lead to Lead-free Mirrors — Achieving a Lead-free Paint for Backside Coating of Mirror to Prevent Corrosion (Oxidation) of Silver and Copper Films —

#### Initiatives to Transition to a Lead-free Mirror Back Coating

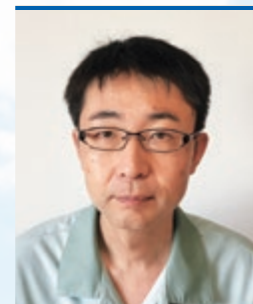
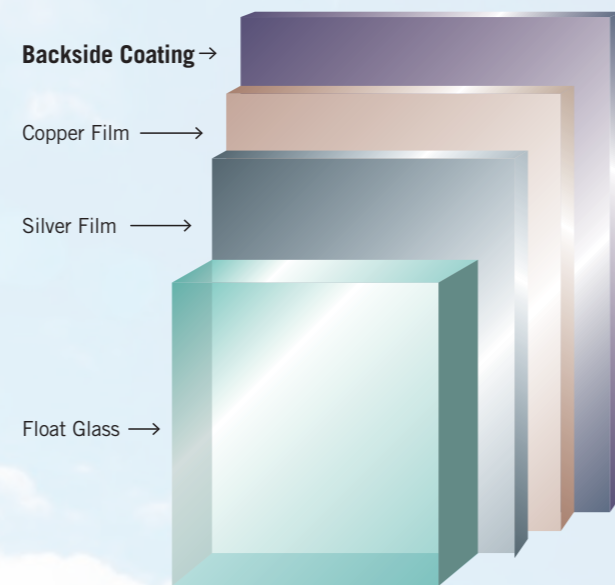
Mirrors have been broadly utilized as an interior item around us in our daily lives, located in houses, offices, restaurants, and hotels, and are an essential part of our lives. “Mie Mirror” has been well known as a glass brand of the Central Glass Group and provided as high-quality products for many years. As a result, it is highly praised by customers.

The structure of “Mie Mirror” consists of float glass, silver film as the reflective surface, copper film, and a back surface coating (see diagram). The paint for the back surface is required to have high anti-corrosion performance because silver and copper films easily oxidize and corrode. Conventional backside paints contain lead-based pigments due to their superior anti-corrosive effect; however, lead is an environmentally hazardous substance. Therefore, it was imperative to find a lead-free alternative.

The Group had been developing a lead-free backside paint for mirrors as an initiative to address societal needs, contribute to the global environment, and work toward the Sustainable Development Goals (SDGs). The challenge was to achieve high anti-corrosive performance with a lead-free backside paint. The Group succeeded in realizing a level of efficacy beyond conventional lead coatings by enhancing the coating composition, adjusting the firing temperature, and optimizing other manufacturing processes.

In June 2018, the Group requested all of its business partners change to the new lead-free products and began gradually supplying these products as the business partners accepted. As of May 2020, all of the Group's business partners have completed the transition to the lead-free products. The success in developing a lead-free mirror back coating has also contributed to a reduced environmental impact because glass polishing waste that does not contain lead does not need to be processed as specially-controlled industrial waste.

■ Cross-Section of Mirror



**VOICE**  
VOICE  
**Yukihiro Ougitani**  
Central Glass Plant  
Services Co., Ltd

#### We make eco-friendly products.

Although there has long been a demand to avoid the use of harmful lead, the development of lead-free mirrors with performance equal to or better than conventional leaded mirrors has been a very difficult task.

Satisfactory performance cannot be obtained merely by improving the composition of the paint.

We finally succeeded in developing a lead-free mirror through the creativity, ingenuity and hard work of engineers who meticulously refined the coating properties and production processes.

We will continue to strengthen the brand power of “Mie Mirror” with the goal of embodying *Monozukuri* to develop products that can contribute to protect the global environment.

## Chemicals Business

### Next-generation Fluorine-based Solvent CELEFIN® 1233Z Widely Used As Superior Eco-Friendly, Cleansing, Safe, and Easy-to-Handle Solvent

#### Central Glass Receives the Minister of Economy, Trade, and Industry Prize for the Development and Commercialization of Low GWP Fluorine-based Solvents

Hydrochlorofluorocarbons (HCFC) with high Ozone Depletion Potential (ODP) and hydrofluorocarbons (HFC) having an extremely high Global Warming Potential (GWP) are widely used as conventional industrial fluorine-based solvents.

In order to meet the increasingly strict regulations on solvents with a high environmental impact, Central Glass Co., Ltd. developed the HFO chemical compound CELEFIN® 1233Z (hereinafter “1233Z”) as an eco-friendly fluorine-based solvent with both an ODP of zero and a GWP of less than one. In October 2015, the Company was the first in the world to start commercial production of such a solvent.

The Company has succeeded in the utilization of CELEFIN® 1233Z, developing various applications with customers from more than 200 companies located both within Japan and abroad, including applications such as cleaning oils from metal components, precision cleaning of electronic components, dry-cleaning clothes, and lubricating medical equipment. 1233Z earned high evaluations from the market for its effectiveness.

In September 2019, the Company won the Minister of Economy, Trade, and Industry Prize in the 22nd Protect the Ozone Layer, Prevent Global Warming Awards in recognition of its development and commercialization of low GWP fluorine-based solvents.

The demand for 1233Z is expected to boom worldwide after all HCFCs are banned in 2020. The Central Glass Group will continue to strive to provide a stable supply of 1233Z.



**VOICE**  
VOICE  
**Fuyuhiko Sakyu**  
Technical Service Team  
Sales Section  
Chemical Sales Department

#### We provide the technical support to promote the new environmentally friendly solvent.

We established a dedicated laboratory equipped with cleaning machines and various analytical instruments for testing the solvent at the production site of CELEFIN® 1233Z in Kawasaki Plant.

We demonstrate cleaning tests, basic evaluations, and verification tests using actual machines in front of customers and provide technical support to customers who decide to adopt CELEFIN® 1233Z.

We further support our customers who adopt 1233Z by providing advice on liquid management, carrying out individual tests for technical issues that customers face, and proposing solutions.

In the future, we will continue to promote the wide use of CELEFIN® 1233Z through a finely tuned support system.

#### Features of CELEFIN® 1233Z

	<b>① Zero ODP</b> 1233Z has practically no ODP and does not damage the ozone layer.	<b>① Cleansing power</b> 1233Z has a KB value of 34 with excellent oil solubility.	<b>① Incombustible</b> 1233Z has no flash point or flammable range.	<b>① Liquid management</b> 1233Z is easy to manage as a liquid (distillation regeneration, etc.) because it is a pure substance that does not contain any additives.
	<b>② Low GWP</b> 1233Z has a lower GWP than carbon dioxide (CO <sub>2</sub> ) and has only a minimal influence on global warming.	<b>② Drying properties</b> 1233Z has a reasonable boiling point and vaporizes at low heat for excellent drying.	<b>② Low toxicity</b> The threshold limit is 100 ppm.	<b>② Equipment</b> 1233Z can be used with existing fluorine, chlorine and bromine-based cleaning equipment.
	<b>③ Permeability</b> 1233Z has low surface tension and suitable precision cleaning.	<b>③ Relevant laws and regulations</b> 1233Z is not regulated by the PRTR law, the Industrial Safety and Health Act, or other laws and regulations.		

#### Performance Comparison

Item	Unit	CELEFIN® 1233Z (HFO-1233zd (Z))	HFO-1233zd (E)	ZEM-SCREEN® (HFO-1234ze (E))	HFC-245fa	HCFC-225ca/cb (Discontinued)	HCFC-141b (Discontinued)	1-bromopropane (Third-party product)	HFC-365mfc (Third-party product)	Methylene chloride (Third-party product)	
Environmental Performance	Ozone Depletion Potential (ODP)	CFC-11=1	≒ 0	0	0	0.03	0.11	0.0049	0	0.007	
	Global Warming Potential (GWP)	CO <sub>2</sub> =1	<1	1	<1	858	127/525	782	0.3	804	9
	Atmospheric Lifetime	—	12 days	26 days	16 days	7.7 years	1.9 years/5.9 years	9.2 years	11 days	8.7 years	0.4 years
Safety	Flash Point	°C	None	None	N/A (Gas)	None	None	None	None	None	
	Flammable Range	vol%	None	None	5.6 to 14.4	None	None	9.4 to 15.5	4.0 to 7.8	3.6 to 13.3	14 to 22
	Toxicity and Threshold Limit (Manufacturer Estimates)	ppm	100	800	800	300	100	500	0.5*	1000	50*

22nd Minister of Economy, Trade, and Industry Prize 2019

17th Grand Prize 2014  
12th Grand Prize 2009

\* Values recommended by the Japan Society for Occupational Health

# Increasing Transparency and Fairness of Overall Management

The Central Glass Group has established a corporate governance structure to increase transparency and fairness of our overall management as well as to improve efficiency and speed. We carry out initiatives to raise all employees' awareness of compliance in order to practice sincere corporate activities.



## Corporate Governance

The Central Glass Group is continually increasing the transparency and fairness of our overall management, and strives to establish an efficient and rational organizational structure that can swiftly respond to changes in the business environment in order to further enhance our corporate value and expand our revenue.

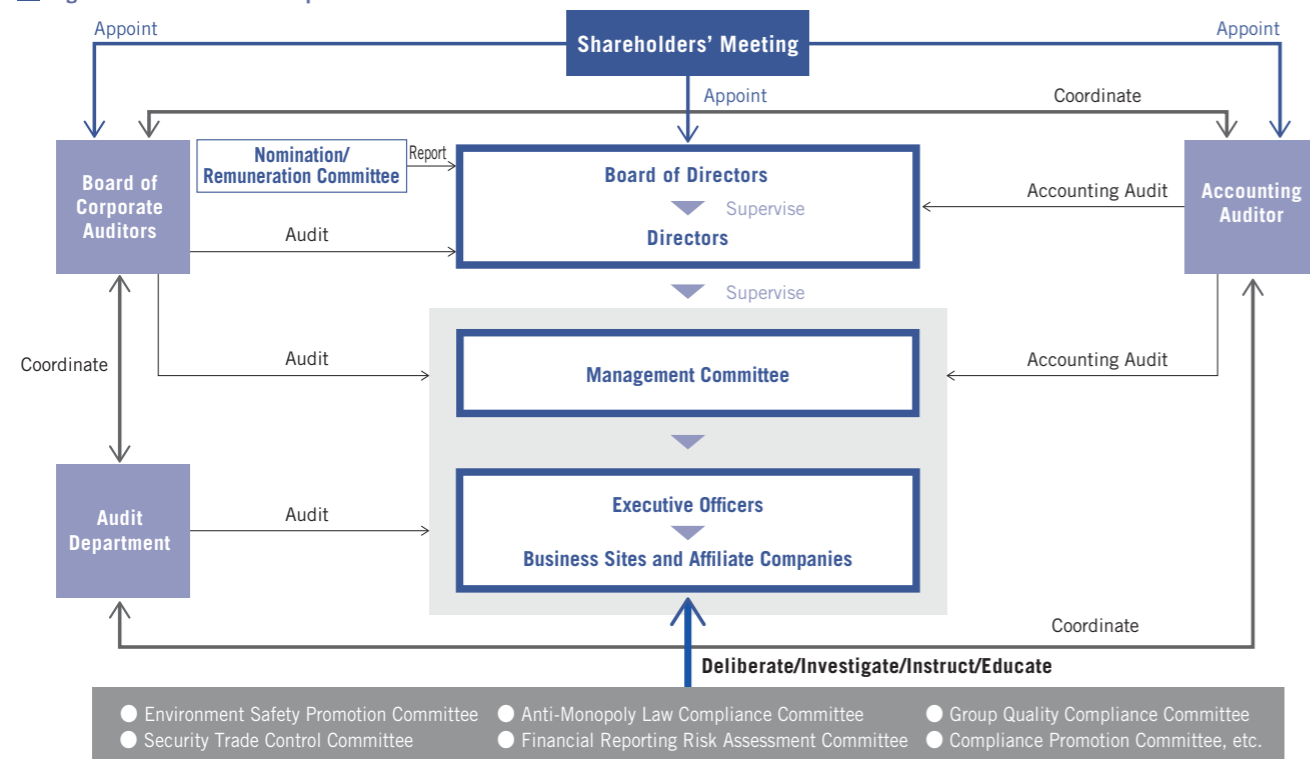
This is our fundamental concept of corporate governance. Based on this concept, we position our Board of Directors and Board of Corporate Auditors as the foundation of our corporate governance. In addition, we have adopted an executive officer system. By separating decision-making regarding important business matters, the

supervision of business execution, and the actual execution of business, we have slimmed down the Board of Directors to make management more efficient and prompt.

We have, in addition to an assigned Accounting Auditor in accordance with the Companies Act, an Audit Department for the purpose of internal auditing, which conducts audits of the full range of activities of Central Glass Co., Ltd. and our affiliates, and reports its findings to the Representative Director and the Board of Corporate Auditors.

The Board of Corporate Auditors, the Accounting Auditor, and Audit Department staff exchange information and opinions, ensure coordination, and share problems to embrace and rationalize the auditing process.

Organizational Chart for Corporate Governance



## Board of Directors

As a rule, the Board of Directors meets once a month, or when necessary, to deliberate and resolve legal and important managerial issues in line with the regulations covering the Board of Directors, and supervises the execution of business by the Directors and Executive Officers including the Representative Director.

Independent Outside Corporate Auditors and Outside Directors, who have no potential for a conflict of interest with ordinary shareholders, ensure fairness within the Board of Directors and serve the role and function of rejecting arbitrary decisions made by the Board of Directors.

