

TOAGOSEI GROUP REPORT 2022

Integrated Report

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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 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

- The International Integrated Reporting Council (IIRC) "The International Integrated Reporting Framework"
- Ministry of Economy, Trade and Industry (METI) "Guidance for Collaborative Value Creation"
- Global Reporting Initiative(GRI) "GRI Standards"

Date of issue of the Japanese version

June 2022
Next: June 2023 (Plan)

Period covered

January 1, 2021 to December 31, 2021
*Some articles include information on activities conducted in 2022.

Our communication tools

Contact:

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

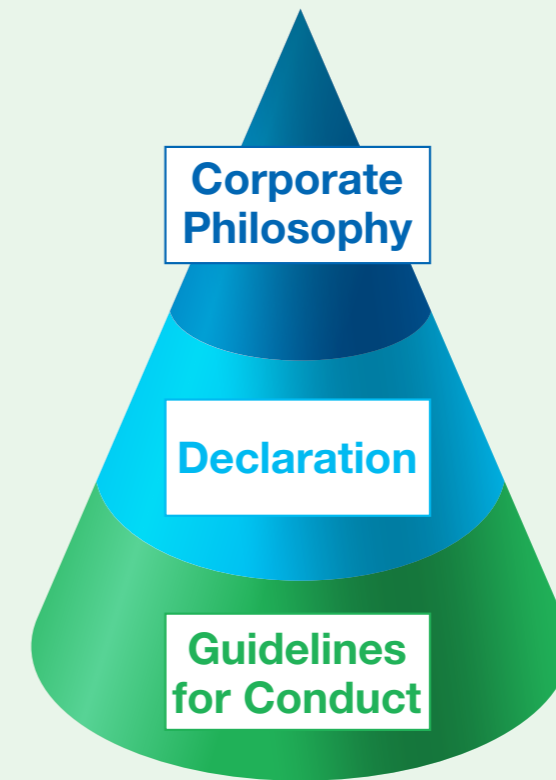


Shareholder Newsletter
for the 109th Term

Toagosei Group's Corporate Philosophy System

Corporate
Philosophy

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



Declaration

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

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.
- **Cooperation**
Create new businesses together with our customers and partners.

About our corporate logo

Our corporate logo combines the letters "T" for TOA and "G" for GOSEI. The emphasis placed on "T" articulates the words "Trust" and "Technology." The corporate logo symbolizes our commitment to rich creativity based upon trust and technology. The "T" element expresses "power," the "G" loop "emotion" and the three circles new possibilities generated from this combination.



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.

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, Kawasaki Plant,
Hirono Plant,
General Center of Research and
Development,
Institute for Advanced Sciences,
Takaoka Creation Laboratory,
Tokyo Technology Laboratory



Principal Affiliated Companies

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



Monozukuri Center, Aronkasei Co., Ltd.

Company Profile

Establishment	July 17, 1944
Head Office	1-14-1 Nishi-Shimbashi, Minato-ku, Tokyo, 105-8419 Japan
President and Representative Director	Mikishi Takamura
Capital	20,886 million yen
Number of Employees	2,539 on a consolidated basis (as of December 31, 2021)
Fiscal Year End	December 31
Stock Listing	Tokyo Stock Exchange Prime Market
Securities code	4045

Main business lines

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

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.

South Korea

- Toagosei Korea Co., Ltd.

Singapore

- Toagosei Singapore Pte Ltd.

Thailand

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



Toagosei (Thailand) Co., Ltd.

AMERICA

USA

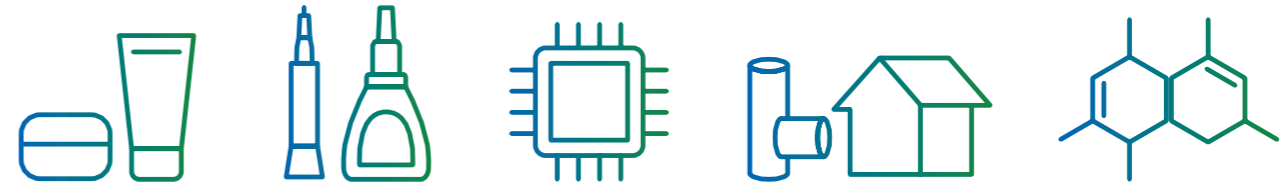
- Toagosei America Inc.
- Elmer's & Toagosei Co.



Toagosei America Inc.

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 P34

Polymers

● Acrylic polymers

We offer a wide range of acrylic polymers, such as dispersants and thickeners, for various uses such as medical, 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 P36

● 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.



● Low dielectric bonding film

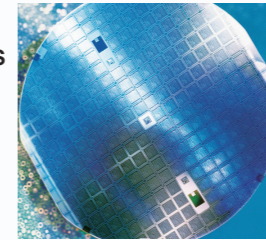
A film-type modified epoxy adhesive with excellent dielectric properties, it is used in high-capacity, high-speed communications equipment compatible with 5G.



Performance Chemicals P38

● 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 P40

● 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.



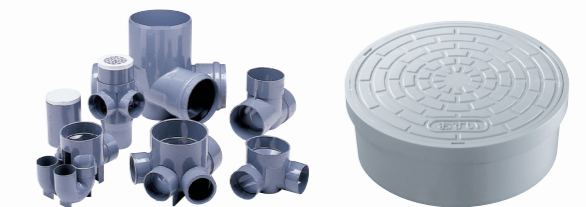
● Elastomer

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.



Commodity Business

Commodity Chemicals P32

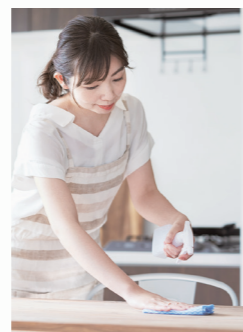
● Caustic soda

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



● Aron Zia Clean 200 hypochlorous acid solution

Hypochlorous acid solutions have been confirmed to be effective against COVID-19 by government agencies. Aron Zia Clean 200 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.



● 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 Value Creation Trajectory

The Toagosei Group has been leveraging the power of chemistry to create new value that meets the needs of a rapidly changing society.

By providing products that meet the needs of the times, we cultivate solid technical capabilities and trust in our products. With these as our foundation for value creation, we will continue to develop new products and technologies that meet the expectations of society and increase our corporate value.

Phase 1 (1910s~)

Development of commodity chemicals

We built our business mainly on commodity chemicals at a time when the chemicals industry was dominated by electrolysis products, which comprise an industry staple, and fertilizers for increasing food production.

Key Points to Value Creation

- Supply of products that would form the basis of postwar reconstruction
- Stable supply of basic chemical products

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.

Key Points to Value Creation

- Supply of raw materials for periods of rapid growth
- Commencement of commodity petrochemical product production

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, positioning them as mainstays of the business.

