

Stage up for the Future



TOAGOSEI GROUP REPORT 2021

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Corporate philosophy

**Through the endless possibilities of chemistry,
we bring happiness created by highly functional materials.**



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Editorial policy

This report was created to communicate to stakeholders our efforts for improving corporate value in an easy-to-understand way. It discusses management policy and business strategies to help achieve sustainable growth, as well as non-financial information, including our measures to address environmental conservation and societal issues. Information is also posted on our website.

Degrees of achievement indicated in PDCA tables

- ★★★ : Target achieved
- ★★ : Progress slower than originally envisaged and target not achieved (target achievement rate of 80% or higher)
- ★ : Target not achieved (target achievement rate of less than 80%)

Organizations covered by report

Articles in this report covers the Toagosei Group (Toagosei Co., Ltd. and its consolidated subsidiaries). Note, however, that scope of

aggregation may differ depending on reporting data. In such cases, specific reporting scopes are indicated.

Reference guidelines

Environmental Reporting Guidelines (Fiscal Year 2018 Version) published by the Ministry of the Environment of Japan
The International Integrated Reporting Council (IIRC) International Integrated Reporting Framework

Date of issue of the Japanese version

July 2021
Previous issue: March 2020. Next issue scheduled for June 2022

Period covered

Graphs and tables in this report present aggregate data for one year from January 1 to December 31, 2020. Some articles include information on activities conducted in 2021.

Our communication tools

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Toagosei Corporate Website
URL <https://www.toagosei.co.jp/english>

For everyone



Shareholder Newsletter
for the 108th Term

For shareholders



Toagosei Group
Report 2021

For
all stakeholders

Toagosei Group's Profile

Since its establishment on July 17, 1944, Toagosei has achieved continued growth in line with the development of the chemical industry in Japan.

The Toagosei Group is expanding its technology and product fields by displaying unique strengths in five business fields: Commodity Chemicals, Polymer & Oligomer, Adhesive Material, Performance Chemicals, and Plastics.

Company Profile

Establishment	July 17, 1944
Head Office	Nishi-Shimbashi, Minato-ku, Tokyo, 105-8419 Japan
President and Representative Director	Mikishi Takamura
Capital	20,886 million yen
Number of employees	2,527 on a consolidated basis (as of December 31, 2020)

Main business lines

Commodity Chemicals

Caustic soda, caustic potash, sodium hypochlorite and other inorganic chlorides, sulfuric acid, acrylic monomers, industrial gases, etc.

Polymer & Oligomer

Acrylic polymers, polymer flocculants, UV-curable resins, etc.

Adhesive Material

Instant glues, functional adhesives

Performance Chemicals

High-purity inorganic chemicals, inorganic functional materials

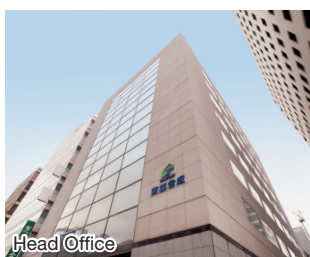
Plastics

Piping equipment, products for construction and civil engineering, nursing care products, elastomer compounds, and environmental products



About the corporate logo

Featuring the “T” of Toa and “G” of Gosei, the logo embodies Toagosei’s aspirations to demonstrate ingenuity based on “Trust” and “Technology” expressed by the “T” emphasized in the logo. The element of “T” expresses “power,” the loop of “G” symbolizes “sensitivity,” and the three dots express the possibilities inherent from their integration.



Head Office



Nagoya Plant



Yokohama Plant



Takaoka Plant



Tokushima Plant



Sakaide Plant



Oita Plant



Kawasaki Plant



Hirano Plant

ASIA

China

- Toagosei Hong Kong Limited
- Toagosei (Zhuhai) Limited
- TOA-DIC Zhangjiagang Chemical Co., Ltd.

Taiwan

- Taiwan Toagosei Co., Ltd.
- Toa-Jet Chemical Co., Ltd.

Thailand

- Toagosei (Thailand) Co., Ltd.
- Aronkasei (Thailand) Co., Ltd.



Toagosei (Thailand)

Singapore

- Toagosei Singapore Pte Ltd.

South Korea

- Toagosei Korea Co., Ltd.

- Commodity Chemicals
- Polymer & Oligomer
- Adhesive Material
- Performance Chemicals
- Plastics
- Others



AMERICA

USA

- Toagosei America Inc.
- Elmer's & Toagosei Co.



Toagosei America Inc.

JAPAN

Toagosei Co., Ltd.

Head Office, Osaka Branch, Nagoya Branch, Shikoku Sales Office, Fukuoka Sales Office,
Nagoya Plant, Yokohama Plant, Takaoka Plant
Tokushima Plant, Sakaide Plant, Oita Plant, Kawasaki Plant, Hirono Plant
General Center of Research and Development, Institute for Advanced Sciences, Takaoka Creation Laboratory, Tokyo Technology Laboratory

Principal Affiliated Companies

- | | |
|----------------------------------|-----------------------------------|
| ■ Aronkasei Co., Ltd. | ■ Aron Packaging Co., Ltd. |
| ■ MT AquaPolymer, Inc. | ■ MT Ethylene Carbonate Co., Ltd. |
| ■ Toa Techno-Gas Co., Ltd. | ■ Toa Kenso Co., Ltd. |
| ■ TG Corporation | |
| ■ Toa Business Associe Co., Ltd. | |
| ■ Toa Kogyo Co., Ltd. | |
| ■ Toa Logistics Co., Ltd. | |



Nagoya Plant, Aronkasei

Toagosei Group's Products Serve Society

The Toagosei Group's products can be found throughout everyday life.

These products help not only to make our lives more comfortable but also to protect the environment.

Businesses with core roles in the growth strategy

Polymer & Oligomer ▶P.25

Polymers

● Acrylic polymers

We offer a wide range of acrylic polymers, such as dispersants and thickeners, for various uses such as pharmaceuticals, cosmetics and toiletries.



● ARONFLOC polymer flocculant

This chemical agent is widely used in wastewater treatment not only at sewage treatment plants but also for treating wastewater from paper manufacturing and food processing plants.



Oligomer

● ARONIX UV-curable resins

The ARONIX series is used in many fields, ranging from paints and inks to adhesives and electronic materials. These environmentally friendly resins are free of organic solvent.



Adhesive Material ▶P.27

● Aron Alpha instant glues (U.S. brand name: Krazy Glue)

Aron Alpha and Krazy Glue are the top brands in instant glues. Our wide range of organic-solvent-free, environmentally friendly adhesives satisfies diverse consumer needs.



● Functional adhesives

We offer a range of functional adhesives for industrial applications including reactive, hot-melt, and light-curable types. These adhesives are widely used in the assembly of automotive components and electronic components, among others.



● SQ Series

Applications include contamination-resistant coatings exploiting the high resistance of these resins to radioactive and ultraviolet rays. Used for protecting the vehicle identification mark (Japanese flag) on transfer vehicles to the Space Station, the SQ Series is helping extend the lives of equipment.



©JAXA/NASA

Commodity Chemicals ▶P.23

● Caustic soda

Caustic soda is a fundamental raw material used in a wide range of products such as synthetic fibers, paper, pulp, and chemicals.



● ARON HYPO CLEAN hypochlorous acid solution

Hypochlorous acid solutions have been confirmed to be effective against COVID-19 by government agencies. ARON HYPO CLEAN can be used to sterilize and deodorize surroundings.



● Acrylic monomers

Acrylic acid is a raw material for highly water-absorbent resins, polymer flocculants, etc. Acrylate esters are raw materials for tape adhesives, paints, and various other products.

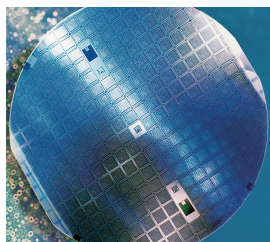


Commodity Business

Performance Chemicals ▶P.29

● High-purity inorganic chemicals

High-purity inorganic chemicals, such as liquid hydrogen chloride used in the manufacture of silicon wafers and semiconductor devices, are essential in various cutting-edge industrial fields.



● NOVARON inorganic antimicrobial agent

Effective against a wide range of microbes as well as for disabling various viruses, NOVARON is contributing to clean, comfortable living.



● KESMON inorganic deodorant

KESMON functions as a deodorant in various situations, such as in deodorizing toiletries and for clothing and the interior of cars. Odors are adsorbed through a chemical reaction, preventing the unpleasant odor from being re-emitted.



Plastics ▶P.31

● Construction materials

Waterproofing coating materials made from acrylic rubber protect roofs and exterior walls from rainwater penetration, thus contributing to longer lifespans of buildings and total maintenance.



● Anjyu-brand nursing care products

We are addressing the growing demand associated with the aging population, developing products that match the needs of the nursing care field and everyday life so that seniors can live a full and comfortable life.



● Elastomer compounds

Elastomers are used in a wide range of products in various aspects of everyday life, thanks to their rubber-like elasticity and ease of molding similar to that of general-purpose plastics.



● Small-diameter polyvinyl chloride pipes, chambers and manhole covers

We propose piping systems effective for the drainage of every type of urban structure and contribute to the construction of infrastructure that supports our daily lives.



● Industrial gases

We handle a wide range of industrial gases, including oxygen, nitrogen and argon, meeting the extensive needs of various industries ranging from the steel, chemical and other key industries to cutting-edge industries such as semiconductor-manufacturing and medicine.



Toagosei Group's Presence

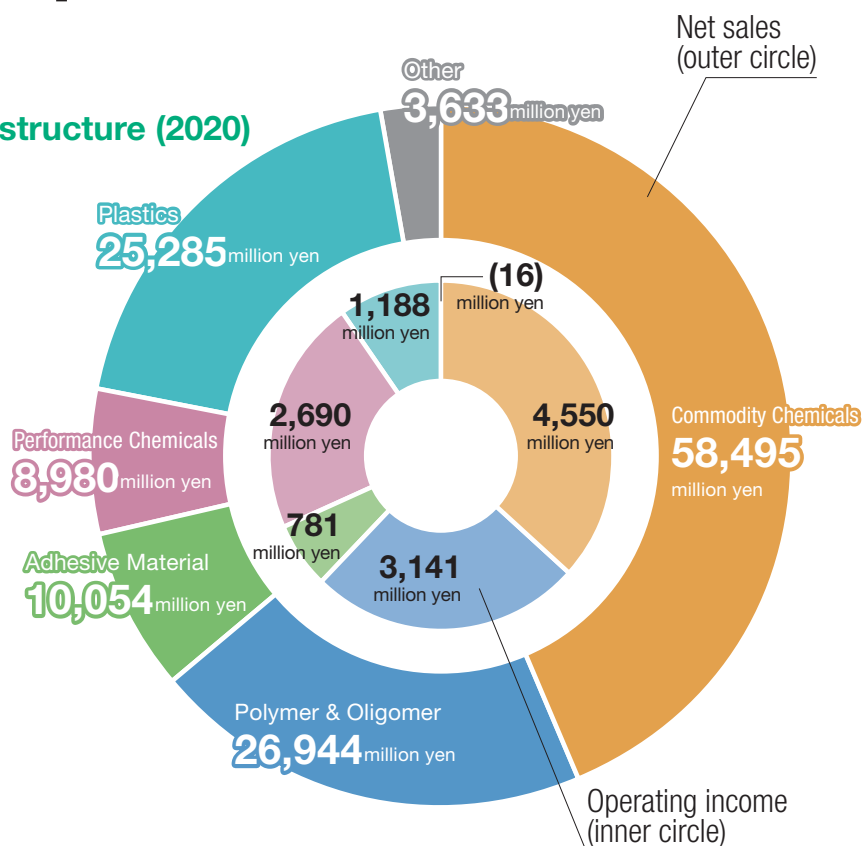
Toagosei Group's earnings structure (2020)

Net sales (outer circle)

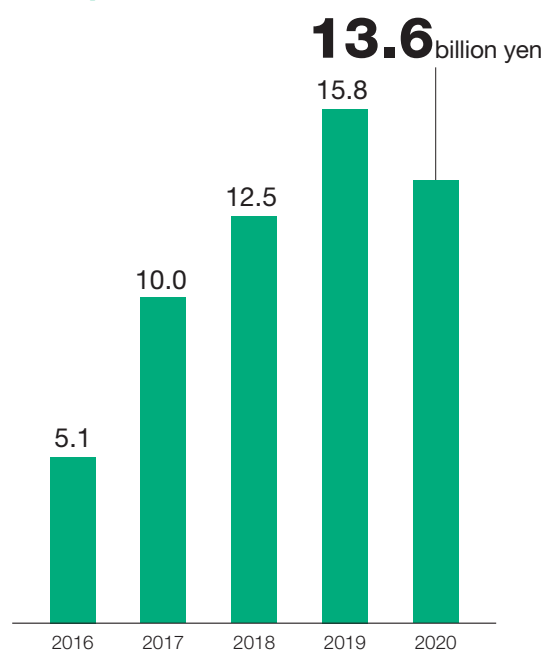
133,392 million yen

Operating income (inner circle)

12,336 million yen

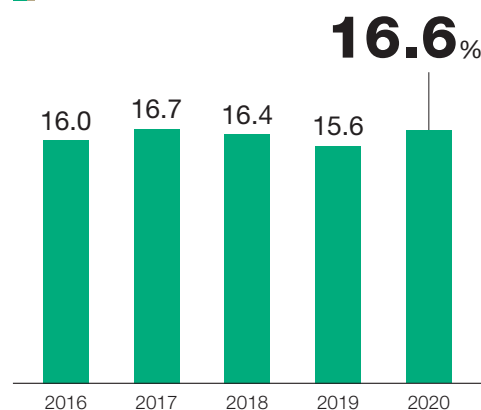


Capital investment (Billions of yen)



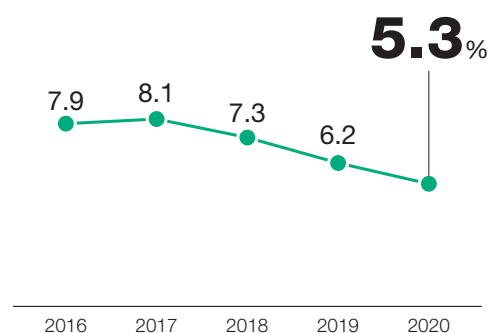
To maintain sustainable growth, we strengthened investment in high-value-added products and information technology. Capital investment for the fiscal year 2020 includes that in automation as well as in strengthening core businesses and executing business reorganization, amounting to 13.6 billion yen (approval basis). In the Medium-Term Management Plan, we aim to make a cumulative capital investment of 44.0 billion yen for the three years from the fiscal year 2020 to 2022.

Overseas net sales ratio (%)



While net sales decreased due to the COVID-19 pandemic, the ratio of overseas net sales increased as shipments by Toagosei Thailand started in full swing.

Ratio of ordinary profit to total assets (ROA) (%)



The ratio of ordinary profit to total assets declined to 5.3% because ordinary profit decreased due to the impact of the COVID-19 pandemic, although consolidated total assets decreased due to share buybacks.

Well-balanced business structure

Since the Group first started with the electrolysis business, we have been expanding into new business areas by responding to changes in society and the economy while keeping up with the times. The Group's business, which currently consists of five segments, supplies a wide variety of products ranging from basic materials essential to life in society to high-value-added products that are required to have high functionality, building a well-balanced business structure.

Businesses with core roles in the growth strategy

Polymer
& OligomerAdhesive
MaterialPerformance
Chemicals

Plastics

Business supporting our business foundation

Commodity Chemicals

Efficient production system from upstream to downstream

The Group produces products from upstream to downstream efficiently. Specifically, by using caustic soda, chlorine, and hydrogen produced in electrolysis plants as materials, we produce high-purity liquid hydrogen chloride that is an essential material for semiconductor production, and high-purity hydrogen that is used as the energy source for fuel cell vehicles. Similarly, by using acrylic monomers, which are commodity products of petrochemicals, as materials, we produce acrylic polymers that add new values to cosmetics and lithium-ion batteries.



Products holding a top market share

We offer products holding a high market share both inside and outside Japan. Such products include Aron Alpha, which is synonymous with instant glues; ARONIX special acrylic monomers and oligomers, which are used as a material of UV-curable resins; ARONFLOC, which are mainly used to treat wastewater and sludge; and Anjyu produced by Aronkasei, which is a pioneering nursing care product brand. The Group is continuing research and development aiming for further growth.



Contribution to a sustainable society

As a chemical manufacturer, we work to fulfill our corporate social responsibility (CSR) in each aspect of environment, society, and governance. Moreover, we have defined our priority fields including mobility, electronics, and healthcare to develop new products and technologies so that we can provide social value through our business and contribute to a sustainable society.



Toagosei Group's Value Creation Story

Corporate Philosophy

Through the endless possibilities of chemistry, we bring happiness created by highly functional materials.

Sustainability Policy

We take up a challenge to create new value to deliver happiness to future generations.

Leveraging Technology that Enables Us to Demonstrate Our Advantage

Social issues

Global environment

- ▶ Decarbonization
- ▶ Diversification of energy sources
- ▶ Environmental pollution

Safe and secure society

- ▶ Increase in natural disasters
- ▶ Infectious disease
- ▶ Living environments

Aging population

- ▶ Maintaining health
- ▶ Nursing care
- ▶ Lifestyle support

Polymerization
technology

Synthesis
technology

Crystallization
technology

Compounding
technology

Molecular control
technology

Particle control
technology

Performance
Chemicals

P29

Polymer &
Oligomer

P25

Plastics

P31

Our vision to be corporate group with a strong presence in technologies and high-value-added products remains unchanged. As the world changes at a dizzying pace, we will strive to achieve sustainable growth and enhance corporate value over the mid- to long-term by creating new value unique to the Toagosei Group and expand our business globally.



Provision of social value through business

Lush global environment

Comfortable and healthy living

Development of a sustainable society

Safe and secure society

Barrier-free measures for seniors and persons with disabilities



Mikishi Takamura,
President and Representative Director

Message from Management

As chemical manufacturers, we create pioneering products and services, and contribute to the resolution of social issues.

The world has changed greatly due to the COVID-19 pandemic and continues to do so at a bewildering pace. The Toagosei Group contributes to the betterment of society by responding to changes in society with new technologies and products.

Review of 2020

The pandemic caused a drop in sales and profit, but we were able to minimize the impact by focusing efforts on semiconductor-related and antimicrobial and antiviral products.

The Toagosei Group's performance for 2020 came to 133.39 billion yen in sales (8.0% decrease from the previous year) and 12.33 billion yen in operating income (10.5% decrease from the previous year). The impact of the pandemic resulted in a decline in sales for acrylic monomer products, functional adhesives, and other products, but the impact was lessened due to a sales increase in the semiconductor, antimicrobial and antiviral, and healthcare fields.

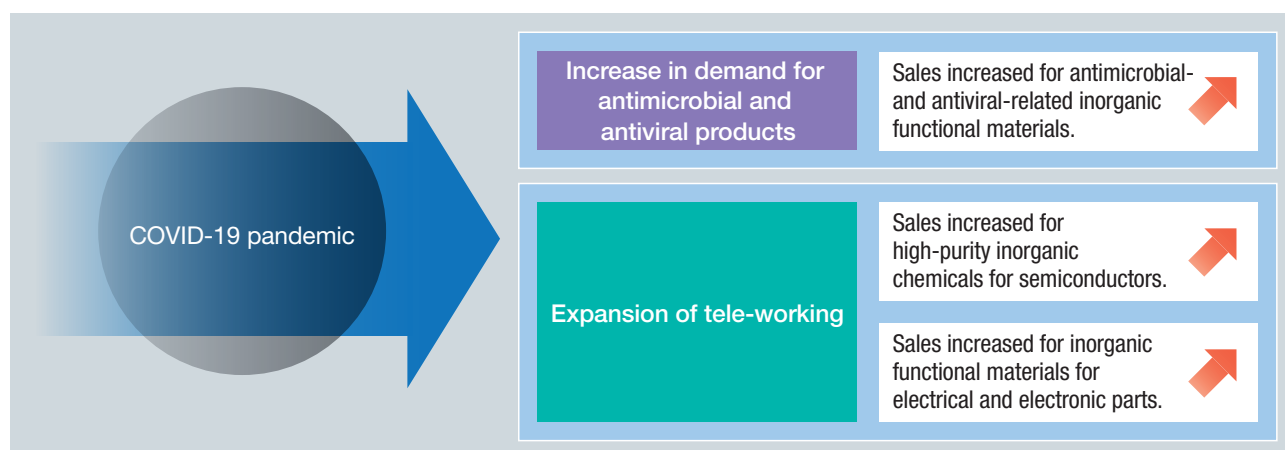
In the semiconductor field, shipments of high-purity inorganic chemicals did well, thanks to the strong demand for electronic devices resulting from the

surge in tele-working during the pandemic. We had already made investments such as installing automated filling machines and testing equipment to improve the quality of high-purity inorganic chemicals, and in 2020 we expanded manufacturing facilities for high-purity inorganic products at Tokushima Plant.

Inorganic functional materials saw an increase in sales thanks to a heightened interest in antimicrobial and antiviral products due to the pandemic and our expanded efforts with users in areas such as filters and fibers.

And in the healthcare field, in addition to producing plastic nursing care products and inorganic deodorant, we also engaged in initiatives such as expanding applications of acrylic polymers—an area we had been involved in for years—to hand cream.

Products that did well in the pandemic



Responding to our rapidly changing times

As a chemical manufacturer that supplies materials, we take on the challenge of creating pioneering new products.

It seems like the pandemic has speed time forward by 5 to 10 years.

The following three areas have changed particularly rapidly.

1 Industry structure and lifestyles

The pandemic has greatly impacted people's lifestyles. Teleworking and restrictions against going out have become normal, and spending behavior has undergone dramatic changes as well. For example, stay-at-home spending has increased. Demand for electronics products has grown, but since the demand for paper and other products has yet to recover and the demand structure has changed, we will need to strengthen initiatives in fields such as 5G even more than before. Furthermore, now that the entire world recognizes the risks of climate change, we must quickly address CO₂ emissions and energy problems as a company.

2 Meaning of globalization

Considering Japan's dwindling population, it is essential that we operate our business with a global perspective. The distance between our production sites and the markets they serve is a key factor for us as a manufacturer. Therefore, we will divide the world into several blocks and focus our efforts on local production and consumption within each block. This will also act as a BCP measure.

3 Gender and racial inclusion

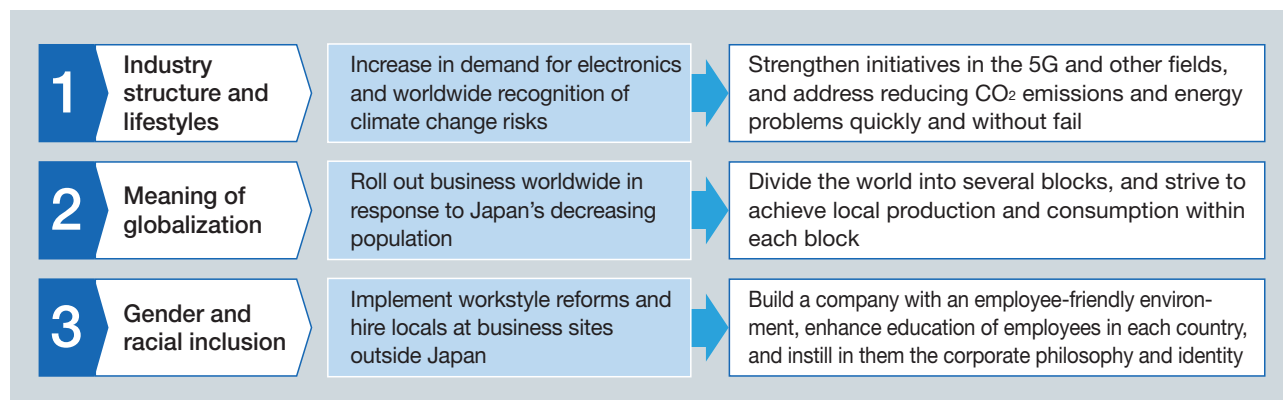
The Toagosei Group has expanded production sites and sales offices worldwide, but the key to boosting performance of business sites outside Japan is hiring locally—particularly middle management. Therefore, we must enhance education for employees in each country and instill in them the Group philosophy and identity. Through workstyle reforms we will actively work to build a company with a workplace environment that is friendly to all, including women and older people.

Role expected of a chemical manufacturer

As a company upstream in the value chain, we are expected to develop technology and products that are ahead of the times.

Since we are a chemical manufacturer positioned upstream in the value chain, it takes a long time before our products are used after they are developed. If we were to backcast from the future, for a product of ours to gain widespread use by 2050, the user's product that incorporates ours would have to be on the market by 2040. And for this to happen, that user would have to adopt our product by around 2030. Therefore, a materials manufacturer like us bears the responsibility to develop and provide superior technology and materials that are ahead of the times.

Changes accelerated by the pandemic





Fast creation of high-value-added products

We create high-value-added products that contribute to sustainability.

Looking back at the history of our company, we grew by offering products that fit the times with a focus on three core businesses—commodity chemicals until the 1960s, petrochemicals in the 1960s, and functional products from the 1970s to today. For our next generation of “fourth core” products, we will strive to create products with new functions as part of our Medium-Term Management Plan “Stage up for the Future” which launched in 2020.

With today's increased focus on sustainability, chemical manufacturers have an obligation to reduce CO₂ emissions and plastics in the ocean. We consider the reduction of emissions a particularly important issue and will develop products that contribute to this.

One of our strengths is that we have two product development methods: “seed proposal” and “joint development.” An example of a product developed based on the seed proposal method is cellulose nanofiber (CNF), which we announced in November 2020. Biomass-derived CNF is in the spotlight as a material that contributes to the realization of a

decarbonized society. Used for applications such as auto parts, it contributes to weight reduction which in turn helps conserve energy. However, controlling CO₂ emissions and costs in CNF production has been an issue. Toagosei developed a production method that uses sodium hypochlorite, something that we already manufacture as a disinfectant for tap water. This method reduces CO₂ emissions and cuts production costs. In the future we hope to contribute to solving social problems by moving forward with efforts for mass production and proposing it to users as a “seed product.”

We also have products we developed jointly with users who trust our technology by incorporating their feedback. We are involved in fuel cell battery development, a product that has been in the spotlight for contributing to the realization of a sustainable society. Our functional adhesives are used in the core parts of the fuel cell batteries of Toyota Motor's fuel cell vehicle (FCV) Mirai. Toagosei will continue to carry out joint development of automotive batteries in a wide range of fields.

Furthermore, we are also working on building a social infrastructure system to supply hydrogen for FCV fuel. Toagosei got its start in the electrolysis business, which is operated at Tokushima Plant. We are

undergoing preparations to install hydrogen stations to supply FCVs with hydrogen produced at the plant.

Accelerating development by enhancing the R&D system

We transformed our R&D system to accelerate development.

● Establishment of Takaoka Creation Laboratory

In 2020, we established Takaoka Creation Laboratory at Takaoka Plant, our “mother plant” for Aron Alpha. Carrying out analysis, research, and technological development centrally at the production plant has accelerated development of Aron Alpha.

● Establishment of New Product Development Division

In 2021, we established the New Product Development Division. The new division acts as the command center for new product development, consolidating the product development divisions for cellulose nanofiber (CNF), electric vehicle (EV) functional adhesives, and other products.