## Management Committee

The Management Committee generally meets once a week, in line with the regulations governing its activities, to deliberate and resolve important issues affecting the execution of business, and to deliberate proposals to be put forward to the Board of Directors.

## Board of Corporate Auditors

The Board of Corporate Auditors generally meets once a month to deliberate and resolve important auditing issues. Corporate Auditors also share information and frequently exchange opinions with each other. In addition they meet periodically with the Representative Director to discuss important matters of management and auditing.

The Corporate Auditors attend important meetings such as those of the Board of Directors, and audit the performance of duties that are carried out by the Directors and Executive Officers, as well as the performance of duties of each department and affiliate of the Group.

## Audit Department

The Central Glass Group has established the Audit Department at the head office for the purpose of managing internal control systems related to internal audits and financial reporting.

Internal audits are carried out to maintain the effectiveness and efficiency of group-wide operations, conserve resources, and manage compliance to laws and regulations as well as to internal rules. Operating audits are also conducted preemptively to prevent dishonest practices. Through these audits, the Audit Department strives to sustain appropriate and efficient business operations by providing counsel and advice about improvements when necessary.

In FY2019, they conducted operating audits based on the annual plan. When counsel or advice about improvements was given through the audit, they provided continual support until improvements were implemented.

They also raise awareness about the Central Glass Group Policy Initiative each year and evaluate the effectiveness of internal control at important sites from an objective standpoint as management of its internal control system for financial reporting.

In FY2019, they conducted assessments in line with this policy initiative and submitted an internal control report that analyzed its effectiveness for the group-wide financial reporting as of March 31, 2020.

The Audit Department also convenes regularly and when necessary to cooperate with the Corporate Auditors. The mutual exchange of information and establishment of a cooperative framework drives the comprehensiveness and efficiency of audits.

## Environment Safety Promotion Committee

The Central Glass Group has set up the Environment Safety Promotion Committee as an organization to promote group-wide Responsible Care activities in order to secure the environment, safety, and health throughout the entire life cycle from development to disposal of products based on the Responsible Care management policies.

In FY2019, the Environment Safety Promotion Committee presented to the Group the group-wide report for Safety and Health Management Policy, Environment Policy and the Responsible Care activities implemented in FY2018, as well as the Group-wide activity plans in FY2019 founded in each policy, in addition to reporting the activities of the manufacturing and R&D divisions in order to share information and promote continuous improvement.

Committee Composition (As of April 1, 2020)

Chairperson	Executive Officer in charge of the Environment and Safety Department
Vice-Chairpersons	Executive Officer (Deputy) in charge of the Environment and Safety Department
Committee Members	General Managers of the Personnel Department, Glass Manufacturing Technology Center, Glass Quality Assurance Department, Chemicals Technical Planning & Management Department, Chemicals Production Engineering Center, Chemicals Quality Assurance Department, Environment and Safety Department, Quality Assurance Division, Chemical Research Center, Glass Research Center; Plant Managers of Ube Plant, Matsusaka Plant, Kawasaki Plant; and the Site Manager of the Matsusaka Plant Sakai Manufacturing Site
Observers	Corporate Auditors

Increasing Transparency and Fairness of Overall Management



Environment Safety Promotion Committee

Anti-Monopoly Law Compliance Committee

The Central Glass Group has established an Anti-Monopoly Law compliance system and set up the Anti-Monopoly Law Compliance Committee as an organization to promote adherence to the Anti-Monopoly Law.

In FY2019, while primarily conducting internal education in the sales division, the Anti-Monopoly Law Compliance Committee also verified whether any information was disclosed that may conflict with the Anti-Monopoly Law, examined the trends in detection of cartels, and surveyed subcontracting relations. Furthermore, the committee also provided education about the Act Against Delay in Payment of Subcontract Proceeds, etc. to Subcontractors through outside instructors and engaged in activities to ensure compliance with the Anti-Monopoly Law.

Committee Composition (As of April 1, 2020)

Chairperson	Executive Officer in charge of the Corporate Administration Department
Committee Members	General Managers of the Corporate Administration Department, International Business Department, Purchasing Department, Glass Sales Department, Automotive Glass Department, Glass Business Planning & Development Department, Glass Manufacturing Technology Center, Chemicals Sales Department, Medi-chemicals Sales Department, Specialty Chemicals Sales Department, Electronic Materials Sales Department, Energy Materials Sales Department, Chemicals Business Planning & Development Department, Chemicals Technical Planning & Management Department, Agri-Bio Business Promotion Department, and Glass Fiber Department
Observers	Corporate Auditors; General Manager of the Audit Department; Tosho Central Co., Ltd.; Central Chemical Co., Ltd.; Central Glass Fiber Co., Ltd.; and Central Saint-Gobain Co., Ltd.

Group Quality Compliance Committee

The Central Glass Group had complied with the articles and provisions in the Product Liability Act through the Product Safety Committee. In March 2020, the Group replaced the Product Safety Committee with the Group Quality Compliance

Committee as a Group-wide organization to further strengthen the quality assurance system of the entire Central Glass Group, including product safety activities.

The Group Quality Compliance Committee promotes quality control activities through the meeting committee structure below.

- (1) Emergency response meetings: Rapidly responds to any quality and product safety issues
- (2) Corrective action meetings: Defines comprehensive measures to prevent any recurrence.
- (3) Quality promotion meetings: Promotes PDCA quality activities

Committee Composition (As of April 1, 2020) (Group Quality Compliance Committee Quality Promotion Meeting)

Chairperson	Corporate Officer in charge of quality assurance
Vice-Chairpersons	General Manager of the Quality Assurance Division
Committee Members	General Managers of the Corporate Administration Department, Purchasing Department, Glass Sales Department, Automotive Glass Department, Glass Business Planning & Development Department, Glass Manufacturing Technology Center, Glass Quality Assurance Department, Chemicals Sales Department, Medi-chemicals Sales Department, Specialty Chemicals Sales Department, Electronic Materials Sales Department, Energy Materials Sales Department, Chemicals Business Development Department, Chemicals Technical Planning & Management Department, Chemicals Production Engineering Center, Chemicals Quality Assurance Department, Agri-Bio Business Promotion Department, Glass Fiber Department, General Manager of the Chemical Research Center, Deputy General Manager of the Chemical Research Center, General Manager of the Glass Research Center, Plant Managers of the Ube Plant, Matsusaka Plant, Kawasaki Plant, Site Manager of Matsusaka Plant Sakai Manufacturing Site, Presidents of affiliate companies (main affiliate companies)
Observers	Corporate Auditors

Security Trade Control Committee

For the purpose of sustaining international peace and safety and preventing the stockpiling of weapons of mass destruction as well as conventional arms, the Central Glass Group exports goods and provides technology in accordance with regulations based on export and trade laws, such as the Foreign Exchange and Foreign Trade Control Act which regulates trade regarding supplying exports of cargo as well as providing technology to non-residents and to foreign countries. We act under a basic policy to never breach such laws and have established the Security Trade Control Program to fully raise internal awareness about this policy as well as a Security Trade Control Committee to thoroughly implement this program.

In FY2019, the Security Control Committee thoroughly raised awareness about compliance with laws and regulations by providing reports on the classification of exported products of the Glass Segment and Chemicals Segment; distributing information on major amendments to laws, regulations and policies; and sharing the results of internal audits.

Committee Composition (As of April 1, 2020)

Chairperson	Representative Director
Committee Members	General Managers of the Glass Business Planning & Development Department, Chemicals Technical Planning & Management Department, Information & Computer System Department, Glass Sales Department, Automotive Glass Department, Glass Manufacturing Technology Center, Chemicals Sales Department, Medi-chemicals Sales Department, Specialty Chemicals Sales Department, Energy Materials Sales Department, Chemicals Business Planning Development Department, Agri-Bio Business Promotion Department, Glass Fiber Department, Environment and Safety Department, Chemical Research Center, and Glass Research Center
Outside Committee Members	General Manager in charge of exports and imports at Tosho Central Co., Ltd.
Observers	Corporate Auditors and General Manager of the Audit Department

Financial Reporting Risk Assessment Committee

The Central Glass Group evaluates and analyzes the influence of management decision-making and accounting records on financial reporting. We have set up the Financial Reporting Risk Assessment Committee to ensure the reliability of financial reporting.

In FY2019, the Financial Reporting Risk Assessment Committee carried out activities focused on evaluating and analyzing past and potential events carrying financial reporting risk caused by internal and external factors in order to prevent financially risky reporting and presented them to the Management Committee when necessary.

Committee Composition (As of April 1, 2020)

Chairperson	Executive Officer in charge of the Finance & Accounting Department
Committee Members	Executive Officers in charge of the Corporate Administration Department, Audit Department; General Managers of the Finance & Accounting Department, Corporate Administration Department, and Audit Department
Observers	Corporate Auditors

The Central Glass Group has unfortunately had some quality issues over the last two years. In 2017 certain installations by the OEM of our Super Firelex glass products, which are a special fireproof equipment (fire-resistant door), did not meet the specifications approved by Japan's Ministry of Land Infrastructure and Transport. In 2018 the JIS certification for one of the Central Glass Group's plants was revoked when it was discovered that some products at the plant, formerly owned by FUJIHARDWARE Co., Ltd. and acquired by Group company Central Glass Plant Services Co., Ltd., had not undergone re-heating treatment.

The entire Central Glass Group sees these matters as serious compliance issues and has worked to reform the quality assurance system. The Group has established Quality Guidelines tied to the Central Glass Group's Code of Conduct to supplement internal and external accountability from a stance of enhancing the effectiveness of future measures. We also have restructured our quality assurance departments and reviewed quality assurance systems, including revising quality assurance rules, to effectively put these high-level concepts into practice. Furthermore, we are reinforcing governance through reemphasizing the importance of compliance throughout the Group to develop human resources and corporate culture on a foundation of "sincerity" in business.

Compliance Promotion Committee

The Central Glass Group has established a Compliance Manual to promote compliance. We have also set up the Compliance Promotion Committee as an organization to assess and deliberate on matters related to compliance.

In FY2019, the Compliance Promotion Committee revised the Compliance Manual after the discovery of quality compliance issues and announced the changes to all employees. The Compliance Promotion Committee also put in place an internal reporting system encompassing affiliate companies, responded to internal reports, and conducted compliance promotion education.

Committee Composition (As of April 1, 2020)

Chairperson	Executive Officer in charge of the Corporate Administration Department
Committee Members	General Managers of the Corporate Administration Department, Personnel Department, and Audit Department
Observers	Corporate Auditors

Compliance with the Corporate Governance Code

Central Glass Co., Ltd. regularly publishes a corporate governance report that includes its compliance activities and performance in accordance with the amendments enacted to the Corporate Governance Code (hereafter referred to as CG Code) by the Tokyo Stock Exchange in June 2018.

In FY2019 an advisory body to the Board of Directors deliberated on Shareholders' Meeting proposals on the appointment, dismissal and remuneration of directors and corporate auditors, as well as on proposals for the selection and termination of representative directors and executive directors. In addition the body carried out and regularly reviewed fair, rapid and decisive decision-making functions in accordance with the CG Code to enhance medium- to long-term corporate value and ensure the Company's sustainable growth through measures such as establishing the operation of a "Nomination and Compensation Committee" to report to the Board of Directors.



# Promoting Responsible Care Activities

“Everything is for people and the global environment.”

The Central Glass Group will strive to enrich society through measures that ensure the protection of the global environment and the health and safety of people through Responsible Care activities.



## Environment and Safety Management

The Central Glass Group promotes management of environment and safety with Responsible Care (RC) activities at the core to secure the environment, safety, and health as well as protect the environment over the entire life cycle of our products, from the R&D stage to production, logistics, use, final consumption and disposal.

We set environmental policies as well as occupational health and safety policies each year<sup>\*1</sup> throughout the Central Glass Group to bring together specific targets for each business site and carry out specific environmental and safety initiatives.

\*1 Environmental policies run from April to March and health and safety policies run from January to December.

### FY2019 Environment Policy

1. Ensure strict compliance.
2. Increase emphasis on activities to prevent global warming.
3. Promote 3Rs (Reduce, Reuse and Recycle) and continuously encourage reduction of waste.

### Safety and Health Management Policy 2019

We will strive to maintain and improve our safe, healthy, and lively work environment, and to achieve our Zero Accident Vision. Let's be safe!

#### We will place emphasis on the following items:

1. Enhancing the safety awareness of all employees, and regularly reminding them of risks in order to achieve our Zero Accident Vision.
2. Reviewing established operation standards and ensuring workers' compliance with them.
3. Conducting risk assessments and implementing measures to decrease the risks.
4. Keeping employees informed of past accidents and preventing occurrence of similar incidents.
5. Encouraging employees to review their daily habits, and improve and maintain their health.
6. Cultivating a positive workplace by encouraging employees to take leave and work appropriate hours.
7. Promoting employees to engage in safe and cautious driving habits during their commute and in their everyday life.
8. Improving emergency reporting lines and making sure all workers adhere to them.