Key Points to Value Creation

- Expansion from commodity products to high-performance products
- Expansion overseas, beginning with the United States of America

Phase 4

Development of product lineups forming a fourth pillar fit for the ESG/SDGs era

Key Points to Value Creation

- Expansion of high-value-added product businesses
- Creation of new business units



Nagoya Plant



Tokushima Plant



Institute for Advanced Sciences



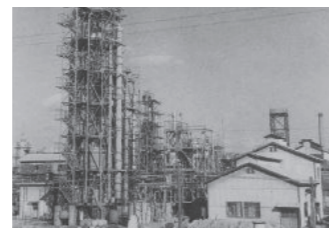
Takaoka Creation Laboratory



Electrolysis plant



Caustic soda shipment



Acrylic esters (acrylates) production facilities



Acrylic esters (acrylates) shipment facilities

Mainstay Products

Caustic soda, hydrochloric acid, sodium hypochlorite

Mainstay Products

Acrylic acid methyl esters, acrylic acid ethyl esters



Functional adhesives plants



Aron Alpha for general household use

Mainstay Products

Aron Alpha, acrylic polymer, ARONIX, inorganic antimicrobial agent



Polymer plant for lithium-ion batteries



Low dielectric bonding film

Priority fields

Mobility, healthcare, Cellulose nanofiber

Message from Management

Given these times of future uncertainty, we will create innovative materials whose value will not diminish even five or ten years from now, thereby contributing to the achievement of carbon neutrality and to the sustainability of society.

Mikishi Takamura

President and Representative Director



Corporate Philosophy

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

What constitutes the solidity of the Toagosei Group?

As we entered 2022, countries around the world had gradually adapted to the changes in lifestyle and economic activities caused by the spread of the COVID-19 contagion. Just as the resulting new normal took hold in day-to-day life, a new threat to the world arrived again. Russia's invasion of Ukraine has cast a dark cloud over the energy, economic, and security activities not only of the countries directly involved, but all around the world as well. Each of various countries have imposed severe sanctions on Russia, and the world is beginning to divide into an opposition between the free-market capitalist bloc that includes the United States, the European Union, and Japan, and the state capitalist bloc that includes China and Russia. This conflict is causing a major shift in the globalization trend that has been going on for nearly 30 years.

What kind of future can the Toagosei Group envision in the midst of such epochal change in the world? I have begun to rethink exactly what it is that constitutes the solidity that has the power to build a resilient corporate group that embody our management philosophy.

For the year through December 2021, our Group achieved significant increases in both sales and profits, with operating income second only to the 2010 all-time high and net income in line with the 2016 all-time high. In order to continue to meet the expectations of our stakeholders while contributing to society, we must clearly recognize our own strengths and maximize their value.

We refine substances back into their raw materials, then build in performance to create materials that have never existed before.

Our Group has grown by providing products demanded by the times based on three main product groups: basic chemical products from our foundation until the 1950s, petrochemical products since that decade, and functional products offered from the 1970s to the present. Today, we have very strong proprietary products, including semiconductor materials and mobility-related materials, especially those for electric vehicles. These products are materials for which demand will undoubtedly grow in the age of high-speed, high-capacity communications, decarbonization, and energy diversification. They will keep pace with further technological innovation, improve performance and quality, and drive markets.

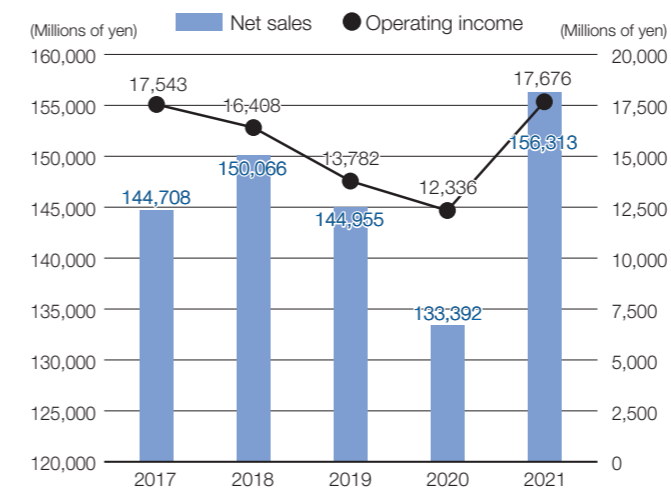
We start producing materials with such cutting-edge value about 10 years before the end products in which they are used become widely available. In doing so, it is extremely critical that we anticipate the times in which what kind of technologies and products the world will need in the future. Furthermore, given that plastics are materials with polymer molecular structures, in order to create new plastics with superior performance and functions never seen before, it is necessary to build in that performance by making modifications from the raw materials stage. The Toagosei Group is a chemical manufacturer capable of creating new polymers and plastic products by utilizing accumulated proprietary technologies for polymerization, synthesis, crystallization and other processes, starting from the stage of monomers, the first substances produced from naphtha after crude oil refining and fractionation.

With adhesives, for example, an adequate product can be made by blending already existing materials. In the case of our Group, however, conducting R&D from the base materials stage enables us to create new monomers by engineering their structural organization. By doing so, we have achieved unprecedented levels of performance that cannot be achieved by simply blending pre-existing materials, and have met the high demands of our customers.

Meet customer expectations, demonstrate real competence, and greatly expand future growth potential

Developed nations including EU countries are taking major steps toward decarbonization, making the

Net sales and Operating Income



development of next-generation vehicles a pressing task worldwide. What demands will this place on battery materials? There are a great many promising technologies, including lithium-ion batteries, all-solid-state batteries and hydrogen energy. Not even the automakers are sure yet about which of these will become the mainstream and final form of electric vehicles. It will be some time before a conclusion is reached as to which battery is superior when evaluated in total terms, not only of its performance as a battery, but also in terms of such features as ease of recharging, ease of infrastructure development, and ease of recycling. Nevertheless, we, as materials manufacturers, must develop materials while envisioning all possible directions. Otherwise, electric vehicles will be slow to catch on, and decarbonization will never get off the ground. Automakers will then choose reliable materials manufacturers as the partners with whom they will complete their batteries together. We have seen a rapid increase in this type of development over the past few years. And we have demonstrated our true ability by meeting the expectations of the manufacturers who chose us.

In Japanese, the word for chemistry is written with the ideograms meaning “transformations” and “the study of.” The real excitement of being a chemical manufacturer is in creating things through real, complete transformations, and in transforming the wonders of chemistry into the thrill of the future. Our Group has focused effort on investment in research and development. As a result, we have begun to produce new materials that our customers and society demand, and we are now able to confidently produce them in a variety of fields. New manufacturing facilities became necessary to produce these new items, and capital investment was increased. We have added to our product line a succession of future products never seen before.

We recognize that, as a Group, now is the time for us to demonstrate our skills in our five business segments, and in our individual research. Especially in these times when the future is so extremely difficult to predict, I believe that continuing to offer new products will solidify our own foothold and greatly expand the potential for future growth.

Creating organizations that bring about new ideas and development

In our development work, we often encounter situations in which the addition of ideas and wisdom from completely

different fields creates a very positive stimulus, and development moves forward by leaps and bounds. It is characteristic of traditional Japanese companies that employees who enter as new graduates spend 10 or 20 years building up their careers and developing their expertise, which makes it difficult for them to receive outside stimulation. Since our Group is one such company, we believe that the kind of eye-opening opportunities that occur in R&D work are necessary for management as well. Since 2003, we have therefore been inviting people who have achieved results in different fields and have different ideas to join our Board of Directors as outside directors. Currently, seven outside directors with various specialties participate in the Board of Directors, providing a number of interesting ideas, suggestions, and perspectives that are key to the company’s decision-making process. For example, when making a given investment, they discuss what kind of intrinsic value will be created now and in the future besides the accumulation of profit, and what kind of risk is involved. In this way, they support decision-making for growth investments that entail appropriate risk-taking. In addition, when discussing the launch of a product that has finally been developed after a long period of research and development, it is easy to make complacent, arbitrary decisions when discussions are restricted within the company. There are, however, situations in which an outside director unfamiliar with manufacturing can calmly analyze the situation and give us eye-opening suggestions. They are also taking advantage of their external perspectives in proactively addressing the issues our Group faces, such as full participation and advancement for women, and diversity of human resources.