● Consolidation of production technology teams into Production Innovation Center

In January 2021, we consolidated production technology teams into the Production Innovation Center to translate laboratory development into industrial production that is highly efficient and has a low environmental impact. The center also carries out technological development to produce existing products at lower cost and with less environmental impact.

● HR management to enhance R&D capabilities

Toagosei is undertaking human resource management across the Group to enhance R&D capabilities. By utilizing IT tools to consolidate operations and streamline staff of back-office divisions, and shifting human resources to R&D, we will contribute to creating new businesses and products and developing growth strategy businesses.

Promoting globalization

Toagosei will expand business outside Japan in response to changes in globalization, and drive optimization through local production and consumption.

The impact of the pandemic around the world has created huge obstacles for global economic growth due to problems such as massive delays in raw material procurement and product shipments caused by lockdowns where materials are produced and localized shortages of ships and containers. Toagosei is focusing efforts on balancing the expansion of overseas development with optimization on a global level to achieve sustainable growth. We will establish business sites in optimal locations to create businesses based on local production and consumption in Asia, the US, and Europe, respectively, to enable us to self-sufficiently operate businesses in each area.



● Toagosei (Thailand)

The economies of China and Southeast Asia are growing. In order to expand business in these regions, in 2020 we launched Toagosei (Thailand) and are engaging in initiatives to develop new markets in fields such as automotive, medical materials, cosmetics materials, and adhesives.

● Global Adhesive Material Business

The Global Adhesive Material Division was established in 2019. It has strengthened sales of Aron Alpha in the U.S. market (marketed under the Krazy Glue brand) and the Hong Kong market (marketed under the AA超能膠 brand) where it already has a certain level of market share, and is working to expand share in China and Southeast Asia.

Supporting racial and gender inclusion and diverse workstyles of a diverse workforce

Toagosei will work to create a fulfilling working environment for a diverse workforce.

● Establishing an employee-friendly environment

Toagosei has been working to build a system where employees can work comfortably while raising children or taking care of family members. In addition to setting up a communications infrastructure and installing IT equipment to facilitate tele-working, we established an annual leave program that can be broken down into hourly increments and revised the work system to create a workplace environment that is friendly to a diverse range of employees including women and those taking care of elderly family members.

Toagosei has also assigned women to workplaces operating under the shift working system at plants, and expanded the job categories available to women. Furthermore, we have also reduced workloads and improved working environments to create an employee-friendly workplace.

Corporate governance system initiatives

We have strengthened corporate governance.

In 2018, five out of 13 directors of Toagosei were outside directors. As of 2020, of 14 directors, seven are outside directors, including one female director.

The increase in the number of outside directors is resulting in positive changes. For example, discussion at the Board of Directors has become vitalized, and during audits of business sites, directors engage in dialogue with employees at the sites and their findings are summarized and reported at the Board of Directors. Furthermore, Toagosei has endorsed Japan Business Federation (KEIDANREN)'s "Challenge 30." This is an initiative to strive to have 30% of executives be women by 2030 in order to accelerate the promotion of the active participation of diverse people in the workforce.

And in 2020 we also implemented a stock compensation plan to give executives incentive to increase corporate value and share more value with shareholders.

To our stakeholders

Toagosei will meet the expectations of all stakeholders through initiatives that contribute to sustainability.

We believe the economic environment in 2021 will be energized when we recover from the pandemic. However, in terms of measures against climate change, it will be essential to carry out product development that is in line the mindset of and changes in society. For example, people will no longer accept products that have a large environmental impact in the supply chain from the manufacturer to the consumer. And from the standpoint of sustainability, I think that corporations will be expected to fulfill their social responsibility not only in climate change, but also in initiatives to address human rights problems related to race and gender. Toagosei is building a workplace environment that is friendly to all people, but in the future we will also be expected to engage not only in human rights initiatives internally but across our entire business.

We want to be a company that gives back to all our stakeholders including shareholders, customers, business partners, communities where our business sites are located, and employees through initiatives that contribute to sustainability. And we want stakeholders to feel they share a part of our dreams as a company.

Feature

Progress of the Medium-Term Management Plan “Stage up for the Future”

Basic Policies

① Expand high-value-added product businesses

Expand high-value-added products by implementing solid initiatives to strengthen sales and new product development in businesses that are leading growth.

② Creation of new business units, including the “fourth core” business that will underpin the future of Toagosei Group

Create multiple new business units, leveraging the Toagosei Group's core technologies to handle new key materials and services that expand beyond the scope of our existing businesses.

③ Strengthen core businesses and execute business reorganization

Push ahead with planned investment and the continued rationalization of core businesses in order to strengthen our profit base, and reorganize and downsize existing businesses that lack growth.

Key initiatives

① Expand high-value-added product businesses and create new businesses

Strengthen and accelerate development of new businesses and products through the New Product Development Division.

② Accelerate overseas expansion

Expand sales of the Toagosei Group's unique products overseas (e.g., China and Thailand).

③ Strengthen corporate foundation with DX

Bring about innovation and improve productivity in plant and R&D operations through DX.

④ Retain and develop needed talent and establish work environment

Retain and develop people needed for business strategies, and establish compensation and work systems that enable diverse talent to actively participate.

⑤ Promote sustainable management

Promote the development of new businesses and new products that will contribute to global environmental protection, and strengthen stakeholder engagement.

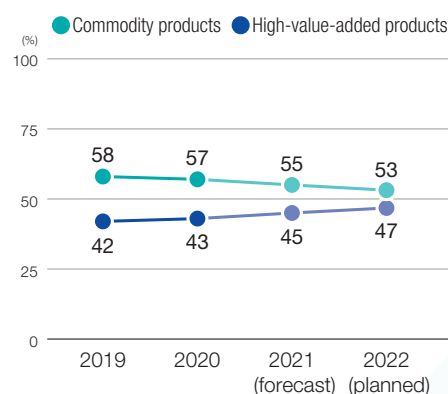
To grow and evolve into a corporate group that demonstrates a higher presence,
we continue to promote growth investment into the future

2022 quantitative targets

Sales		Capital investment	
163.0 billion yen		44 billion yen (cumulative for 3 years from 2020 to 2022)	
Operating income	Operating income to net sales ratio	Overseas net sales	Overseas net sales ratio
17.0 billion yen	10.4%	32.5 billion yen	20%
EBITDA (Earnings before interest, taxes, depreciation and amortization)		EPS (Earnings per share)	
27.0 billion yen		106 yen	
High-value-added product to net sales ratio (net sales ratio)		ROA (Return on assets)	
47%		7.0%	

Note: Prerequisites for targets are naphtha price (51,000 yen/kl), exchange rate (110 yen/USD).

Net sales ratio of high-value-added products and commodity products



for 2020 to 2022

Toward the centenary

Review of 2020

1 Mobility

Functional adhesives for FCVs ▶P.35

Adhesives developed by Toagosei are being used in the heart of the fuel cell batteries of Toyota Motor's new Mirai.



Source: Toyota Motor Corporation

2 Electronics

Functional adhesives for electronic materials

Market development of low-dielectric adhesives for high-frequency substrates went into full swing, and a new plant was constructed at Takaoka Plant.



3 Healthcare

Silver-based antimicrobial/antivirus agent

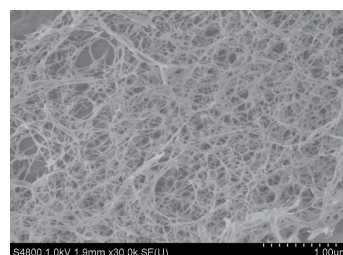
NOVARON IV 1000 has been shown to be highly effective against influenza viruses and coronaviruses. Its effects against the novel coronaviruses are still being verified.



4 Generating new value

Cellulose nanofiber ▶P.36

Toagosei developed technology to produce single nanofibers at low-energy and low-cost.



Issues for 2021

1. Expand high-value-added product businesses and create new businesses

- Accelerate functions to create new businesses through the newly established New Product Development Division, and increase efficiency and sophistication of R&D.
- Strengthen development functions and publicity capabilities of Tokyo Technology Laboratory and Takaoka Creation Laboratory.

2. Accelerate overseas expansion

- Promote active overseas expansion of our high-value-added products businesses, such as polymer & oligomer, adhesive material, and performance chemicals businesses.

3. Strengthen corporate foundation with DX

- Promote product development and innovation in production to meet customer needs, through the integration of company-wide information networks and advanced information processing.
- Bring about innovation in production by solving issues at production sites with DX, and share across the Group.

4. Retain and develop needed talent and establish work environment

- Revamp talent recruitment and development methods, and create a personnel system that supports the active participation of a diversifying workforce.
- Establish an employee-friendly environment by means such as utilizing tele-working and an annual leave program broken down into hourly increments.

5. Promote sustainable management

- Facilitate activities to lower environmentally hazardous substances, and provide social value to realize a hydrogen society.
- Accurately identify social needs and issues through dialogue with stakeholders and others, and contribute to their solution as a responsible member of society.

Message by Director in Charge of Sustainability

Improving Corporate Value by Equally Prioritizing Finances, the Environment, and Workstyles Based on Sustainability

Yoshitaka Suzuki

Director, in charge of General Affairs & Legal, Finance, Human Resources and Sustainability Departments

Improving sustainability, capital productivity, and labor productivity is the foundation for sustainable growth

Currently, initiatives for sustainable development are moving forward, such as the goal in industry of realizing a zero-carbon society by 2050. As a chemical manufacturer, Toagosei views sustainability as an important business issue.

However, since we are a public company, increasing profitability and boosting corporate value are also important. Therefore, it is essential to balance investments that improve shareholders' returns, capital productivity, and labor productivity with necessary internal reserves and to have the approval of investors.

Toagosei has continuously paid out dividends since going public in 1949. Our current basic policy for shareholder returns is to continue to pay stable dividends aiming for a consolidated payout ratio of 30% or more and improve the consolidated total return ratio. And thanks to conducting 3.8 billion yen in share buybacks, the consolidated total return ratio for fiscal 2020 exceeds 95%. We plan to conduct a total of 10 billion yen in share buybacks during the 3-year Medium-Term Management Plan from 2020 to 2022.

In terms of investments, we are focusing on efficiency investments, which include R&D to continuously develop new products, expansion in-

vestments to meet the needs of society, and worksite improvements to increase labor productivity. For example, we have made investments to improve productivity in new ways such as facilitating R&D by implementing automatic guided vehicles (AGV) and materials informatics in Sakaide, automating routine tasks with robotic process automation (RPA), and installing electronic approval systems. Furthermore, during the planning stage of capital investments, we make decisions that take into account profitability and reduction of CO₂ emissions.

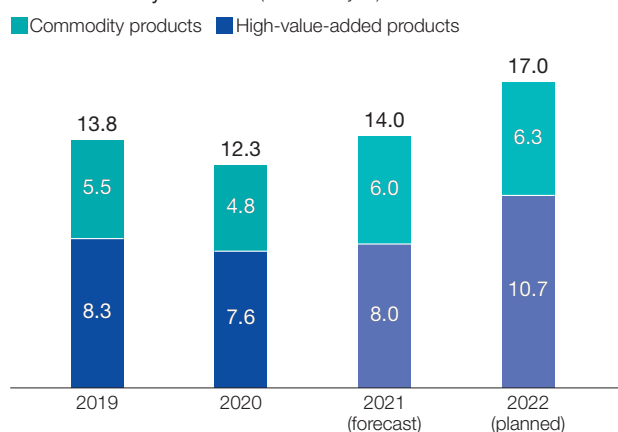
Since the COVID-19 pandemic started last year, we have gained a renewed understanding of the proper accumulation of capital. The Toagosei Group will strive to achieve sustainable growth by working to develop and supply products while raising awareness of social issues as they emerge among customers, and expanding revenue through improving capital productivity and labor productivity.

Striving for growth based on stable profitability with high-value-added products

Thanks to reducing interest-bearing debt and changing our business portfolio to focus more on high-value-added products than commodity chemicals, we believe our ability to acquire cash has stabilized. Due

to effects such as the global COVID-19 pandemic, fiscal 2020 saw a drop in sales and profit with 133.39 billion yen in sales (11.56 billion yen decrease from fiscal 2019) and 12.33 billion yen in operating income (1.44 billion yen decrease from fiscal 2019). But for fiscal 2021 we expect to ride the tailwind of recovery of the auto and semiconductor industries, and achieve 143 billion yen in sales and 14 billion yen in operating income (as of June 30, 2021).

Changes in Operating Income of High-value-added Products and Commodity Products (billions of yen)



Creating new businesses

In order to keep growing, we need to continue creating products that fit the times, and products must have sustainable functions.

Toagosei will strive to provide social value through business by prioritizing fields such as mobility, electronics, and healthcare.

Toagosei Group's Initiatives for Sustainability

	Priority fields	Materiality (key issues)
Provision of social value through business	Mobility	● Reduction of environmentally hazardous substances related to automobiles
	Electronics	● Industrial innovation/information infrastructure improvement
	Healthcare	● Creation of a healthy and comfortable living environment ● Enhancement of the quality of life of seniors and people requiring care
	Infrastructure	● Stable supply of high-quality water through water and sewage treatment ● Prevention and mitigation of damage caused by natural disasters
	Biodiversity	● Marine biodiversity conservation
	Energy	● Mitigation of climate change by reducing CO ₂ emissions
	Generating new value	● Creation of new business unit and provision of new value with DX

Increasing productivity and strengthening business foundations with diversity and inclusion

Efforts are moving forward to create a workplace environment that is friendly to a diverse workforce.

Since 2015 Toagosei has been expanding assignment of women to manufacturing sites, and carrying out capital investment to create a workplace with a lighter workload for women. Furthermore, we have been taking measures to prevent stumbling and falls to ensure the workplace is friendly to comparatively older employees since we extended the retirement age in 2013. We hope that these initiatives will accelerate improvements in safety and productivity.

As the diversification of lifestyles has forced changes to be made to workstyles, we have revised our work system to ensure that the workplace is friendly to those with a variety of needs. For example, we allow employees to use their annual leave in hourly increments so they can use it to drop off and pick up family members to and from preschool or adult day service centers. We believe that if every employee can demonstrate their abilities with enthusiasm and peace-of-mind, it will further improve productivity and lead to sustainable growth.

Another key issue is Challenge 30, which we announced our endorsement of in April 2021. Challenge 30 is an initiative to strive to attain 30% female executives by 2030 to further increase the effectiveness of the board of directors.

In 2020 the Toagosei Group formulated a Sustainability Policy to “take up a challenge to create new value to deliver happiness to future generations.” Earth has been around for 4.6 billion years, and as we achieve 3-, 5-, 10-, and 30-year milestones, we will continue to work and challenge ourselves to ensure that every generation to come will be happy.

Financial and Non-financial Highlights

Financial data

	98th term 2010 (Dec. 2010)	99th term 2011 (Dec. 2011)	100th term 2012 (Dec. 2012)	101st term 2013 (Dec. 2013)
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Key financial results

Net sales	(millions of yen)	153,779	153,007	148,203	151,081
Operating income	(millions of yen)	21,271	17,338	14,583	14,501
Ordinary profit	(millions of yen)	20,941	17,569	15,250	15,346
Net income attributable to owners of parent	(millions of yen)	13,133	13,000	9,699	9,605
Net assets	(millions of yen)	125,027	127,776	136,240	148,148
Total assets	(millions of yen)	173,847	171,046	181,451	193,086
Cash flows from operating activities	(millions of yen)	24,843	17,828	23,293	18,023
Cash flows from investing activities	(millions of yen)	(10,155)	(9,041)	(15,041)	(6,852)
Cash flows from financing activities	(millions of yen)	(4,117)	(7,320)	(3,377)	(2,094)

Key indicators

Net assets per share (*1)	(yen)	874.34	939.23	1,001.99	1,090.91
Net income per share (*1)	(yen)	104.10	101.99	73.58	72.88
Net worth ratio	(%)	63.4	72.4	72.8	74.4
ROE (ratio of net income to shareholders' equity)	(%)	12.5	11.1	7.6	7.0
ROA (ratio of ordinary profit to total assets)	(%)	12.5	10.2	8.7	8.2
PER (price earnings ratio)	(times)	7.3	6.2	9.2	12.3

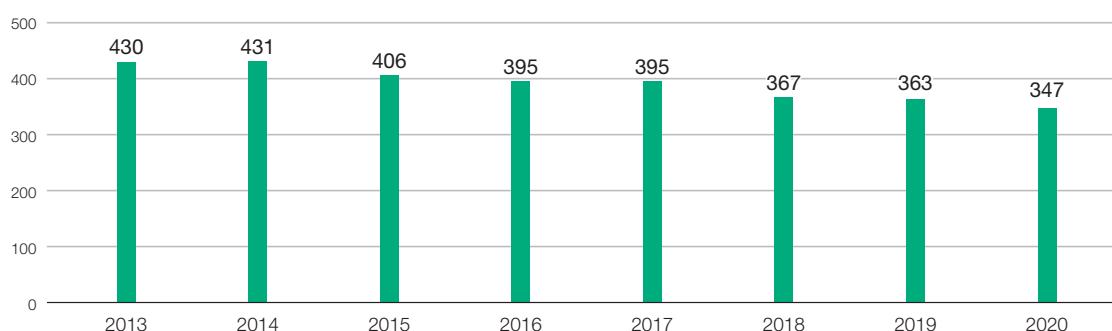
Other indicators

Capital investment	(billions of yen)	103	104	128	74
Research and development expenses	(billions of yen)	45	46	44	38
Interest-bearing debt	(billions of yen)	135	125	122	131
Cash dividend per share (*2)	(yen)	9.00	10.00	10.00	10.00
Payout ratio	(%)	17.3	19.6	27.2	27.4
Number of employees		2,533	2,534	2,509	2,483

*1 The Company has implemented the share consolidation of common stocks at a ratio of one share per two shares effective on July 1, 2015. Net assets per share and net income per share are calculated assuming that the share consolidation was executed at the beginning of the 98th term.

Non-financial data

CO₂ emissions (Thousand tons, CO₂ equivalent)

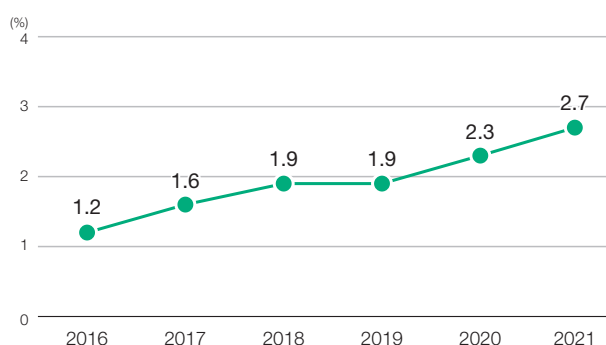


102nd term 2014 (Dec. 2014)	103rd term 2015 (Dec. 2015)	104th term 2016 (Dec. 2016)	105th term 2017 (Dec. 2017)	106th term 2018 (Dec. 2018)	107th term 2019 (Dec. 2019)	108th term 2020 (Dec. 2020)
148,912	139,848	135,382	144,708	150,066	144,955	133,392
12,015	12,347	16,147	17,453	16,408	13,782	12,336
12,892	13,201	16,935	18,492	17,403	15,230	13,054
8,414	6,696	13,801	12,911	12,748	10,387	8,142
157,349	163,020	173,003	187,487	191,296	198,579	197,642
201,168	208,018	219,520	239,338	241,164 ^(*)	247,211	241,832
16,098	23,313	21,989	15,166	19,841	18,615	20,671
(13,981)	(4,592)	(17,673)	(23,186)	(11,910)	(15,855)	(11,362)
(3,063)	(3,949)	(3,939)	(4,047)	(4,908)	(4,582)	(8,491)
1,159.65	1,201.46	1,276.10	1,387.36	1,416.24	1,472.09	1,505.69
63.88	50.86	104.83	98.08	96.85	78.91	62.43
75.9	76.0	76.5	76.3	77.3 ^(*)	78.4	79.8
5.7	4.3	8.5	7.4	6.9	5.5	4.2
6.5	6.4	7.9	8.1	7.3 ^(*)	6.2	5.3
15.0	20.5	11.0	14.6	12.5	16.1	19.4
78	58	51	100	125	158	136
39	37	36	37	36	37	40
132	126	123	121	116	115	113
12.00	18.00	26.00	26.00	28.00	30.00	30.00
37.6	47.2	24.8	26.5	28.9	38.0	48.1
2,442	2,441	2,411	2,393	2,429	2,473	2,527

*2 For the 103rd term (fiscal 2015), the total annual dividend of ¥18 per share consists of an interim dividend of ¥6 per share and a term-end dividend of ¥12 per share. As the Company implemented the share consolidation of common stocks at a ratio of one share per two shares effective on July 1, 2015, the interim dividend of ¥6 per share is an amount before the share consolidation and the term-end dividend of ¥12 per share is an amount after the share consolidation.

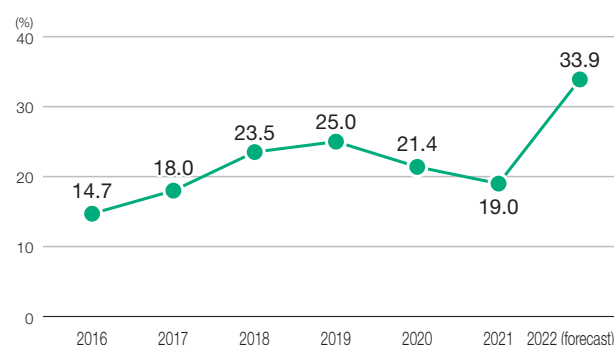
*3 Effective from the beginning of the 107th term (fiscal 2019), the Company has adopted the "Partial Amendments to Accounting Standard for Tax Effect Accounting" (ASBJ Statement No. 28 issued on February 16, 2018), etc., and figures for the consolidated financial position for the 106th term have been restated by retrospective application of the said accounting standard, etc.

Percentage of women in managerial positions



* As of January 1 of each year

Percentage of female employees hired



* As of April 1 of each year

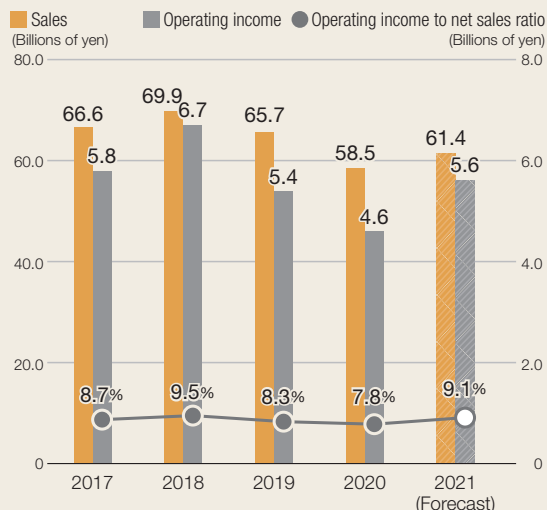
Business Overview and Growth Strategy

Commodity Chemicals

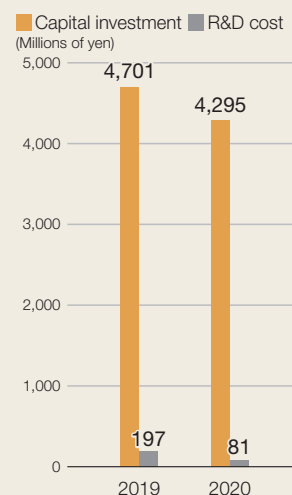


Shoji Takayama
Executive Officer
General Manager, Commodity
Chemicals Division

Sales and Operating Income by Segment



Capital investment and R&D cost



Business Overview

Among Toagosei's wide variety of businesses, the inorganic chemical business has the longest history. Toagosei supplies products such as caustic soda, caustic potash, hydrochloric acid, chlorine, sodium hypochlorite, various chlorides, sulfuric acid and industrial gases. These inorganic chemicals are widely used as indispensable products in diverse industries, supporting people's lives.

The acrylic monomer business is one of the core businesses of the Toagosei Group. We have established an integrated acrylic chain with product lines extending from upstream to downstream. Acrylic monomers are the starting point of this acrylic chain. Distinguished by high quality and cost competitiveness, the acrylic monomer business contributes to the business expansion of downstream acrylic derivatives, such as polymers and oligomers.



Acrylic ester plant at the Nagoya Plant



Acrylic esters are used for tape adhesives and other materials.

Medium- to Long-term Growth Strategy

The foundation of the Toagosei Group, Commodity Chemicals advances through ongoing capital investment and the improvement of productivity, underpinning expansion of high- value-added products such as high-purity inorganic chemicals and downstream acrylic products.

Inorganic chemicals business

In the electrolysis business, we are striving to establish a stable and efficient production base, strengthening competitiveness through vigorous investments to ensure that profit is maintained and increased. In 2013, our Tokushima plant became the first in Japan to install an electrolysis machine for commercial operation using the gas diffusion electrode method, which can cut electricity consumption by 30%, and is currently continuing power-saving operation. In 2016, the Tokushima Plant installed a manufacturing facility for sodium hypochlorite that satisfies the special grade standards specified by the Japan Water Works Association (JWWA). Additionally, in 2017, we upgraded the electrolysis equipment for caustic potash. In 2021, we developed and started selling disinfectant hypochlorous acid solutions that help prevent infection and its spread.



Acrylic monomer business

In the acrylic monomer business, a new 80,000-ton facility for acrylic acids was launched at Oita Chemical (currently Oita Plant) in 2014 to prepare for increasing demand for downstream acrylic products over the medium- to long-term and to strengthen cost competitiveness. We are working to establish a new business scheme for production and sales in Japan and overseas, including the Singaporean operations, to further improve our earnings power.

Industrial gas business

In the industrial gas business, we have been pursuing an aggressive strategy to expand business by strengthening industrial gas sales in the Chubu and Hokuriku regions to boost facility utilization at the production base, establishing an efficient supply system. A large-scale capital investment plan with the objective of maintaining stable production far into the future is being implemented.

Relevant SDGs



Provision of social value through business

Promotion of the use of hydrogen energy

Social issues

In order to achieve the target set out in the Paris Agreement, an international framework for action against global warming, net-zero greenhouse gas emissions by 2050 is called for.

Toagosei Group's initiatives

To further promote the use of hydrogen energy, which is expected to be one of the fuels that do not emit carbon dioxide, we are installing a hydrogen station in the vicinity of the Tokushima Plant to supply high-purity hydrogen produced at the plant to fuel cell vehicles (FCVs) and fuel cell buses (FC buses) (scheduled to be in operation in autumn 2021).



Image of the hydrogen station to be installed

Protection of the marine environment

Social issues

Ballast water is seawater that is taken up in empty ships' special tanks for vessel stabilization. It is later discharged at the loading port. Disruption of ecosystems caused by non-native marine organisms or bacteria carried with the ballast water has become an issue.

Toagosei Group's initiatives

The ballast water management system developed by the Toagosei Group with JFE Engineering Corporation combines the filtration and the chemical treatment of ballast water. An environmentally friendly solution is realized by the use of Toagosei's TG Ballastcleaner manufactured for killing aquatic microorganisms in the ballast water, and TG Environmentalguard for detoxifying the treated ballast water. We are promoting the ballast water management system globally.