### What Is Responsible Care (RC)?

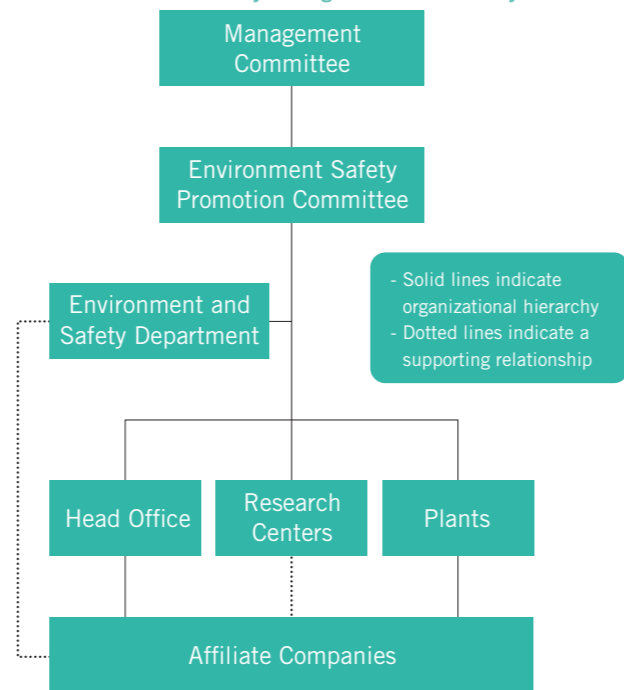
Most chemical companies voluntarily work to secure the environment, safety, and health throughout every process, from the development stage of chemical substances to their manufacture, distribution, use, final consumption, and their disposal. Those companies then publicize the results of their activities to engage in dialogue and communication with society. These activities are referred to as Responsible Care.



## Environment and Safety Management Promotion System

The Central Glass Group established the Environment Safety Promotion Committee with the Environment and Safety Department acting as the secretariat to promote Group-wide environment and safety efforts. The head office, research centers, plants and affiliate companies incorporate items unique to each business site into a general activity plan and engage in specific environment and safety initiatives.

### Environment and Safety Management Promotion System



\* The Environment, Safety & Quality Management Department was restructured into the Environment and Safety Department and the Quality Assurance Division on February 1, 2020.

## FY2019 Targets and Performance Results

Issues	(Plan) FY2019 Targets	(Do) FY2019 Performance Results	(Check) Ratings	(Act) FY2020 Initiatives
Environment and safety management	FY 2019 Promote Environment Policy. Promote Management Policy for Safety and Health in 2019.	- Drafted annual policies and implemented activities at each business site in accordance with the FY2019 Environment Policy and Management Policy for Safety and Health in 2019. - Verified the progress of initiatives through environmental safety self-audits and on-site environment and safety audits. - Conducted management-level reviews via the Environment Safety Promotion Committee.	○	Promote FY2020 Environment Policy. Promote Safety and Health Management Policy in 2020.
Promotion of environmental protection	Reduce greenhouse gas emissions by FY2020 (Target: 15% reduction relative to FY2005).	- Greenhouse gas emissions (CO <sub>2</sub> equivalent): 466,000 tons (50.5% reduction relative to FY2005).	○	Continue activities to reduce greenhouse gas emissions by FY2020 (Target: 15% reduction relative to FY2005).
	Reduce the final disposed amount of FY2020 industrial waste (Target: 71% reduction relative to FY2000).	- Final disposed amount of industrial waste: 7,800 tons (88.5% reduction relative to FY2000).	○	Continue activities to reduce the final disposed amount of industrial waste (Target: 71% reduction relative to FY2000).
Promotion of security and disaster prevention	Strengthen equipment safety measures.	- Conducted thorough voluntary and statutory inspections. - Adopted and installed safety equipment. - Prepared and provided comprehensive work standards and other documentation.	○	Implement equipment safety measures and ensure operational safety.
	Effectively utilize accident data.	- Took advantage of the Security and Disaster Prevention Database and shared accident data and preventive recurrence measures with domestic affiliates.	○	Encourage the effective use of the Security and Disaster Prevention Database.
Promotion of industrial health and safety	Maintain and improve the workplace environment. Achieve zero-accident records.	- Implemented measures to prevent occupational accidents, utilizing information such as factor analyses of the 2018 occupational accident report. - Instructed each business site to utilize safety and health activities to eradicate occupational accidents. - Number of occupational accidents: 40	△	Implement measures to prevent occupational accidents based on the 2019 occupational accident report.
Promotion of logistical safety	Prevent accidents during the transportation of chemical substances and minimize the damage in case of incidents.	- Reviewed and revised the Guidelines for Logistical Safety Management and the Instructions for Preparing and Managing Yellow Cards to even more adequately manage transportation of chemical substances. - Verified that the transportation of chemical substances complied with the revised rules through an internal database and other measures.	○	Prepare new Yellow Cards and revise existing Yellow Cards as necessary.
Promotion of the management of chemical substances	Comply with laws and regulations to ensure occupational health and safety of workers and prevent environmental pollution.	- Provided the necessary notifications in accordance with the Chemical Substances Control Law and Act on Confirmation, etc. of Release of Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Law) and other laws and regulations. - Verified the level of compliance with relevant laws and regulations through voluntary audit reports and on-site environment and safety audits.	○	Reduce emissions of chemical substances into the environment. Continue compliance with relevant laws and regulations.
	Identify asbestos use and storage and execute proper disposal.	- Conducted surveys on the level of asbestos use, storage and disposal once a year for buildings and facilities. - Verified the level of asbestos use and storage through voluntary audit reports and on-site environment and safety audits.	○	Identify asbestos use and storage and continue to execute proper disposal.
	Strictly manage machinery containing PCBs and conduct disposal according to laws and regulations.	- Surveyed the level of storage and disposal of equipment containing PCBs each quarter. - Verified the management status of equipment containing PCBs through voluntary audit reports and on-site environment and safety audits.	○	Identify the use and storage of equipment containing PCBs and continue to execute proper disposal in accordance with laws and regulations.
Communication	Mitigate risks through SDS/GHS Labeling.	- Provided training to departments subject to JIS Z 7252: 2019 and JIS Z 7253: 2019 (sales, manufacturing, and research departments). - Verified that revisions and preparations of SDS and GHS labeling complied with amended JIS standards upon issue.	○	Continue verification of each SDS and GHS label upon issue.
	Participate in regional activities. Coexist with local communities.	- Participated in local volunteer activities. - Held dialogues with local communities.	○	- Continue to participate in local volunteer activities. - Continue to hold dialogues with local communities.

Rating: ○: Achieved target △: Achieved most targets but not all ×: Additional measures required

\*The period for data collected about health and safety was from January to December 2019.

Promoting Responsible Care Activities

Environment and Safety Audits

The Central Glass Group checks the conditions of management systems, environmental conservation, safety and disaster prevention, occupational health and safety, logistical safety, chemical and product safety measures and dialogue with the communities at plants, research centers and domestic affiliates.

These checks ask each business site to respond to an environmental safety self-audit check sheet and to undergo on-site environment and safety audits by an audit team to directly verify the level of management on-site.

In FY2019, 52 business sites in Japan comprising the Central Glass Group conducted environmental safety self-audits, in addition to which we executed on-site environment and safety audits at 10 of those sites.

At overseas affiliates, we also conducted audits of occupational accident conditions at 12 business sites and audits of environmental conservation measures at 9 business sites.

Our Group will continue to conduct environment and safety audits as well as various inspections to encourage continuous improvement at domestic and overseas business sites.

Promotion of Environmental Protection

The Flow of Substances at the Central Glass Group

The Central Glass Group is making efforts to reduce its impact on the environment by quantitatively tracking the environmental burden of production processes as well as identifying and improving environmental issues.

Substance Flow (FY2019 Results)

INPUT

Total Amount of Materials Input ..... 1,046,000 tons		Total Amount of Water Resources Input ..... 19,191 million m <sup>3</sup>		Amount of Net Energy Input ..... 13,248 TJ*	
Central Glass Co., Ltd.	Affiliate Companies	Central Glass Co., Ltd.	Affiliate Companies	Central Glass Co., Ltd.	Affiliate Companies
700,000 tons	347,000 tons	11,660 million m <sup>3</sup>	7,531 million m <sup>3</sup>	6,872 TJ	6,376 TJ

\* J (joule) is a unit of energy. One TJ (terajoule) is equal to one trillion joules.



OUTPUT

Atmosphere		Water		Waste	
Total Emissions of Greenhouse Gases ..... 933,000 tons-CO <sub>2</sub> e		Total Amount of Discharged Water ..... 17,783 million m <sup>3</sup>		Total Amount of Waste Produced ..... 111,000 tons	
Central Glass Co., Ltd.	Affiliate Companies	Central Glass Co., Ltd.	Affiliate Companies	Central Glass Co., Ltd.	Affiliate Companies
506,000 tons-CO <sub>2</sub> e	427,000 tons-CO <sub>2</sub> e	11,660 million m <sup>3</sup>	6,123 million m <sup>3</sup>	41,000 tons	70,000 tons
Emissions of Air Pollutants ..... 5,254 tons		Discharge of Water Pollutants ..... 94 tons		Final Disposed Amount of Waste ..... 12,100 tons	
Central Glass Co., Ltd.	Affiliate Companies	Central Glass Co., Ltd.	Affiliate Companies	Central Glass Co., Ltd.	Affiliate Companies
3,862 tons	1,392 tons	57 tons	37 tons	8,000 tons	4,100 tons

Reporting range

- Central Glass Co., Ltd.: 3 plants, 1 manufacturing site, 3 research centers, the Chemicals Production Engineering Center, and the head office
- Domestic affiliates: 6 major affiliates
- Overseas affiliates: 9 major affiliates

Tabulation of emissions of environmental pollutants at overseas affiliates began in FY2013. Some business sites for which calculations were unavailable are excluded.

Recycling Rate of Waste ..... 99%

Central Glass Co., Ltd.	Affiliate Companies
78%	99%

The Glass Segment and Chemicals Segment each focus largely on specific measures. The Glass Segment prioritizes measures to prevent global warming because daily operations require a huge amount of heat energy to melt raw materials. On the other hand, the Chemicals Segment engages in the development of environmentally friendly products and reduction of waste.

The Central Glass Group will continue to strive in efforts to save energy and build recycling systems.

Reduction of Greenhouse Gas Emissions

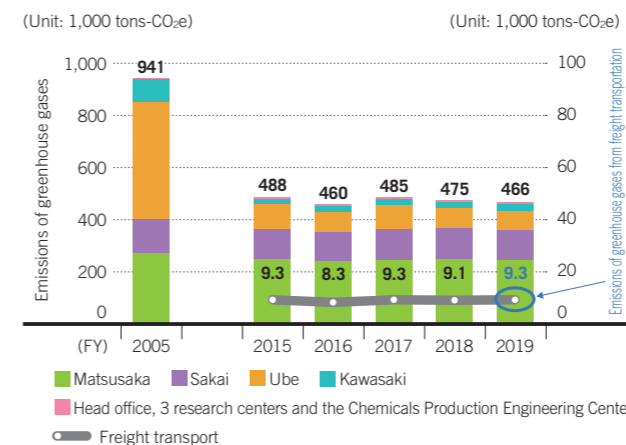
Central Glass Co. Ltd. has set an FY2020 target for reducing greenhouse gas emissions from plant operations by 15% relative to FY2005 levels with this serving as a mid-term initiative to prevent global warming. The Company's greenhouse gas emissions due to plant operations in FY2019 has already achieved this target through emissions of only 466,000 tons (CO<sub>2</sub> equivalent, 50.5% reduction relative to FY2005) as a result of the power optimization of plant operations, and it will continue to further reduce emissions.

On another front, the Company strove to reduce the amount of greenhouse gas emissions that were generated during the transportation of products relative to the previous year by shifting toward use of railway and sea vessels. Unfortunately, these emissions were slightly higher than the previous year and equal to that of emissions two years ago (FY2017).

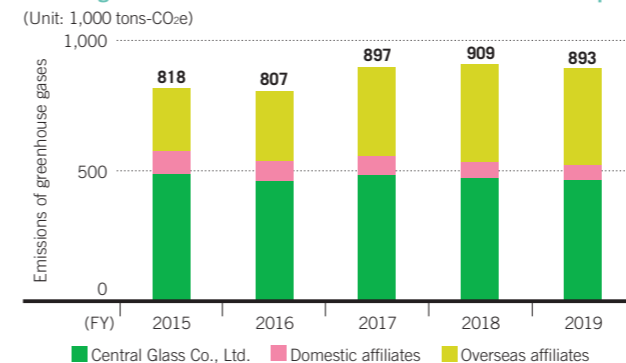
For the Central Glass Group, the amount of greenhouse gas emissions declined slightly compared to the previous year but were almost equal to that of emissions two years ago (FY2017).

In FY2020, we will set reduction targets for 2030 in an ongoing effort to reduce the amount of greenhouse gas emissions from the Central Glass Group.

Changes in Greenhouse Gas Emissions (Central Glass Co., Ltd.)



Changes in Greenhouse Gas Emissions (Central Glass Group)



Reduction of the Final Disposed Amount of Industrial Waste

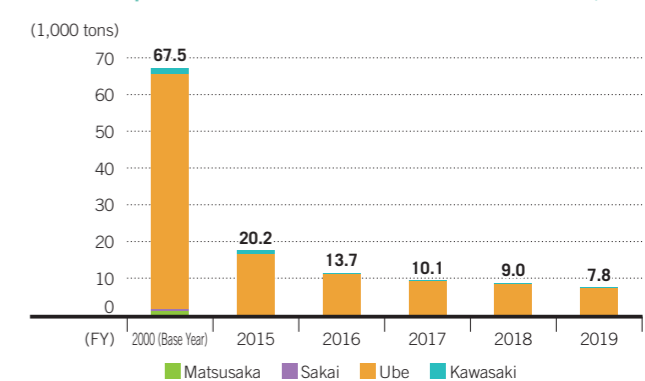
Central Glass Co., Ltd.:

Central Glass Co. Ltd. has set a target\*<sup>1</sup> for FY2020 to reduce the final disposed amount of industrial waste by 71% relative to FY2000 in an effort to reduce its industrial waste.