Human resources development appropriate to a company that creates the future

The Takaoka Creation Laboratory, newly established in 2020, is a fitting place to create future value, and we actively adopted the ideas of young employees, especially women, to ensure that the building will not become obsolete even after 10 years. A very comfortable space has resulted.

It is people who create new value, while business sites are the places where that value is created. It would be difficult to produce good output in a bleak space with only the minimum necessary facilities. While cost

reduction is critical for manufacturers, money must be spent in areas that prevent a decline in value even 10 years down the road, and distinguishing these areas clearly is an important role of management. A company’s competitiveness depends on what kind of investment will allow people to think freely and create value. The same is true for Japan’s overall competitiveness. The rate at which population decline will progress depends on whether companies can provide environments where young people, both men and women, can work comfortably while raising children. As a company, we must take a long-term perspective in investing in and developing our personnel.

The creativity of R&D firms solves carbon neutrality challenges

In the first place, materials manufacturers such as chemical and steel companies produce a higher percentage of CO₂ emissions than assembly and processing companies like automobile and electrical appliance manufacturers. Recognizing this responsibility, we have been engaging in activities to reduce our environmental impact. I also believe that we bear a crucial responsibility to achieve carbon neutrality by 2050, which is the current target set by developed nations. We have set an interim target for 2030 of a 50% reduction in emissions from our own operations compared to 2013, and we are working on a roadmap to achieve this goal. In addition, the use of the Group’s chemical products upstream in the supply chain has the effect of reducing CO₂ emissions for downstream customers and users of their products as well. We have already seen positive results with some of our products, such as UV-curing resins and cellulose nanofibers, and we intend to further increase the number of products that contribute to reducing environmental impact in the future.

I believe that what we need in order to achieve carbon neutrality is creativity. This is exactly the same as research and development, which cannot progress based on optimism alone. The possibility of accomplishing the goal depends on how seriously you take these issues and take action, whether it be working hands-on and starting a research project, or beginning an experiment. And the results will vary depending on whether we have the research and development resources to back them up. As a Group that has long been committed to environmental themes, we would like to take the lead in charting a course toward achieving carbon neutrality.

R&D for the world-leading state of the art

Climate change is an important issue for society, but I believe it is also a big issue that Japan must also avoid all the ways in which our status among other countries could decline or by which we could become lost in the shuffle. No matter how much effort we, as a company, make to grow, if the country’s overall status declines,

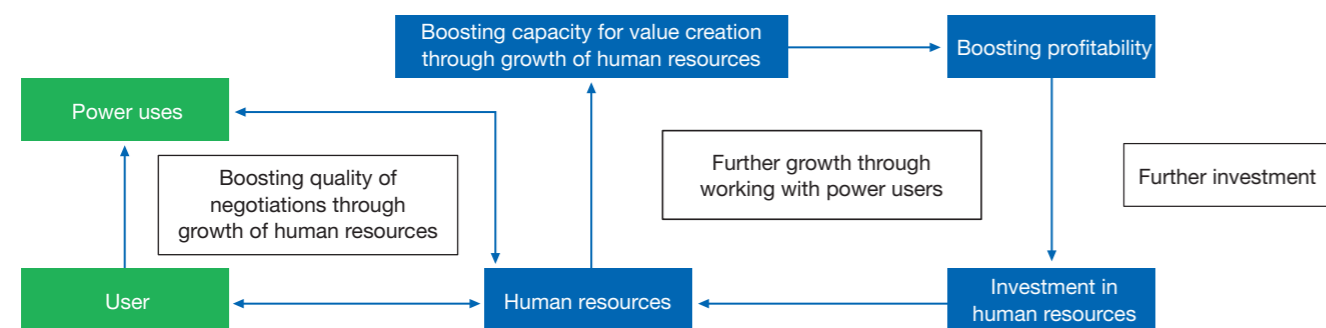


there will be a limit to our growth. Our neighbor, China, has more than 10 times our population, so one can imagine that there are 10 times as many people doing chemistry there as here. If the Japanese do not make products that are far and away better than theirs, then we will soon be swallowed up. However, I believe that even though we may have only a tenth as many people involved in chemistry, we have the ability to lead the world in those fields on which we direct a narrowed competitive focus. This is not a strategy for our company alone. It will be important for Japan as a whole to adopt a similar mindset, to increase competitiveness in terms of quality, and to grow. Research and development is still the key to achieving this. There are countless principles in the world that humanity has yet to master. By coming close to mastering one or two of these, we will be able to offer something new and undoubtedly useful to society.

If a company like ours were to neglect to allocate the profit generated by business operations to R&D, we would eventually pay dearly for it. It also may be the case that all kinds of commodities for daily living will be replaced by products of foreign countries. Since we chemical manufacturers deal in different chemical products, we must make the best use of each other’s distinctive characteristics and knowledge, while the industry as a whole must undertake R&D efforts in earnest so that we can continue to provide advanced materials and products that are needed for our daily lives. I believe that Japanese manufacturers have the ability to create products that have high technological value and can gain global market share. It should be possible to create the electric vehicle of our dreams—one that can offer safe driving in harsh weather conditions and severe infrastructural environments without compromising performance. This is because we will provide superior materials whose value will not diminish even five or ten years from now.

We are committed to forging ahead to maximize our corporate value through these actions so that our stakeholders can continue to support us with confidence. We will also contribute to the sustainability of society by embodying our stated corporate philosophy: “Through the endless possibilities of chemistry, we bring happiness created by highly functional materials.”

Boosting capacity for value creation through growth of human resources



Toagosei Group's Value Creation Story

Purpose Values

Corporate Philosophy

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

Input

Financial Capital

Total assets 258,955 million yen
 Issuer rating by Rating & Investment Information Inc. **A (Stable)**

Human Capital

Employees 2,539
 Ratio of R&D personnel 14.8%

Manufactured Capital

Manufacturing sites 20 sites
 (15 domestic sites, 5 overseas sites)

Intellectual Capital

Research sites 4 sites
 Testing/evaluation sites 1 site
 Ratio of R&D expenses to net sales 2.8%

Social and Relationship Capital

Group companies 21
 (10 domestic companies, 11 overseas companies)

*As of December 31, 2021

Superior Technical Capabilities

High purification technology

Polymerization technology

Synthesis technology

Compounding technology

Particle control technology

Molecular control technology

Business

Strategy

Medium-Term Management Plan for 2020 to 2022
 "Stage up for the Future" P16

Business Development

Commodity Chemicals P32

Polymer & Oligomer P34

Adhesive Material P36

Performance Chemicals P38

Plastics P40

ESG Management

Environmental Initiatives P44

Community Initiatives P46

Corporate Governance P54

Outcome

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

2050 Carbon Neutrality (Net Zero) P18

Progress of the Medium-Term Management Plan for 2020 to 2022 “Stage up for the Future”

We have positioned the Medium-Term Management Plan that started in 2020 as the stage following the previous medium-term plan, and we are aggressively investing in growth to develop new products, enhance facilities, and strengthen R&D functions and systems. As a result, we were able to achieve our 2022 targets one year ahead of schedule in several areas, including operating income and EBITDA.