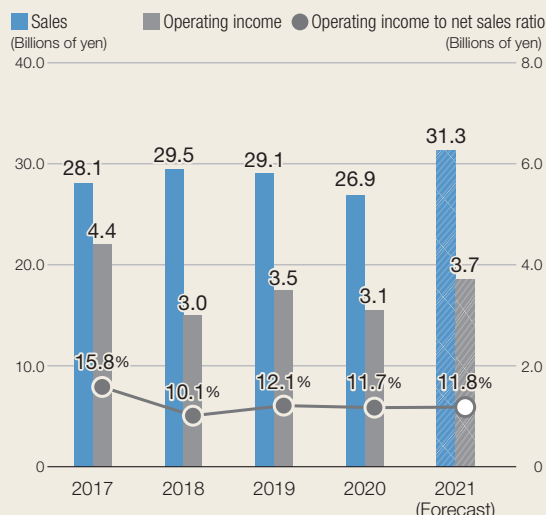
Business Overview and Growth Strategy

Polymer & Oligomer

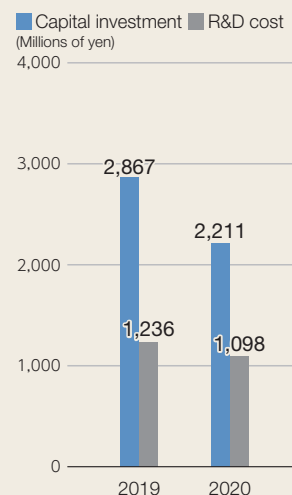


Ichiro Igarashi
Executive Officer
General Manager, Polymer &
Oligomer Division

Sales and Operating Income by Segment



Capital investment and R&D cost



Business Overview

Acrylic polymers, whose polymer structure is optimized based on Toagosei's acrylic acid and acrylic esters, meet variety of needs. These acrylic polymers are contributing to society in various fields, ranging from the general-purpose applications, including pigment dispersants, paint thickeners, flocculants, adhesives and coating agents, to specialized applications, including gelling agents for pharmaceutical and cosmetic products. In addition, SYMAC and RESEDA graft polymers and ARUFON solvent-free acrylic polymer, which were developed utilizing proprietary technologies, contribute to the improvement of the functionality of coating agents and adhesives.

Regarding UV-curable resins, the Company offers ARONIX, radical polymerizable resins, and ARON OXETANE, cationic polymerizable resins. These resins can be cured by a short time of exposure to UV light, enabling much higher productivity and greater energy saving compared with conventional resins for which the process of drying solvent is required. As these resins are basically solvent free, they meet the needs of society such as preservation of the global environment, and are used in a variety of products including adhesives, inks, paints and electronic materials.



Polymer products are used in various products such as automobile interiors, lithium cells for electric vehicles, and cosmetics.

Medium- to Long-term Growth Strategy

We aim to expand high-value-added products in the downstream acrylic products field, create new businesses based on outstanding seed technology, and expand our international businesses.

Polymer business

We aim to meet market expectations in the polymer business by strengthening the business foundation through improvement of cost competitiveness while focusing on development to respond to new needs. For new development, we are accelerating development in automotive, pharmaceutical and cosmetic fields, with a focus on our distinctive high-performance powder products. Moreover, by positioning Toagosei (Thailand) Co., Ltd. as the production and development base in Asia, we will promote development to respond to local needs.



Toagosei (Thailand)

Oligomer (UV-curable resins) business

We aim to further expand the oligomer business in Asia by offering distinctive products and promoting development that meets local needs. Taiwan Toagosei Co., Ltd. and Toa-Jet Chemical Co., Ltd. in Taiwan, and TOA-DIC Zhangjiagang Chemical Co., Ltd. in China are expanding sales locally and to adjacent countries as well. They will also strive to capture trends in demand such as those related to 5G or the environment. In addition, we are working to build an optimal production system for three bases of Japan, Taiwan and China to strengthen the business foundation.



TOA-DIC Zhangjiagang Chemical

Flocculant business

The Group's MT Aqua Polymer, Inc. manufactures and sells the high-quality polymer flocculant, ARONFLOC. We offer diverse outstanding products and appropriate solutions for wastewater and sludge purification processes. We are strengthening the business foundation and further expanding the business in and outside Japan, taking advantage of the acquisition of the polymer flocculant sales business from Mitsubishi Chemical Corporation.



Used at sewage purification centers

Relevant SDGs



Provision of social value through business

Development of biomass-derived UV-curable resins

Social issues

As the concept of sustainable development has permeated our society, there is a growing demand for UV-curable resins that use biomass-derived materials rather than petrochemical resources. Our development of environmentally friendly and high performance UV-curable resins is contributing to energy saving, higher productivity, and lower environmental impacts.

Toagosei Group's initiatives

The lineup of ARONIX UV-curable resins was enriched with the addition of new multifunctional acrylates by employing a new transesterification process. By using glycerol and sorbitol, which are biomass-derived materials, we succeeded in realization of acrylates with unconventional unique characteristics such as low viscosity, quick hardening, and complete water-solubility. In addition, this new process 1) eliminates the use of toluene and 2) achieves higher-purity products, which enables to satisfy strict environmental needs for paints, inks, and adhesives as well as high quality requirements in applications for electronic materials. These biomass-derived UV-curable resins have been certified as biomass products by The Japan Organics Recycling Association (JORA). This will enable us to promote the UV-curable resins as environmentally friendly products while responding to various market needs and contribute to society.



バイオマス
No.190058

本製品は、植物由来の
グリセリンを原料に使用
しています

Certification mark of
glycerin acrylates ARO-
NIX M-920 and M-930

Business Overview and Growth Strategy

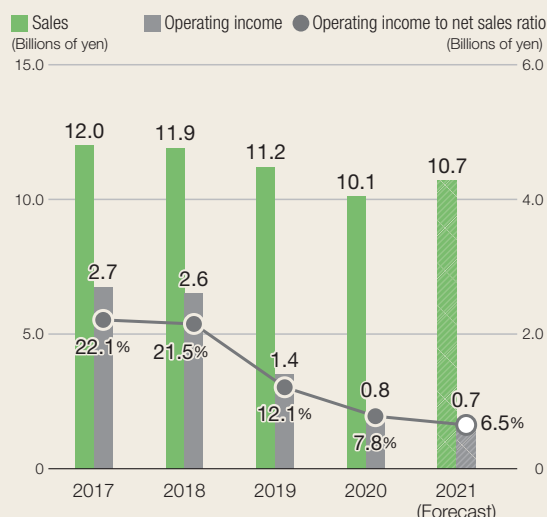
Adhesive Material



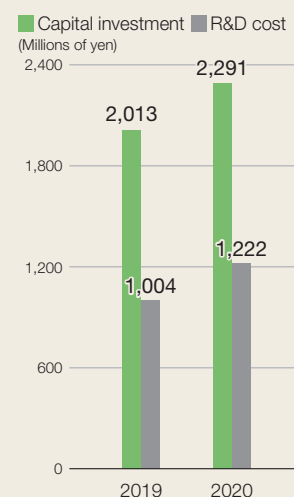
Kazutaka Yamada

Executive Officer
General Manager, Adhesive
Material Division

Sales and Operating Income by Segment



Capital investment and R&D cost



Business Overview

The Adhesive Material Division has been contributing to customers' technological innovations in pursuit of lighter and thinner products and parts as well as productivity improvement and cost reduction requirements through the adhesion of different materials such as plastics, metals, wood, rubber and leather.

The Adhesive Material Division offers Aron Alpha, which is synonymous with household instant glues, as well as a wide range of functional adhesives including Aron Mighty, ARON MELT and ARONIX that meet diverse needs for industrial adhesives in the electronic materials, automotive and precision equipment fields. In addition, we are striving to develop products that leverage our proprietary technologies such as the Aron Powder powder paint and the SQ Series of silsesquioxane derivatives.

Our business provides countless opportunities to enrich lives through our products.



A diverse product lineup for a wide range of uses including Aron Alpha, which is synonymous with instant glues

Global Adhesive Material Division

Our instant glues for consumer applications maintain high market shares in Japan, the U.S. and Hong Kong.

The Global Adhesive Material Division is focusing on development of China and Southeast Asian countries. While leveraging the brand capability of Aron Alpha cultivated in Japan, we will conduct marketing rooted in the local markets and promote development of products and their market introduction for each country. Asian markets are changing rapidly and trade practices there are different from those in our existing markets. In China, we are working on new initiatives such as the launch of e-commerce stores. Through establishment of a new business model for emerging countries, we will promote the global strategy for Aron Alpha and drive overseas business of the entire Group.



Shigeyuki Aota
Executive Officer
General Manager, Global
Adhesive Material Division

New Products Development Division

The mission of the New Products Development Division is to create new businesses and new products beyond our existing businesses.

This division was newly established in January 2021 by integrating the New Business Planning Department in the Corporate Strategy Division and the New Products Development Department in the Adhesive Material Division.

In the Mobility Products Development Section and the Healthcare Section under this division, we built a framework to continuously create new products in each field. Under the framework, several developments are under way.

In the New Business Exploration Section, we promote marketing and work on efficient new business creation through open innovation.

Among universities and start-ups, we seek for partners with whom we can expect synergies, and work to enhance technologies in alliance with such partners.



Futoshi Nishitani
Executive Officer
General Manager, New
Products Development Division

Medium- to Long-term Growth Strategy

In the instant glue business we aim to maintain our position as the top brand by further enhancing brand strength. In the functional adhesives business, we will develop highly functional products that meet the needs in this growing field.

Consumer products business

We have celebrated 50th anniversary of the launch of Aron Alpha, consumer instant glues. Going forward, we are focusing on improving the brand image, which has been long loved by customers. In advertising and sales promotion activities, we are promptly responding to changes in the market through efforts such as using social networking services and developing new products that will satisfy emerging customers' needs.



Functional products business

We will emphasize development of glues used for various parts such as substrate materials and battery materials, targeting the telecommunication field, mindful that commercial 5G next-generation wireless communication services were launched, and the rapidly evolving mobility field.

We will also emphasize initiatives in the painting and processing fields in order to enhance our proposal capabilities in the value chain.

Relevant SDGs



Provision of social value through business

From Disposal to Reuse and beyond, Creation

Social issues

We suggest that when your household items or personal effects are broken, you fix them using our adhesives to use them for a long time, rather than replace them with new ones.

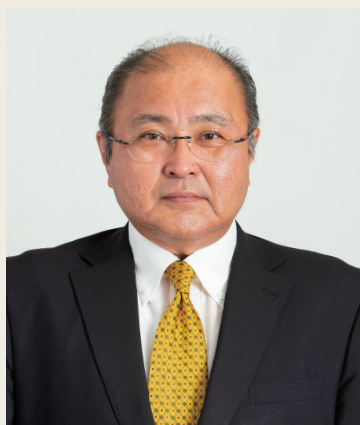
Toagosei Group's initiatives

We will enrich the Aron Alpha lineup to meet more applications than ever. We will create higher value products and contribute to the effective use of resources.



Business Overview and Growth Strategy

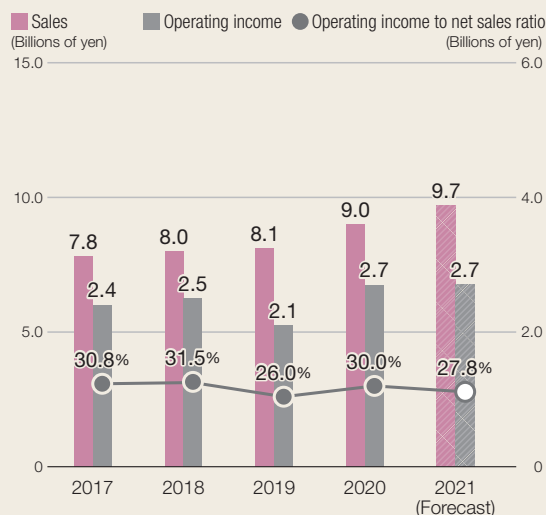
Performance Chemicals



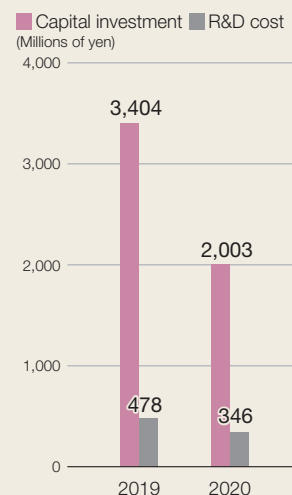
Fumito Furukawa

Executive Officer
General Manager, Performance
Chemicals Division

Sales and Operating Income by Segment



Capital investment and R&D cost

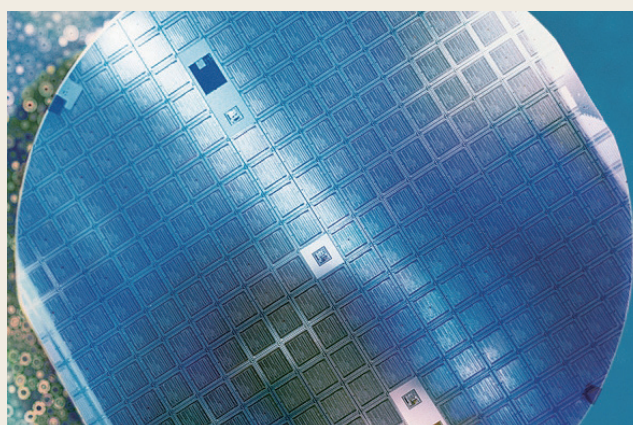


Business Overview

The Performance Chemicals Division handles inorganic chemicals indispensable for safer, more comfortable and more convenient lifestyles. In the high-purity inorganic chemicals business, we supply products with the maximum purity such as liquid hydrogen chloride and hexachlorodisilane which are applicable to miniaturization and integration of semiconductor devices. In the inorganic functional materials business, we manufacture unique products, such as IXE and IXEPLAS ion-trapping agents, which are additives that increase the reliability of electronic materials, and KESMON and NOVARON, which perform antimicrobial, deodorizing and other comfort-enhancing functions in textile and plastic materials.



Maintain a comfortable living space with antimicrobial and deodorizing products



Liquid hydrogen chloride is indispensable to semiconductor manufacturing.

Medium- to Long-term Growth Strategy

We will pursue further enhancement of purity and functionality to unlock the potential of inorganic chemicals.

High-purity inorganic chemicals business

Demand for semiconductors, which are used in various fields, is expected to continue to grow centering on communication and mobility. We will expand our facilities and strengthen the stable supply system to fulfill our supply responsibilities as a leading manufacturer of liquid hydrogen chloride in Asia where semiconductor plants are concentrated. Capitalizing on our track record with our existing products, we are also emphasizing development of new products.



Tube container filling yard at the Tokushima Plant

Inorganic functional materials business

We are continuing to promote domestic and overseas marketing of the deodorant KES-MON and antimicrobial agent NOVARON, which create a clean and comfortable living environment, and the IXE ion-trapping agent, which supports miniaturization of electronic components. We are also strengthening our collaboration with our overseas bases in the growth markets of Asia including Taiwan, South Korea, China and Thailand.



Relevant SDGs



Provision of social value through business

Creation of comfortable space

Social issues

As people's interest in public health and personal hygiene is growing due to the COVID-19 pandemic, a more comfortable living environment is sought by our society. We see antibacterial processed products in various situations in everyday life. In addition, recently, demand for antiviral processed products is rapidly increasing.

Toagosei Group's initiatives

NOVARON, silver-based inorganic antimicrobial agent developed by Toagosei, can be processed into a wide range of products, and provides a high, long-lasting effect. We have expanded the marketing area globally beyond Japan, to Asia, Europe, and North America, contributing to the creation of comfortable and clean living spaces. We are also enhancing the lineup of NOVARON series with antivirus functionality. They are expected to be used in such fields as housing and building materials, interiors, and automobile interior materials.



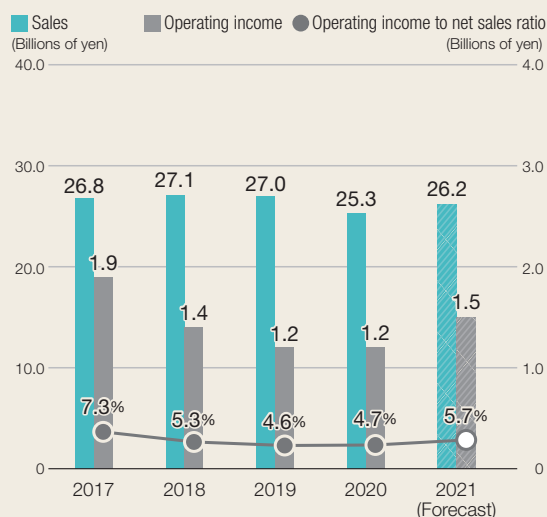
Business Overview and Growth Strategy

Plastics

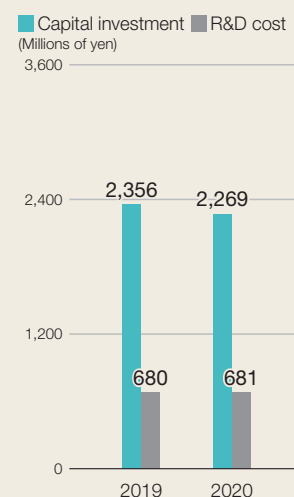


Shinichi Sugiura
Directors
President and Representative
Director, Aronkasei Co., Ltd.

Sales and Operating Income by Segment



Capital investment and R&D cost



Business Overview

In 1951, Aronkasei Co., Ltd. developed the first rigid PVC piping product in Japan, called ARON PIPE. Ever since, Aronkasei has been a pioneer in the field of piping equipment, offering joints, chambers and other items. Aronkasei has launched various products as a leading manufacturer of nursing care products, under the Anjyu brand. Aronkasei also provides elastomer compounds endowed with sophisticated new functions to users in Japan and overseas. Aronkasei is vigorously developing business while broadening its business field, which currently centers on piping equipment, construction repair materials, nursing care products, and elastomers, from items that contribute to comfortable daily living to infrastructure development sustaining entire communities.



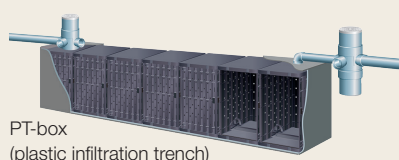
Aronkasei's strengths

Medium- to Long-term Growth Strategy

We are utilizing our creative manufacturing capabilities, collaborating with each Group company and proactively taking on the challenge of expanding sales both in Japan and overseas.

Piping equipment business

In our proactive efforts to develop the piping equipment business, we are focusing on three priority fields that offer good prospects for rising demand due to the government's promotion of the plan for building national resilience: flooding and water seepage countermeasures, earthquake resistance and disaster prevention measures, and countermeasures for aging infrastructure. In pursuit of further expansion of construction repair materials, we will bolster proposal-driven sales targeting the growing refurbishment market.



PT-box
(plastic infiltration trench)

Nursing care products business

We aim to further increase our share by continuously rolling out new high-performance products for the home-based care market and the growing rental market. Moreover, we will vigorously promote entry in new areas not covered by long-term care insurance anticipating the situation where customers hold off purchases due to revision of the care insurance system, and strengthen overseas sales as well.



Floor-mounted rental handrail for stairs

Easy-to-open/
close shower chair
(S Compact)



Elastomer compound business

Centering on application fields such as household items, automotive, home appliances, healthcare, and food, we will continue to work closely with domestic and overseas customers in our development activities and contribute to society as a high-performance elastomer compound manufacturer. Through sales subsidiary Aronkasei (Thailand) Co., Ltd., we will endeavor to expand sales of elastomer compounds in the Asian market where demand is growing.



An example application of elastomer compounds (Pen grips)

Relevant SDGs



Provision of social value through business

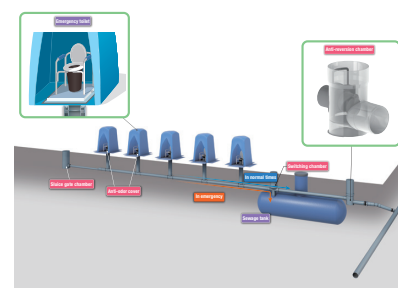
Hygienic toilets for use in disasters

Social issues

In an event of disaster, toilets will need to be available immediately. Portable toilets are often used at evacuation centers. However, using those toilets involves such problems as unsanitary conditions, an unpleasant smell and privacy concerns.

Toagosei Group's initiatives

Aronkasei proposes an emergency toilet drainage system, where portable toilets are installed on manholes after removing their covers. With this system, toilet facilities can be set up in evacuation centers soon after a disaster occurs. It also has features to reduce unpleasant odor from pipes and prevent backflow from the sewer, enabling highly hygienic and safe toilet facilities even in a disaster.



Construction example of the emergency toilet drainage system

Photos above represent those of the tank storage type

R&D

Supporting the Growth Strategy



General Center of R&D

R&D at the Toagosei Group

The Toagosei Group's basic policies on research and development for 2021 are as follows:

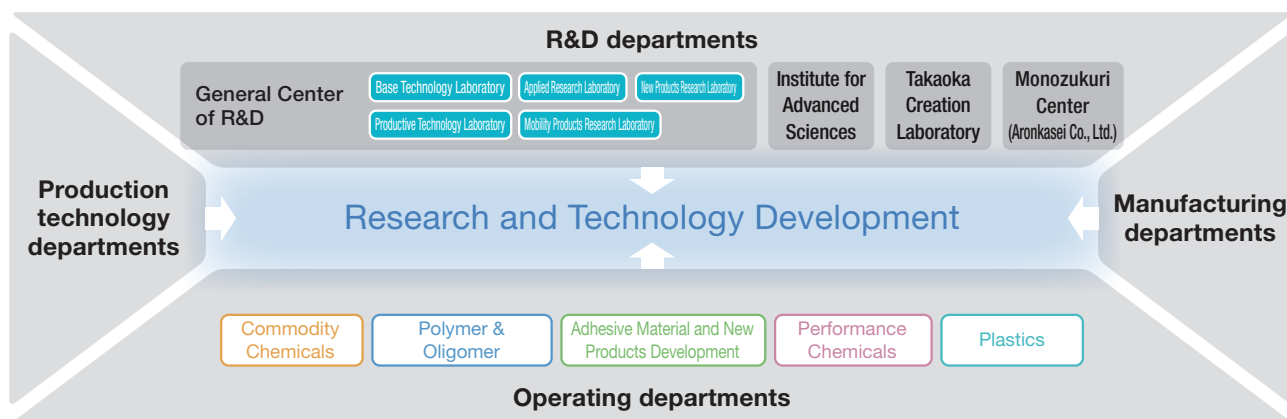
- ① Exploring and concretizing R&D themes that lead to the creation of new businesses
- ② Strengthening R&D capabilities through the introduction of a materials informatics (MI) system
- ③ Expanding R&D to cover processing technologies

On the research and technology development side, Toagosei endeavors to apply its technical core competences in new areas, conducting exploratory research to identify promising new technologies and functions and product development in areas where Toagosei excels in close cooperation with customers.

R&D System

The Toagosei Group aims to benefit society while ensuring the Group's sustainable development by supplying a wide range of useful chemical products. To accelerate product development in existing areas and hasten the development of products in new areas with growth potential, the General Center of R&D management is organized so all R&D activities from basic and applied research to product and production technology development are fully integrated, with research personnel deployed flexibly on key projects to maximize R&D efficiency. In January 2019, the Mobility Products Research Laboratory was established within the General Center of R&D to facilitate development of mobility-related products.

R&D System



“TREND,” the Group's Annual R&D Report

Since 1998, the Group has published an annual R&D report entitled “TREND” to review the year's activities in R&D and the development of production technology. Articles on the latest Group research can also be viewed on the company website.

“TREND” is available on the Toagosei website in Japanese. From **the top page**, select **R&D**, and then select **TREND**.
<https://www.toagosei.co.jp/develop/theses/>





Institute for Advanced Sciences



Takaoka Creation Laboratory



Monozukuri Center, Aronkasei

R&D Bases and Initiatives

General Center of R&D

The General Center of R&D, opened in 2011, is a comprehensive research facility that encompasses the Base Technology Laboratory and other four laboratories (see the table below), and the analytic evaluation/quality assurance section. In cooperation with other development bases, it functions as a central base for the development of the promising technologies and high-value-added products that will underpin the Toagosei Group's future.

Base Technology Laboratory	● In addition to actively supporting research and development for production lines, focusing on the four pillars of "analysis," "physical properties evaluation," "new synthesis," and "inquiry," we aim to establish elemental technologies that will constitute strengths of the Toagosei Group in the future.
Applied Research Laboratory	● We also conduct blue-skies research outside our current business and in areas where we lack the technologies to commercialize products, from the first stage all the way to product realization.
New Products Research Laboratory	● We aim to develop new products in partnership with customers by leveraging the technologies we have cultivated through basic research, applied research, product development, and production technology development.
Productive Technology Laboratory	● In addition to improving production capabilities, reducing costs and enhancing quality in existing business, we work together with the laboratories in the General Center of R&D to accelerate the development process.
Mobility Products Research Laboratory	● The Mobility Products Research Laboratory was established for the purpose of swiftly offering solutions to the mobility industry, including the automotive sector. We are conducting R&D of innovative adhesion and processing technologies indispensable for production of next-generation batteries, etc.

Institute for Advanced Sciences

The mission of the Institute for Advanced Sciences is to create new business from a mid- to long-term perspective. Our R&D ranges from basic research to applied studies based on the diverse biotechnologies we have cultivated, especially bioinformatics and peptide design technologies via joint programs with the Center for iPS Cell Research and Application, Kyoto University and with the Graduate School of Agricultural and Life Sciences, the University of Tokyo.

Takaoka Creation Laboratory

In 2020, we opened the Takaoka Creation Laboratory at the Takaoka Plant, the Group's principal base for the adhesive material business. In this laboratory, we will reinforce and expedite the development function for instant glues and various other adhesive agents.

Monozukuri Center, Aronkasei

Aronkasei utilizes its Monozukuri Center to strengthen manufacturing capabilities as a proposal-driven enterprise and for business process reengineering. In addition to developing piping equipment based on plastics technology as well as nursing care products, the Monozukuri Center is also developing new fabrication technology for elastomer compounds and other products through collaboration with the General Center of R&D.



TOPICS

Completion of the Technology Development Laboratory II, General Center of R&D

The Technology Development Laboratory II was newly established in the spring of 2021, for the purpose of developing high value-added products and promoting the development of core technologies and new materials necessary for the future business creation. It is equipped with plastics processing equipment and battery testing equipment for research and technological development of higher processing degrees. It also has a multi-purpose experimental area where experimental equipment can be easily replaced, aiming to accelerate the development of production technology.



Feature: Unique Products

Two of Our High Performance Adhesives Selected for the New MIRAI of Toyota Motor Corporation

New product

UV-curable adhesive ARONIX UVX

Specially modified olefin hot melt adhesive Aron Melt



Source: Toyota Motor Corporation

Fuel cell vehicles are powered by motors using the electricity generated through the reaction between hydrogen and oxygen in hundreds of stacked fuel cell sheets.

These two newly developed high performance adhesives were selected to ensure the path of flow of hydrogen and oxygen within the fuel cells, to create a better water drainage seal for the water generated, and to glue inner components of the cells together. Both ensure flexibility to conform to electrolyte membranes that expand and contract depending on the surrounding environment and long-term reliability that can withstand a wide temperature range.