In FY2019, the Company's final disposed amount of industrial waste has already achieved this target through disposal of only 7,800 tons, down 88.5% from FY2000. We will continue to work to sustain our target achievement for FY2020.

\*<sup>1</sup> This target is stricter than the government target (70% reduction in the final disposed amount of industrial waste in FY2020 compared to FY2000)

Final Disposed Amount of Industrial Waste (Central Glass Co., Ltd.)



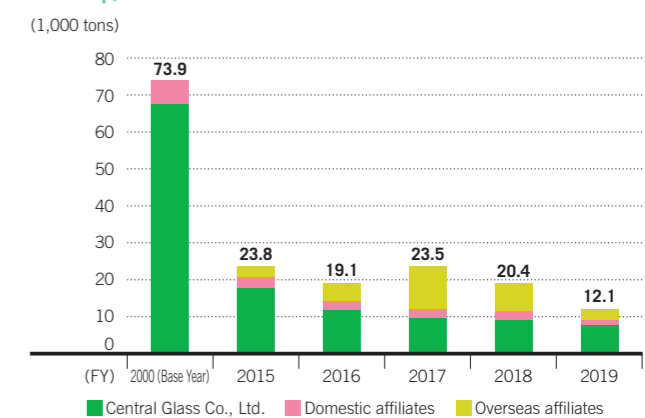
Central Glass Group:

The Group is always working to reduce the industrial waste output of both its domestic as well as its overseas affiliates.

For overseas affiliates, the final disposed amount of industrial waste had increased in FY2017 due to regular repairs before declining from FY2018. However, the final disposed amount of industrial waste from domestic affiliates had continued to decrease beyond FY2015 levels through FY2019, resulting in the final disposed amount of industrial waste for the entire Central Glass Group declining for two consecutive years.

The Group will continue initiatives to reduce the final disposed amount of industrial waste including both domestic and overseas affiliates.

Final Disposed Amount of Industrial Waste (Central Glass Group)



Air and Water Pollutant Emissions

The Central Glass Group operates plants in compliance with the local emission standards for atmosphere, water quality, and other environmental indicators for each business site. Reducing emissions of air and water pollutants is an important challenge in regard to the global environment and human health and safety. We will continue to carry out appropriate management.

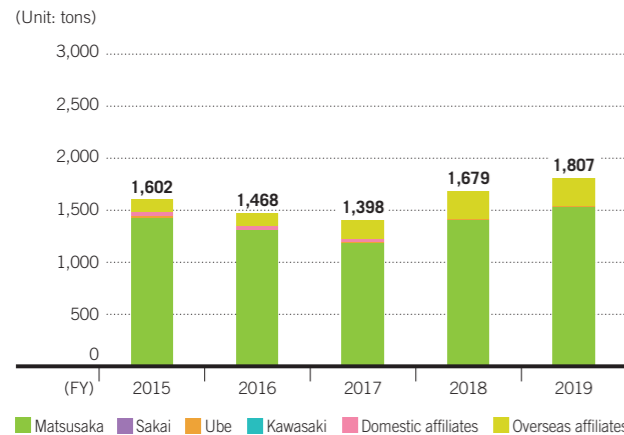
\* The figures in the following graphs differ from previous CSR reports because business sites have been retroactively added that were not included in the aggregate in the past.

Promoting Responsible Care Activities

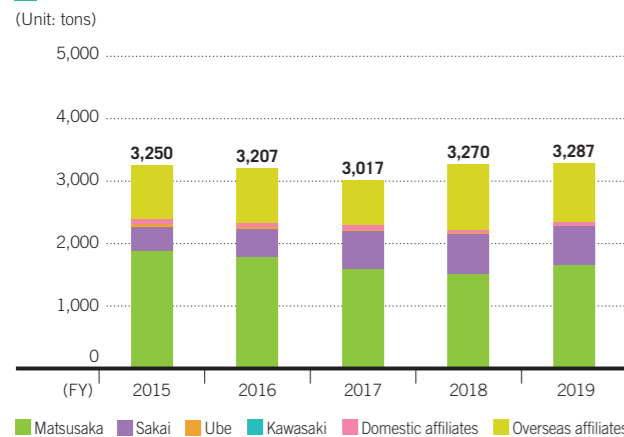
**Air Pollutant Emissions**

The trends in air pollutant emissions for sulfur oxide (SOx), nitrogen oxide (NOx), and ash dust are shown below.

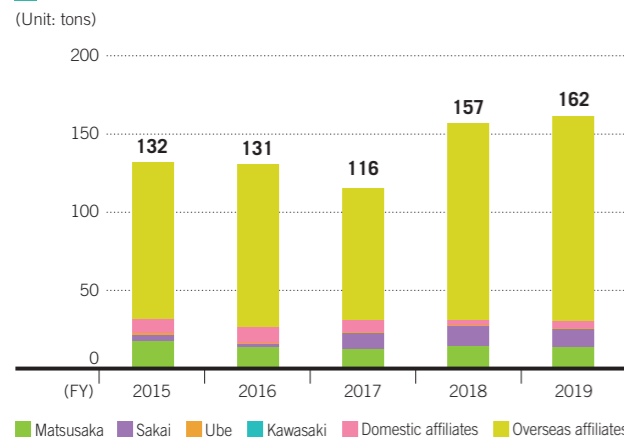
**SOx Emissions**



**NOx Emissions**



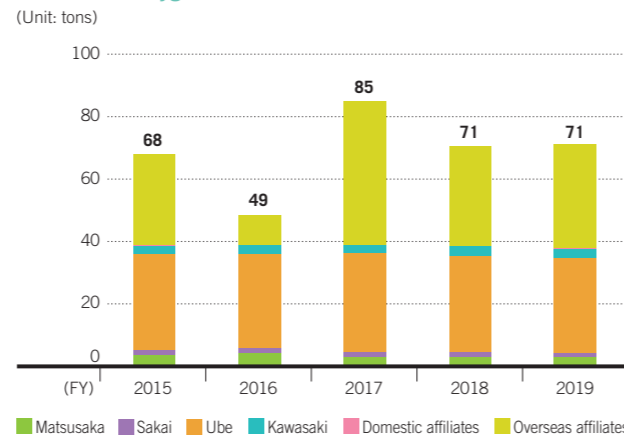
**Ash Dust Emissions**



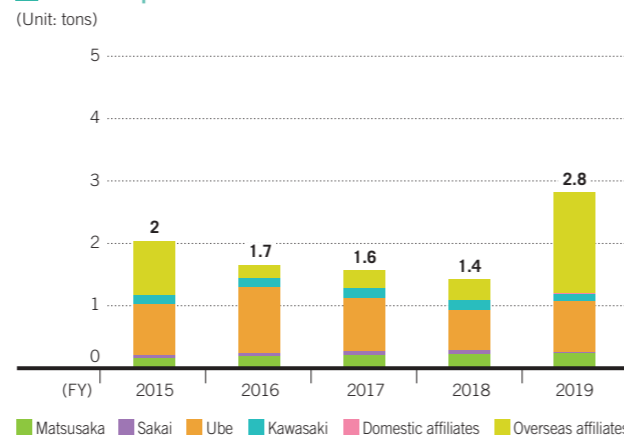
**Water Pollutant Emissions**

The trends in water pollutant emissions for chemical oxygen demand (COD), phosphorous and nitrogen are shown below.

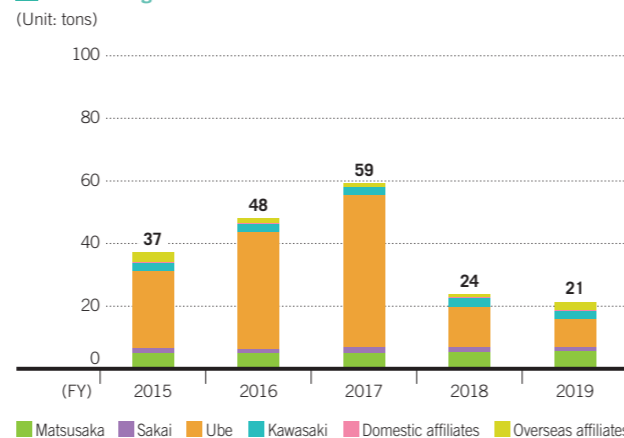
**Chemical Oxygen Demand (COD)**



**Total Phosphorous Emissions**



**Total Nitrogen Emissions**



\* The data for overseas affiliates is shown only as reference because the data was collected according to the standards in each region.

**Reduction of Chlorofluorocarbon Emissions from Industrial Air-conditioning Equipment and Refrigerators**

Central Glass Co., Ltd. strives to reduce leakage of chlorofluorocarbons when using equipment through proper control of refrigerants such as inspections of industrial air-conditioning equipment and refrigerators in accordance with the Act on Rational Use and Proper Management of Fluorocarbons (2015).

According to the results of simplified checks and regular inspections of 2,703 units at our business sites in FY2019, we reduced emissions relative to FY2018 with total emissions of 503t-CO<sub>2</sub> from our business sites.

In the future, we will strive to reduce emissions of chlorofluorocarbons through measures that include identification and repair of leakage areas, equipment management, and the control of the amount of refrigerants.

**Security and Disaster Prevention**

Under the guidance of the authorities regarding the environment, security, and disaster prevention, Central Glass plants have established full-scale security and disaster prevention systems for the purpose of eliminating facility disasters. We report any incident such as fire or leakage that occurs in a plant to fire departments and government agencies as an irregular incident.

We work to preemptively prevent accidents and disasters at each plant through efforts such as activities that are based on the Security and Accident Prevention Guidelines advocated by the Japan Chemical Industry Association (JCIA) and through the passing down of skills and know-how to our young employees by veteran engineers well-versed in their work.

Safety is the highest priority in our corporate activities and the foundation for the prevention of accidents at our plants. We continually promote security and disaster prevention with the aim for our plants to be free of accidents and disasters.

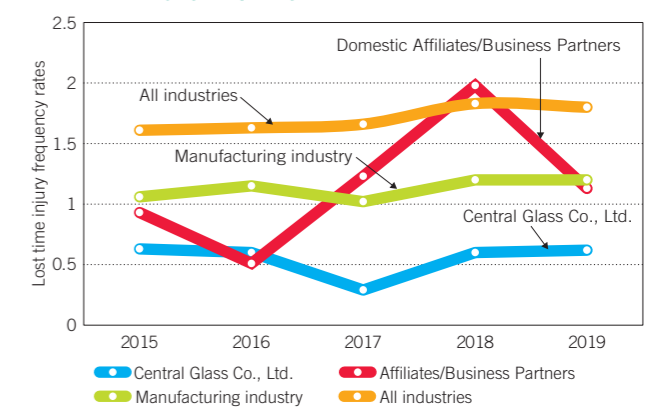
**Industrial Health and Safety**

Each fiscal year the Central Glass Group drafts a management policy for safety and health as well as priority implementation items and conducts occupational health and safety activities at each business site. (See page 16 for the Management Policy for Safety and Health and priority implementation items for 2019.)

Regarding occupational accidents at Central Glass Co., Ltd., domestic affiliates, and business partners in 2019, the lost time injury frequency rate for Central Glass Co., Ltd. was roughly half the rate of the overall manufacturing industry while the Group's domestic affiliates and business partners reported a similar rate to that of two years ago (2017), which was almost the same rate as that of the overall manufacturing industry.

Central Glass Co., Ltd., domestic affiliates, and business partners suffered a total of 40 occupational accidents, of which 9 cases resulted in lost work hours and 31 cases resulted in no lost time.

**Lost time injury frequency rates**



Lost time injury frequency rates = (Number of accidental deaths or injuries / Total work hours) x 1,000,000  
(The frequency rate of accidents that result in lost work hours per million working hours)

We have set priority implementation items for the 2020 occupational safety activities based on the data from 2019.

**2020 Occupational Safety Activities**

Promote daily health and safety activities on site to eliminate occupational accidents.

- 1) Raise safety awareness: Each employee shall always act with safety consciousness.
- 2) Thoroughly assess risks: Improve the safety level of work methods, machinery and work environment
- 3) Make safety activities a habit: Create a workplace where specific tasks are performed reliably
- 4) Ensure thorough safety behavior in cargo handling
- 5) Implement heat stroke prevention measures and prepare heat stroke emergency response measures

We will continue to work to promote even greater occupational safety and health through measures such as safety activities, safety education, and cautionary reminders in order to prevent occupational accidents.

**Logistical Safety**

Central Glass Co., Ltd. and domestic affiliate companies implement periodic training and education not only for their employees but also for employees at the business partners to which they outsource transporting, in order to prevent accidents during the transportation of chemical substances and to minimize the damage in case of incidents.

We have also established Guidelines for Logistical Safety Management and created emergency contact cards (Yellow Cards) in accordance with the Instructions for Preparing and Managing Yellow Cards. Drivers who are transporting hazardous substances such as high-pressure gases and poisonous substances are legally mandated to carry Yellow Cards. The Central Glass Group also prepares Yellow Cards for chemical substances that are not subject to this legal mandate.

To provide an even higher level of management to control the transport of chemical substances, we revised the

Promoting Responsible Care Activities

Guidelines for Logistical Safety Management and Yellow Card preparation and management requirements in April 2019. Our Group also inspected the level of Yellow Card implementation in March 2020 and verified the program was being executed without any problems.

We will continue to make every effort to improve logistical safety.

Chemical and Product Safety

Management of Chemical Substances

Central Glass Co., Ltd. and its domestic affiliates survey, collect and report Pollutant Release and Transfer Register (PRTR) data in an effort to reduce emissions of chemical substances into the environment in accordance with the PRTR Law and the PRTR System.