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.

Quantitative Targets and Results

The Medium-Term Management Plan lays out the following quantitative targets. The actual results to date and projected values for 2022 are as follows.

	2020	2021 ^{*5}	2022 (forecast)	2022 (Mid-term target)
Net sales (Billions of yen)	133.3	156.3	153.8 (166.3) ^{*6}	163.0
Operating income (Billions of yen)	12.3	17.6	18.0	17.0
Operating income to net sales ratio (%)	9.2	11.3	11.7	10.4
EBITDA ^{*1} (Billions of yen)	22.1	28.2	28.8	27.0
High-value-added products ratio ^{*2} (%)	43.3	43.8	52.7	47.0
Capital investment (approval basis) (Billions of yen)	11.8	24.9	33.6	44.0 (cumulative total during the mid-term plan)
Overseas net sales (Billions of yen)	22.1	29.0	30.8	32.5
Overseas net sales ratio (%)	16.6	18.6	20.0	20.0
EPS ^{*3} (yen)	62.43	108.14	109.22	106
ROA ^{*4} (%)	5.3	7.6	7.3	7.0

*1 EBITDA = Earnings Before Interest Taxes Depreciation and Amortization. Income calculated by adding interest payments as well as depreciation and amortization to pretax income.

*2 Ratio of Polymer & Oligomer, Adhesive Materials, Performance Chemicals, and Plastics (excluding piping equipment) businesses to sales

*3 Net income per share

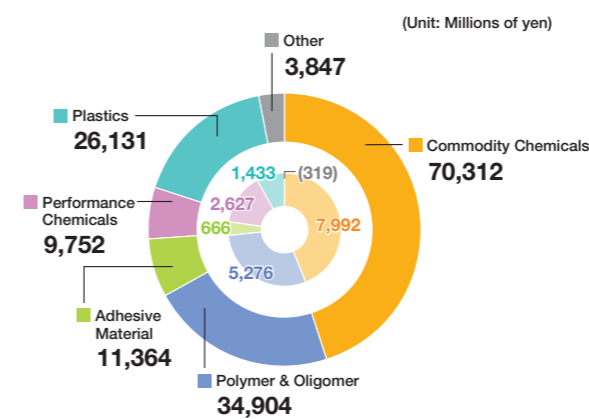
*4 ROA (Return on assets)

*5 Items for 2021 highlighted in yellow achieved the mid-term targets.

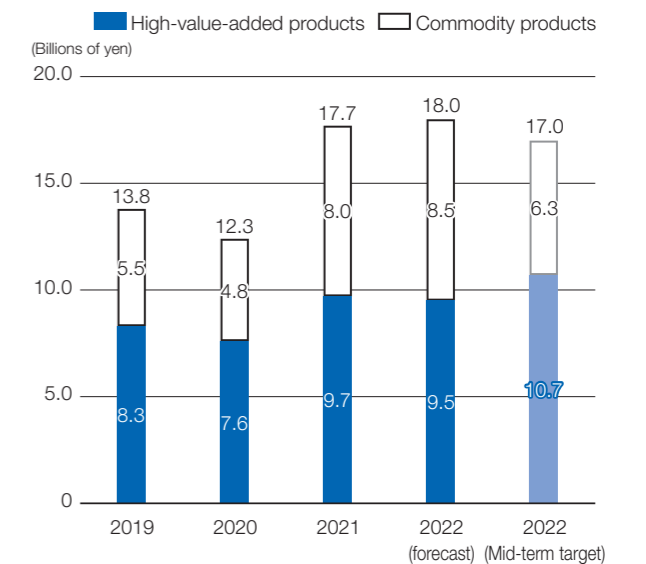
*6 The accounting standard for revenue recognition has been applied since 2022 (including changes in recording methods). Figures in parentheses indicate values without application of the standard.

Toagosei Group’s earnings structure (2021)

Net sales (outer circle) 156,313 million yen
Operating income (inner circle) 17,676 million yen



Operating Income of High-value-added Products and Commodity Products



Feature: Setting Carbon Neutrality Goals and Taking Initiative to Achieve Them

Towards a Sustainable Development of the Society

Under our Sustainability Policy, the Toagosei Group is working for the development of a sustainable society by providing social value through our business operations (OSR*) and the strengthening of our enduring corporate foundation (DSR**).

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

Sustainability Policy

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



All TOA Sustainability System

Initiatives for the Development of a Sustainable Society	Priority areas	Materiality	Relevant SDGs
Provision of social value through business (OSR)	Mobility	Reduction of environmentally hazardous substances related to automobiles	SDG 12
	Electronics	Industrial innovation/information infrastructure improvement	SDG 9
	Healthcare	Creation of a healthy and comfortable living environment Enhancement of the quality of life of seniors and people requiring care	SDG 3
	Infrastructure	Stable supply of high-quality water through water and sewage treatment Prevention and mitigation of damage caused by natural disasters	SDG 6, SDG 11
	Biodiversity	Marine biodiversity conservation	SDG 14
	Energy	Mitigation of climate change by reducing CO ₂ emissions	SDG 13
	Generating new value	Creation of new business unit and provision of new value with DX	SDG 9
Strengthening of a Lasting Corporate Foundation (DSR)	Governance	Strengthening governance focused on the interests of stakeholders	SDG 3, SDG 5, SDG 8
	Environment	Enhancement of Responsible Care activities	SDG 11, SDG 12, SDG 13
	Community	Respect for human rights and diversity Social contribution activities	SDG 14, SDG 15, SDG 16

SDGs Initiatives

Specific initiatives in each of the priority areas are as follows. Please refer to P32 and subsequent pages for the initiatives of each business division.