Both of these adhesives play an important role in the power generation system of the fuel cell batteries considered the heart of a fuel cell vehicle. In addition, the risk of contamination with foreign substances including metals has been reduced to the utmost by thorough manufacturing process control since they are premised on being used inside a fuel cell.

1. Features of ARONIX UVX, the UV-curable adhesive

- ARONIX UVX is an acrylate UV-curable adhesive.
- It adheres in seconds and achieves high productivity.
- It minimized ingredients that cause performance degradation, such as those that deteriorate the catalyst.
- It has excellent adhesive durability with electrolyte membranes.
(No decrease in adhesive strength even after 3000 hours of immersion in hot water at 90°C)
- It can be used for screen printing applications.



Appearance of ARONIX UVX

2. Features of Aron Melt, the specially modified olefin hot melt adhesive

- Aron Melt is a specially modified olefin hot melt adhesive.
- Having excellent adhesive durability and chemical resistance and containing no impure ions, it is suitable as an adhesive sealing material for various batteries.
- Its high heat resistance ensures gas sealing property for a long period of time.
- It adheres in seconds and achieves high productivity.



Appearance of Aron Melt



New MIRAI



Fuel cell unit used in the new MIRAI

Source: Toyota Motor Corporation

Naturally derived green material

Oxidized cellulose T-OP 100

New
product

Cellulose nanofiber (CNF), a biomass material obtained from wood fiber, is a sustainable and high-functional material characterized by its light weight and high strength, but it has yet to be widely used due to its high price. We have developed T-OP 100, a new nanocellulose material that can significantly reduce costs compared to existing CNFs. It contributes to the effective utilization of biomass resources and the reduction of CO₂ emissions.

Challenges for CNFs

It requires a lot of energy to fibrillate cellulose fibers derived from wood to a size of a few nanometers in diameter. This causes high CO₂ emissions and high cost, making it difficult to put CNF into practical use.

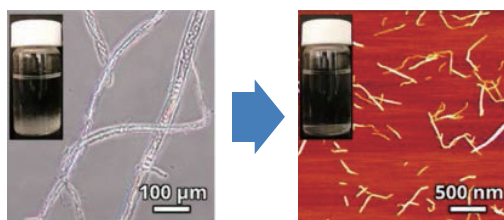
Features of T-OP 100

Our newly developed T-OP 100 is an oxidized cellulose obtained by oxidizing cellulose fibers using only sodium hypochlorite (NaClO). T-OP 100 has the following features.

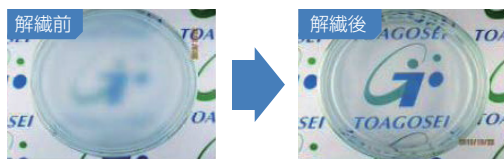
① Easy fibrillation

With nano-fibrillation by gentle stirring with a general-purpose stirrer, single-nano-sized CNF can be easily obtained.

The energy used for fibrillation can be significantly reduced and the CNF price can be reduced to about one-fifth that of existing products.



T-OP 100 before and after fibrillation



Nano-fibrillated by gentle stirring

Fibrillation conditions

- 1) Prepare aqueous dispersion with a solid content of 1%.
- 2) Use a homo-mixer. Stir at 10,000 rpm for 10 minutes. Dispersion turns transparent!

② High-concentration aqueous dispersions

The existing CNFs are sold as aqueous dispersions of about 1 to 3 wt%. Increasing the concentration of the aqueous dispersion increases its viscosity and makes it difficult to handle. T-OP 100 can be provided in the form of a high-concentration aqueous dispersion of about 10 to 15 wt%, which also contributes to the reduction of transportation costs. In addition, it can be added more since the viscosity increase by addition is less.



High-concentration
aqueous dispersion

Application

We are developing applications that take advantage of the T-OP 100's features.

- Reinforcement of resin, paint, or rubber
- Binder for inorganic materials such as ceramics
- Dispersing agent for fillers or pigments

It inhibits the sedimentation and separation of zinc oxide nanoparticle aqueous dispersion.

Left: No oxidized cellulose added
Right: 5wt% oxidized cellulose added



Pigment dispersion test



Etsuhiro Hosoda

Fellow, Chuo Graduate School
of Strategic Management

Nobuhiro Ishikawa

Representative Director
Vice President

Shuji Iwamaru

General Manager, Sustainability
Promotion Department

Feature Three-way Discussion on Sustainability

How can we contribute to the realization of a sustainable society as a chemical manufacturer?

As awareness towards ESG has increased, more people today are questioning companies' purpose in society. We invited Chuo Graduate School of Strategic Management Fellow Etsuhiro Hosoda, one of the leading experts in corporate branding who is also well-versed in sustainability, to talk with Toagosei Vice President and Representative Director Nobuhiro Ishikawa and Sustainability Promotion Department General Manager Shuji Iwamaru, so that you can evaluate Toagosei's initiatives.

Our future businesses must be environmentally friendly and benefit society

Hosoda You celebrate your 77th anniversary in 2021, but you revamped your corporate philosophy when the company turned 75. The times have changed greatly and now that there is more focus on a company's role in society, I think it is wonderful that you reexamined your corporate philosophy, or in other words your purpose in society.

Ishikawa When the company was founded in 1944, we produced commodity chemicals like other chemical manufacturers. Then we launched businesses

such as electrolysis products and petrochemicals. But in the last 30 years we transformed our policy to create functional products in addition to materials. And in line with our 75th anniversary we made this clear with a new corporate philosophy: "Through the endless possibilities of chemistry, we bring happiness created by highly functional materials." We hope to improve people's lives by pursuing and offering new products that benefit the world. And this goes for our existing businesses as well.

Iwamaru From this point on our businesses must be sustainable, environmentally friendly, benefit society.

We aim to expand businesses of products that are needed in today's rapidly changing society, which we have positioned as high-value-added products. Or to put it another way, we will offer products as a chemical manufacturer in high-demand fields such as mobility, electric vehicles (EV), and fuel cell vehicles (FCV). In fact, one of our products is being used in Toyota's new Mirai. We take pride that we are contributing to improving the performance of electric vehicles and promoting their widespread use.

Hosoda As we enter the age of sustainability, expectations for companies to have a positive impact through business have increased exponentially. One of the main reasons behind this is the strong demand towards operations that have had a negative impact on the environment and society. As a chemical manufacturer, there is more concern about the extent of your impact on the environment than other industries, so you started responsible care activities early on. What are your thoughts on that?

Ishikawa Recognizing the burden the chemical industry has imposed on the environment in the past, we have increased emphasis on corporate social responsibility (CSR) and continue to carry out initiatives to lessen our negative impact. We are continuously building on improvements year by year in the areas of environment, safety, and quality, and have established a Pollutant Release and Transfer Register (PRTR). And these efforts are producing outstanding results.

We had been making steady progress toward our target of reducing CO₂ emissions 26% from 2013 by 2030, but considering how the trend of decarbonization has accelerated, we thought we should go even fur-

ther. So this year we revised the target to reduce CO₂ emissions 50% from 2013 by 2030 and to zero by 2050.

Iwamaru We also manufacture sodium hypochlorite, which is used to disinfect the water supply, as part of our commodity business. This is something that is crucial for society, but it takes a great amount of energy to produce, so a major goal of ours is to reduce that somehow. I believe it will boost the competitiveness of our products and lead to more customers choosing us.

Ishikawa But it will take more than just switching everything to renewable energy to dramatically reduce CO₂. We will need to combine a variety of methods, and at the very least improve energy efficiency. Saving energy is clearly directly connected to competitiveness, so we are treating it as an important item of deliberation.

Solving social problems through business and providing hydrogen infrastructure to communities

Hosoda Creating shared value (CSV) has become an established approach in modern competitiveness. Considering this, your industry is intertwined with the global environment, and society has a big impact on its development. Are you engaging in any efforts that stand out recently in terms of solutions to social issues through business?

Etsuhiro Hosoda

Fellow, Chuo Graduate School of Strategic Management
Senior Lecturer, Japan Management Association

Born in Aichi Prefecture in 1957, Etsuhiro Hosoda joined Canon Marketing Japan Inc. after graduating from Chuo University Faculty of Law. There he worked in sales and marketing, and then public relations and brand management, eventually serving as head of the CSR department. Today he works as a lecturer, training instructor, consultant, and advisor at companies and universities. At the conference Sustainable Brands 2021 Yokohama held this year, he served a variety of roles including facilitator. His published works include *Erabaretsuzukeru Kaisha toha: Sasutenabiriri Jidai no Kigyō Burandingu* ("Continuously Chosen Companies: Corporate Branding in the Age of Sustainability").



Ishikawa One thing we are working on right now is promoting use of hydrogen energy.

Hydrogen-powered fuel cell vehicles (FCV) are environmentally friendly, but the problem is that currently there are a limited number of places you can refuel cars with hydrogen.

We have a plant in Tokushima Prefecture, and the prefectural governor is actively engaging in initiatives to realize a hydrogen society. He plans to implement FC buses in the prefecture. Unfortunately, there was not enough stationary hydrogen stations in the prefecture.

Our plant produces caustic soda by electrolysis of a saline solution. Since we had not been able to effectively use the hydrogen produced in the process, we thought that perhaps it could be supplied to FC hydrogen stations.

So in support of the prefectural government's policy, we decided to install two hydrogen stations by autumn 2021—one stationary and one mobile—that will be directly supplied with hydrogen from the nearby Tokushima Plant. We hope they will be used as part of the community's hydrogen infrastructure. I hear that it is the first case of a plant being directly linked to a hydrogen station.

Tokushima Plant is an old plant and an enormous complex, but it is surrounded by a wall and most locals had no idea what goes on inside. We have

contributed to the region by creating jobs, but this time we were able to play a part in the community in a different way.

Hosoda Your company has a close connection with Tokushima Prefecture, doesn't it? You have worked together with and benefited from the community, and contributed to the community through business. I think it is an ideal example of a company and community mutually contributing to each other's growth.

Striving to be an employee-friendly company that employees are proud of and makes products society needs

Hosoda Besides the environment, another point to check in evaluating a company is how well it has treated its employees in the COVID-19 pandemic. I see you have also focused efforts on corporate health.

Ishikawa For three years in a row Toagosei has been certified as a "White 500" organization in the Ministry of Economy, Trade and Industry's Certified Health & Productivity Management Organizations Recognition Program. We are implementing reforms based on the idea that creating an employee-friendly environment boosts employee motivation, which in turn leads to increasing a company's productivity. Examples of our reforms include establishing a system that facilitates tele-working, enabling employees to take annual paid leave in hourly increments, and aiming to achieve 100% use of paid leave.

Even before the pandemic, we decreased designated work hours by 15 minutes as an initiative to reduce overtime. Thinking about our business partners, we were worried at first, but they gradually came to understand Toagosei's workstyle reforms. We plan to continue moving forward with such reforms, including tele-working.

Hosoda That is an outstanding initiative that transcends the existing concepts of the manufacturing industry. SDGs have been the spotlight recently. What are thoughts on them?





Iwamaru We don't view SDGs as something special. We consider how our long-established technologies and areas where we excel are needed by society and how we can contribute to society. And if that connects to SDGs as a result, that's great.

Ishikawa SDGs are a recent concept, but they align with our business objectives. For example, for years we have been contributing to water purification by producing polymer flocculants used in sewage treatment plants. We don't operate our business with SDGs in mind, but in the end we accomplish the same objectives. However, thanks to SDGs, people have a renewed understanding of the importance of sodium hypochlorite and other chemicals in society. Once we define materiality areas and goals, I believe we will be able to provide even greater benefits in a wide range of areas.

And now that it is clear to employees that their jobs are beneficial to society, I think they will be able to do their jobs with pride.

Hosoda I admire how your company's business objectives share the same values as the essence of the SDGs and your approach of backcasting from SDGs to consider current initiatives.

And I agree with your mindset on employees. In the past employees were happy as long as they were monetarily compensated with salary or other remuneration, but recent surveys on new employees show that they are interested in benefiting society and achieving self-actualization through their jobs. Non-monetary compensation such as doing something for society or improving yourself can also be a factor in boosting motivation. Producing products that underpin the foundation of society and contributing to the social infrastructure like your company does lead to greatly increasing motivation.

I see that your company supports the Task Force on Climate-related Financial Disclosures (TCFD). What are your thoughts on that?

Ishikawa Since we announced our support of the recommendations of the TCFD in 2019, we have identified Scope 3 emissions to reduce greenhouse

gasses (GHG) across the entire supply chain. We are moving forward with Scope 1 and 2 through reforms we are implementing, and if we increase our high-value-added products and businesses that have a positive impact, we will be able to move on to the next stage to reduce CO₂ emissions in the supply chain.

Iwamaru In the last few years there has been an increase in assessments and questionnaires from outside the company across the supply chain, and an increase in requests from major corporations to make products with low GHG emissions. In response, I believe it is important to both quickly increase our efforts to identify and reduce GHG emissions across the entire supply chain and provide high performance products that customers need.

Hosoda After talking with you today, I can tell that Toagosei has a well-developed story for promoting sustainability. I think that, based on your revised corporate philosophy, by connecting and aligning the business activities you have been carrying out so far with SDGs, you have balanced economic values with social values and it will lead to achieving sustainable growth and improving corporate value over the long term. That's why your ESG metrics have earned you high acclaim in the capital market.

Thank you.

Sustainability Management

Toagosei Group's Corporate Philosophy and Sustainability Management System

Sustainability Policy

We take up a challenge to create new value to deliver happiness to future generations

The Toagosei Group has been offering environmentally friendly products.

We will step up our efforts to continue to develop and offer products contributing to a sustainable and affluent society.

Corporate Philosophy

Through the endless possibilities of chemistry, we bring happiness created by highly functional materials.

Declaration

(Resolution to achieve the corporate philosophy)

New possibilities for society and the future happiness for everyone—these are the things that we will deliver through our highly functional materials.

We will continue to challenge ourselves.

Building on the technologies we have acquired thus far, we will strive to enter new fields to provide the sort of value that only we can offer.

We will never stop moving.

We will recognize the various changes in the world around us and be a societal leader through the power of chemistry, conducting ourselves as a company that co-exists with the people of society.

Guidelines for Conduct

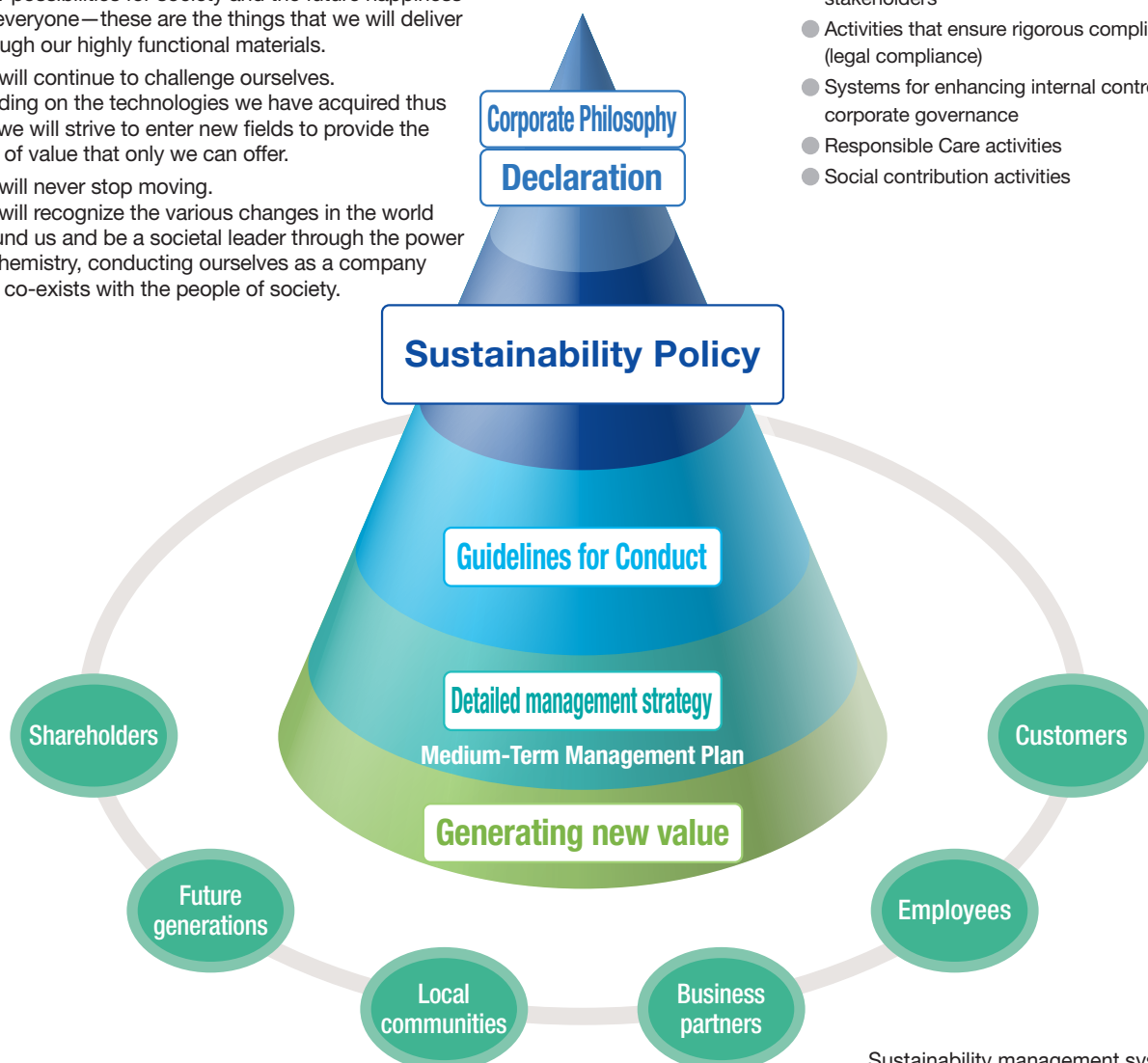
Vision Have a vision for the future while creating superior key materials.

Challenges Push new boundaries with a strong will and imaginative ideas.


















Collaboration Create new businesses together with our customers and partners.

CSR Policy

- Management focused on the interests of stakeholders
- Activities that ensure rigorous compliance (legal compliance)
- Systems for enhancing internal control and corporate governance
- Responsible Care activities
- Social contribution activities



All TOA Sustainability System

Sustainability Policy	Initiatives for the Development of a Sustainable Society	Main Category	Subdivision	Details	Relevant SDGs
We take up a challenge to create new value to deliver happiness to future generations.	Provision of social value through business (OSR*1)	Priority fields and materiality	Mobility	● Reduction of environmentally hazardous substances related to automobiles	
			Electronics	● Industrial innovation/information infrastructure improvement	
			Healthcare	● Creation of a healthy and comfortable living environment ● Enhancement of the quality of life of seniors and people requiring care	
			Infrastructure	● Stable supply of high-quality water through water and sewage treatment ● Prevention and mitigation of damage caused by natural disasters	 
			Biodiversity	● Marine biodiversity conservation	
			Energy	● Mitigation of climate change by reducing CO ₂ emissions	
			Generating new value	● Creation of new business unit and provision of new value with DX	
	Strengthening of a Lasting Corporate Foundation (DSR*2)	Corporate social responsibility	Governance	● Strengthening governance focused on the interests of stakeholders	  
			Environment	● Enhancement of Responsible Care activities	  
			Community	● Respect for human rights and diversity ● Social contribution activities	  

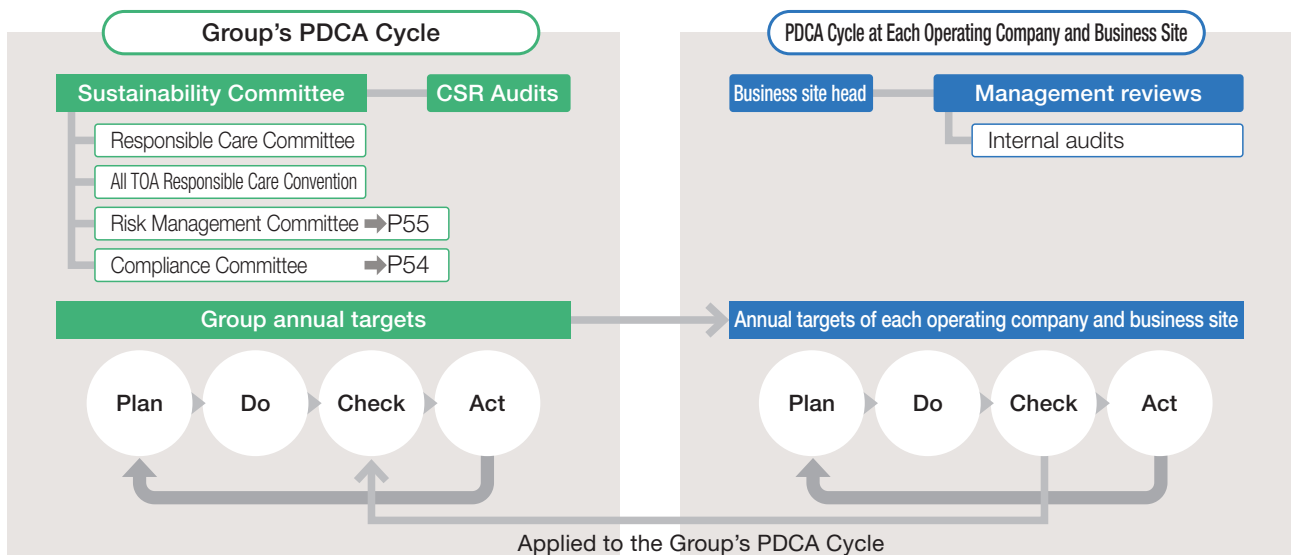
*1 OSR : Offensive CSR *2 DSR : Defensive CSR

Sustainability Management System

The Group is continually improving CSR activities in accordance with the Sustainability Policy by implementing the PDCA cycle to improve its ISO certified environmental and quality management.

In light of the Toagosei Group's policy and targets, each operating company establishes its own policy and targets, based on which each operating company and its business sites draw up individual action plans to promote and review activities.

We hold meetings of the Sustainability Committee and the Responsible Care Committee and perform CSR audits in order to collectively monitor CSR activities at each operating company and business site as well as progress toward fulfilling policies and attaining targets. This information is used to make continual improvements across the entire Toagosei Group.



Towards a Sustainable Development of the Society

Long-term Vision for Climate Change Mitigation--Towards a Carbon-neutral Society

Under Toagosei's Sustainability Policy, we are working through our environment-conscious business activities towards achieving sustained development of a prosperous society for the future generations.

Among the environmental problems, global warming, or the climate change, is a huge risk that threatens our society. Its growing impact, as seen in the growing magnitude of typhoons, rising frequency of concentrated downpours, changes in ecosystems, etc., is causing concern.

Featuring the mitigation of climate change as a key issue in our environmental actions, the Company is working to reduce greenhouse gas (GHG) emissions. We have so far achieved a 19% reduction from the 2013 level in 2020.

Our target for up to 2020 had been to "achieve 26% reduction from the level in 2013 in 2030," but this year we

have set a new long-term target in step with the global goal to stop the warming.

We are also aiming to reduce emissions from the entire supply chain, spanning from purchasing of raw materials to the end-of-life disposal of products sold, and towards this we are surveying the emissions and analyzing the risks and opportunities of climate change.

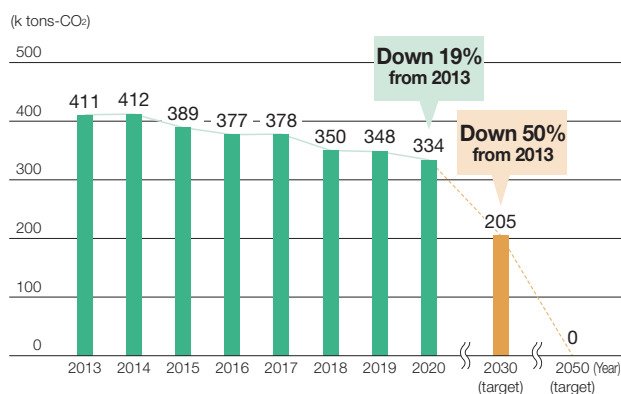
GHG Emissions Reduction Targets

- 2030: 50% reduction from the 2013 baseline
- 2050: achieve net zero emissions

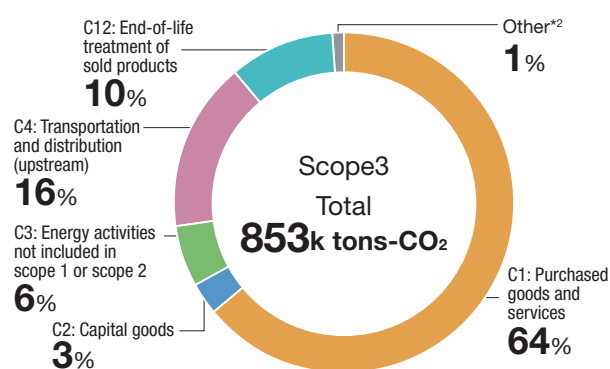
Key Initiatives

- Energy conservation: introducing highly efficient technologies/equipment
- Energy transition: introducing renewable natural energy
- Introduction of new decarbonization technologies: separation and capture of CO₂, use of hydrogen

GHG Emissions and Reduction Targets (Scope1 + Scope2)



GHG Emissions (Scope3) *1



*1 Data for: Toagosei Co., Ltd., 2020

*2 Other: waste generated in operations, business travel, employee commuting, transportation and distribution (downstream), leased assets (downstream)

Efforts in Alignment with the Recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD)

In June 2019, Toagosei endorsed the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD), which was created by the Financial Stability Board. Electricity ranks as the principal input for the electrolysis facilities used in the production of soda, which is at the heart of Toagosei's business. Reducing GHG emissions from our electricity consumption is a major challenge and rising electricity costs over the medium- and long-term poses a great risk to the continuity of our business. In recent years, the Group has been driving, where feasible, energy efficiency improvement initiatives that go beyond conventional energy conservation measures, and we will accelerate these efforts in the coming years.

Amid the call for "carbon neutrality," we will go beyond just reducing our emissions to tackle the issue of environ-

mental load from the entire supply chain--from raw materials to the disposal of products sold--and increase our efforts in developing and offering products that contribute to realizing a decarbonized society.

We have so far grasped the volume of GHG emissions (scope 1, 2, 3) according to the TCFD guidance. From here on, we will analyze the risks and opportunities for our business based on possible scenarios covering the impacts of climate change, policies, regulations, changes in the market, etc., and work to ensure disclosure of clear and comprehensible information.



Cases and topics

Utilizing Hydrogen Energy

(mitigating global warming, contributing to the local communities)

Since its establishment in 1957, our Tokushima Plant has been safely and steadily operating its saline water electrolysis plant that mainly produces caustic soda, chlorine and hydrogen. Utilizing the technology for the production of high-purity hydrogen at this electrolysis plant, the Company will open hydrogen stations--fixed (in collaboration with the Japan H₂ Mobility, LLC) and mobile--in the vicinity of the Tokushima Plant in the fall of 2021 to fuel hydrogen to fuel cell vehicles and buses.