The total number of substances subject to PRTR notification in FY2019 at Central Glass Co., Ltd. and its domestic affiliates was 60 after increasing by five substances compared to the previous year due to increases in product lines and production volume. (See "Activities at Individual Plants" on pages 32 to 35 for the status of each Central Glass plant.)

We will always adhere to the Industrial Safety and Health Act, Poisonous and Deleterious Substances Control Act, High Pressure Gas Safety Act, and any other relevant laws and regulations in order to further improve the management of chemical substances ensuring the safety and health of our employees. Our overseas affiliates also strive to understand the local laws and chemical substances they handle, promoting the management of chemical substances from a global perspective across the Group. We will continue working to properly manage chemical substances.

Asbestos Management

Some of the materials used in buildings and production facilities at Central Glass Co., Ltd. and its domestic affiliates contain asbestos. We identify, properly manage and dispose of these materials upon removal in accordance with the relevant laws such as the Air Pollution Control Act, Industrial Safety and Health Act, Waste Management and the Public Cleansing Act.

In order to ensure appropriate handling, we conduct on-site environment and safety audits once a year during which we survey the state of use, storage, and disposal of asbestos at Central Glass Co., Ltd. and domestic affiliates as well as confirm the conditions.

The Central Glass Group will also adhere to the legal amendments related to the management of asbestos planned for FY2020 to ensure proper management in the future as well.

Management of Instruments Containing PCB

Central Glass Co., Ltd. and its domestic affiliates ensure instruments such as transformers, stabilizers, and capacitors that contain polychlorinated biphenyl (PCB) comply with the Act on Special Measures Concerning Promotion of Proper Treatment of PCB Waste, Waste Management and Public Cleansing Act, and other laws and regulations. We dispose of such instruments through strict management following the set schedule of disposal.

In order to ensure appropriate handling, we conduct on-site environment and safety audits each quarter as an opportunity to survey the state of storage and disposal of instruments containing PCBs at Central Glass Co., Ltd. and domestic affiliates and to confirm the level of management.

In FY2019 as in the previous fiscal year, we prioritized the disposal of equipment with a high-concentration of PCBs that would soon reach the deadline for disposal, such as equipment containing fluorescent light choke coils. We have also drafted disposal plans to dispose of any remaining equipment with high or low concentrations of PCBs within the appropriate time frame.

We will always adhere to laws and regulations and will properly manage systematic disposal of this type of equipment.

SDS/GHS Labeling

In accordance with the GHS\*1, the Central Glass Group provides information through SDS\*2 and GHS labeling\*3. When handling chemical substances, measures necessary for risk abatement can be taken based on the information listed in the SDS and the GHS labels, which leads to safety and protection of the environment.

In light of revisions in May 2019 to the JIS Z 7252 and JIS Z 7253 which include procedures for creating SDS and GHS labeling, relevant departments at Central Glass Co., Ltd. and domestic affiliates, such as sales, manufacturing, and research departments, provided training on SDS and GHS label preparation in FY2019. Our Group also raised awareness about SDS and GHS labeling of products, raw materials and other items among employees who handle chemical substances in an effort to ensure meticulous and proper handling. In addition to SDS and GHS labeling, multiple departments issue and approve cross-checks to ensure full compliance with the Industrial Safety and Health Act, the PRTR Law, and the Poisonous and Deleterious Substances Control Act.

We will continue to provide accurate information through SDS and GHS labeling.

\*1 GHS: Globally Harmonized System of Classification and Labelling of Chemicals. This globally harmonized system classifies and labels chemical products.  
 \*2 SDS: Safety Data Sheet. Data sheets that list information related to the hazardousness of chemical substances as well as information concerning the environment.  
 \*3 GHS labeling: Labels including information according to the GHS such as the visual indications for each hazardous substance category are directly printed on, adhered or attached to chemical products.

Providing Reliable Products and Services to Our Customers

The Central Glass Group will always work toward its goal of establishing a truly prosperous society through the spirit of *Monozukuri*. We will also emphasize quality control initiatives that place customer satisfaction first. In addition to complying with laws and regulations, our Group takes customer feedback sincerely in order to provide reliable products and services loved by customers.

Quality Management

Clause 2 of the Code of Conduct and the Quality Guidelines

The Central Glass Group made the following revisions to further strengthen quality compliance.

- Added a quality clause to the Code of Conduct  
We added our commitment to "Place our highest priority on the quality and safety of our products and continue to meet customer needs" as a second clause to our Code of Conduct based on the Corporate Philosophy.
- Drafted Quality Guidelines  
We overhauled the Basic Quality Policy to draft new Quality Guidelines. The Quality Guidelines form a framework for prevention, discovery and response to quality issues, which are vital perspectives of compliance.

Quality Management System

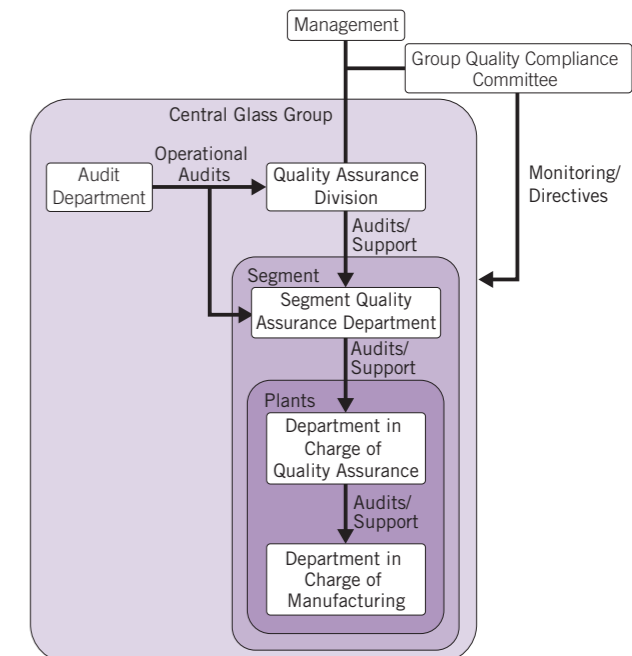
The Central Glass Group made the following reforms to strengthen the quality management system.

- Established a Group Quality Compliance Committee  
The Group Quality Compliance Committee serves as a cross-functional organization to further strengthen the quality management system of the entire Central Glass Group.
- Established the Quality Assurance Division  
The Quality Assurance Division leads the Quality Assurance Departments and oversees the quality initiatives of the entire Central Glass Group.
- Put in place multilayered audits  
Incorporated the concept of multilayered audits into internal audits. The Company implemented a three-layered auditing system comprised of voluntary audits by quality assurance departments at the plants, audits of each plant by Glass or Chemicals Segment quality assurance departments, and audits of the segment quality assurance departments by the Quality Assurance Division.
- Created a reporting procedure for quality issues  
Established a reporting line to rapidly respond to quality issues by quickly receiving information on various quality issues discovered by customers or at manufacturing sites to report to the appropriate department in charge. This reporting procedure also provides a system to quickly report serious quality issues to management in order to take emergency measures without any delay.

Quality Guidelines

Item	Description	
Cultivate a culture of quality	Provide high quality and reliable products by ensuring compliance with laws and regulations, clients' requirements, and social responsibilities.	
Perform continuous improvements	Continuously implement quality improvement activities, as well as encourage employees to enhance their awareness and abilities throughout the entire supply chain to keep developing the quality and safety of our products.	
Prevent	Update and enforce policies and procedures	Comply with each policy and procedure and update them as needed.
	Improve organizational structures	Ensure the independence and authority of quality control and quality assurance departments so that they can fully exercise their respective duties.
	Invest in human resources and facilities	Invest appropriately in human resources and facilities that are essential to achieving our quality objectives.
Detect	Strengthen audit systems	Detect problems quickly through layered audits conducted by the plants, quality assurance departments, and audit departments.
	Streamline reporting systems	Clarify reporting procedures and reporting guidelines to ensure quick responses to quality issues.
Respond	Respond to problems with corrective and preventive actions	Prevent recurrences of quality problems by identifying and analyzing the causes, in addition to taking necessary measures such as prompt information disclosure.

Quality Management System



Providing Reliable Products and Services to Our Customers

Quality Audits

The Central Glass Group systematically conducts quality audits at its plants as well as at domestic and overseas affiliates.

In FY2019, we conducted 21 audits at plants and affiliate companies based on the annual plan. We provided assistance until any corrective actions or improvements requested during these audits were implemented.

By incorporating multilayer audits to ensure nothing is overlooked in the future, we will work to improve the level of quality initiatives at each business site.

Quality and Product Safety Education

The Central Glass Group formulates quality education programs as well as systematically conducts position-based and departmental education to provide comprehensive quality and product safety education. The knowledge gained through these various education programs aids in Group quality initiatives that prioritize quality and safety.

FY2019 Educational and Training Activities

- Position-based education: Trainings for newly appointed managers and assistant managers  
Description: Training on the Product Liability Act, comprehensive quality control, and quality policy management
- Departmental education: Training for employees in sales, research and manufacturing departments  
Description: Training on quality and product safety such as SDS and GHS labeling as well as quality compliance

The program also held product safety training seminars with outside instructors for Product Safety Committee members.



FY2019 Training for Newly Appointed Assistant Managers



FY2019 Quality and Product Safety Education for Manufacturing Divisions

37th Groupwide QC Circle Conference

The Central Glass Group regularly holds groupwide QC Circle Conferences as a venue to present the success of quality improvement activities.

A total of nine teams ("Circles") gave presentations at the 37th conference held in FY2019, consisting of five circles from manufacturing divisions and four from domestic affiliates.

Each Circle presented its improvement activities based on various approaches it took towards its theme as well as the outcome of its efforts over the past year. There were also lively question and answer sessions among presenters, judges, and attendees.

As our QC Circles engage in friendly competition with each other through these groupwide conferences, they pursue the realization of the Central Glass Group's corporate philosophy, "Creating a better future through *Monozukuri*."



Za Gattsu D Presentation

Business Site	Department	Circle Name
Matsusaka Plant	Glass Production Dept.	Takenoko
Mie Glass Industry Co., Ltd.	Glass Processing Dept.	Kizuna
Central Glass Plant Services Co., Ltd.	Personnel & General Affairs Div.	KANRI Circle
Central Glass Fiber Co., Ltd.	Fabrication Sec.	Fabrication Sec.
Ube Plant	Fine Chemicals Production Dept. - 1	Don Kame
Ube Plant	Fine Chemicals Production Dept. - 1	F Group
Kawasaki Plant	Production Dept.	Legend
Kawasaki Plant	Production Dept.	GENERATIONS
Central Chemical Co., Ltd.	Production Sec.	Za Gattsu D

\* In order of presentation.

Supplier Initiatives

We always engage in activities to provide reliable Central Glass products and services and continually engage in activities with our business partners as well.

Auditing Outside Subcontractors

Central Glass Co., Ltd. continually engages in activities with our business partners to improve quality.

In FY2019, we audited seven outside subcontractors with their understanding and cooperation. We also provided assistance until any corrective actions or improvements requested during these audits were implemented.

Conflict Mineral Surveys

Central Glass Co., Ltd. purchases materials from smelting companies certified through audits by the Responsible Minerals Initiative (RMI) in accordance with the U.S. Dodd-Frank Wall Street Reform and Consumer Protection Act (Section 1502) regarding the procurement of conflict minerals (tantalum, tin, tungsten and gold) to prevent any complicity in conflicts or human rights violations resulting from conflicts.

In FY2019, thanks to their understanding and cooperation, we conducted surveys of all of our procurement partners handling conflict minerals and verified that they were certified under the RMI.

FY2019 Targets and Performance Results

Issues	(Plan)	(Do)	(Check)	(Act)
	FY2019 Targets	FY2019 Performance Results	Ratings	FY2020 Initiatives
Improvement of customer satisfaction	<b>Ensure strict compliance</b> "Follow what is decided" and "Follow what we decide." Recognize the impact of improper actions on quality and review quality activities across the Group.	· Restructured the quality assurance system. · Conducted product quality safety training. · Conducted quality and product safety education through position-based and departmental training.	△	Glass Business Broad policy: Vertically launch new quality assurance system and secure the independence of quality assurance departments: "Build uncompromising quality assurance systems." · Fully comply with all legal, public and internal standards. · Increase work observation. · Clarify and thoroughly implement rules, and strengthen the authority of quality-related departments (systems allowing such departments to say no). · Educate and train qualified staff.
		· Maintained the quality assurance system and conducted quality improvement activities through quality audits at each business site such as the plants and affiliate companies. · Promoted quality assurance activities through quality audits of external subcontractors and suppliers of raw materials.	○	Chemicals Business · Heighten awareness about quality compliance. · Thoroughly comply with laws and regulations as well as contractual terms and conditions. · Identify risks and execute risk response according to each workplace. · Reduce defects caused by outsourcing and procurement sources. · Revise rules in accordance with amendments to laws and regulations as well as changes to contractual terms and conditions. · Thoroughly implement a QMS.
		<b>Reinforce and thoroughly implement quality management</b> Continually improve the effectiveness of the Quality Management System, and reinforce and thoroughly implement quality management.	○	· Improve auditing procedures and develop and use auditing tools. · Create reporting rules and databases. · Improve the capabilities for finding root causes to prevent recurrence.
Reduce risk and improve quality performance	Actively implement preemptive activities to prevent quality issues and reduce risk. Thoroughly implement measures to prevent a recurrence of defects and work to improve quality performance.	· Conducted meetings to establish measures against serious quality issues and verify root causes and preventative measures. · Implemented measures to identify root causes and prevent manufacturing or shipping of defective products by analyzing complaints by segment and product type.	△	· Revise rules in accordance with quality-related restructuring at plants. · Consider automation and renewal of equipment to reduce quality issues. · Conduct training and strengthen measures to prevent human error. · Promote multilayer audits to prevent quality defects before they happen. · Systematically audit suppliers. · Properly implement new systems for reporting quality issues. · Conduct rapid and adequate response when quality issues arise.
		· Conducted meetings to establish measures against serious quality issues and verify root causes and preventative measures.	△	

Rating: ○: Achieved target △: Achieved most targets but not all x: Additional measures required

# Monozukuri Is About Hitozukuri

Central Glass Co., Ltd. is a *Monozukuri* company that has continually provided superior products with higher added value in order to enrich people's lives. We focus on *Hitozukuri* (developing human resources) as the foundation of our corporate growth and strive to enhance our human resource development and HR programs with the aim of creating an environment where each individual can demonstrate his or her capabilities and skills to the utmost.