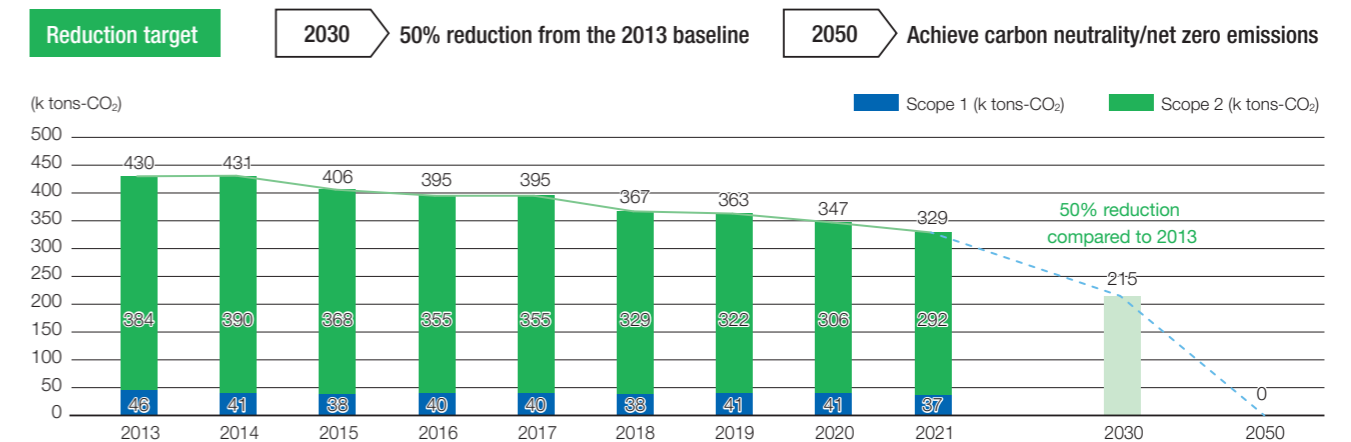
Mobility	Highly functional materials for batteries for automotive applications (P25: New Products Development Division CASE 2), glass-substitute resin (P27: Research & Development Results CASE), etc.
Electronics	High-purity inorganic chemicals for semiconductor manufacturing (functional materials), adhesives for information and communication applications (adhesive materials), etc.
Healthcare	Instant glues for medical applications (adhesive materials), resins for cataplasms and materials for cosmetics (polymer & oligomer), inorganic antimicrobial agents, deodorants and anti-mold agents (functional materials), nursing care products (plastics), hypochlorous acid solutions (commodity chemicals), etc.
Infrastructure	Disinfectant for water (commodity chemicals), wastewater treatment agents and soil solidifying agent for liquefaction countermeasure (polymer & oligomer), piping systems for sewers (plastics), etc.
Biodiversity	Ballast water management system (commodity chemicals)
Energy	Setting carbon neutrality goals (P19 to P21)
Generating new value	Please refer to "Feature: New Products Development Division" (P24) and R&D initiatives (P26).
Governance, Environment, Society	Please refer to P42 and later pages as well as our website.

Setting 2050 as Carbon Neutrality Target

Under Toagosei Group's Sustainability Policy, we are working through our environment-conscious business activities towards achieving sustained development of a prosperous society for the future generations. 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 23% reduction from the 2013 level in 2021. As the risk of climate change increases worldwide, we will accelerate our efforts to reduce GHG emissions with the goal of becoming Carbon Neutral (Net Zero) by 2050.

GHG Emissions and Reduction Targets (Scope1 + Scope2)

We have set reduction targets for 2030 and 2050 for GHG emissions generated by our Group's production activities.



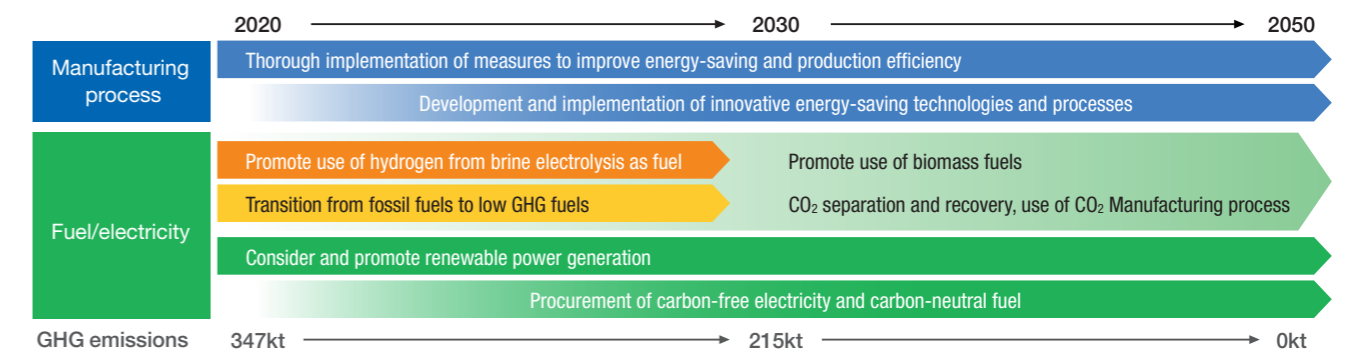
*Subject of calculations: production sites in Japan

Initiative to Achieve Carbon Neutrality

To achieve carbon neutrality, our Group is accelerating drastic initiatives to reduce GHG emissions in addition to the manufacturing process energy conservation and efficiency improvements that we have already been pursuing. We have begun specific studies and deliberations on various measures toward our aim of having our own renewable energy generation capability.

- Enhancing energy conservation at plants (upgrade of brine electrolysis plants to high-performance equipment, process improvement), reducing GHG emissions from boiler fuels
- Introducing renewable energy (biomass power, solar power, small-scale hydroelectric power)
- Collaborating with local communities (introduction of carbon-neutral steam from Yokohama municipal waste incineration plant)
- Contributing to a hydrogen society (effective use of hydrogen produced in-house)
- Development of power storage batteries and new materials as products that contribute to measures against climate change

Carbon Neutral (Net Zero) Roadmap

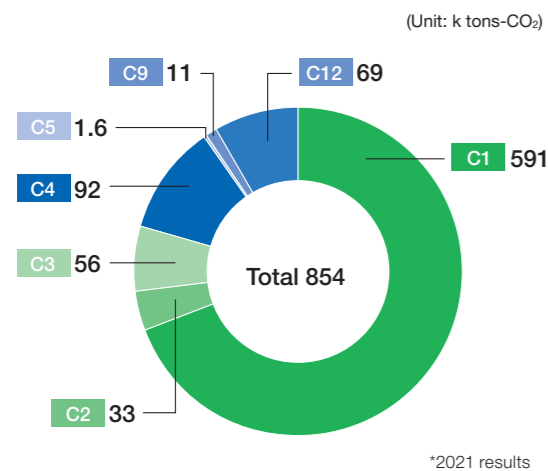


Initiatives for Task Force on Climate-Related Financial Disclosures (TCFD)

In the process of manufacturing various chemical products, our Group uses large amounts of electric power and fuel, and emits greenhouse gases (GHG). On the other hand, we also offer many products that are making a contribution with respect to climate change in fields such as mobility, electronics and critical infrastructure. Responding to climate change is an important aspect of management, both in terms of reducing GHG emissions and making a difference with our products, and in June 2019, we endorsed the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD).

In accordance with TCFD guidelines, we calculated and specified GHG emissions, including our supply chain, in three categories (Scope 1 to 3).