Hydrogen stations to be installed (artist's impression)

For our precious planet and our future

Hydrogen Station Signing Ceremony

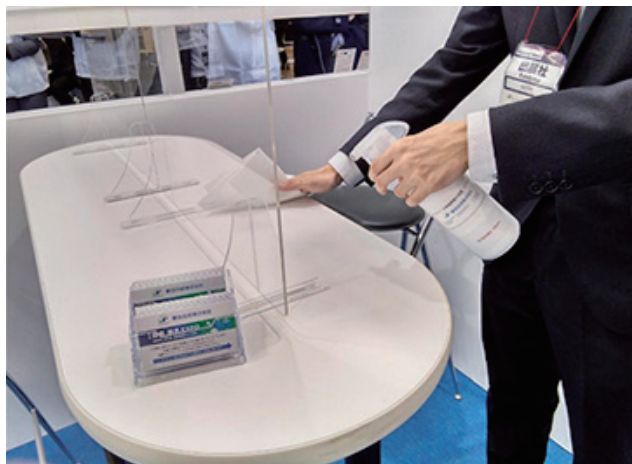


Left to right, Governor Iizumi of Tokushima Prefecture, President Takamura, Mayor Tamai of Itano Town



Signing ceremony

On December 15, 2020 at the Tokushima Prefectural Government Office, the Company signed the "Partnership Agreement to Promote Efforts Toward Realizing the Tokushima Hydrogen Grid Initiative" with Governor Iizumi of Tokushima Prefecture and the "Memorandum of Understanding on the Establishment and Operation of Hydrogen Stations" with Mayor Tamai of Itano Town.



Launch of Disinfectant/deodorant that Acts Against Viruses and Molds

































ARON HYPO CLEAN is a hypochlorous acid solution, or sodium hypochlorite pH-controlled with diluted hydrochloric acid.

It is an alcohol-free disinfectant that is safe to use near the fire where alcohol shouldn't be used or when infants or pets are around.

It also has deodorant effect that works well in removing room odor or pet odor and for toilets.

The disinfectant efficacy of hypochlorous acid solutions against COVID-19 has been confirmed by administrative organizations.

Strengthening of the Corporate Foundation

Classification		Focus in 2020	Relevant SDGs	P Targets for 2020
Strengthening of the Corporate Foundation	 Environmental Protection P57 ~ P59	<ul style="list-style-type: none"> Mitigation of global warming Waste reduction and recycling Reduction of emissions of chemical substances 	    	<ul style="list-style-type: none"> CO₂ emissions: 361k tons or less (at the Group's production sites in Japan) Energy consumption per unit of output: 99% or less of the previous year Final landfill rate: 0.5% or less Maintaining of sorting of waste and appropriate disposal Promotion of recycling and waste volume reduction Emissions of substances subject to PRTR: 41 tons or less
	 Safety and Disaster Prevention P60	<ul style="list-style-type: none"> Strengthening of accident prevention measures 		<ul style="list-style-type: none"> Zero explosion or fire accidents Zero serious leakage accidents of harmful substances or hazardous materials
	 Occupational Health and Safety P61	<ul style="list-style-type: none"> Promotion of the Zero-accident Campaign 	 	<ul style="list-style-type: none"> Zero lost-time injuries
	 Product Safety P62	<ul style="list-style-type: none"> Enhanced management of chemical substances 	 	<ul style="list-style-type: none"> Response to domestic and overseas laws and regulations Expansion of the scope of usage of the chemicals management system Ensuring of preparation and updating of SDS in accordance with GHS
	 Quality Assurance P63	<ul style="list-style-type: none"> Continuous improvement of product quality 		<ul style="list-style-type: none"> Reduction in the total number of complaints
	 Physical Distribution Safety P64	<ul style="list-style-type: none"> Enhancement of quality and safety of physical distribution 		<ul style="list-style-type: none"> Reduction in the number of physical distribution problems
	 Corporate Governance P49 ~ P53	<ul style="list-style-type: none"> Strengthening of corporate governance Timely and appropriate information disclosure to stakeholders 		<ul style="list-style-type: none"> Switch to full compliance with the corporate governance code Control and supervision of Group companies and provision of appropriate guidance Effective information disclosure from an all-Group perspective
	 Compliance P54	<ul style="list-style-type: none"> Inculcation of awareness of the vital importance of compliance. Thorough understanding of and compliance with laws and regulations relevant to operations 		<ul style="list-style-type: none"> Continuous compliance education Continuation of monitoring and checks by the Compliance Committee Execution of a questionnaire survey on compliance No major violation
	 Risk Management P55	<ul style="list-style-type: none"> Strengthening of responses to risks 	    	<ul style="list-style-type: none"> Periodic risk assessment by the Risk Management Committee Continuation of implementation of measures for reducing risk at each site Continuation of a crisis response drill jointly conducted by the Head Office and sites Continuation of drills at each site in preparation for earthquakes/accidents
	 Human Resources P65 ~ P69	<ul style="list-style-type: none"> Establishment of a fulfilling working environment for a diverse workforce Promotion of work-life balance (achievement of an average annual leave usage rate of 100%) Promotion of active participation by women (execution of the action plan for promoting active participation by women) Promotion of health management Promotion of preventive measures against COVID-19 infection 	    	<ul style="list-style-type: none"> Maintenance of employment rate of persons with disabilities of 2.4% or higher Average annual leave usage rate: 100% Female hiring ratio: 30% Ratio of female managers: three times the level in 2016 Reduction in smoking rate Reduction in the number of persons on long-term absence due to mental problems Reduction in overwork/long working hours Improvement in the ratio of employees who undergo secondary health check-up Improvement in the rate of employees maintaining desirable weight Promotion of preventive measures against COVID-19 infection

Degrees of achievement indicated in PDCA tables

★★★★ : Target achieved

★★★ : Progress slower than originally envisaged and target not achieved (target achievement rate of 80% or higher)

★ : Target not achieved (target achievement rate of less than 80%)

D	C	A
Results in 2020	Achievement	Targets for 2021
<ul style="list-style-type: none"> CO₂ emissions: 347k tons Energy consumption per unit of output: 104% of the previous year 	★★	<ul style="list-style-type: none"> Medium- to long-term target for CO₂ emissions 2030 target: 50% reduction from the actual emissions level in 2013 2050 target: zero
<ul style="list-style-type: none"> Final landfill rate: 0.15% Details of generated waste identified, recycling promoted 	★★★★	<ul style="list-style-type: none"> Final landfill rate: 0.5% or less Maintaining of sorting of waste and appropriate disposal Promotion of recycling and waste volume reduction
<ul style="list-style-type: none"> Emissions of substances subject to PRTR: 41.4 tons 	★★	<ul style="list-style-type: none"> Emissions of substances subject to PRTR: 41 tons or less
<ul style="list-style-type: none"> Explosion or fire accidents: 0 Gas leak accidents: 1 (sulfurous acid gas leakage at Nagoya Plant) 	★	<ul style="list-style-type: none"> Zero explosion or fire accidents Zero serious leakage accidents of harmful substances or hazardous materials
<ul style="list-style-type: none"> Lost-time injuries: 6 	★	<ul style="list-style-type: none"> Zero lost-time injuries
<ul style="list-style-type: none"> Responded to domestic and overseas chemicals-related laws and regulations Expansion of the scope of usage of the chemicals management system Responded to requests to submit SDS and various other surveys 	★★★★	<ul style="list-style-type: none"> Response to domestic and overseas laws and regulations Expansion of the scope of usage of the chemicals management system Ensuring of preparation and updating of SDS in accordance with GHS
<ul style="list-style-type: none"> Number of complaints: decreased by 15% from the previous year 	★★★★	<ul style="list-style-type: none"> Reduction in the total number of complaints
<ul style="list-style-type: none"> Number of complaints regarding physical distribution: decreased by 42% from the previous year (rated ★★, since this drop was due to the large number in the previous year) 	★★	<ul style="list-style-type: none"> Reduction in the number of physical distribution problems to 20 or less
<ul style="list-style-type: none"> Completed the switch to full compliance with the corporate governance code upon the introduction of stock compensation plan 	★★★★	<ul style="list-style-type: none"> Make arrangements to comply with the revised corporate governance code due to the change in our listing category on the Tokyo Stock Exchange Promote the capital policies under the Medium-Term Management Plan "Stage up for the Future"
<ul style="list-style-type: none"> Carried out monitoring via CSR audits 	★★★★	<ul style="list-style-type: none"> Control and supervision of Group companies and provision of appropriate guidance
<ul style="list-style-type: none"> Toagosei Group Report and shareholder newsletters issued, information disclosed on corporate website and through other means 	★★★★	<ul style="list-style-type: none"> Effective information disclosure from an all-Group perspective
<ul style="list-style-type: none"> Offered compliance programs to new and promoted employees Executed a questionnaire survey on compliance for all Group employees Conducted harassment seminars for managerial personnel at all Group business sites 	★★★★	<ul style="list-style-type: none"> Continuous compliance education Continuation of monitoring and checks by the Compliance Committee Hold harassment seminars targeting non-managerial personnel
<ul style="list-style-type: none"> Administrative guidance received: 1 Accident of sulfuric acid gas leakage at a sulfuric acid plant 	★	<ul style="list-style-type: none"> No major violation
<ul style="list-style-type: none"> Held the Risk Management Committee (twice) Conducted drills based on the Disaster Response Checklist The Head Office and sites jointly conducted a crisis response drill and a media training. Conducted drills at each site in preparation for earthquakes/accidents 	★★★★	<ul style="list-style-type: none"> Periodic risk assessment by the Risk Management Committee Continuation of implementation of measures for reducing risk at each site Continuation of a crisis response drill jointly conducted by the Head Office and sites Continuation of drills at each site in preparation for earthquakes/accidents
<ul style="list-style-type: none"> Employment rate of persons with disabilities: 2.53% (as of December 31) 	★★★★	<ul style="list-style-type: none"> Maintenance of employment rate of persons with disabilities of 2.4% or higher
<ul style="list-style-type: none"> Average annual leave usage rate: 91.8% 	★★	—
<ul style="list-style-type: none"> Female hiring ratio: 21.4% (as of April 1) Ratio of female managers: 2.3% (as of January 1) 	★★	<ul style="list-style-type: none"> Female hiring ratio: 30% or more among new career-track employees, 20% or more among regular service employees Ratio of female managers: 5% (13 persons as of January 1, 2026) Greater workplace choices for women: assign women to posts where women have never been placed before
<ul style="list-style-type: none"> Remained mostly unchanged Reduced partly due to workplace improvements Figures varied more widely among divisions than in the previous year Saw improvements from previous year due to awareness-raising efforts of the department in charge Remained mostly unchanged 	★★	<ul style="list-style-type: none"> Promote the prevention of lifestyle-related diseases Rate of employees taking thorough health screening: 100%; rate of employees with regular exercise habits: 40%; rate of employees maintaining desirable weight: 70% Promote smoking cessation Smoking rate: 15% (reduce the rate by half by 2021 from 31% in 2018)
<ul style="list-style-type: none"> Issued a total of 20 guidelines of action regarding COVID-19 by the end of December Prepared masks, alcohol disinfectants, and other items Made rules regarding procedures to be followed in case of (suspected) infection, such as reporting within company, dealing with the public health center, disinfecting, etc. Promoted teleworking to avoid crowding; put up posters to raise awareness for prevention; installed alcohol disinfectants, panels to block droplets, contactless thermometers, antimicrobial protection films, etc. 	★★★★	<ul style="list-style-type: none"> Continue balancing infection prevention and business activities

Directors (as of March 30, 2021)



President and Representative Director

Mikishi Takamura

(Date of birth: March 28, 1956)

April 1980 Joined the Company
April 2002 General Manager, Finance Group, Administrative Department
April 2005 General Manager, Human Resources & General Affairs Group, Administrative Department
April 2006 General Manager, Human Resources & General Affairs Group and General Manager, Investor Relations & Public Relations Section, Administrative Department
April 2008 Deputy Plant Manager, Nagoya Plant
March 2010 Director, General Manager, Administrative Department
April 2012 Director, General Manager, Administrative Division
March 2013 Director, General Manager, Corporate Strategy Department
March 2015 Vice President and Representative Director and General Manager, Corporate Strategy Division
November 2015 President and Representative Director (to present)



Vice President and Representative Director
General Manager, Corporate Strategy Division

Nobuhiro Ishikawa

(Date of birth: January 8, 1955)

April 1977 Joined the Company
April 2001 General Manager, Productive Technology Group, Manufacturing Department, Nagoya Plant
April 2002 General Manager, Manufacturing Department II, Nagoya Plant
April 2005 General Manager, Acrylic Products Group, Acrylic Products Department
April 2007 General Manager, UV-curable Resins Group, Functional Materials Department
March 2008 Executive Officer, General Manager, Acrylic Products Department
March 2010 Executive Officer, Plant Manager, Nagoya Plant
March 2014 Director, General Manager, Technology & Production Administrative Division
January 2016 Vice President and Representative Director and General Manager, Corporate Strategy Division (to present)



Director
General Manager, Group Administrative Division and General Manager, Human Resource Development Department, Group Administrative Division

Yoshitaka Suzuki

(Date of birth: September 14, 1958)

April 1982 Joined the Company
April 2012 Deputy Plant Manager, Nagoya Plant
April 2014 General Manager, General Affairs & Legal Department, General Manager, Human Resources Department, and General Manager, Investor Relations & Public Relations Section, Administrative Division
September 2014 General Manager, General Affairs & Legal Department and General Manager, Human Resources Department, Administrative Division
March 2017 Director, General Manager, Administrative Division
January 2019 Director, General Manager, Group Administrative Division
January 2020 Director, General Manager, Group Administrative Division, General Manager, General Affairs & Legal Department and General Manager, Human Resource Development Department, Group Administrative Division
January 2021 Director, General Manager, Group Administrative Division and General Manager, Human Resource Development Department, Group Administrative Division (to present)



Directors
General Manager, Supply Chain Management Division and General Manager, Tokyo Sales Department

Susumu Miho

(Date of birth: November 12, 1959)

April 1984 Joined the Company
April 2006 Research Manager, Productive Technology Laboratory, Technology Administrative Department
December 2006 Chief Executive Officer, TOA-DIC Zhangjiagang Chemical Co., Ltd.
February 2012 Deputy Plant Manager, Nagoya Plant
April 2013 General Manager, Monomer & Oligomer Group, Acrylic Products Department
March 2016 Executive Officer, General Manager, Acrylic Products Department
January 2017 Executive Officer, General Manager, Polymer & Oligomer Division and General Manager, New Product Development Department, Polymer & Oligomer Division
March 2018 Director, General Manager, Technology & Production Administrative Division and General Manager, Research & Development Administrative Division
January 2021 Director, General Manager, Supply Chain Management Division and General Manager, Tokyo Sales Department (to present)



Directors
General Manager, Technology & Production Administrative Division and General Manager, Research & Development Administrative Division

Masahiro Kimura

(Date of birth: July 7, 1960)

April 1986 Joined the Company
April 2012 General Manager, Manufacturing Department II, Nagoya Plant
April 2014 Deputy Plant Manager, Takaoka Plant
June 2018 Plant Manager, Takaoka Plant
March 2019 Executive Officer, Plant Manager, Takaoka Plant
March 2021 Director, General Manager, Technology & Production Administrative Division and General Manager, Research & Development Administrative Division (to present)



Directors
President and Representative Director, Aron Kasei Co., Ltd.

Shinichi Sugiura

(Date of birth: August 4, 1955)

April 1978 Joined the Company
April 2005 General Manager, UV-curable Resins Group, Functional Materials Department
April 2007 General Manager, Chlorine & Alkali Products Group, Commodity Chemicals Department
March 2008 Executive Officer, General Manager, Commodity Chemicals Department
March 2013 Director, General Manager, Supply Chain Management Division
March 2015 Director of the Company (to present) President and Representative Director, Aron Kasei Co., Ltd. (to present)



Directors

Audit & Supervisory Committee Member

Katsuyuki Ito

(Date of birth: August 27, 1957)

April 1981 Joined the Company
April 2007 General Manager, Business Support Department, Aron Kasei Co., Ltd.
June 2007 General Manager, Corporate Strategy Department, Aron Kasei Co., Ltd.
June 2008 Resigned from the Company
Director, Aron Kasei Co., Ltd.
March 2015 Director, General Manager, Administrative Division
January 2017 Director, General Manager, Group Management Division and General Manager, Human Resource Development Department, Group Management Division
March 2020 Director (Audit & Supervisory Committee Member) of the Company (to present)



Directors
Outside Director

Satoru Nakanishi

(Date of birth: August 31, 1953)

April 1976 Joined Mitsui Bank
April 2004 Executive Officer, Sumitomo Mitsui Banking Corporation
April 2006 Managing Executive Officer, Sumitomo Mitsui Banking Corporation
April 2009 Senior Managing Executive Officer, Sumitomo Mitsui Financial Group, Inc. Director and Senior Managing Executive Officer, Sumitomo Mitsui Banking Corporation
June 2009 Director, Sumitomo Mitsui Financial Group, Inc.
April 2011 Representative Director, Sumitomo Mitsui Financial Group, Inc. Representative Director and Deputy President, Sumitomo Mitsui Banking Corporation
April 2013 Director, SMFG Card & Credit, Inc.
June 2013 President and Representative Director, Cedyne Financial Corporation Director, SMBC Finance Service Co., Ltd.
March 2017 Director of the Company (to present)
June 2019 Audit & Supervisory Board Member, Sotetsu Holdings Co., Ltd. (to present)



Directors
Outside Director

Yasuhiro Koike

(Date of birth: April 7, 1954)

April 1983 Research Associate, Faculty of Science and Technology, Keio University
April 1992 Associate Professor, Faculty of Science and Technology, Keio University
April 1997 Professor, Faculty of Science and Technology, Keio University
April 2004 Director, Keio Leading-edge Laboratory of Science and Technology
April 2010 Director, Keio Photonics Research Institute (to present)
November 2010 Councillor, Keio University
March 2018 Director of the Company (to present)
April 2020 Professor, Keio University (to present)



Directors
Outside Director

Yuichiro Mori

(Date of birth: January 6, 1968)

April 1993 Registered as a lawyer
April 1993 Joined Nagashima & Ohno (currently Nagashima Ohno & Tsunematsu)
June 2002 Joined Jones Day Showa (currently Jones Day) (to present)
July 2012 Supervisory Director, DREAM Private REIT Inc. (to present)
June 2018 Audit & Supervisory Board Member, Keihin Corporation
March 2021 Director of the Company (to present)



Directors
Outside Director Audit & Supervisory Committee Member

Nobuhiko Takano

(Date of birth: October 8, 1956)

July 2006 District Director, Moji Tax Office, Fukuoka Regional Taxation Bureau
July 2007 Chief Investigator, Criminal Investigation Department, Tokyo Regional Taxation Bureau
July 2009 Chief Examiner, First Taxation Department, Tokyo Regional Taxation Bureau
July 2010 Director, Second Personnel Division, Planning and Administration Department, Tokyo Regional Taxation Bureau
July 2012 Director, First Personnel Division, Planning and Administration Department, Tokyo Regional Taxation Bureau
July 2014 Director, (Health and Welfare), Commissioner's Secretariat, National Tax Agency
July 2015 Chief Internal Inspector, Commissioner's Secretariat, National Tax Agency
July 2016 Regional Commissioner, Kumamoto Regional Taxation Bureau
August 2017 Registered as a Certified Public Tax Accountant (to present)
March 2018 Director (Audit & Supervisory Committee Member) of the Company (to present)
June 2020 Corporate Auditor, NICHIAS Corporation (to present)



Directors
Outside Director Audit & Supervisory Committee Member

Kiyoko Ishiguro

(Date of birth: February 21, 1960)

April 1991 Registered as a lawyer
April 1995 Partner, Noda, Aibara & Ishiguro Law Office (currently Noda Memorial Law Office) (to present)
April 2000 General Manager, Research Department, Tokyo Bar Association
April 2006 Chairperson, Public Relations Committee, Tokyo Bar Association
April 2010 Civil Defense Instructor, Legal Training and Research Institute, The Supreme Court
June 2010 Director, SATO HOLDINGS CORPORATION
September 2017 Corporate Auditor, TORAJI CORPORATION (to present)
March 2019 Director (Audit & Supervisory Committee Member) of the Company (to present)



Directors
Outside Director Audit & Supervisory Committee Member

Masahiko Yasuda

(Date of birth: September 15, 1963)

November 1988 Joined Aoyama Audit Corporation
May 1993 Registered as a certified public accountant
October 2006 Managing Director, PwC Advisory Co., Ltd.
July 2008 Partner, PwC Advisory Co., Ltd. and Representative Partner, PwC Aarata
March 2012 President and Representative Director, Benedi Consulting Co., Ltd. (to present)
August 2012 Chief, Yasuda Masahiko Certified Public Accountant Office (to present)
March 2019 Director (Audit & Supervisory Committee Member) of the Company (to present)



Directors
Outside Director Audit & Supervisory Committee Member

Koichi Danno

(Date of birth: July 27, 1954)

April 1978 Joined Mitsui Bank
April 2004 Executive Officer, Sumitomo Mitsui Banking Corporation
April 2008 Managing Executive Officer, Sumitomo Mitsui Banking Corporation
April 2011 Senior Managing Executive Officer, Sumitomo Mitsui Financial Group, Inc. Director and Senior Managing Executive Officer, Sumitomo Mitsui Banking Corporation
June 2011 Director, Sumitomo Mitsui Financial Group, Inc.
June 2013 President, Representative Director and COO, SMBC Friend Securities Co., Ltd.
June 2018 President and Representative Director, Muromachi Co., Ltd. (to present)
March 2020 Director (Audit & Supervisory Committee Member) of the Company (to present)



Corporate Governance

Relevant SDGs



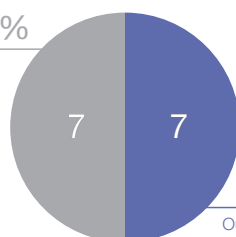
P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
<ul style="list-style-type: none"> Switch to full compliance with the corporate governance code 	<ul style="list-style-type: none"> Completed the switch to full compliance with the corporate governance code upon the introduction of stock compensation plan 	★ ★ ★	<ul style="list-style-type: none"> Make arrangements to comply with the revised corporate governance code due to the change in our listing category on the Tokyo Stock Exchange Promote the capital policies under the Medium-Term Management Plan "Stage up for the Future"
<ul style="list-style-type: none"> Control and supervision of Group companies and provision of appropriate guidance 	<ul style="list-style-type: none"> Carried out monitoring via CSR audits 	★ ★ ★	<ul style="list-style-type: none"> Control and supervision of Group companies and provision of appropriate guidance
<ul style="list-style-type: none"> Effective information disclosure from an all-Group perspective 	<ul style="list-style-type: none"> Toagosei Group Report and shareholder newsletters issued, information disclosed on corporate website and through other means 	★ ★ ★	<ul style="list-style-type: none"> Effective information disclosure from an all-Group perspective

Governance Highlights

Composition of the Board of Directors

Internal directors

50 %



Outside Director

50 %

Measures for strengthening of corporate governance

2001 ■ Executive officer system introduced

2003 ■ Appointment of outside directors started

2006 ■ Internal Control Section established

■ Basic Policy on Internal Control established by resolution

2016 ■ Toagosei Group Basic Policy on Corporate Governance established

■ Transition to a company with an audit & supervisory committee

2017 ■ Assessment for the effectiveness of the Board of Directors initiated

2018 ■ The proportion of outside directors in the voluntary Nomination Committee/ Remuneration Committee increased to a majority

2019 ■ The number of outside directors increased to 7

2020 ■ Stock compensation plan introduced

Change in the number of outside directors

1 person

5 person

7 person

Profile of Directors

Name		Attendance at the Board of Directors meetings in 2020	Nomination Committee/ Remuneration Committee member	Compliance Committee member (*3)	Fields of experience					
					Corporate management/ corporate planning	Sales/ marketing	R&D/ technology and production	Finance/ accounting	Legal affairs	HR/labor affairs
Mikishi Takamura	Representative Director	13/13	○		○			○		○
Nobuhiro Ishikawa	Representative Director	12/13		○	○	○	○			
Yoshitaka Suzuki		13/13		○				○	○	○
Susumu Miho		13/13		○		○	○			
Masahiro Kimura		—*1		○			○			
Shinichi Sugiura		13/13		○	○	○				○
Satoru Nakanishi	Outside Director	13/13	○		○			○		
Yasuhiro Koike	Outside Director	13/13	○				○			
Yuichiro Mori	Outside Director	—*1							○	
Katsuyuki Ito	Audit & Supervisory Committee Member	13/13			○			○		○
Nobuhiko Takano	Audit & Supervisory Committee Member	13/13						○		
Kiyoko Ishiguro	Audit & Supervisory Committee Member	13/13							○	
Masahiko Yasuda	Audit & Supervisory Committee Member	13/13			○			○		
Koichi Danno	Audit & Supervisory Committee Member	10/10*2			○			○		

*1 Assumed office of director in March 2021

*2 Number after assuming office of director in March 2020 *3 Discussions were joined by an external committee member who is a lawyer.

Corporate Governance System

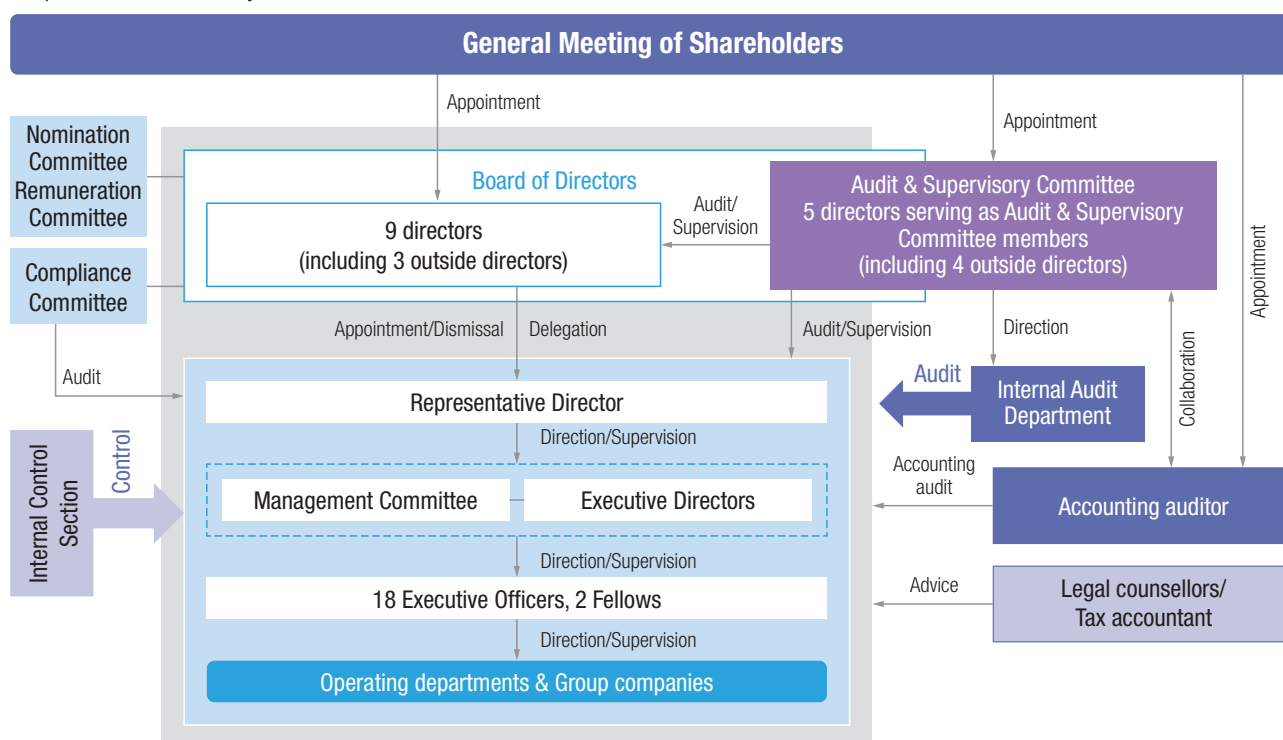
Basic Approach and System

The Toagosei Group established the Toagosei Group Basic Policy on Corporate Governance. Based on the corporate philosophy of "Through the endless possibilities of chemistry, we bring happiness created by highly functional materials," the Group strives to fulfil its corporate social responsibility by positioning the enhancement of corporate governance as a key priority for management. The Group pursues transparent, fair, swift and resolute decision-making through effective corporate governance, to achieve sustainable growth and to increase its corporate value over the medium and long term. The Group is committed to the continuous enhancement of corporate governance.