## Creating a Healthy and Vibrant Corporate Culture

The Act on Promotion of Women's Participation and Advancement in the Workplace, which was enacted due to concerns about labor shortages by an aging population and a declining birthrate, required the formulation of a 10-year Action Plan beginning in FY2016 to actively appoint female employees to managerial positions and expand the range of occupational fields for women.

Central Glass Co., Ltd. aims to improve productivity by utilizing diverse human resources, carrying out effective education, and reviewing the working environment, and formulated the First Action Plan to Promote Female Workplace Participation ("First Action Plan") from 2016 to 2017 to grasp the current situation and analyze the challenges. Measures to improve working style problems that were discovered during the First Action Plan have been reflected in the Second Action Plan to Promote Female Workplace Participation ("Second Action Plan") which runs over four years from FY2018 to FY2021. We continue to aim to build a company where each and every employee can feel themselves grow and gain motivation to work over the long term by carrying out actions based on the Second Action Plan.

### Action Plan to Promote Female Workplace Participation

#### Second Action Plan (April 2018 to March 2022)

- Increase the female employee ratio
- Continue to implement Smart Day (days designated for leaving work on time), overtime applications and planned leave program.
- Promote changing working style to finish work within the designated working hours.
- Encourage managers, including line managers, to change their attitudes regarding working style.
- Share child raising and nursing care information.

### FY2019 Targets and Performance Results

Issues	(Plan) FY2019 Targets	(Do) FY2019 Performance Results	(Check) Ratings	(Act) FY2020 Initiatives
Review/reform of working style and information sharing about the supporting systems	Actively recruit women.	Recruited 13 new female graduates (17.6%) through positive outreach.	○	Actively recruit women and establish an environment and policies to ensure long-term employment to increase the female employee ratio to 11% or more.
	(1) List details of operations of model departments and plan pilot programs for flexible work systems.	Examined ways to list operations of model departments. Drafted plans to try staggered working hours in response to the 2020 Tokyo Olympics <sup>1</sup> .	○	Review staggered working hours, telework and other such programs to identify problems and examine flexible work systems addressing those problems.
	(2) Continue to implement Smart Day (days designated for leaving work on time), overtime applications and planned leave program.	Continued the actions outlined in the First Action Plan.	○	Continue the actions outlined in the First Action Plan. <sup>2</sup>
	(3) Examine specific contents of the training for managers, including line managers.	Examined the objectives of the training for managers (considered ideal management, etc.).	△	Examine specific contents of the training for managers.
Continue to publicize relevant regulations, policies, and model cases.	Raised awareness about relevant regulations and programs as well as introduced employees who are using those programs via the intranet and internal newsletter.	○	Continue to publicize relevant regulations, policies, and model cases.	

Rating: ○: Achieved target △: Achieved most targets but not all ×: Additional measures required

\*1: We introduced flexible working systems as emergency measures to prevent the spread of COVID-19. We are continuing the staggered working hours program that started in February and the telework program that began in March 2020.

\*2: Smart Day has been suspended during the implementation of the staggered working hour and telework programs to prevent the spread of COVID-19.

## Promotion of Diversity

Central Glass Co., Ltd. works to employ and develop diverse human resources while furthering the cultivation of a company culture where each and every employee can work enthusiastically.

In addition to promoting the active participation of women in the workplace, policies to re-employ people who have retired and hire people with disabilities, as part of globalization we also make every effort to hire people of different nationalities to build on their experiences of differing values and cultures. At the end of FY2019, our employment rate of people with disabilities was 2.16% after active hiring. Although we were unable to reach the statutory employment rate (2.2%), we are committed to continually increasing the number of people with disabilities employed by Central Glass Co., Ltd. and to creating work-friendly environments where everyone can reach their full potential.

### Employment Status Data

Item	FY2017	FY2018	FY2019
Number of Employees (Female Employees)	1,666	1,633	1,631
Number of new recruits (Female Employees)	75	68	74
Average age	36.3 years old	36.3 years old	36.4 years old
Average years of continuous employment	14.8 years	14.7 years	14.9 years
Number of non-Japanese employees	6	10	11
Number of employees on shortened or staggered working hours during childcare	30	22	33
Percentage of persons with disabilities	2.41%	2.14%	2.16%
Number of people who are re-employed after retirement	172	165	179

## Promoting Work-Life Balance

Central Glass Co., Ltd. is building systems surpassing those mandated by law to support people who are raising children or caring for family members. Furthermore, we are developing systems to balance work and family by alleviating employee concerns and making sure employees know about model cases that demonstrate ways to use specific programs.

Female employees using maternity and parental leave programs have become the norm, but more and more male employees are also taking advantage of parental leave and staggered working hours during child care. Our internal newsletter interviewed male employees who used these programs as well as their supervisors to introduce the benefits to employees and ways to adjust their workload.

In the future, we will work to publicize these programs and revise policies to actively encourage employees to use these programs.

### Childcare and Nursing Care Programs

Childbirth preparation leave*	Two days off per month for hospital visits, etc. during pregnancy.
Maternity leave	Legally mandated leave before and after childbirth.
Childbirth leave*	Three days off within a one-month period around the expected delivery date.
Parental leave	Legally mandated childcare leave. Childcare leave is available to employees with children between the ages of one year and six months to two years old. Up to five days of paid leave from the first day of leave.*
Parental leave*	One day off per month for childcare.
Nursing care leave for children	36 days off per year for nursing care for children.*
Shortened working hours during childcare*	Shortening of working hours by a maximum of two hours per day.
Staggered working hours during childcare	One-hour postponement of the start of the workday for staggered working hours during childcare.
Nursing care leave*	Total of 365 days of leave, which can be divided into up to three periods.
Time off for nursing care	Ten days off per year for nursing care and to attend to family members.*
Shortened working hours for nursing care	Shortening of working hours by one hour per day.

\* An asterisk indicates a program surpassing that mandated by law (the program itself, the length of time, etc.)

## Mental Healthcare

Corporate mental health challenges include not only addressing the health and career of individuals suffering from mental health issues but also ensuring that these problems do not harm the atmosphere or productivity of

the workplace. Companies are expected to deal with mental healthcare in extremely discreet and sincere ways.

Central Glass Co., Ltd. provides annual stress checks to all Group employees to prevent and discover any mental health issues quickly. We ask specialized external bodies to conduct individual interviews in departments with high levels of stress for suggestions on workplace improvements. We also encourage anyone with a high level of stress to see industrial physicians or consult with specialized agencies, and we have instituted procedures for investigating workplace improvements.

We have also put in place a Return to Work Support Program that organizes support for an employee absent from work due to mental illness, including information for their doctors and supervisors, to help them return to work.



**Yoshihito Oonuma**  
Chemicals Sales Department

My wife and I both work while raising 2-year old and 4-year old sons who are currently on a waiting list for a registered kindergarten. They have been attending a non-registered childcare facility available for children aged two or older.

We wanted to continue working until my second son turned one. We asked our parents to look after him, and then one of us planned to use a parental leave program until he turned two. After consideration of each of our leave programs, we decided I would take leave as Central Glass Co., Ltd. had more comprehensive parental leave. After returning from parental leave, I am now using the shortened working hours during child care to pick up and drop off my sons from daycare.

I was able to build deeper bonds with my sons while looking after them over that year. I was also able to experience how hard stay-at-home-moms work. Now, my wife and I together take care of our children as well as do household chores.

I am so grateful to have access to the parental leave system. It has really helped us overcome the difficulties of having children waitlisted for kindergarten.

I will do everything I can to repay the kindness of Central Glass through my work in the future.

### Applicable Periods for Childcare Support System (from Pregnancy to Child-raising)

	Pregnancy	6 weeks	8 weeks	After 1 year	1 year and 6 months	After 2 years	Before elementary school enrollment	First grade	Elementary school graduation
Childbirth preparation leave	6 weeks								
Maternity leave	6 weeks								
Childbirth leave (3 days)	6 weeks								
Parental leave	6 weeks		(leave can be extended until the child is one year and six months or until two years old)						
Childcare leave	6 weeks								
Staggered working hours during childcare	6 weeks								
Shortened working hours during childcare	6 weeks								
Nursing care leave for children	6 weeks								

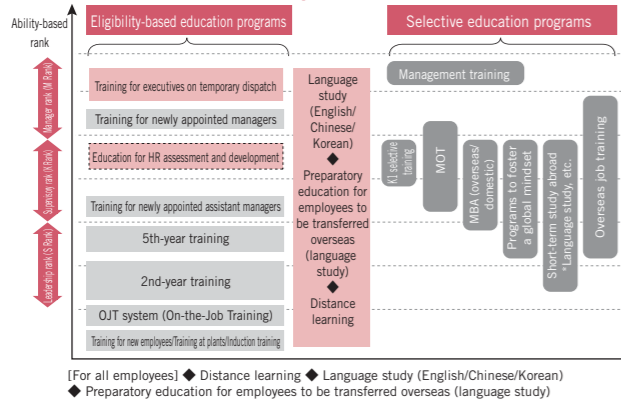
\*Only female employees are eligible for maternity leave, and only male employees are eligible for childbirth leave; all other measures are open to both male and female employees.

Monozukuri Is About Hitozukuri

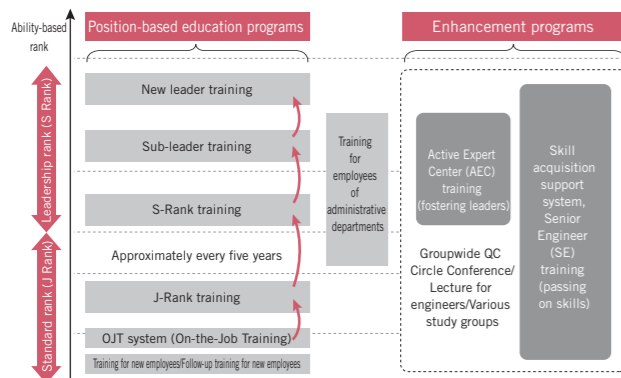
Central Glass's Education System

The education that Central Glass Co., Ltd. provides to employees has two systems: "education for career development" to foster global human resources and candidates for managerial positions, and "education about Monozukuri" to pass on and develop advanced techniques and skills. Both of these educational systems further training opportunities by offering programs for employees according to their ages and positions (eligibility-based education programs/position-based education programs) and programs for people selected according to their work duties and skills (selective education programs/enhancement programs).

Education for Career Development



Monozukuri Education



Language Study

Central Glass Co., Ltd. provides English, Chinese and Korean language study programs to improve the language skills of our employees as part of the global human resource development program.

We also provide English and Chinese Courses to Develop Globally Minded Employees as enhancement programs, in which our employees are offered opportunities to join local on-site language schools or take intensive online lessons as a way to acquire more practical language abilities.



Presentation of Achievements during the English Course to Develop Globally Minded Employees

In FY2019, three employees took the English Course and one employee took the Chinese Course. The results of an effectiveness measurement showed they improved their English and Chinese language skills in a relatively short period of time.

We will continue to implement the courses in FY2020 to support improving the language skills of our employees.

In addition, the Short-term Study Abroad Program offers opportunities to our employees to attend foreign language schools for three to six months in order to develop their practical business skills in a foreign language and foster their global mindset.

No employees were dispatched overseas in FY2019, but one employee plans to go abroad in FY2020.



VOICE  
VOICE

Junki Funabashi

Corporate Administration Department  
Planning & Administration Group

I took part in the six-month Chinese Course to Develop Globally Minded Employees starting in July 2019. I first attended the Chinese language camp at Language Village in Fuji City, Shizuoka. In the training center surrounded by nature deep in the mountains, I took one-on-one lessons guided by Japanese instructors. I spent time with these instructors from breakfast to dinner. I struggled in the beginning because we were only allowed to speak Chinese. Chinese is said to have over 1,600 sounds. I practiced my pronunciation every day because the intonations and pronunciations are so important. This was my first time learning Chinese and I couldn't keep up with the next lesson unless I really practiced what I had learned. I would practice constantly by quietly listening to CDs after class to improve my pronunciation. After one week, I was able to figure out the Pinyin (Chinese romanization system) for words that I had not learned yet. After that, by continuing to take online lessons once a week with a Chinese instructor and through e-learning to learn grammar and vocabulary, I was able to gradually solidify my foundation of the Chinese language.

I think China is going to be a very important market for our company. I hope to contribute to Central Glass more than before as a globally-minded employee.

Cultivating Global Awareness and Understanding Diversity

Central Glass Co., Ltd. began accepting interns from foreign universities at its plants starting from FY2012 in an effort to promote employee awareness about diversity and improve communication skills with people from different countries.

In FY2019, we hosted two interns from the United States. Employees learned to embrace different cultures and values while gaining confidence in communicating in English through English lessons and workplace interactions with the intern. We will continue to promote activities to heighten understanding about diversity and different cultures as well as to improve communication skills.