Breakdown of Scope 3 emissions



Scope 3 categories

Upstream	Company	Downstream
Scope 3 C1: Purchased goods and services 591k tons-CO ₂ C2: Capital goods 33k tons-CO ₂ C3: Energy activities not included in scope 1 or scope 2 56k tons-CO ₂ C4: Transport and distribution (upstream) 92k tons-CO ₂ C5: Waste generated in operations 1.6k tons-CO ₂ C8: Leased assets (upstream) Not applicable	Scope 1 37k tons-CO ₂ Emission from use of fuel Scope 2 280k tons-CO ₂ Emission from use of purchased electricity and heat Scope 3 C6: Business trips 0.1k tons-CO ₂ C7: Commuting 0.4k tons-CO ₂	Scope 3 C9: Transportation and distribution (downstream) 11k tons-CO ₂ C10: Processing of sold products Not applicable C11: Use of sold products Not applicable C12: End-of-life treatment of sold products 69k tons-CO ₂ C13: Leased assets (downstream) Below 0.1k tons-CO ₂ C14: Franchise Not applicable C15: Investment Not applicable

*Scope 1 and 2: Production sites in Japan; Scope 3: Toagosei Co. (non-consolidated)

Climate-related Risks/Opportunities (Scenario Analysis)

We analyzed the risks and opportunities that climate change poses to our Group's business according to the 2°C and 4°C scenarios. In the 2°C scenario, society's regulations, technologies, markets, and evaluations change toward a decarbonized society, while the 4°C scenario presents a case in which decarbonization does not advance, and chronic, acute climate change manifests itself. For each case, we consider the possible impact on business, and the actions that the Group should take.

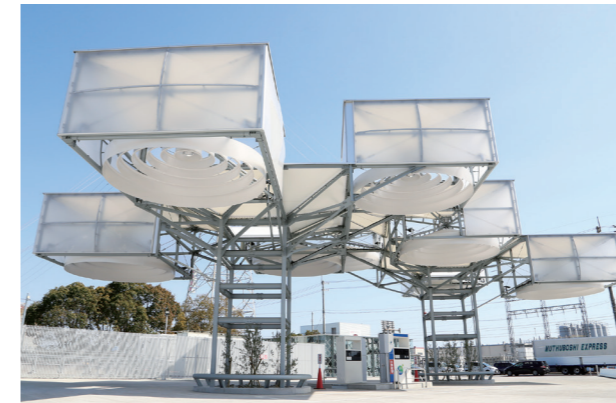
Risk/Opportunity Items		Business impact	Response
Transitional risk +2°C Scenario	Policy Restrictions	Tightening of energy related laws and restrictions Risk Increase in manufacturing and material costs due to introduction of carbon tax, etc.	<ul style="list-style-type: none"> Conversion to low-carbon fuels Implementation of renewable energy and transition to green electricity/fuel
	Technology	Advancement of energy and DX technologies Risk Increase in manufacturing costs due to development and implementation of low-carbon technology and equipment	<ul style="list-style-type: none"> Development of alternative low energy manufacturing processes
	Market	Transition to hydrogen energy society Opportunity Increase in demand for hydrogen-based energy and value of hydrogen	<ul style="list-style-type: none"> Effective use of hydrogen produced in company and expansion of hydrogen-related businesses
		Growth of ZEV and power storage battery markets Opportunity Increase in demand for EV/FCV related products and renewable batteries	<ul style="list-style-type: none"> Development and expansion in sales of ZEV and products and materials related to batteries
Physical risks +4°C Scenario	Reputation	Change in stakeholder behavior Opportunity Acceptance of measures against climate change as criteria for corporate value Risk Increase in dialogue with stakeholders	<ul style="list-style-type: none"> Promote measures against climate change and continue appropriate information disclosure Increase in dialogue with stakeholders
	Chronic	Raise in average temperature and climate change Risk Decline in working environment conditions and productivity due to raise in temperature	<ul style="list-style-type: none"> Automation and manpower reduction of manufacturing equipment
	Urgency	Increase in frequency and severity of typhoons and flood damage Risk Increase in risks of suspension of plant operations, equipment damage, and suspension of distribution	<ul style="list-style-type: none"> Diversification of manufacturing sites and thorough implementation of multi-sourcing Strengthening of company's logistical capabilities Revision of reoccurring risks and advancement of BCP

Cases and Topics

Utilizing Hydrogen Energy

We opened the Toagosei Hydrogen Station Tokushima, on a site adjacent to our Tokushima Plant. The facility opened on a trial basis in November 2021, and then began official operation with an opening ceremony in April 2022.

Unlike other hydrogen stations that fill fuel cell vehicles (FCVs) with purchased hydrogen, Toagosei Hydrogen Station Tokushima is unique in that it uses refined hydrogen produced by our brine electrolysis facility and sent to the station through a direct connection. We will continue to make our contribution toward a hydrogen society.



Toagosei Hydrogen Station Tokushima



Nighttime illumination



High pressure hydrogen dispenser



Opening ceremony (left: Tokushima Prefectural Governor Kamon Iizumi, right: Company President Mikishi Takamura)

Solar Power Generator Installation

The Takaoka Creation Laboratory, built at our Takaoka Plant, has a solar power generation system on the roof of the facility, which is powered by solar energy.

We are also moving to install solar power generation equipment at the new logistics center warehouse to be constructed at our Nagoya Plant (scheduled for completion in the fall of 2024).



Rooftop solar power generation system (Takaoka Creation Lab)



Taizo Serita
Director
General Manager,
Group Administrative Division

Message from the Director in Charge of Finance

As the world moves toward achieving carbon neutrality, we will grow with society by providing new value that contributes to sustainability.

Financial strategy at the Toagosei Group

Under the Medium-Term Management Plan “Stage up for the Future,” which started in 2020, the Toagosei Group has followed up on our previous medium-term management plan by aggressively promoting growth investments to develop new products, enhance facilities, and strengthen R&D functions and systems to further expand the high-value-added product business and create new business units that will support the future of the Group.

As financial indicators for realizing our growth strategy, we place crucial importance on improving EBITDA,*1 our high-value-added product ratio,*2 our overseas net sales ratio, EPS,*3 and ROA.*4

In 2021, we were able to achieve these 2022 targets set out in our medium-term plan one year ahead of schedule because of the continued recovery from the effects of the COVID-19 pandemic in Japan and abroad, and the results of our Group’s strategies, which led to significant increases in sales and profits. As for the overseas net sales ratio, we expect to exceed our target of 20% during 2022, as sales at overseas bases such as Toagosei (Thailand) are growing steadily. Since we have already started discussions on the formulation of our next Medium-Term Management Plan since the beginning of 2022, we will not revise the current mid-term plan’s target values, but will instead reflect the results of the plan, including those achieved to date, in the next Medium-Term Management Plan. Regarding capital investment, we had also planned to invest 44.0 billion yen over three years, mainly for the development of new products and the enhancement and expansion of facilities related to the existing battery business, but if we add the investment plan for 2022 to the actual results for two years, it appears certain

that we will exceed our initial plan. We are also in a hurry to evaluate how things will turn out when we reap the benefits of these investments, as our current aim is to use this as our basis for drawing up a more aggressive growth strategy for the next Medium-Term Management Plan.

We are considering investments not only in existing areas but also in new business fields that could form a fourth pillar of the Group’s business operations, such as mobility and healthcare. We also have plans for investment in such areas as materials informatics and human resources. In the next Medium-Term Management Plan, we thus intend to bring more clarity of form in our future growth businesses.