The Group's basic approach to corporate governance is as follows.

1. Respect shareholders' rights and ensure their equality.
2. Consider the interests of various stakeholders, including shareholders, customers, business partners, employees and local communities. Build good relationships with these stakeholders and cooperate appropriately with them.
3. Disclose corporate information appropriately and ensure transparency.
4. Strive to ensure effective supervisory functions for business execution by the Board of Directors.
5. Engage in constructive dialogue with shareholders who have an investment policy that aligns with medium- to long-term shareholder profits.

Corporate Governance System



Directors and the Board of Directors

Toagosei's Board of Directors consists of 14 directors (including five directors who serve as Audit & Supervisory Committee members). The seven independent outside directors play the roles mainly in strengthening the Board's oversight over the management. At the meetings of Toagosei's Board of Directors, the directors, including outside directors, engage in lively discussions. The Board of Directors makes decisions on important management matters, such as Toagosei's management policy and

management strategy, and fulfills the role of supervision of business execution of directors and executive officers.

The Company selects a well-balanced mix of candidates for directors who possess extensive experience and abundant knowledge in various business fields including R&D, technology and production, sales, corporate administration, accounting and legal affairs. The Board also includes a female director, as part of the Company's efforts to maintain the diverse structure of the Board of Directors.

Audit & Supervisory Committee

The Audit & Supervisory Committee consists of one director who serves as a full-time Audit & Supervisory Committee member and four outside directors. The Audit & Supervisory Committee is responsible for contributing to the Company's sound and sustained growth through the audit of legal compliance with respect to the performance of duties by directors and other officers, the appropriateness of the Company's business operations, internal control, financial conditions, and other matters.

Management Committee

The Management Committee composed of six executive directors meets every week, in principle, to practically discuss, from an operational perspective, on matters delegated to it based on a resolution by the Board of Directors.

Nomination Committee, Remuneration Committee

To enhance the objectivity and transparency in corporate management, the Board of Directors has established, as its advisory bodies, the Nomination Committee and the Remuneration Committee, in both of which the majority of the members are independent outside directors.

The Nomination Committee, upon request from the Board of Directors for advice, deliberates on matters concerning candidates for directors such as appointment procedures, qualifications, and reasons for appointment, matters concerning candidates for Representative Directors such as appointment procedures, qualifications, and reasons for appointment, as well as on independence criteria for independent outside directors, and reports to the Board of Directors.

The Remuneration Committee, upon request from the Board of Directors for advice, deliberates on the remuneration system for directors as well as individual director's remuneration, and reports to the Board of Directors.

The amounts of remuneration of individual directors (excluding directors who serve as Audit & Supervisory Committee members) are determined by the members of the Remuneration Committee, which is entrusted with the task, in line with the calculation criteria established by the Board of Directors, based on the results of deliberation submitted by the Remuneration Committee, and by resolution of the Board of Directors.

Compliance Committee

The Group has established the Compliance Committee as a body that monitors the status of compliance of the entire Group and provides recommendations as needed. The Committee's six members, comprising five directors and an external legal counsel, engage in lively discussions.

Internal Control Section

The Company has established the Basic Policy on Internal Control by the resolution of the Board of Directors in order to strengthen corporate governance. In accordance with the said

policy, the Internal Control Section confirms the operating status of internal control from an independent perspective, reports such results to the Audit & Supervisory Committee members, and performs duties related to internal control (duties to ensure appropriate financial reporting), based on Japan's internal control reporting system (J-SOX). In cooperation with the Internal Audit Department (an auxiliary organ of the Audit & Supervisory Committee) and the accounting auditor, the Internal Control Section ensures that the Group's business operations as a whole are conducted appropriately in compliance with relevant laws and regulations.

Selection of Directors

The Company has prescribed the selection standards for the Company's directors (excluding directors who also serve as Audit & Supervisory Committee members and independent outside directors who do not serve as Audit & Supervisory Committee members) as follows to clarify the qualities expected of directors:

1. Persons who possess outstanding knowledge and abilities and extensive experience in regard to the business administration and operational management of the Group, or persons who possess sufficient understanding of the Group's business activities, along with the experience and knowledge needed to appropriately and fairly supervise the business execution of the Company's directors and other personnel, thereby contributing to the achievement of the Group's medium- to long-term management plans.
2. Persons who are fair-minded and possess excellent character, views, and job execution capabilities as well as have the ability to execute fair and appropriate supervision of business administration, operational management, and business execution based on high ethical standards.

The Committee deliberates on matters such as appointment procedures, qualification and reasons for appointment regarding proposals on candidates for directors prepared by the representative director, and reports to the Board of Directors.

Remuneration for Directors

Remuneration for the Company's directors consist of three parts, namely, fixed remuneration, performance-linked remuneration, and share-based remuneration, and is paid within the amount approved by the General Meeting of Shareholders.

The amounts of fixed remuneration are determined and paid in consideration of each director's duties, responsibilities, performance and other matters. For the directors who serve as Audit & Supervisory Committee members, fixed remuneration is paid in consideration of the role and duties of each director.

The amounts of the performance-linked remuneration are determined and paid based on the Company's performance in the previous business year, such as consolidated operating income, as well as duties and responsibilities according to the positions and the business environment, among other factors. Perfor-

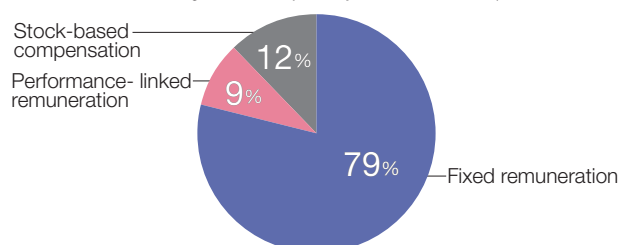
mance-linked remuneration is not paid to directors who serve as Audit & Supervisory Committee members or to independent outside directors, in light of their important role in overseeing corporate management from independent viewpoints.

Under the stock compensation plan, the Company allocates restricted shares as remuneration to eligible directors, in a number commensurate to the duties and responsibilities of each director, for the purpose of providing incentives to them to sustainably enhance the Company's corporate value and to further promote the sharing of value with the Company's shareholders. As with performance-linked remuneration, the Company does not pay stock-based compensation to directors who serve as Audit & Supervisory Committee members or to independent outside directors.

Breakdown of Remuneration for Directors (April 2020-March 2021)

Classification	Total amount of remuneration (Millions of yen)	Total amount by remuneration type (Millions of yen)			Number of directors
		Fixed remuneration	Performance-linked remuneration	Stock-based compensation	
Directors (not serving as Audit & Supervisory Committee members)	202	166	15	21	9
of which, Outside Directors	26	26	—	—	3
Directors (Audit & Supervisory Committee members)	50	50	—	—	5
of which, Outside Directors	35	35	—	—	4

Composition of Remuneration by Type
(excluding directors serving as Audit & Supervisory Committee members and independent outside directors not serving as Audit & Supervisory Committee members)



Assessment for the Effectiveness of the Board of Directors

The Company analyzes and assesses the effectiveness of the Board of Directors every year based on the self-assessment of each director. We assigned a third party to review, compile and analyze survey items for the assessment for the effectiveness so as to enhance the objectivity and transparency of the assessment. Issues recognized therein are discussed by the Board of Directors for improvement.

Assessment for the effectiveness of the Board of Directors performed in 2021

1. Assessment method

We conducted a survey for all directors regarding the effectiveness of directors, and the Board of Directors had discussions based on the compiled result and opinions received through the survey. We assigned a third party to review, compile and analyze survey items for the assessment for the effectiveness so as to enhance the objectivity and transparency of the assessment.

2. Questions asked to directors in the survey

- Structure and operation of the Board of Directors
- System supporting the Board of Directors
- Constructive dialogue with shareholders
- Contribution to the Board of Directors (self-assessment), etc.

3. Assessment results

Almost all surveyed items were rated by a majority as appropriate, thus indicating that the effectiveness of the Company's Board of Directors is secured in general. All responses were positive on the timing of submission of agenda items, while the reporting on the state of business execution was rated appropriate by almost all respondents. We therefore confirmed and shared the view that improvements have been made.

Meanwhile, we confirmed and shared the view that further discussion would be required regarding matters such as the number of members of the Board of Directors and its diversity, prioritization of agenda items according to the nature of the matters to be deliberated, and further improvement in the way meetings are operated, and that improvement should be made regarding vitalization of discussion on the selection of directors, remuneration for directors, and succession planning. Many respondents pointed to the need for a platform where members can exchange opinions from a medium- to long-term viewpoints and without aiming for conclusions. We shared the understanding that this would be discussed.

Going forward, we will explore ways to address these issues and continue working to raise the effectiveness of the Board of Directors.

Support System for Outside Directors

We have taken various steps to establish the environment that enables outside directors to properly supervise that mid- and long-term management directions are deliberated in a multi-dimensional way and the Company's management strategies are executed appropriately. Specifically, we provide outside directors with opportunities to visit each business site of the Company periodically with a view to

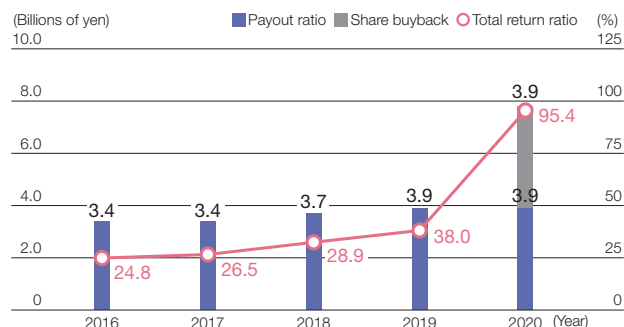
deepen their understanding of the Company's business. Furthermore, they receive monthly explanation regarding the contents discussed by the Management Committee, and share their understanding of the Company's management issues and constructively exchange opinions as needed through attendance at important meetings regarding research and development, sustainability policy, etc.

Returning Profits to Our Shareholders

Toagosei's basic policy is to continue to pay a stable dividend, targeting a consolidated payout ratio of 30% or more, and improve consolidated total return ratio through methods including share buybacks.

In the fiscal year 2020, the Company paid a dividend of 30 yen per share (interim: 15 yen, term-end: 15 yen) and bought back 3,882 million yen of its own shares, with a consolidated payout ratio of 48.1% and a consolidated total return ratio of 95.4%.

Consolidated Total Return Ratio



Dialogue with Shareholders and Investors, and Information Disclosure

Basic Policy and Framework

The Company clearly states in the Toagosei Group Basic Policy on Corporate Governance that it “engages in constructive dialogue with shareholders who have an investment policy that aligns with medium- to long-term shareholder profits,” and prescribes the policy on constructive dialogue with shareholders.

In terms of information disclosure, we strive to disclose information to all stakeholders in a timely, proper and fair manner in compliance with rules on the handling of important information (insider information) specified in the Financial Instruments and Exchange Act, etc., the Regulation on Fair Disclosure, and the Rules of Tokyo Stock Exchange and other related regulations, to obtain stakeholders' correct understanding of the Group.

Dialogue with Stakeholders

We strive to disclose information proactively based on not only legal disclosure under applicable laws and regulations and timely disclosure under the Rules of Tokyo Stock Exchange, but also the voluntary disclosure of information that does not meet the above disclosure standards. We hold financial briefings (twice a year) and individual interviews for institutional investors and media organizations, and organize plant tours and other events for local residents and students.

General Meeting of Shareholders

Considering that a general meeting of shareholders is a place for more productive dialogue, we disclose the notices of convocation on the Company's website and through the TSE, one business day earlier than the day on which the notices are sent, for early information disclosure to our shareholders.

In addition, in view of the increase in the number of foreign shareholders, a summary of the notice of convocation, reference documents and the notice of resolution are translated into English and disclosed on the Company's website and through the TSE concurrently with the Japanese version.

In light of the spread of COVID-19, the General Meeting of Shareholders held in March 2021 was live-streamed for the shareholders who could not physically attend the meeting.



General Meeting of Shareholders



Toagosei's Corporate Website

We are enriching information disclosure on the corporate website.

<https://www.toagosei.co.jp/>



Compliance

Relevant SDGs



P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
<ul style="list-style-type: none"> Continuous compliance education Continuation of monitoring and checks by the Compliance Committee Execution of a questionnaire survey on compliance 	<ul style="list-style-type: none"> Offered compliance programs to new and promoted employees Executed a questionnaire survey on compliance for all Group employees Conducted harassment seminars for managerial personnel at all Group business sites 	★ ★ ★	<ul style="list-style-type: none"> Continuous compliance education Continuation of monitoring and checks by the Compliance Committee Execution of harassment seminars for non-managerial employees
<ul style="list-style-type: none"> No major violation 	<ul style="list-style-type: none"> Received an administrative guidance A sulfuric acid gas leak accident occurred at a sulfuric acid plant 	★	<ul style="list-style-type: none"> No major violation

Corporate Ethics and Legal Compliance

Code of Conduct and Manual of Behavioral Standards

As fundamental guidelines and the basis for the correct behavior for all officers and employees to act as exemplary citizens, the Group has established the Toagosei Group Code of Conduct and the Toagosei Group Manual of Behavioral Standards, both of which are included in the Compliance Handbook held by all employees to ensure employee understanding.

Compliance Committee

The Group has a Compliance Committee consisting of officers and a legal counsel who is an external member. The Committee periodically monitors the status of implementation of compliance measures at Toagosei's sites and Group companies (including overseas subsidiaries) and provides recommendations for improvement in order to ensure management that emphasizes compliance.

Corporate Ethics Helplines

The Group has both in-house and external Corporate Ethics Helplines, which are whistleblower hotline systems for early detection and resolution of compliance issues. The Helpline is available via dedicated telephone line or email. Furthermore, the Group has established a dedicated helpdesk for sexual harassment, etc., in an effort to provide a better work environment regardless of gender.

Compliance Education

In addition to education of employees according to positions and group-wide education, the Group is promoting voluntary education at workplaces in order to inculcate compliance awareness. In 2020, on top of education according to positions for new employees and managerial personnel, workplaces held education utilizing the Compliance Handbook. The Handbook describes various matters to be careful about in business activities as well as relevant laws and regulations, contributing to comprehensively raising awareness among employees.

Compliance regarding Business Activities

To ensure that the Group's business activities are in compliance with laws and regulations, we establish rules and conduct reviews by internal organizations. For example, regarding the Antimonopoly Act and the Subcontractor Act, we stipulate Toagosei's guidelines and describe initiatives in the Antimonopoly Act Compliance Manual. In addition, we require a review by the Antimonopoly Act Compliance Committee upon the revision of product prices in an effort to prevent any violation of laws and regulations.

TOPICS Execution of a questionnaire survey on harassment and harassment prevention seminars

In 2020, we conducted a questionnaire survey on harassment and other issues among the Group's executive officers and employees to analyze the overall trend. Based on the result of the survey, we also held harassment prevention seminars for managerial personnel at all Group business sites. The seminar attendees received explanations on the current situation of harassment in the Group as well as on how to provide appropriate guidance through specific examples. They also exchanged opinions with others on topics such as how to create a harassment-free workplace. We plan to offer the seminars to non-managerial personnel as well in 2021.



A scene from a seminar



Risk Management

Relevant SDGs



P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
<ul style="list-style-type: none"> Periodic risk assessment by the Risk Management Committee Continuation of implementation of measures for reducing risk at each site Continuation of a crisis response drill jointly conducted by the Head Office and sites Continuation of drills at each site in preparation for earthquakes/accidents 	<ul style="list-style-type: none"> Held the Risk Management Committee (twice) Conducted drills based on the Disaster Response Checklist The Head Office and sites jointly conducted a crisis response drill and a media training. Conducted drills at each site in preparation for earthquakes/accidents 	★ ★ ★	<ul style="list-style-type: none"> Periodic risk assessment by the Risk Management Committee Continuation of implementation of measures for reducing risk at each site Continuation of a crisis response drill jointly conducted by the Head Office and sites Continuation of drills at each site in preparation for earthquakes/accidents

Risk Management

Risk Management Committee

With regard to all the risks including various business risks, the Toagosei Group strives to make the departments exposed to each risk fully recognize the possibility of the occurrence of such risks, as well as to provide a proper response in cooperation with related parties to

minimize the impact on the Group's business performance and financial position. At the Company, the Risk Management Committee regularly identifies and assesses risks, formulates risk countermeasures based on the assessment, and checks the status of the countermeasures to identify and manage risks for the entire Group, whereby reducing risks for the entire Group.

Potential risks	Examples	Countermeasures
Natural disasters	<ul style="list-style-type: none"> Earthquakes Climate change (torrential downpours and other disasters) 	<ul style="list-style-type: none"> Seismic retrofitting Regular disaster prevention drills Insurance coverage
Accidents	<ul style="list-style-type: none"> Fires Explosions Leaks of chemical substances 	<ul style="list-style-type: none"> Installation of automatic stopping devices Disaster prevention meetings and drills Insurance coverage
Changing market needs and intensifying competition	<ul style="list-style-type: none"> Fluctuating demand environment Emergence of alternative materials 	<ul style="list-style-type: none"> Expansion of high-value-added products businesses as a policy established in the Medium-Term Management Plan "Stage up for the Future"
Violation of laws and regulations, tax and legal system reforms, deregulation, greater regulatory controls, and trade restrictions	<ul style="list-style-type: none"> Violation of laws and regulations and lawsuits filed Surcharges imposed 	<ul style="list-style-type: none"> System in place in coordination with the departments in charge Surveillance and examination by the Compliance Committee
Impairment of fixed assets	<ul style="list-style-type: none"> Decline in profitability Falling market prices 	<ul style="list-style-type: none"> Careful assessment of profitability prior to capital investments
Product liability, recall, and inferior quality	<ul style="list-style-type: none"> Damage caused by inferior quality of products Decreased sales of the relevant products 	<ul style="list-style-type: none"> Establishment of system for quality inspections Product liability insurance coverage
Information leakage	<ul style="list-style-type: none"> Information leakage by a business partner or employee Cyberterrorism 	<ul style="list-style-type: none"> Non disclosure agreement with business partners Education programs for employees Information security measures
Soaring prices of raw materials, fuel, and other materials and changes in the prices of crude oil and naphtha	<ul style="list-style-type: none"> Increase in manufacturing costs Valuation losses on inventories 	<ul style="list-style-type: none"> Rectifying product sales prices and rationalizing operations based on a price formula Infectious and communicable diseases
感染症・伝染病	<ul style="list-style-type: none"> Restricted distribution and operational activities caused by COVID-19, influenza, etc. 	<ul style="list-style-type: none"> Installing and distributing infection prevention goods such as disinfectants and face masks Creating an environment for telework
Suspension of raw material and fuel supplies and supply chain interruption	<ul style="list-style-type: none"> Suspended operations due to accidents etc. at suppliers 	<ul style="list-style-type: none"> Purchasing from multiple sources Maintaining constant communication with suppliers
Environmental pollution and calls for sustainability	<ul style="list-style-type: none"> Soil, air, or water pollution Carbon dioxide emissions 	<ul style="list-style-type: none"> Reducing energy consumption and environmentally hazardous substances
Foreign exchange fluctuations	<ul style="list-style-type: none"> Increase of costs due to the depreciation of the yen 	<ul style="list-style-type: none"> Using foreign currencies for import payments
Stock market fluctuations	<ul style="list-style-type: none"> Significant losses incurred by share holdings 	<ul style="list-style-type: none"> Verifying and reporting the effectiveness of holding shares Selling stocks

Business Continuity Plan (BCP) and Response in the Event of a Crisis

To continue business operations even in the event a risk is materialized, we have formulated the Business Continuity Plan (BCP) that determines the standards on businesses that should be prioritized to continue operation and the target recovery time according to the damage status.

The Toagosei Group has established the Toagosei Group Crisis Response Rules that specify the organizational framework and concrete measures in the event of a crisis. Moreover, the Emergency Action Manuals have been prepared according to respective phenomenon and office, and training is conducted regularly. In 2020, joint crisis training was held by Toagosei's Head Office and the Sakaide Plant. In addition, media training was conducted to ensure Toagosei disseminates accurate information and messages.

The issues identified by the training and risk management by department were reviewed and discussed at a meeting of the Risk Management Committee and actions for improvement are being implemented.

Information Leakage Risk Countermeasures

In accordance with the "Regulations for Management of Confidential Information," the Toagosei Group prepared a "list of confidential information" that specifies confidential information of the respective departments, and promoted countermeasures for the risk of information leakage. In addition to education for spreading awareness regarding information management and handling rules, we are continuously improving the information security system.

In 2020, we adopted a system to monitor and prevent the spread of infection through the internal network when a PC or server is infected with a virus.



Responsible Care Management

Basic Policies for RC

Mindful of its responsibilities as an enterprise engaged in the chemical business, the Group is promoting Responsible Care (RC) activities under the Basic Policies for RC in order to ensure safety (occupational health and safety, process safety and disaster prevention, product safety, and physical distribution safety) and to protect the environment.

In accordance with the corporate philosophy and based on our policy of contributing to society by offering useful chemical products, our priority is to ensure safety of workers and people in society at large throughout our business activities. Our aim is to reduce environmental impacts of all our processes from procurement of raw materials to final disposal of products after use.

The Toagosei Group is committed to ensuring the safety of its products, as well as workforce safety and hygiene, and to reducing the impact on the environment of these products and their manufacturing processes at all stages from development through use to final disposal. By these means, the Group raises its reputation for trustworthiness among both its customers and society at large.



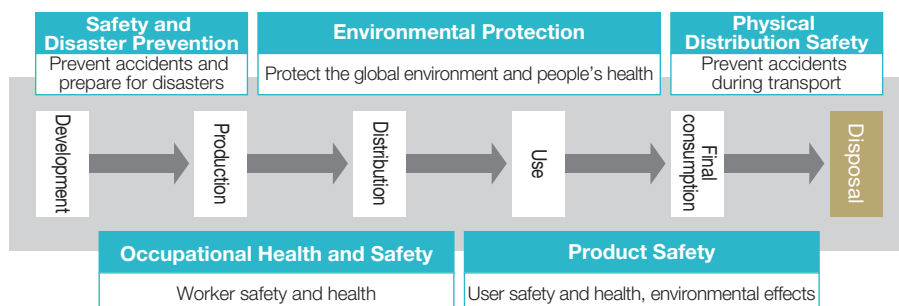
Toagosei Group and Responsible Care

Responsible Care (RC) activities are voluntary initiatives of companies handling chemical substances to ensure environmental protection and health and safety throughout product life cycles. Companies disclose the results of their activities and thus communicate with society.

Toagosei has been a member of the Japan Responsible Care Council (JRCC) since its establishment by the

Japan Chemical Industry Association (JCIA) in 1995 and is promoting RC activities throughout the Group.

Toagosei endorsed the Responsible Care Global Charter established by the International Council of Chemical Associations (ICCA) in 2009 and revised in 2014. The president of Toagosei is a signatory of this charter and Toagosei is committed to the vigorous promotion of RC activities.





Environmental Protection

Relevant SDGs



P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
<ul style="list-style-type: none"> CO₂ emissions: 361k tons or less (at the Group's production sites in Japan) Energy consumption per unit of output: 99% or less from the previous year 	<ul style="list-style-type: none"> CO₂ emissions: 347k tons Energy consumption per unit of output: 104% from the previous year 	★★	<ul style="list-style-type: none"> Medium- to long-term targets for CO₂ emissions 2030 target: 50% reduction from the result for 2013 2050 target: zero
<ul style="list-style-type: none"> Final landfill rate: 0.5% or less Maintaining of sorting of waste and appropriate disposal Promotion of recycling and waste volume reduction 	<ul style="list-style-type: none"> Final landfill rate: 0.15% Details of generated waste identified, recycling promoted 	★★★	<ul style="list-style-type: none"> Final landfill rate: 0.5% or less Maintaining of sorting of waste and appropriate disposal Promotion of recycling and waste volume reduction
<ul style="list-style-type: none"> Emissions of substances subject to PRTR: 41 tons or less 	<ul style="list-style-type: none"> Emissions of substances subject to PRTR: 41.4 tons 	★★	<ul style="list-style-type: none"> Emissions of substances subject to PRTR: 41 tons or less

Global Warming Mitigation Measures

Reducing CO₂ Emissions by Reducing Energy Consumption

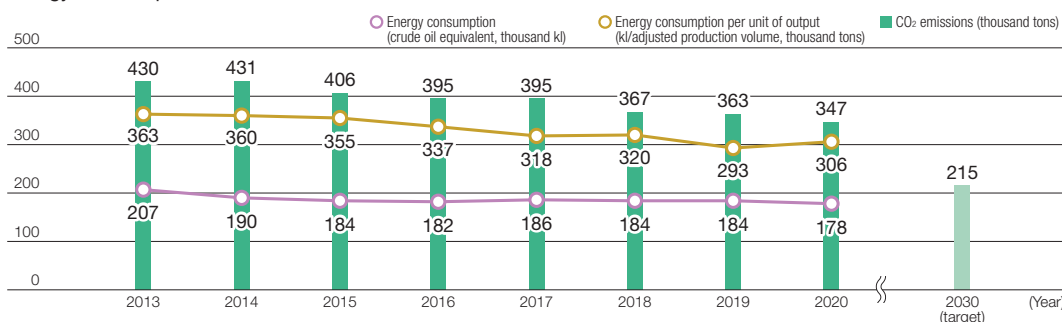
Since 2017, the Group has been working to enhance production efficiency by strengthening production systems and facilities in growth fields, and achieved positive results. However, the energy consumption per unit worsened in 2020 due in part to the COVID-19 pandemic.

The Group as a whole has been reducing CO₂ emissions at a pace that meets the 2030 target according to the Paris Agreement. To keep in step with the global momentum in 2020 towards achieving carbon neutrality in 2050, however, we have reviewed and reset our targets at 50% reduction from the level in fiscal 2013 in 2030 and zero CO₂ emissions in 2050. This is an extremely difficult challenge, but as a large consumer of electrical energy, we recognize it both as a huge risk and an opportunity and will tackle the challenge in earnest.