An English Class Taught by an Intern

Compliance Education

Central Glass Co., Ltd. believes compliance is essential to fulfill its corporate social responsibility and conducts training to raise awareness about its importance.



Lecture by an Executive Officer

In FY2019, we conducted compliance education through a dialogue with executive officers as part of our training for junior and mid-career employees. Our Group also provided compliance education through e-Learning for all employees from Central Glass and affiliate companies. We will continue to offer compliance education in FY2020 in an effort to raise compliance awareness.

Fostering a New Generation of On-site Leaders

Central Glass Co., Ltd. has been conducting education for selected trainees at our Active Expert Centers (AECs), aiming to foster new generations of leaders at our plants. The AECs established at each plant are educational centers dedicated to passing on and developing technical skills. Each year, candidates for the next generation of leaders are selected from our manufacturing plants and leave their posts for one year of education as AEC trainees.

The trainees receive three months of fundamental education before being assigned a theme by the plant and repeatedly carrying out information gathering, analysis and discussion while visiting the production areas. This practical education effort works to solve problems in the manufacturing areas while investigating the root causes.

In FY2019, eight trainees selected from each plant participated in the AEC trainee education. In FY2020, eight new employees selected as trainees will continue this work as we further develop future on-site leaders.



Equipment Maintenance Lesson at the "Maintenance School"

FY2019 Targets and Performance Results

Issues	(Plan) FY2019 Targets	(Do) FY2019 Performance Results	(Check) Ratings	(Act) FY2020 Initiatives
Cultivation of global human resources through education for career development	Implement language education programs.	Improved the language skills of employees by providing English, Chinese and Korean language study programs.	○	Improve systems to support language study.
	Develop candidates for managerial positions.	Sent research employees to the MOT program. Sent selected managers to external training courses.	○	Strengthen the management capabilities of managers.
Improvement of on-site capabilities through Monozukuri education.	Cultivate global awareness and understanding of diversity.	Cultivated understanding about different cultures through a dialogue with two interns from the United States.	○	Send trainees to overseas affiliates.
	Foster a new generation of on-site leaders.	Improved problem-solving skills of eight selected trainees through basic education and activities based on given themes.	○	Continue to foster a new generation of leaders through Active Expert Center (AEC) trainee programs.
	Implement position-based education programs.	Improved on-site capabilities through position-based education programs Improved the management skills of employees through a new supervisor training program.	○	Improve and implement position-based education programs.

Rating: ○: Achieved target △: Achieved most targets but not all ×: Additional measures required

# Growing Together with Society

The support of and harmony with members of the local communities are absolutely essential for a company's continued existence. The Group will continue to build even better relations with every one of our stakeholders including members of local communities and customers, while also growing and improving together with society in order to realize a sustainable society.

## Cutting Grass at the Akiyoshidai Fire Festival Volunteer Grass Cutting

The Ube Chapter of the Central Glass Labor Union actively participates in various volunteer activities as part of its social contribution. One such initiative is the volunteer grass trimming done before the Akiyoshidai Fire Festival held by the Japanese Trade Union Federation (JTUC-RENGO) Yamaguchi branch.

The purpose of the grass trimming is to construct a fire belt to prevent the spread of fire in preparation for the Akiyoshidai Fire Festival. The activity began by a request from Mine City as it struggled to find volunteers due to depopulation and an aging society, and the Ube Chapter participated for the 16th time in 2019. Today, the volunteer grass cutting has become a symbolic social contribution activity for JTUC-RENGO Yamaguchi.

The day of the grass cutting, roughly 550 JTUC-RENGO Yamaguchi union members including the Ube Chapter joined and walked the mountain trail for 20 minutes to reach the work site. They cut the grass along the steep hills of the karst plateau using grass cutters and sickles. The union volunteers worked hard and completed the task earlier than planned.

Looking out over the landscape after the work was done filled everyone with the greatest satisfaction and feeling of accomplishment.

The Ube Chapter incorporates this initiative into its union policies and will continue to actively take part in it in the future.



Cutting Grass at the Akiyoshidai Fire Festival

## 11th Matsusaka Environment Fair in Bell Farm

The 11th Matsusaka Environment Fair in Bell Farm was held at the Matsusaka Agricultural Park Bell Farm in September 2019. "Connecting Eco Life towards the Future 2019" was set as the Fair theme. Matsusaka City Environmental Partnership Council members and cooperative bodies worked together to provide exhibitions, hands-on workshops and retail corners related to environmental activities. Many local residents visited the fair.

Matsusaka Plant exhibits at the environmental fair every year. This year, we set up a panel exhibition on our environmental activities and a hands-on simulator for insulating glass units and anti-fog mirrors. This event turned out to be a great success with many children and adults trying out the simulator.

We aim to cooperate together with citizens, government agencies, and business operators, leveraging our respective roles, to sustain our health and protect the environment. We believe that the role of our glass with improved heat insulation performance in buildings and automobiles will become even more important in measures against environmental issues such as global warming. We will continue to contribute to local communities in active efforts to protect the environment.



Matsusaka Environment Fair in Bell Farm

## Providing Aid to People Affected by Typhoons

On November 24, 2019, the Kawasaki Chapter of the Central Glass Labor Union traveled to the Sagami area in Kanagawa Prefecture, which was particularly devastated by typhoons, to participate in volunteer sludge removing activities led by JTUC-RENGO with the purpose of aiding the victims of typhoons No. 15 and 19 that had inflicted enormous damage on the Kanto region.

Even though several weeks had passed since the disaster, we saw a landscape of homes covered in mud almost untouched as we entered the region. Sediment from the mountain containing large amounts of water had covered the eaves, floors and living spaces and solidified into a heavy clay-like mud. All of this mud was scooped away and collected in sandbags by hand. Everyone involved in this unexpectedly hard labor was covered in sweat even though it was the end of November and cooling down. However, all of the volunteers were overjoyed and refreshed by the words of gratitude from the homeowners after all the mud had been removed.

Until the year before last, our Kawasaki and Head Office Chapters held a joint flea market and donated the revenue as part of our social contribution activities. However, the physically intensive volunteer activity this year was truly a worthwhile effort. We will continue both social contribution efforts founded in a spirit of mutual cooperation.

Each person's individual contribution may be limited, but we would like to continue to develop activities that can provide our support to those who need help.



Union Members Deployed as Volunteers to the Damaged Area of Kanagawa

## Regular Cleanup of Harbor Roads

The Sakai Manufacturing Site and Central Glass Plant Services Co., Ltd. Sakai Plant regularly clean the harbor roads in front of the manufacturing site used to transport cargo with people from several other companies in the neighborhood according to the annual plan as an initiative based on the municipal law to promote the beautification of Sakai City—a city designated by government ordinance.

In FY2019, 20 people each from both companies took part in the cleanup activities that included pulling weeds and collecting trash on the sidewalks according to the annual plan for two cleanup efforts during the year.

We will also continue to work with the local govern-

ment agencies and neighboring companies including in Osaka Bay beach cleanup efforts which were unable to be held in FY2019 due to bad weather.



Regular Cleanup of Harbor Roads

## 12th Local Dialogue Meeting on Responsible Care at Yamaguchi Nishi

The Japan Chemical Industry Association's Responsible Care (RC) Committee holds "Dialogue with Local Communities" to raise awareness with the local people about the progress of initiatives such as the environmental conservation efforts of chemical companies. The Ube Plant participated in the "Dialogue" at Yamaguchi Nishi.

Seven chemical companies involved in production activities located in the western district of Yamaguchi took part in the Dialogue at Yamaguchi Nishi, which is held once every two years. The Dialogue was held at ANA Crowne Plaza Ube on November 8, 2019. 103 local residents, government officials, educators, NPOs, local companies, and member companies joined to make the event a great success. The Ube Plant presented the progress of its RC initiatives and took the stage as a panelist in an exchange of ideas facilitated by experts to share opinions about emergency response and to address survey results with the local citizens. In the future, we will actively participate in dialogues with local communities to alleviate any concerns of the local people and faithfully provide information on the progress of safety activities as well as answer any questions the local citizens might have.



12th Local Dialogue Meeting on Responsible Care at Yamaguchi Nishi



## Ube Plant



Address 5253 Okiube, Ube City, Yamaguchi Prefecture  
 Number of Employees 653 (as of March 31, 2020)  
 Major items produced Fluorine products, other chemicals  
 ISO 14001 (December 2000)  
 ISO 9001 (December 1997)  
 ISO 45001 (February 2020)

### Message from the Plant Manager

Ube Plant, established in 1936 and located in the coastal industrial region of Ube along the Seto Inland Sea, began with soda production and expanded to production of fertilizers and fine chemical products. Today, the Ube Plant primarily manufactures fine chemicals containing organic and inorganic fluorine compounds from raw materials such as hydrofluoric acid. We strive to engage in environmentally responsible business by manufacturing next-generation low GMP non-fluorocarbon products.

In February 2020, we completed transitioning the occupational safety management system from OHSAS 18001 to ISO 45001 and have endeavored to build a safe and healthy working environment. The plant's green spaces are lined with rows of cherry trees, and in spring, local residents enjoy the beautiful blossoms and natural environment. We will continue to make our plant safe and open to local residents.



**Isamu Mori**  
 Plant Manager  
 Ube Plant

### Regional Activities

- Carried out cleanup activities for city and prefectural roads on our plant-wide 5S Day (once a month)
- Carried out cleanup activities in Tokiwa Park (once a year)
- Carried out cleanup activities around Ube Higashi Port (once a year)
- Carried out cleanup activities around Lake Ono (once a year)
- Protected and cultivated the grasslands at Akiyoshidai Quasi-National Park (once a year)
- Held regional Responsible Care Meeting in the Western District of Yamaguchi (once every two years)
- Carried out forest maintenance activities to protect water resources (once a year)
- Held regional Responsible Care Meeting in the Ube District (once every two years)
- Cleaned roads with road sweepers (every day)

### Preparing for Accidents and Disasters

The industrial complexes that dot Japan handle enormous volumes of high-pressure gases and hazardous materials. Maintaining safety at these industrial complexes is therefore a very important and essential task to ensure the safety and security of the nation's citizens.

In recent years, numerous accidents have occurred at industrial complexes, and their incidence is expected to remain high. Considering this, we work regularly to increase our ability to maintain security and prepare for disasters, and to take preventive steps against trouble. On November 25, 2019, we conducted a comprehensive plant disaster prevention drill that assumed a leak of hydrofluoric acid on the premises of Fine Chemicals Production Department - 2. This drill practiced our response during an emergency by executing disaster prevention activities with the plant disaster prevention team and the cooperation of the Ube Sanyo-Onoda Fire Department for a total of 170 people.

As an effort to put in place an effective disaster prevention system for emergencies at night and on holidays, we conduct nighttime drills. The manager of disaster prevention (plant manager) and the assistant managers of disaster prevention (each line manager) then confirm the level of the emergency response to accidents.

We will continue working to further strengthen our security management. Our employees and business partners are united in their efforts in ensuring the safety of our plant and sense of security in our neighboring residents.



Comprehensive Disaster Prevention Drill

### Pollutant Release and Transfer Register (PRTR)

(Unit: kg/year)

Ordinance Designation No.	Substance Name	Quantity			Emissions Compared to Previous Year	Transported
		Atmosphere	Water	Soil		
16	2, 2'-Azobisisobutyronitrile	0	0	0	→	0
33	Asbestos	0	0	0	→	38,000
41	3'-Isopropoxy-2-trifluoromethylbenzaniide (also known as Flutolanil)	0	0	0	→	0
71	Ferric chloride	0	0	0	→	0
80	Xylene	890	0	0	↘	4.3
81	Quinoline	0	0	0	→	0
94	Chloroethylene (also known as vinyl chloride)	0	0	0	→	0
149	Carbon tetrachloride	0	0	0	↘	7,900
186	Dichloromethane	1,500	0	0	↗	18,000
213	N,N-Dimethylacetamide	0	0	0	→	90,000
232	N,N-Dimethylformamide	19	0	0	→	1.3
243	Dioxins (Unit: mg-TEQ/year)	5.7	0.063	0	↗	0
281	Trichloroethane	9,400	0	0	↗	0
300	Toluene	570	0	0	↗	7,700
349	Phenol	120	210	0	↘	0
374	Hydrogen fluoride and its water-soluble salts	660	0	0	↗	340
400	Benzene	310	0	0	↗	1,100
411	Formaldehyde	0	0	0	→	0
438	Methylnaphthalene	41	0	0	↘	0

Quantities emitted, discharged, or transported are listed for Class I Designated Chemical Substances handled annually in amounts exceeding 1,000 kg (500 kg for Specific Class I Designated Chemical Substances). Dioxins are excluded.

## Kawasaki Plant



Address 10-2 Ukishima-cho, Kawasaki-ku, Kawasaki City, Kanagawa Prefecture  
 Number of Employees 210 (as of March 31, 2020)  
 Major items produced Inorganic chemicals, organic chemicals  
 ISO 14001 (May 2007)  
 ISO 9001 (July 2001)

### Message from the Plant Manager

Kawasaki Plant mainly produces fine chemical products, such as our next-generation low GWP fluorine-based foam blowing agent HFO-1233zd (E) and our next-generation fluorinated solvent HFO-1233zd (Z), which offers both excellent environmental performance and high cleaning performance; as well as pharmaceutical intermediates, photoresist materials, and lithium ion battery electrolytes.

We actively promote 3R (Reduce, Reuse, and Recycle) activities for the byproducts produced during the manufacturing processes of these products by reclaiming or recycling flammable waste oil and recycling sludge. Kawasaki Plant has reduced the amount of final waste disposal by more than 90% compared to FY2000. Our environmental activities have been recognized by the city of Kawasaki, and Kawasaki Plant has been certified as a business site taking environmental action, as defined by the city's bylaws.