*1 EBITDA = Earnings Before Interest Taxes Depreciation and Amortization
Income calculated by adding interest payments as well as depreciation and amortization to pretax income.
*2 Ratio of Polymers & Oligomers, Adhesive Materials, Performance Chemicals, and Resin & Plastic Processing Products (excluding pipe and tube products) to net sales
*3 EPS = Earnings Per Share
Earnings per share calculated by dividing net income by the number of shares outstanding
*4 ROA = Return On Assets
Return on total capital (return on total assets). One of the indicators for measuring overall corporate management efficiency

Deepening sustainability management

The year 2021 was a period in which the world trend accelerated toward carbon neutrality, and we as a Group were able to confirm that we were not mistaken in the course we had taken to date. The perspective of sustainability is now integral to the evaluation and decision-making process for investment projects. Demand is increasing in the market for caustic potash,

a material used in pharmaceuticals and electronic components, and we are currently enhancing our facilities in order to maintain a stable supply. In addition, Technology Development Laboratory II, which opened in 2021, is in full operation for the development and commercialization of all battery materials, including all-solid-state batteries. As we work to promote the use of hydrogen energy, we have opened two types of hydrogen stations, stationary and mobile, utilizing hydrogen produced at the Tokushima Plant. Also, in December 2021, we reviewed our previous Group GHG emissions reduction targets and set new ones. Our goal is to reduce GHG emissions by 50% from 2013 levels by 2030, and to be carbon neutral by 2050. To achieve these goals, we have initiated measures in various areas such as manufacturing processes and raw fuels.

Compared to 1985, when I joined the company, I realize that the significance required of a company has changed dramatically. Gone are the days when a company’s only output was the pursuit of profit. Companies now bear the crucial responsibility of addressing various issues in the world and contributing to the sustainability of the economy and society. And this understanding cannot be limited to just some of our personnel. The entire workforce must be aware of it as they go about their daily duties, or the results will not follow, no matter how many orders management gives. With the growth of social media and other means of spreading information, we must foster the kind of corporate culture in which a high level of awareness of social responsibility and carbon neutrality is pervasive wherever one looks. In fact, companies that cannot do so will become unsustainable.

Our Group is working to share our awareness that we are raising the potential to achieve sustainability with the participation of all employees.

2021 results and Medium-Term Management Plan (2022)

	2021 Results	2022 Mid-term target
Sales	156.3 billion yen	163.0 billion yen
Operating income [Operating income to net sales ratio]	17.6 billion yen [11.3%]	17.0 billion yen [10.4%]
EBITDA	28.2 billion yen	27.0 billion yen
High-value-added products ratio (Net sales ratio)	43.8%	47%
Capital investment (Approval basis)	2020: 11.8 billion yen 2021: 24.9 billion yen	(Cumulative during mid-term plan) 44.0 billion yen
Overseas net sales [Overseas net sales ratio]	29.0 billion yen [18.6%]	32.5 billion yen [20%]
EPS (Earnings per share)	108.14 yen	106 yen
ROA (Return on assets)	7.6%	7.0%

Note: Yellow highlight indicates Medium-Term Management Plan target figures reached

Message to shareholders

In regard to returns to shareholders, the Company’s basic policy is to maintain stable dividends and increase the consolidated total return ratio, aiming for a consolidated payout ratio of approximately 30% and a consolidated total return ratio of approximately 50%. It is our policy to make decisions based on a comprehensive consideration of investments for growth, earnings trends, and internal reserves in preparation for business risks. The current Medium-Term Management Plan sets a limit of 10.0 billion yen for share buybacks over its three-year period, but since we fulfilled our medium-term plan ahead of schedule in 2021 as our performance matched past record high profits, we will repurchase 3.5 billion yen of treasury stock in 2022, bringing the total to 11.4 billion yen over the three years of the medium-term management plan. We also decided on a year-end cash dividend of 19 yen per share, bringing the annual dividend to 36 yen per share (a payout ratio of 33.3%), an increase of 4 yen from the previous fiscal year, resulting in a total return ratio of 62.1%.

Moving forward, we will continue to actively invest in growth and sustainability initiatives to enhance our corporate value over the medium to long term, while increasing returns to our shareholders. We hope that our shareholders will continue to look forward to the growth of the Toagosei Group.

Issuer rating upgrade

On August 19, 2021, Rating and Investment Information Inc. raised our issuer rating as follows
A- → A

Medium-Term Management Plan “Stage up for the Future” investment plan and capital policy

- Capital investment plan**
While focusing on investments in high-value-added products, and bolstering investments in facilities upgrades, factory automation and information-related outlays for our core chemicals business, we are planning for a cumulative total of 44.0 billion yen over the three-year period.
- Overseas expansion plan**
Aggressive overseas expansion of high-value-added product businesses centering on the polymer and oligomer business, adhesive materials business and inorganic performance chemicals business, with the aim of achieving an overseas sales ratio of more than 20%
- Capital policy**
Advance the following capital policy measures to improve capital efficiency and enhance shareholder returns
 - Strengthen and improve profitability and capital efficiency while aiming for EPS of 106 yen and ROA of 7.0%
 - Continue to pay stable dividends with a target payout ratio of 30% or more, while increasing consolidated total return ratio and EPS through share buybacks (cumulatively totaling approx. 10.0 billion yen over the three-year period from 2020 to 2022)



©JAXA/NASA (Our SQ Series is used to protect the Hinomaru rising sun insignia)

New MIRAI (Source: Toyota Motor Corp.)

Feature: New Products Development Division

Expansion of high-value-added products and creation of fourth pillar

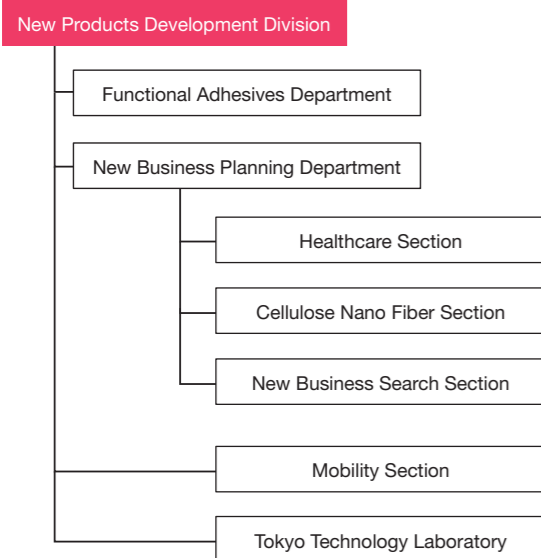
The New Products Development Division was started in 2021 to expand high-value-added products and create new business units. In 2022, we established a new Cellulose Nano Fiber Section to further expand our business domain and quickly launch new development themes.

In the mobility and healthcare fields in particular, we are focusing on launching new products that take advantage of our core polymer and adhesive design technologies, and expanding sales of them, while advancing the commercialization of new cellulose nanofibers, which are expected to contribute to a sustainable society. In addition, the New Business Search Section plays a central role in practicing open innovation in cooperation with R&D, acquiring new core technologies, and making plans for new businesses operations.



Futoshi Nishitani
Executive Officer
General Manager,
New Products
Development Division

New Products Development Division Structure (as of January 2022)



Utilization of Tokyo Technology Laboratory

The New Products Development Division operates the Tokyo Technology Laboratory, which evaluates adhesives and coating materials (including UV-curing types). Taking advantage of its convenient location (next to our head office), the facility is used for testing in the presence of customers and for evaluation and analysis of raw materials received from customers. Through the use of this lab, we will improve customer satisfaction through rapid testing response, while creating opportunities for open innovation.