Activities to Prevent Leakage of Fluorocarbons

In line with the Law concerning the Recovery and Destruction of Fluorocarbons, we strive to identify the amount of leaked fluorocarbons and implement necessary measures to prevent the leakage. In 2020, the amount of leaked fluorocarbons was 453 tons (converted to CO₂) for the entire Group in Japan due mainly to malfunctions in equipment using fluorocarbons and the age-related deterioration of facilities. We are working to prevent leakage of fluorocarbons through meticulous inspection of equipment and implementation of measures to prevent malfunctions and by systematic replacement with equipment that uses refrigerant whose global warming potential (GWP) is low.

Energy Consumption and CO₂ Emissions



*Scope of calculations: production sites in Japan

Initiatives to Realize a Recycling Society

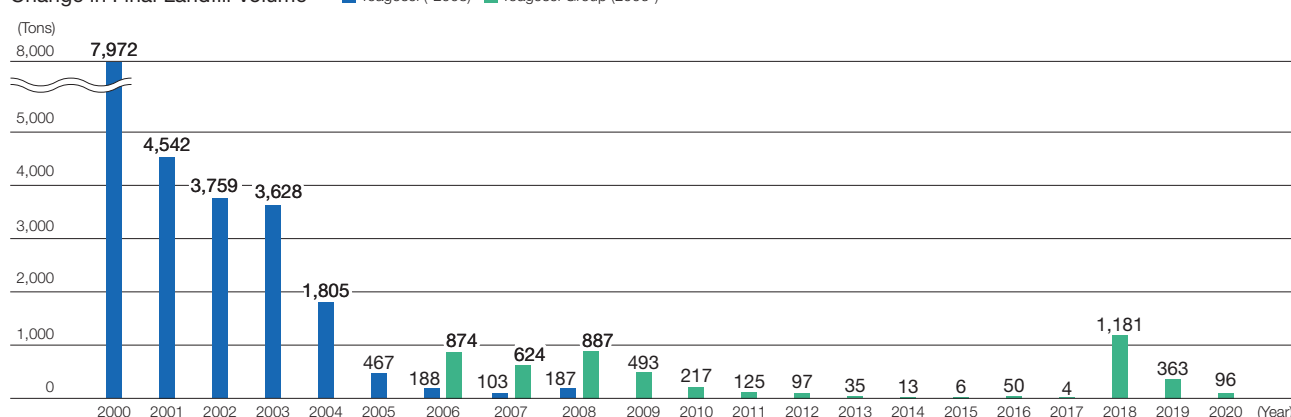
Reduction in Final Landfill Volume and Waste Recycling Measures

The Group focuses on promotion of initiatives to reduce final landfill volume. The Group's final landfill volume, which was around 8,000 tons in 2000 (non-consolidated basis), has been so far reduced to below 100 tons (consolidated basis). In 2020, we achieved a final landfill rate of 0.15%, which met the target for the year. The amount

of waste that is produced from daily production activities and finally disposed of in landfill dropped drastically.

We appreciate industrial waste handling operators that are making efforts toward recycling in response to the needs in society and select industrial waste handling operators that are facilitating material recycling and thermal recycling as destinations for discharged waste.

Change in Final Landfill Volume



Environmental Impact Reduction Measures

Protection of Water Quality

The Toagosei Group considers water a limited resource and strives to promote its efficient use. Water consumption fell across the board in 2020 due in part to the COVID-19 pandemic, but owing to the revision in the calculation method at the Kawasaki Plant, the Group's total water consumption in Japan increased 8% from the previous year to 55 million m³, and total effluent volume also rose to 43 million m³. We are increasing the capacity of drainage facilities in view of increasing storm and flood damage in recent years. We set voluntary control values and rigorously control effluents. At plants adjacent to semi-enclosed sea areas (Tokyo Bay, Ise Bay, Seto Inland Sea), we have installed automatic measurement systems for total nitrogen and total phosphorous and support management of total volume control.

At our overseas production sites as well, we manage water resource consumption in compliance with the effluent regulations of each country.

Protection of Air Quality

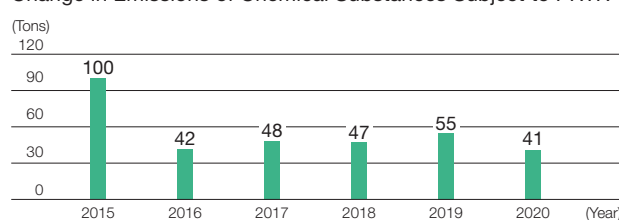
To comply with government emissions standards and regulation values in agreements with local communities for sulfur oxides (SOx), nitrogen oxides (NOx), and dust, the Group sets voluntary control values and rigorously controls exhaust. In addition, the respective overseas production sites control their exhaust in accordance with applicable regulations in their jurisdictions.

Chemical Substance Emissions Reduction

The Group's business sites conduct appropriate notifications in compliance with the Law concerning Pollutant Release and Transfer Register (PRTR Law). Regarding chloromethane (methyl chloride) at the Sakaide Plant, we were unable to reduce emissions as planned in 2020, because of the lower uptake rate of the exhaust gas absorption tower caused by the decline in production load.

Emissions of dichloromethane and toluene fell drastically following the end of production of the products in which the substances had been used, as well as the reduction in their use.

Change in Emissions of Chemical Substances Subject to PRTR



Emissions of Principal Substances Subject to PRTR

Major emissions	2019	2020
Chloromethane (methyl chloride)	35.7	26.2
Chloroethylene (vinyl chloride)	5.5	5.0
Methyl acrylate	5.3	4.0
Dichloromethane (methylene chloride)	1.8	0.2
Toluene	1.3	0.3

Investment, etc., in Environmental Protection

The Group introduced environmental accounting in 2000 and has since been announcing its stance on environmental activities.

1. We reduced CO₂ emissions by upgrading equipment to enhance energy efficiency and introducing carbon-free facilities.

Description	Investment (Millions of yen)
Replacement of injection molding machine with energy-saving model (Aronkasei)	230
Replacement of boiler with LNG boiler (Hirono)	97
Installation of LED lights	58
Replacement of heat exchanger (Nagoya)	22
Heat loss reduction (Oita)	5
Replacement of air conditioners with energy-saving model	3
Total	415

3. We are promoting development and research of environmentally friendly products.

Description	Expenses (Millions of yen)	
	R&D	Capital investment
Development of materials for parts to be mounted on electric vehicles with low environmental load	106	—
Development of materials for soil improvement to prevent liquefaction caused by earthquakes	23	—
Consideration on industrial use of plant-based materials	39	—
Consideration on reduction of environmental load by increasing the productivity of existing products	73	175
Consideration on further improvement in performance of environmentally friendly products	50	—
Total	291	175

Since 2019, we have been disclosing the details of investment in order to facilitate understanding.

2. We are systematically investing in environmental protection.

Description	Investment (Millions of yen)
Maintenance of wastewater treatment facilities	33
Development of wastewater treatment technologies	6
Strengthening of exhaust gas abatement facilities, etc.	26
Measures to prevent toxic gas leak accidents	24
Strengthening of facilities for the abatement of chlorine and other substances	107
Measures to prevent leakage of harmful substances	12
Measures to prevent permeation of harmful substances into soil	6
Soil purification	25
Switch to CFC-free equipment	0.4
Total	239

4. Other

In addition to investment costs, ordinary expenses are incurred for environmental protection, prevention of the leakage of harmful substances, environment monitoring, green space management, environmental education, etc.

Scope of calculations: Same as for Business Activities and Environmental Impacts below
Period covered: January 1 to December 31, 2020

Calculation method: Obtained by multiplying the amounts actually paid by environment factors specified under internal rules

Business Activities and Environmental Impacts

Scope of calculations			Period covered
Toagosei	Plants	Nagoya Plant, Yokohama Plant, Takaoka Plant, Tokushima Plant, Sakaide Plant, Kawasaki Plant, Hirono Plant	One year from January 1 to December 31, 2020
	Research centers	General Center of Research and Development (Aichi Prefecture), Institute for Advanced Sciences (Ibaraki Prefecture)	
Group companies	Aronkasei	Kanto Plant (Ibaraki Prefecture), Nagoya Plant, Monozukuri Center (Aichi Prefecture), Shiga Plant, Onomichi Plant	
	Oita Chemical	Oita Plant	

*Oita Chemical has become Toagosei Oita Plant as of January 1, 2021.

INPUT	Energy Consumption			Water consumption		
		2019	2020		2019	2020
	Energy consumption (crude oil equivalent, thousand kt)	184	178	Water resources (million m ³)	51	55
	Per unit of output (kt/adjusted production volume, thousand tons)	293	306			
Toagosei Group Production Sites in Japan						
OUTPUT	Business Activities			Industrial Waste		
		2019	2020		2019	2020
	Production volume (thousand tons)	1,178	1,128	Volume of industrial waste generated (tons)	66,353	65,903
				Volume reduced internally (tons)	47,641	48,789
				Volume discharged externally (tons)	11,987	10,787
				Final landfill volume (tons)	364	96
				Final landfill rate (%)	0.55	0.15
	Environmental Impacts on Water Resources			Environmental Impacts on Atmosphere		
		2019	2020		2019	2020
	Total effluent volume (million m ³)	40	43	CO ₂ (CO ₂ equivalent, thousand tons)	363	347
	COD (tons)	62	83	SO _x (tons)	47	38
	Total nitrogen (tons)	27	29	NO _x (tons)	74	76
	Total phosphorus (tons)	1.1	2.2	Soot and dust (tons)	12	8
	Substances subject to PRTR (tons)	3	2	Substances subject to PRTR (tons)	53	35

In 2018, we reviewed the scopes of volume of industrial waste generated and volume reduced internally that are subject to calculation.



Safety and Disaster Prevention

P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
<ul style="list-style-type: none"> Zero explosion or fire accidents Zero serious leakage accidents of harmful substances or hazardous materials 	<ul style="list-style-type: none"> Explosion or fire accidents: 0 Gas leak accidents: 1 (sulfurous acid gas leakage at the Nagoya Plant) 	★	<ul style="list-style-type: none"> Zero explosion or fire accidents Zero serious leakage accidents of harmful substances or hazardous materials

Safety and Disaster Prevention Initiatives

Disaster Prevention Meetings

Before manufacturing a new product or changing production methods or facilities, Toagosei holds disaster prevention meetings. At these meetings, the details of plans are discussed from the perspectives of process safety and disaster prevention, occupational health and safety, environmental protection, product safety, and quality assurance, and any issues are addressed. Disaster prevention meetings are classified into a three-tier hierarchy according to the size and agenda of the meeting: formal disaster prevention meetings, simplified disaster prevention meetings, and disaster prevention manager meetings. These meetings also serve as venues for confirming details to be examined in the “risk assessment” and the “chemical substance risk assessment.”

Disaster Drills

Each business site regularly conducts disaster drills in cooperation with fire departments and other agencies to ensure readiness in the case of an emergency. As an increasing number of workplaces are experiencing a generational change among employees in recent years, the need to rapidly ensure employees are capable of dealing with crises has emerged as an issue. According to manufacturing facilities and substances handled at each plant, drills are conducted to ensure that the plants are prepared for any eventuality.

In 2020, while our plants found it difficult to conduct disaster drills in the usual way owing to the COVID-19

pandemic, the Kawasaki Plant made use of tablets and other IoT tools to hold a joint drill assuming a leakage of hazardous materials, together with the Ukishima Joint Disaster Prevention Unit composed of 37 entities in the neighborhood. Throughout the Group, IoT is increasingly used for the sharing of information.



Spraying water from the Ukishima Joint Disaster Prevention Unit's new fire engine



Joint drill being carried out as if in a real emergency

Leakage of sulfurous acid gas on April 15, 2020

There was a leakage of sulfurous acid gas at a production facility in the Nagoya Plant. Four people who were working in nearby companies inhaled the gas and were transported to the hospital. We offer our deepest apologies to the people who were affected by the accident. It happened on the first day of operation of the production facility from where the gas leak occurred. The operator erred in the valve operation and opened the valve when the sulfurous acid gas had built up in the facility. As a result, the part of the gas that could not be detoxified in the facility's abatement tower was released and drifted through the plant and into the neighboring companies. To prevent recurrence of such an accident, we have taken the following five measures:

- Revised the operating manual and check-lists for starting up so that less-experienced operators can easily understand
- Refined the system so that the facility cannot be started until conditions are met
- Increased the detoxification capacity of the abatement tower
- Added interlock factors to upgrade the interlock system
- Installed additional gas concentration meter to enhance the abnormality detection capability



Occupational Health and Safety



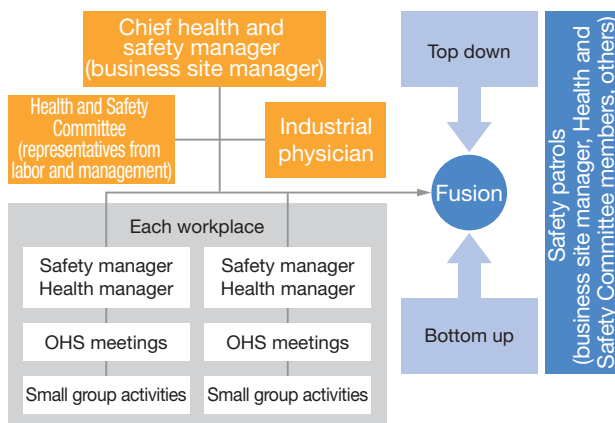
P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
● Zero lost-time injuries	● Lost-time injuries: 6	★	● Zero lost-time injuries

Occupational Health and Safety Initiatives

Occupational Health and Safety Management System

The Group determines priorities for occupational health and safety (OHS) promotion and key policies and measures at the Sustainability Committee meetings and engages in health and safety activities accordingly. Each business site is raising the level of health and safety by fusing top-down initiatives and bottom-up initiatives from workplaces.

OHS Management System



Health and Safety Committees and OHS Meetings

At each business site, a Health and Safety Committee organized in accordance with the Industrial Safety and Health Act meets each month, and management and labor jointly engage in health and safety activities. A monthly OHS meeting is held at each workplace, and the workers maintain and improve occupational health and safety.

Occurrence of injuries

In 2020, six lost-time injuries occurred and we did not achieve the target of zero lost-time injuries. The total number of accidents including no-lost time injuries was 14, a decrease of eight accidents from the previous year. Stumbling and falls accounted for a large share of causes of injury in 2020, as they did in 2019. In 2021, we will continue providing safety guidance without fail, ensure to remove any causes of fall hazards such as steps, uneven surfaces or obstacles on passage ways, or put up caution signs for such hazards. In addition, we will step up the Kiken (hazard) Yochi (prediction) Trainings (KYT) aimed at developing workers' ability to detect hazards in the work processes and to think what should be done.

Number of Occupational Accidents

(Accidents)

	Toagosei Group		Partner business sites, others		Total	
	Lost-time injuries	No-lost time injuries	Lost-time injuries	No-lost time injuries	Lost-time injuries	No-lost time injuries
2015	4(1)	9	1	3	5(1)	12
2016	1	8(2)	4	2	5	10(2)
2017	1	8	0	5	1	13
2018	2(3)	13	0(1)	5	2(4)	18
2019	2(1)	12	4	4	6(1)	16
2020	4	6	2	2	6	8

*Numbers in parentheses indicate accidents at overseas business sites (excluded figures).

TOPICS Efforts to prevent the spread of COVID-19

Aiming to prevent the spread of COVID-19 to our employees and any involved persons, we have been distributing All TOA guidelines of actions in accordance with the government policies in a timely manner.

We are checking body temperature before leaving for work and when entering or leaving business sites, using alcohol disinfectants, wearing masks, and ventilating offices and other spaces.

We are utilizing video conferencing and web conferencing systems to hold meetings with our customers and partners, and introducing remote systems with wearable devices for the purposes of patrolling in the plant and also auditing. In addition, to promote teleworking and staggered working hours, we have revised our work arrangement system.



Product Safety

Relevant SDGs



P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
<ul style="list-style-type: none"> ● Response to domestic and overseas laws and regulations ● Expansion of the scope of usage of the chemicals management system ● Ensuring of preparation and updating of SDS in accordance with GHS 	<ul style="list-style-type: none"> ● Responded to domestic and overseas chemicals-related laws and regulations ● Expanded the scope of usage of the chemicals management system ● Responded to requests to submit SDS and various other surveys 	★ ★ ★	<ul style="list-style-type: none"> ● Response to domestic and overseas laws and regulations ● Expansion of the scope of usage of the chemicals management system ● Ensuring of preparation and updating of SDS in accordance with GHS

Appropriate Management of Chemical Substances

Chemicals Safety Management System

In the Group, the first task at the product development stage is to conduct a safety examination. We also perform necessary safety tests when making notifications required by laws and regulations, such as when a product falls under the category of a new chemical substance. We also make necessary responses to new substances in the inventory of each country.

At disaster prevention meetings held before test production or scaling up of production, we discuss the safety of materials handled and products, as well as disaster prevention during manufacturing. We check chronic effects as well as acute health hazards, such as the danger of chemical injury, through chemical substance risk assessments and also deliberate on compliance with legal and regulatory requirements, environmental impacts, and other matters.

Provision of Safety Information

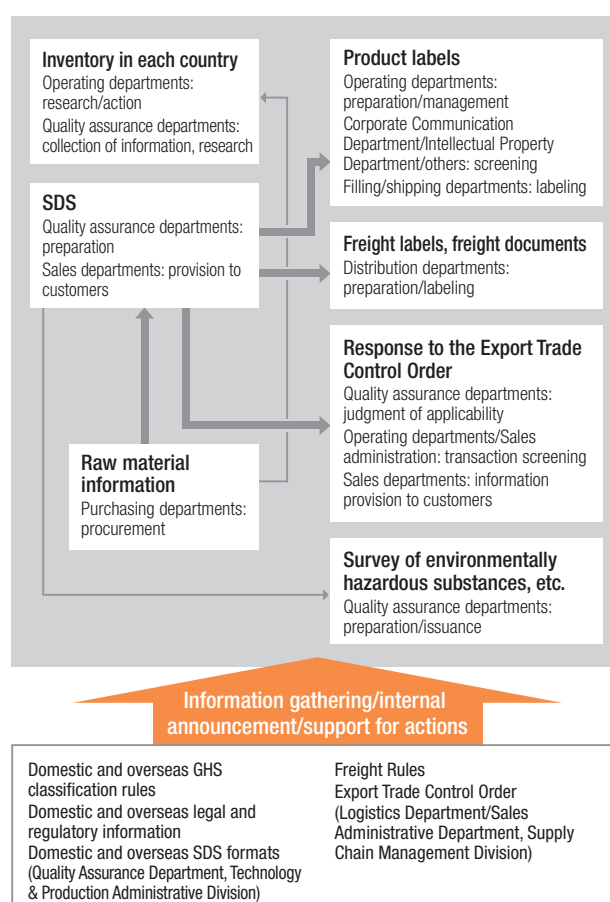
We provide chemical product safety information using safety data sheets (SDS), product labels, yellow cards, and other means.

SDS are documents prepared for communicating detailed information related to chemical product handling methods and safety. We issue SDS to customers, sales agents, transportation companies, and other companies that handle the Group's products. SDS for some products can be downloaded from the corporate website.

The mandatory provision of SDS and product labels in national languages in accordance with Globally Harmonized System of Classification and Labelling of Chemicals (GHS) has spread in various countries around the world including Japan. We are creating and updating SDS and product labels as needed in response to such trend.

Many departments are involved to manage product information and appropriately communicate it to the supply chain. Members of the Technology & Production Administrative Division and the Supply Chain Management Division are engaged in information gathering, internal education, response to consultation and other tasks to support implementing departments.

* GHS: Globally Harmonized System



Green Procurement

We disclose information on the chemical products we provide to enable customers to practice green procurement. Relevant information is provided through chemSHERPA as well.

In addition, to provide environmentally friendly, worry-free products, we have established the Green Procurement Guidelines, manage environmentally hazardous substances in raw materials and packaging materials, and conduct quality and environmental management surveys of business partners. We have put in place a mechanism for selecting raw materials that meet green procurement criteria beginning at the product development stage.

* chemSHERPA: the scheme designed for communicating information on chemical substances contained in products in the supply chain; released in October 2015 and fully used by each company since 2017.

Quality Assurance



P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
● Reduction in the total number of complaints	● Number of complaints: 15% decrease from the previous year	★ ★ ★	● Reduction in the total number of complaints

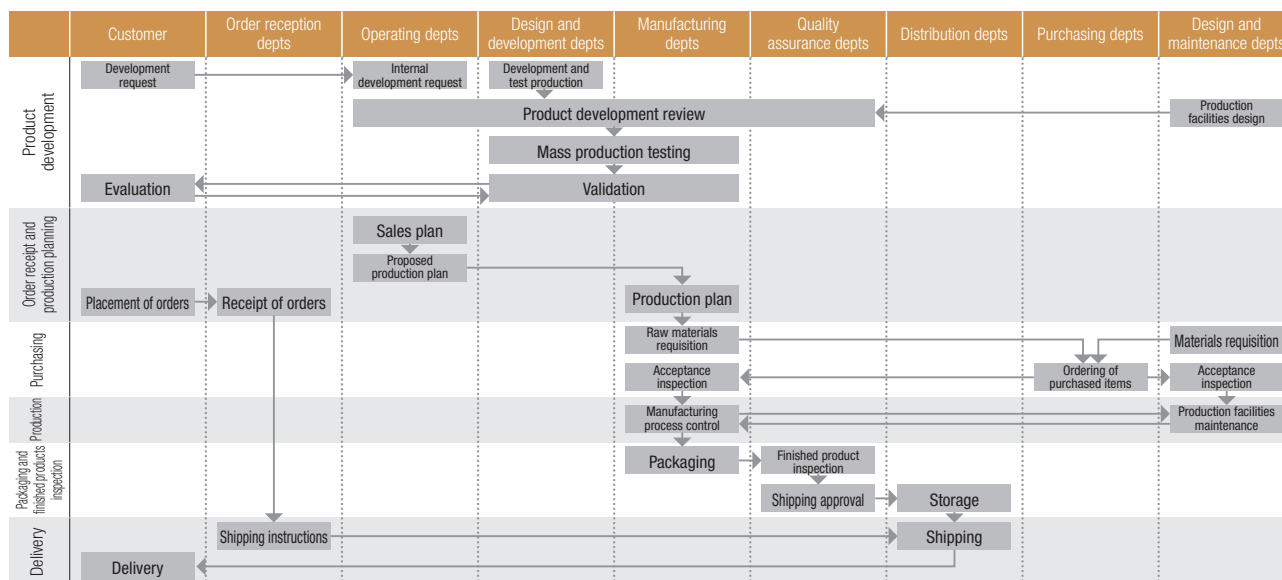
Quality Assurance System

Based on its quality policy to “enhance quality management and offer products and services that satisfy our customers,” the Group is working to achieve ongoing improvement of the management system.

Having established quality targets, such as “strengthening of manufacturing process management,” “improvement of the level of raw materials management,”

“improvement of the reliability of analysis,” and “raising the level of quality awareness,” we promoted various activities. These efforts have led to better quality performance throughout Toagosei, such as stricter quality control of high-purity products and highly functional products, expansion of product inspection management system to the whole company, and fewer complaints.

Quality Assurance System



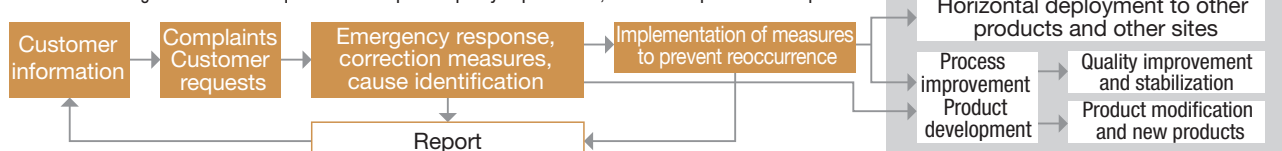
Initiatives in Response to the Voice of the Customer

We are striving to appropriately and quickly respond to complaints and submit delivery specifications and various documents. Quality assurance departments of our plants are responding to opinions of customers from their perspectives. As a result, submission of various documents to customers has become expedited year by year. Considering customer complaints and requests as opportunities to make improvements such as product upgrade, process

improvement, and quality improvement, we enhance the level of quality management from a broad perspective.

In recent years, customers are seeking a higher level of assurance and standards. To respond to their requests, we conduct quality risk assessments and strive to reinforce the cooperative framework between relevant plants in performing various activities in an effort to further strengthen the quality assurance system.

Process for dealing with customer requests and complaints/quality improvement, reflection in product development





Physical Distribution Safety

Relevant SDGs



P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
<ul style="list-style-type: none"> Reduction in the number of physical distribution problems 	<ul style="list-style-type: none"> Number of complaints regarding physical distribution: decreased by 42% from the previous year 	★★	<ul style="list-style-type: none"> Reduction in the number of physical distribution problems to 20 or less

Safety Management during Product Transport

Safe Transport and Delivery Promotion Structure

Each business site organizes conferences with carriers to promote safe transport and safe delivery. The business sites set annual targets at the conferences and confirm the progress and whether rules for carrying out safe operations are being observed through meetings and safety patrols. In the case of new clients, the business sites confirm clients' receiving facilities in advance to establish the system for safe delivery. If a carrier requests improvement of a client's receiving facility, we request the client to improve its receiving facility. Additionally, in light of the current COVID-19 pandemic, we require the crew to wear masks at the time of delivery.

Horizontal Deployment of Problem Information

The logistics departments undertake sharing and horizontal deployment of information at all plants by registering problems in shipping and transport in a database. Each business site regularly holds meetings with carriers to share risk information such as examples of actual accidents and close calls in order to raise awareness for the elimination of serious troubles.

Emergency Response Training

In the disaster prevention training periodically conducted at each business site, drills in preparation for the occurrence of leakage accidents are conducted with the participation of carriers as well. Drills include confirmation of emergency contact procedures, methods to secure safety and evacuate, etc. We also provide education on the properties and toxicity of transported products, as well as on emergency measures upon leakage, and inspect and maintain the emergency materials placed on vehicles, etc. We have also prepared emergency equipment and materials at business sites and put in place a system for promptly forming and dispatching emergency response teams.

In-house training sessions on transportation

In order to establish a safe and efficient shipping system, the Logistics Department regularly holds in-house training sessions with a focus on helping participants understand and obtain knowledge necessary for safe and stable transportation, including laws and regulations related to transportation. In October 2020, 43 people participated in the session titled "Briefing session on shipping/aerial transportation of hazardous materials," which was held by connecting the head office with each site. In addition, we strive to strengthen and enrich international transportation capabilities by undertaking initiatives for developing human resources specialized in export operations in order to handle overseas transportation, which is expected to expand and increase in line with the global expansion of the Group.

Participating in the White Logistics Movement

In December 2019, endorsing the White Logistics Movement, the Group announced its initiatives in the Voluntary Action Declaration listed in the table below and has since been engaged in White Logistics.

Initiatives in the Voluntary Action Declaration

Toagosei

Item	Description
Proposal for improvement of logistics and cooperation	<ul style="list-style-type: none"> If suppliers or logistics service providers request reduction of time spent waiting for cargo, reduction of the need for drivers to perform manual unloading, streamlining of incidental operations, etc., we will discuss the matter with them and vigorously make proposals.
Utilization of pallets, etc.	<ul style="list-style-type: none"> We will utilize pallets, racks, returnable containers, etc. to reduce time spent handling cargo and the workload.
Improvement of facilities of shippers	<ul style="list-style-type: none"> We will automate filling equipment, integrate warehouses and other logistics facilities, and implement other measures to reduce the workload and time spent handling cargo.
Active utilization of logistics service providers engaged in workstyle reforms, etc.	<ul style="list-style-type: none"> We will actively use logistics service providers engaged in workstyle reforms, improvement of safety, etc. and support their efforts.
Safety measures for cargo handling	<ul style="list-style-type: none"> We will strive to prevent occurrence of occupational accidents through improvement of equipment for filling hazardous substances and shipping equipment, review of procedures, etc.