By leveraging our location in Kawasaki, we are also working to engage in safe and environmentally-friendly plant operations in the region in aspects outside of our production activities, such as asking all of our employees to use public transportation for their commute to work.

Considerations about the environment and safety will always be necessary. Kawasaki Plant will continue to strive in environmental and safety efforts in the future.



**Masaru Narimitsu**  
 Plant Manager  
 Kawasaki Plant

### Regional Activities

- Carried out regular cleanups of roads around the plant
- Regularly exchanged information concerning the environment and safety with neighboring plants in the Kawasaki Industrial Complex
- Participated in joint disaster drills with neighboring business sites in the Ukishima District
- Participated in traffic safety guidance organized by the Kawasaki Rinko Traffic Safety Association
- Participated in Tokyo Bay General Survey for Water Environment (Analysis of and report on water quality in Tokyo Bay near the plant)
- Held road safety workshops (attended by Kawasaki-Rinko Police)

### Security and Disaster Prevention Initiatives

Since Kawasaki Plant is located in an industrial complex, we are required to maintain a system for security and prevention of disasters at all times, as defined in the Act for the Prevention of Disasters at Petrochemical Complexes, etc.

Every year we conduct disaster prevention drills incorporating earthquake-related leaks and fires in addition to tsunami evacuation drills, with the cooperation of our partners residing at the plant in order to ensure a rapid and clear response to emergencies. In the training for our plant disaster prevention organization members, we heighten awareness about security and disaster prevention and establish a system for emergencies through training that includes seminars on using AED and handling breathing apparatuses, drills for notification to relevant government bodies when confronted by abnormalities, drills for setting up disaster prevention headquarters, fire hose drills and fire-fighting equipment training.

In addition, Kawasaki Plant is also a member of the Ukishima Joint Disaster Prevention Association, which is made up of companies from the same industry in the Ukishima District in Kawasaki. Cooperating with each member company, we are building a system to ensure mutual support in a disaster, including systematic disaster prevention drills. The member companies also regularly exchange information on security and disaster prevention.



Ukishima Joint Disaster Prevention Association Mid-Scale Training

### Pollutant Release and Transfer Register (PRTR)

(Unit: kg/year)

Ordinance Designation No.	Substance Name	Quantity			Emissions Compared to Previous Year	Transported
		Atmosphere	Water	Soil		
81	Quinoline	0	0	0	→	0
94	Chloroethylene (also known as vinyl chloride)	3,400	0.3	0	↗	0
149	Carbon tetrachloride	240	0.6	0	↗	9,000
213	N,N-Dimethylacetamide	11	0	0	↗	53,000
243	Dioxins (Unit: mg-TEQ/year)	0.02	0.26	0	↘	0
262	Tetrachloroethylene	0	0.8	0	↗	2,200
280	1,1,2-Trichloroethane	0	7.5	0	↗	1,300
300	Toluene	79	0	0	↗	1,900
374	Hydrogen fluoride and its water-soluble salts	0	0	0	→	55
392	n-hexane	0.1	0	0	→	8,000

Quantities emitted, discharged, or transported are listed for Class I Designated Chemical Substances handled annually in amounts exceeding 1,000 kg (500 kg for Specific Class I Designated Chemical Substances). Dioxins are excluded.

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

# Matsusaka Plant



Address 1521-2 Okuchi-cho, Matsusaka City, Mie Prefecture  
 Number of Employees 224 (as of March 31, 2020)  
 Major items produced Automotive glass  
 Architectural and industrial float glass/fabricated glass  
 Functional glass for electronic materials  
 ISO 14001 (April 2000)  
 ISO 9001 (November 2003)  
 IATF 16949 (June 2018)

## Message from the Plant Manager

Matsusaka Plant manufactures polished glass using the world's only duplex equipment capable of employing a consecutive double-sided polishing method. We also manufacture float and fabricated glass for automotive, architectural, and industrial applications. Since the plant consumes a huge amount of energy and resources, we are always working to rigorously implement environmental conservation activities.

In order to conserve energy and power and reduce CO<sub>2</sub> emissions, we are working to reduce production loss, incorporate the introduction of equipment that conserves energy into large-scale renovations, and implement improvements to our operational technologies.

We continually aim to reach higher levels of waste reduction, as well as make efforts to recover valuable commodities from waste, one example of which is recycling almost all the waste glass we produce.

Each of our employees is continually working to achieve growth and improvement, based on our philosophy, "Creating a Better Future Through *Monozukuri*." We will continue to appreciate and contribute to local communities and work to make our plant safe and happy.



**Akira Yuasa**  
Plant Manager  
Matsusaka Plant

## Regional Activities

- Participated in Mie Prefecture Kids' ISO 14000 Program activities
- Participated in cleanup of waste drifting ashore at Toshijima Island, Toba City, organized by the Mie Prefecture Industrial Waste Countermeasures Promotion Council
- Exhibited Eco-Glass at the Matsusaka Environmental Fair held by the Matsusaka City Environmental Partnership Committee
- Participated in the Matsusaka Street Cleanup organized by Matsusaka City
- Lent plant grounds to youth sports associations and other organizations free of charge
- Provided company-owned land to neighboring local communities as temporary parking areas free of charge
- Invited local residents to the plant's summer festival
- Participated in beach cleanups, organized by Mie University's Mie Global Environment Center for Education & Research
- Participated in voluntary cleanup activities at Matsunase Beach organized by the Matsusaka Taki District Workers' Welfare Council (attended by Matsusaka branch members of the Central Glass Labor Union)
- Held "Ecocap" activities (plastic bottle cap collection) organized by the Matsusaka branch of the Central Glass Labor Union
- Deployed staff to Matsusaka City as "External Matsusaka-EMS Environmental Auditors"

## Basic Lifesaving Seminar

In July 2019, the Matsusaka Fire Department held a basic lifesaving course in the large conference hall of Matsusaka Plant. This three-hour course taught 1) the importance of first aid, 2) cardiopulmonary resuscitation (CPR), and 3) procedures for using AEDs. Participants in this seminar could learn first aid, CPR, and procedures to use AEDs to gain the knowledge and skills to protect the lives of employees and their families.

Roughly 30 people participated in the seminar, including not only Matsusaka Plant employees but also members of affiliate companies and business partners. Participants first learned the importance of lifesaving skills by watching a DVD before breaking into three groups for an explanation about cardiopulmonary resuscitation (CPR), practical skill training for artificial respiration and heart compressions on a mannequin, as well as an explanation of procedures on how to use AEDs and practical AED training using a mannequin. The instructors at this seminar taught in a careful and easy-to-understand manner, allowing all of the participants to learn the importance of first aid as well as lifesaving skills, while also reaffirming their respect for human life.

At the end of the seminar, every person who underwent this training received a certificate for completing the basic lifesaving course. Mat-

susaka Plant plans to hold basic lifesaving seminars regularly to provide a platform for even more employees to learn lifesaving skills in the future and to sustain and improve the lifesaving skills of every participant.



Basic Lifesaving Seminar

## Pollutant Release and Transfer Register (PRTR)

(Unit: kg/year)

Ordinance Designation No.	Substance Name	Quantity			Emissions Compared to Previous Year	Transported
		Atmosphere	Water	Soil		
132	Cobalt and cobalt compounds	0	0	0	→	0
242	Selenium and selenium compounds	200	0	0	↗	0
305	Lead compounds	0	0	0	→	62
412	Manganese and Manganese compounds	130	0	0	↗	0
438	Methylnaphthalene	20	0	0	↘	0

Quantities emitted, discharged, or transported are listed for Class I Designated Chemical Substances handled annually in amounts exceeding 1,000 kg (500 kg for Specific Class I Designated Chemical Substances). Dioxins are excluded.

Matsusaka Plant is continuing groundwater purification treatment after discovering groundwater containing arsenic and lead in 2002 and groundwater containing fluorine in March 2020.

# Matsusaka Plant Sakai Manufacturing Site



Address 6 Chikko-Minamimachi, Sakai-ku, Sakai City, Osaka Prefecture  
 Number of Employees 42 (as of March 31, 2020)  
 Major items produced Architectural and residential flat glass  
 Flat glass for electronic materials, architectural frosted glass  
 ISO 14001 (December 1999)  
 ISO 9001 (February 1999)

## Message from the Site Manager

The Sakai Manufacturing Site is located in the center of Sakai in Osaka Prefecture, and it has been manufacturing flat glass since 1959 as the birthplace of the glass business of the Central Glass Group. In 1982, we adopted the float process as our manufacturing method.

The Site has been working to review the operational conditions of the glass melting furnace and improve productivity to further reduce the energy consumption rate. Furthermore, the Site has also been engaging in initiatives to not only recycle waste but also reclaim waste to drive further waste reductions.

We will work to foster a safe and environmentally friendly plant in order to contribute to the establishment of a truly prosperous society through *Monozukuri* under the Basic Philosophy of "Creating a Better Future Through *Monozukuri*," so that everyone in the community can live with peace of mind.



**Nobuhisa Tanise**  
Site Manager  
Sakai Manufacturing Site  
Matsusaka Plant

## Regional Activities

- Sponsored a flea market and donated proceeds to social welfare activities
- Sent employees to support rescue, fire suppression and first aid in case of a large-scale disaster as a member of the Sakai Disaster Response Committee
- Provided support for a project conducted by the Osaka Port Cleanup Association in Sakai Semboku Port to ensure the safety of ships navigating through the port and protect the environment
- Held a blood donation drive at the Sakai Manufacturing Site
- Carried out cleanups of coastal roads

## Safety and Disaster Prevention and Preparing for Accidents and Disasters

The Sakai Manufacturing Site is located in the center of Sakai and the Coastal Industrial Zone designated in the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities. Government agencies and local companies cooperate in the pursuit of around-the-clock safety and disaster prevention systems.

We work with the other Sakai-Semboku Rinkai Special Disaster Prevention District Council member companies to conduct disaster prevention drills based on annual plans that include high-pressure gas support request drills, training for fire-fighting notifications at night, and Sakai-Semboku Rinkai District disaster prevention drills using a multilateral support system for emergencies established by the Sakai-Semboku Rinkai Special Disaster Prevention District Council.

In addition, in October 2019 the Site practiced comprehensive disaster prevention and tsunami evacuation drills with the participation of 100 people from all departments, including employees from affiliated companies and business partners, to ensure the safety of people, reduction of damage, and prevention of secondary accidents due to fires, large-scale earthquakes, and other disasters.

We will continue to strengthen our safety management in the future uniting all employees at the site in these safety and disaster prevention efforts.



Comprehensive Disaster Prevention Drill at the Sakai Manufacturing Site

## Pollutant Release and Transfer Register (PRTR)

(Unit: kg/year)

Ordinance Designation No.	Substance Name	Quantity			Emissions Compared to Previous Year	Transported
		Atmosphere	Water	Soil		
80	Xylene	88	0	0	↗	0
296	1,2,4-Trimethylbenzene	100	0	0	↗	0

Quantities emitted, discharged, or transported are listed for Class I Designated Chemical Substances handled annually in amounts exceeding 1,000 kg (500 kg for Specific Class I Designated Chemical Substances). Dioxins are excluded.

# International Architectural Design Competition

Central Glass Co., Ltd. has held the Central Glass International Architectural Design Competition since 1966. We invite renowned professors in the field of architecture in Japan as judges and also gather students interested in architecture and architects at the forefront of the field from Japan and overseas. In 2019, the final judging took place publicly at the Tokyo International Forum to select the grand prize winner from among a total of 188 entries, of which 67 were from overseas.

We live in a time in which we need to pursue economic efficiency and rationality while simultaneously preserving the natural environment and protecting historical and traditional cultures. As a company that promotes architectural culture, we believe that it is highly meaningful for us to provide occasions to contemplate a desirable society and environment through this competition.

## The 54th Theme

# Architecture that Generates New Sakariba

*Sakariba* is a word in Japanese for lively places where crowds of people gather, such as rows of drinking establishments, theaters, amusement facilities, and so on. The 54th Theme asked for proposals for architecture that will generate new *sakariba*.

First place \_\_\_\_\_

**Noël Picaper** (France, Freelance)

**Marion Jamault** (France, Freelance)

Project Description \_\_\_\_\_

## SAKARI-BUSTERS

*Sakariba* are intervals of space and time. They are informal places located between work and rest areas where things that are impossible in the daily society occur. Sometimes *sakariba* arise far away from central places.

They got their qualities thanks to the spontaneity of their development and the affluence of people.

We want to facilitate the emergence of new *sakariba* to enclosed districts and monofunctional urban tissue. Transforming some parts of those neighbourhoods into *sakariba* could generate unexpected polarities for a more democratic city.

Unattractive spaces and vacant plots constitute the potential base for an architectural intervention to rethink this future of *sakariba*. By slowing down private investment, we can reconsider those spaces carefully. Their flexibility and their position are strategic. With our 'Sakariba-busters' we transform them partially into a new *sakariba* that will progressively improve the neighbourhood.

'Sakariba-busters' are easily buildable micro-architectures made with reused material that spread hybrid uses into their surrounds. They have social condensers properties. Thanks to their strong identity and their adaptability, they are a catalyst for the emergence of a new *sakariba* – a common future.



Concept of the CSR Report 2020 Cover Page

The blue sky symbolizes the beautiful environment. The same blue of the earth incorporated into the Central Glass product images illustrates the Central Glass Group's embracement of CSR activities forming harmony between all of the Central Glass businesses and beautiful nature.