Aronkasei

Item	Description
Modal shift to shipping and rail transport	<ul style="list-style-type: none"> We will review the mode of long distance transportation and shift, where suitable, from truck to ferryboat, Ro-Ro ship, or rail.
Promoting conclusion of carriage contract in writing	<ul style="list-style-type: none"> We will promote the conclusion of carriage contracts in written form.
Taking the state of compliance into consideration when selecting a partner for carrier contract	<ul style="list-style-type: none"> When selecting a distributor for carrier contract, we will take into consideration their state of compliance with related laws and regulations.
Cancellation or suspension of operation in the event of extreme weather conditions	<ul style="list-style-type: none"> When an extreme weather condition such as typhoon, torrential rain, heavy snowfall, etc., has occurred, or is expected to occur, we will not make unreasonable delivery requests. Also, when a distributor decides that an operation must be cancelled or suspended in order to secure the safety of the driver, we will respect their judgement.



Human Resources

Relevant SDGs



P Targets for 2020	D Results in 2020	C Achievement	A Targets for 2021
<ul style="list-style-type: none"> Maintenance of employment rate of persons with disabilities of 2.4% or higher 	<ul style="list-style-type: none"> Achieved employment rate of persons with disabilities: 2.53% (as of December 31) 	★ ★ ★	<ul style="list-style-type: none"> Maintenance of employment rate of persons with disabilities of 2.4% or higher
<ul style="list-style-type: none"> Achievement of an average annual leave usage rate of 100% 	<ul style="list-style-type: none"> Average annual leave usage rate: 91.8% 	★ ★	—
<ul style="list-style-type: none"> Female hiring ratio of 30% Ratio of female managers: three times the level in 2016 	<ul style="list-style-type: none"> Female hiring ratio: 21.4% (as of April 1) Ratio of female managers: 2.3% (as of January 1) 	★ ★	<ul style="list-style-type: none"> Female hiring ratio: 30% or more among new career-track employees, 20% or more among regular service employees Ratio of female managers: 5% (13 individuals as of January 1, 2026) Greater workplace choices for women: assigning women to posts where women have never been placed before
<ul style="list-style-type: none"> Decrease of smoking rate Reduction of the number of persons who are on long-term absence due to mental problems Reducing overwork/long-time work Improvement in the ratio of employees who undergo secondary health check-up Increasing the rate of persons who maintain appropriate weight 	<ul style="list-style-type: none"> Remained mostly unchanged Reduced partly due to workplace improvements Increased from the previous year. Figures varied widely among divisions Saw improvements from previous year due to awareness-raising efforts of the department in charge Remained mostly unchanged 	★ ★	<ul style="list-style-type: none"> Promotion of the prevention of lifestyle-related diseases Rate of employees taking thorough health screening: 100%; rate of employees with regular exercise habits: 40%; rate of persons who maintain appropriate weight: 70% Promotion of smoking cessation Smoking rate: 15% (reduce the rate by half by 2021 from 31% in 2018)
<ul style="list-style-type: none"> Promotion of preventive measures against COVID-19 infection 	<ul style="list-style-type: none"> Issued a total of 20 guidelines of actions regarding COVID-19 by the end of December Prepared masks, alcohol disinfectants, and other items Made rules regarding procedures to be followed in case of (suspected) infection, such as reporting within company, dealing with the public health center, disinfecting, etc. Promoted teleworking to avoid crowding; put up posters to raise awareness for prevention; installed alcohol disinfectants, panels to block droplets, contactless thermometers, antimicrobial protection films, etc. 	★ ★ ★	<ul style="list-style-type: none"> Continuation of balancing infection prevention and business activities

Respect for Human Rights

Human Rights Protection Initiatives

○ Respect for Human Rights and Harassment Countermeasures

The Group respects fundamental human rights and strives to establish an environment where the diversity of human resources, including seniors, child-rearing employees, and employees with foreign citizenship is respected and where everyone can maximize their potential. We have prohibited sexual harassment, power harassment, and maternity harassment in the rules of employment and are working to raise awareness of human rights through education for managers and other employees to ensure that Group employees do not engage in discriminatory acts or human rights violations. We have set up internal and external reporting channels and, in the event that any type of human rights violation is detected, have made it possible to promptly take corrective measures following investigation by a committee whose members include outside specialists.



Harassment seminar for managerial personnel

with disabilities. As of the end of 2020, a total of 49 persons, or 2.71% of the Group's workforce, were employees with disabilities.

Takaoka Creation Laboratory, which opened in 2020, is designed with consideration of wheelchair users' ease of entering and exiting, and movement inside the building. Also, Aronkasei's Monozukuri Center has received the Color Universal Design certification. The Group is thus working to create a workplace environment that is friendly to people with disability.



Color Universal Design certification, Monozukuri Center, Aronkasei

Employment Rate of Persons with Disabilities



* As of December 31 of each year

Enhancement of Employment Systems

○ Employment of Persons with Disabilities

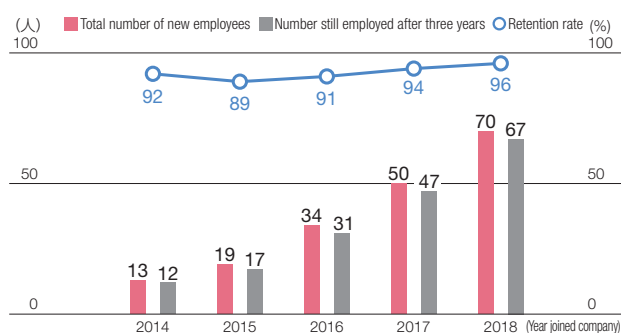
To support the independence of persons with disabilities, the Group is striving to expand employment of persons

Human Resources Development

Recruiting Activities

The Group seeks people with the enthusiasm and tenacity to think and tackle issues independently and see tasks through to the end. In selecting recruits, we place importance on interviews and consider whether people are able to contribute and flourish in the Group a more important judgment criterion than academic qualifications or past track record. Recruiting activities in 2020 such as information sessions and interviews were conducted mostly online to ensure that the applicants could attend without worrying about COVID-19 infection.

New Graduate Recruit Retention Rate (after Three Years) for the Previous Five Years



Human Resources Development Policy and Systems

To make the Medium-Term Management Plan a reality, the Group is strengthening its high-value-added businesses and implementing a growth strategy that includes overseas development. We consider that each individual employee is the source of power to realize the Medium-Term Management Plan and aim to maximize and expand the latent potential of each individual.

To develop excellent, highly motivated human resources who will drive the Group's growth and support employees pursuing self-growth, we conduct a wide range of educational programs, including level-specific training, training for promoted employees, and other group and online trainings as well as e-learning, distance learning, and overseas training.

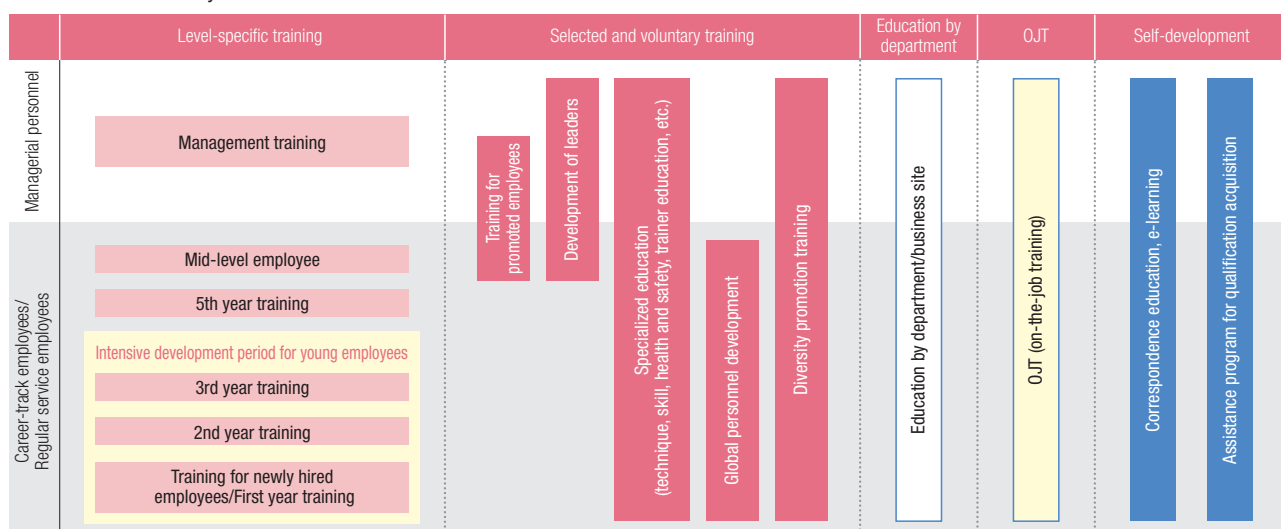
Development of Young Employees

We aim to develop young employees who can think independently and proactively take actions by involving other people, and we are focusing on helping them quickly become contributing members of the workforce. Having positioned the first three years after joining Toagosei as the intensive development period, we offer them step-by-step and level-specific training until the third year to improve their basic abilities as a member of society and other skills necessary to perform their duties. In our programs, we encourage trainees to work closely with their colleagues who joined Toagosei at the same time so that their amicable rivalry leads to the improvement of future behaviors and self-growth. Since 2017, we have been offering mindfulness training aimed at improving the power of concentration and self-recognition, although in 2020 we had to postpone the sessions as a precaution against COVID-19 infection.



Training for newly hired employees

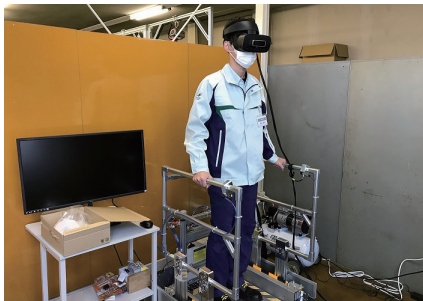
Chart of Education System



Technical Education

We have assigned employees responsible for the technical education of all business sites to the Nagoya Plant to enhance specialized education in technical departments.

Group training includes an interactive program that enables participants to not only acquire basic knowledge, but also to exchange views about the workplace equipment they choose to study. The introduction of a simulator for process education has enabled trainees to learn about process principles, in addition to operational methods. By



Safety awareness training: experiencing a simulated disaster situation reproduced by 3D virtual reality on display goggles to develop sensitivity to danger

offering simulated operation similar to the behavior of an actual plant, this training increases a trainee's analytical ability and response capability, such as in detecting abnormal signs, performing operation in the event of abnormality and in detecting their causes.

We are thus developing personnel who ensure safe and stable operation and promoting the handing-on of technologies and skills by enhancing safety education including experience-based training and hazard prediction training.

Self-development and Career Development Assistance

The Group has prepared distance education, e-learning courses and online video courses that contribute to knowledge acquisition and skills development in areas such as basic business abilities, management skills, and job-specific expertise. We facilitate the self-development efforts of employees through an assistance program that covers training fees. Furthermore, we conduct TOEIC tests and support acquisition of public qualifications as a means to support the career development of employees.

Creating an Employee-friendly Environ

Promotion of Work-life Balance

The Group aims to realize work-life balance for employees. We strive to reduce long working hours for our employees so that work and family life are well-balanced and even have positive effects on each other.

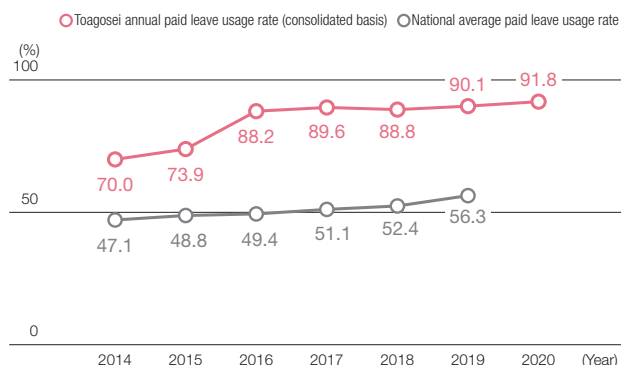
We stressed the importance of efficient working before it emerged as a prominent issue in society. In 2015, we promoted the use of annual paid leave and reduced designated work hours of full-time daytime workers by 15 minutes. In 2017, we also established a system to visual-

ize the hours spent at work by introducing an entry control system with an IC card reader. As a result of these initiatives, the Group's annual leave usage rate in and after 2015 drastically improved to around 90%.

Promotion of Flexible Work Style

We believe that promoting flexible work styles that suit the circumstances of each employee will help to create a culture of autonomy and boost productivity of the organization as a whole. Based on this idea, we have been creating and improving on various schemes aimed at enabling not only those who are raising children or providing nursing care but all employees to achieve good balance between their work and private life. We revised the teleworking system to allow employees to work from home or other locations approved by the Company up to 10 times per month and in one hour units. Meanwhile, core time in the flextime work system has been abolished, and paid leave can now be taken by the hour.

Annual Paid Leave Usage



* National average paid leave usage rate: General Survey on Working Conditions (Ministry of Health, Labour and Welfare, published data available up to 2019)

* Toagosei allows employees to retain annual paid leave even after the expiry of the statutory period of validity (up to 40 days); the above figures include the usage of such retained paid leave in the calculation.

Leave System for Spouse Relocation and Reentry System

In January 2017, Toagosei introduced the leave system for spouse relocation, which allows leave of up to three years for employees accompanying their spouses on overseas assignment, as well as the reentry system for registering candidates for reemployment in cases where employees have resigned due to family circumstances

such as transfer of a spouse, childcare, or nursing care. The leave system for spouse relocation, which has been utilized by two persons up until 2020, accommodates the employees' family circumstances with flexibility.

VOICE

Work-Parenting Balance in Dual Income Families

I took a one-month childcare leave last April when my wife was going back to work. In the first week or so, our child spent short hours each day at the day-care center to get familiar with the place, but it came to a stop when the state of emergency was declared due to the spread of COVID-19. I spent the period under the state of emergency looking after my eight-month-old baby while my wife worked remotely from home. I am a poor cook, so preparing baby food was a nightmare. I felt very nervous trying to get the right temperature, texture, and thickness, and my feelings went up and down about how much or how little the baby ate. We couldn't go out freely due to the COVID-19 pandemic, and I struggled a lot with childcare to make sure my wife could work comfortably, but now I look back on those days with a pleasant feeling.

I have returned to my job now, but I make use of the work-at-home and flextime work systems so that the load of housework and childcare in the evening times would be equally shared between the two of us. If I have another chance to take a childcare leave, I'd like to choose a period within the first three months after birth because that was when my wife had the hardest time.



TT, General Affairs & Legal Department

Active Participation by Women

Action Plan Based on the Act on Promotion of Women's Participation and Advancement in the Workplace

The Company is working on the development of a structure to enable women to fully demonstrate their abilities towards the goal of promoting active participation by women. In May 2016, we obtained a certification (Grade 2) from the Minister of Health, Labour and Welfare under the Eruboshi system as an outstanding company in this respect, under the Act on Promotion of Women's Participation and Advancement in the Workplace. We also formulated an employer action plan for the five years from 2021, also based on the Act on Promotion of Women's Participation and Advancement in the Workplace, in which we aim to achieve a female hiring ratio of 30% or more among new career-track employees and 20% or more among regular service employees, a female manager ratio of 5% or more as of January 1, 2026, and a new graduate recruit retention rate of 90% or more as of March 31, 2026. We will continue promoting the active participation of women in the workplace.

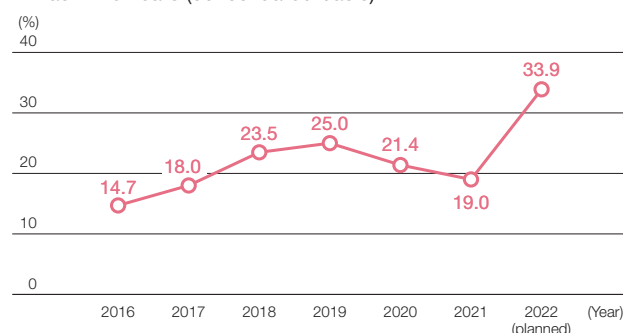
Seminar on the Promotion of Active Participation by Women

For women across the sections to work in lively spirits and to their full capabilities, support from their superior is indispensable. To this end, the Company has been holding seminars on the promotion of active participation by

women targeting managerial personnel and leaders of regular service employees since 2019 with the following contents:

- Understanding the importance of promoting diversity (i.e., to respect the differing attributes of each individual and enable each person to fully demonstrate their capabilities), including the promotion of active participation by women.
- Considering ways to communicate and interact with a diverse team of staff including women and make each person play an active role.

Employment Rate of Women among New Graduates in Past Five Years (consolidated basis)



* As of April 1 of each year

Assignment of Women to Manufacturing Sites

Since 2015, Toagosei has been assigning women to workplaces at manufacturing sites and working to expand the job categories available to women. Believing that a women-friendly workplace is also friendly to all workers, we are striving to reduce the workload and improve work environment. For example, we introduced tools that can be operated even with a small amount of force for works such as tightening or loosening large bolts and rotating handles, and also power-assisted apparatuses for transporting heavy items. We are also improving sanitary facilities such as restrooms and washrooms.



Assignment of women to manufacturing sites

VOICE

Greater Choice of Workplaces Where Women Can Display Their Capabilities

TM I work in a plant making film adhesives. I have managed to learn all my tasks and my focus now is on labor-saving of our operations, with the goal of creating a workplace that is friendly to all. In the course of reviewing the weights to be handled or introducing machinery, I realized that a work that is physically impossible for women is burdensome for men as well. So I try to speak up when I see an issue, reminding myself that it may not be specific to women.

MI I work in a plant that makes light-curable anaerobic adhesives. In the plant where I belong, we deal with smaller volumes of compounds compared to other plants that range between 300g and 300L, which means we do quite a lot of work by hand. So, I am trying to improve this by devising ways to reduce the burden of manual work. For my future self and for those who will be assigned here in the future, I'd like to continue suggesting work methods that are friendly to all workers.



(From left) **TM** and **MI**, Production Section II, Manufacturing Department, Takaoka Plant

Approach to Health Management

Health Management Initiatives

Considering promotion of maintenance and improvement of employee health as an investment that leads to improved corporate profits in the medium term, the Group has established a standing and dedicated group, which has since been conducting and promoting healthcare administration in a strategic, systematic and continuous manner. We aim to enhance our corporate value by improving productivity and creativity of our employees who are healthy both in mind and body, as well as by suppressing increased medical expenses and the risk of absences due to sickness through such initiatives.

Led by the Health Management Promotion Section, we operate a PDCA cycle of health measures for the entire Group. We also strive to solve the problems of employees suffering from unhealthy conditions and take preventive measures in cooperation with the Health Insurance Society, aiming to realize zero employees on long-term leave due to lifestyle-related diseases and other illness by 2025 through the measures below.

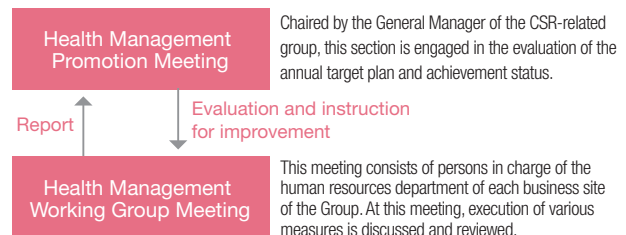
Promotion of disease prevention

- Promote the use of thorough physical examinations and specific health guidance
- Follow up on recipients of periodic medical examination who need to be reexamined
- Support the quit-smoking challenges

Health promotion

- Promote wellness events and club activities at business sites
- Subsidize gym fees

Promotion System



TOPICS Certified as a White 500

Toagosei was certified as a White 500 organization under the Certified Health & Productivity Outstanding Management Organization Recognition Program for the third consecutive year. Considering that the physical and mental health of each individual employee is an important asset, the Group will continue its active involvement in solving their health issues.





Enhancement of Contributions to Society and Communication

Relevant SDGs



Results in 2020

- Conducted plant tours, voluntary clean-ups, etc. in the areas where the Group's business sites are located
- Continued participation in the Human Resources Fostering Program in Chemistry of the Japan Chemical Industry Association, continued donations to the "Tobitate! (Leap for Tomorrow) Young Ambassador Program," continued sponsorship of T League, supported activities of the International Chemistry Olympiad as a member of the donation committee

Social Contribution Activities

Social Contribution Activities

The Group actively engages in social contribution activities such as support of sports, sponsorship of animals, and provision of relief supplies in the event of a major disaster.

In 2020, the Group's activities included continuation of official sponsorship of T League premier table tennis league of Japan, an animal sponsorship of Nagoya City Higashiyama Zoo and Botanical Gardens, and donation of food for emergency stockpiling to food bank groups run by NPO corporations, among other activities.



Donation of food for emergency stockpiling

Activities for Aesthetic Maintenance and Conservation of Biodiversity

In 2020, while many local events were cancelled due to the COVID-19 pandemic, the Group's business sites continued their activities for maintaining greenery that contributes to biodiversity, clean-up and aesthetic maintenance campaigns in the neighborhood of the Group's plants, and clean-ups of rivers and seashores. Many of our employees, having taken precautions against the spread of infection, participated in these activities, which also lead to enhancing the awareness of individuals.



Clean-up campaign

Measures against COVID-19 Infection

In 2020, as a way of support to the medical professionals who devoted themselves to fighting the spread of COVID-19, the Group presented protective suits to the Tokushima Prefectural Government via the Tokushima Plant. At the beginning of the spread of COVID-19, our business sites and partners in Japan and abroad, namely, China, helped each other to get hold of masks, which was a great bonding experience for all.



Presenting protective suits

Examples of Activities for Harmonious Coexistence with Local Communities

Site	Activity
Nagoya Plant	Holding of the TOA Cup Mama-san Volleyball Competition at the company's gym
Nagoya Plant	Publication of Seiryu local PR newsletter
Nagoya Plant	Animal sponsorship of Higashiyama Zoo and Botanical Gardens (Elephants, brown bears, seals)
Tokushima Plant	Holding of the Plant Manager Cup Mama-san Volleyball Competition at the company's gym

Corporate History

The Toagosei Group has been creating new value by leveraging the power of chemicals to meet the needs of a rapidly changing society. In 1960, Toagosei was the first company in Japan to commercialize acrylic esters (acrylates). First produced in 1963, Aron Alpha redefined adhesives for the world. Going forward, the Toagosei Group will develop new products and new technology that meet the expectations of society and make every effort to enhance medium- to long-term corporate value.

1916

Tokai Soda, the origin of the Company, was established.

1942

Yahagi Kogyo (second iteration) launched. (establishment of the Company)

1944

Yahagi Kogyo merged with Showa Soda, Hokkai Soda and Rayon Soda to form "Toagosei Chemical Industry," marking the founding of the Company.

1950

Oaklite Industrial (currently Aronkasei) was established.

1951

Oaklite Industrial (currently Aronkasei) became the first in Japan to successfully manufacture rigid PVC piping.

1957

The Company opened a new plant in Tokushima Prefecture (Tokushima Plant) to produce caustic soda and organic solvents.

1960

The Company successfully commercialized Japan's first acrylic ester production line plant.

Phase 1

1910s-1960s

Development of commodity chemicals

The business was initially built mainly on commodity chemicals, including soda, ammonia, ammonium sulfate and sulfuric acid, during a period when Japanese industry needed electrolysis products as basic materials and Japan's farmers needed fertilizer to boost food production.

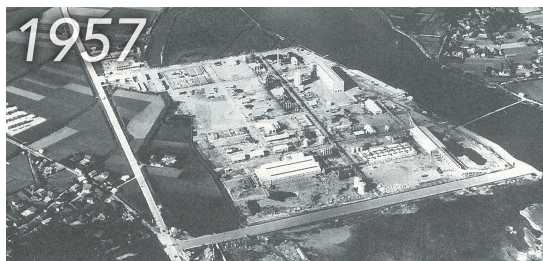
Phase 2

1960s-

Development of petrochemicals

Besides electrolysis products, Toagosei developed a presence in petrochemicals, including acrylic esters, polyvinyl chloride resin, and chlorinated organic solvents.

► Developments in commodity chemicals

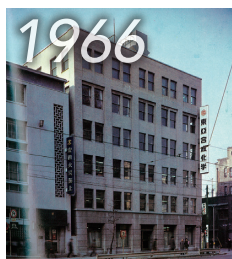


Tokushima Plant opened.

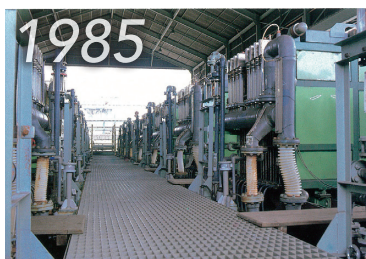
► Developments in petrochemicals



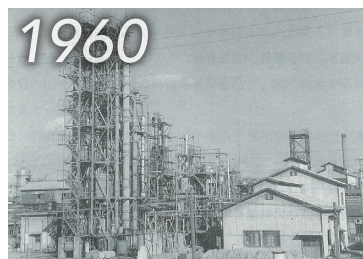
Employees hold the first rigid PVC pipe in Japan.



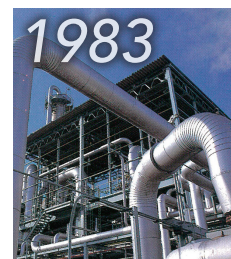
Head office (circa 1966)



The electrolysis equipment of the Nagoya Plant is changed to the ion exchange membrane method.



Acrylic ester plant at the Nagoya Plant



Oita Chemical is established.

1963

Production of Aron Alpha instant glues began.

1972

Production of ARONIX UV-curable resins began.

1983

Oita Chemical Co., Ltd. was established to produce acrylic acid.

1989

Toagosei America Inc., the Company's first overseas subsidiary, was established in the United States.

1990s-

Overseas operational bases for production and sales of functional products were established mainly in Asia.

2006

MT AquaPolymer, Inc., a joint venture for the manufacturing and sale of water treatment chemicals was established.

2016

Toagosei (Thailand) Co., Ltd. was established.

Phase 3

1970s-

Development of functional chemicals

In order to overcome the challenges posed by the oil crises, including lackluster demand for mass-produced products and to make the business less sensitive to economic fluctuations, Toagosei leveraged its original technology and fostered functional products such as Aron Alpha and ARONIX, positioning them as mainstays of the business.

► Development in functional chemicals



The first Aron Alpha at launch



Groundbreaking ceremony for the instant glue plant in the U.S.



Toagosei (Thailand) Co., Ltd. is established.

Phase 4

Gaining a strong presence in technologies and high-value-added products

Strategies in Phase 3 are accelerated, while qualitative conversion of business foundations is pursued through the expansion of high-performance, high-value-added products and bolstering of overseas business development.

2019: 75th anniversary of the Company's foundation





Toagosei Co., Ltd.

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