CASE 1 Early Release of Cellulose Nanofiber Healthcare Products and Creation of New Next Generation Business

Develop sustainable biomass materials and new medical device products

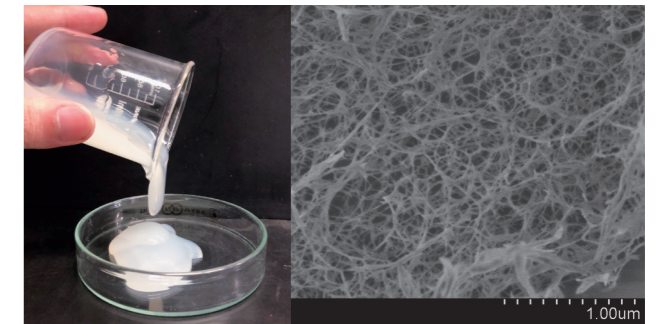
Amidst drastic changes in industrial structures and lifestyles, we are working to create several new business units that will lead the next generation of our company.

The Cellulose Nano Fiber Section is focusing on the development of "AronFibro", an oxidized cellulose in which sodium hypochlorite is used to control the oxidation reaction, thereby significantly reducing the energy required for defibrillation. "AronFibro" has succeeded in simultaneously reducing production and transportation costs as well as CO₂ emissions by reducing the amount of energy required for defibrillation and heightening concentration of aqueous dispersion. As a sustainable biomass material, we aim to utilize it in a wide range of fields such as resins, rubbers, inks, paints, cosmetics, and ceramics. Mass production and sales of Aron Fibro are scheduled to begin in 2022.

Following on its development of the medical adhesive Aron Alpha A Sankyo, the Healthcare Section is working on the development of new medical devices. In 2021, we invested in the medical device development venture BMG Incorporated, and are working to develop new products

using its superior medical materials. Furthermore, we are actively developing new medical materials through open innovation, and aim to launch sales of several medical device products within a few years.

In addition to these development projects, the New Business Search Section is also searching for and developing new key materials that will contribute to innovation in areas including energy and CO₂ reduction, quality of life improvement, electronics and aerospace.



"AronFibro" oxidized cellulose developed by our company

CASE 2 Contributing to Carbon Neutrality in the Field of Mobility

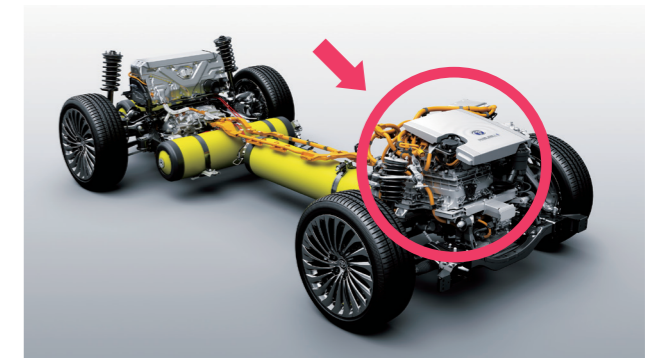
Development of products for fuel cell vehicles and other areas of next-generation mobility

Established as a new development unit for the adhesive materials business, the Mobility Section became an independent department in 2021. At present, the field of mobility is said to be in the midst of a once-in-a-century period of transformation. Amid these circumstances, our Mobility Section is moving forward with development primarily targeting areas related to batteries and motors.

The two high-performance adhesives for fuel cell vehicles (FCVs) announced in 2021 will be used for sealing to ensure the path of flow of hydrogen and oxygen within the fuel cells to enhance the drainage performance for the water generated, and for gluing 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. Each plays an important role in the power generation system of the fuel cell batteries that are considered to be the heart of an FCV, and we have established thorough manufacturing process management to minimize the risk of contamination by foreign materials including metals.

They are set to be used in other electric vehicles following FCVs, and mass production is currently under way. We are also working on the development of high-performance adhesives for next-generation automotive batteries and motors, and aim to achieve sales of several billion yen in the mobility field in a few years.

By providing high-performance adhesives for the mobility field, we are thus contributing to the realization of carbon neutrality.



Fuel cell unit used in the new "MIRAI"



Masahiro Kimura
 Director
 General Manager,
 Technology & Production
 Administrative Division
 and General Manager,
 Research & Development
 Administrative Division

**Message from the
 Director in Charge
 of R&D**

We will engage in research and development as we place great value on ideas and product functions that only the Toagosei Group can provide.

Our purpose is to provide society with new technologies and new functions

As the organizations responsible for the core competence and growth potential of the Toagosei Group, the R&D departments are continuously strengthening our organizational structure. The strength of our Group is in our ability to meet the diverse needs of our customers through a wide range of products, from organic to inorganic, that have emerged through more than 80 years of cumulative technological advances. We possess development technologies from upstream to downstream, including basic materials, monomers, polymers, and adhesives. This enables us to build characteristics into products further upstream, thereby earning the trust of our customers by providing a wide range of technological offerings.

We also have a number of products including acrylic esters and Aron Alpha, an instant adhesive for household use, which were successfully commercialized for the first time in Japan and have been in general-purpose use ever since. In this way, I believe that our Group's greatest purpose is to create and provide new products and functions that cannot be found anywhere else in the world, in other words, unique products and unique functions. And since creating unique products and unique functions requires unique ideas and unique approaches, we place great importance on these kinds of unique ideas and approaches in our research and development.

Improve development capability and increase the development workforce through MI

During 2021, under the Medium-Term Management Plan "Stage up for the Future" that began in 2020, we worked to further strengthen our R&D functions with the aim of expanding high-value-added businesses and creating new businesses, including those comprising our fourth pillar of support for the future. Completed in July 2021, the Technology Development Laboratory II at the General Center of R&D is equipped with resin processing facilities, product function evaluation facilities, and a multi-purpose experimental area. I believe that this lab will enable us to go beyond merely providing products, proposing solutions that include information and services on how to use the products, such as processing methods. This should result in shorter product development lead times for our Group, and improved convenience for our customers.

We are also working to improve our development capabilities and speed by establishing a materials informatics (MI) environment. MI implementation began in earnest in 2019, and from about 2021, we began to obtain useful results on multiple R&D themes, including adhesives that overcame technical challenges that had previously been insurmountable. In addition, we plan to develop educational programs and increase the number of personnel to foster researchers who can conduct MI analysis on their own.

As the flow of social change accelerates, we recognize the urgency of the need to create value in new areas that have not existed in the Group's previous business fields. In 2021, we decided to adopt several new high-value-added materials such as adhesives and films in the mobility field. In addition, we are also advancing research on functional peptides, which have been studied for many years in our Institute for Advanced Sciences, with a view to their practical application. In 2022, we will continue to focus on making these new businesses a practical reality.

TOPICS

The Institute for Advanced Sciences efforts for practical applications of Cell Penetrating Peptide (CPP)

The Institute for Advanced Sciences has succeeded in developing the Cell Penetrating Peptide "NUCLEOLARON" with excellent brain transmission functionality, and is working to commercialize a drug delivery system (DDS)* using this peptide.

This cell membrane permeating property enables drugs not only to be delivered to the affected area of the body, but also to be transported into the cells of the affected area, making it possible, for example, to more effectively deliver anticancer drugs or therapeutic agents to brain cells. Although there are points that need to be verified, we intend to develop this as one new product line.

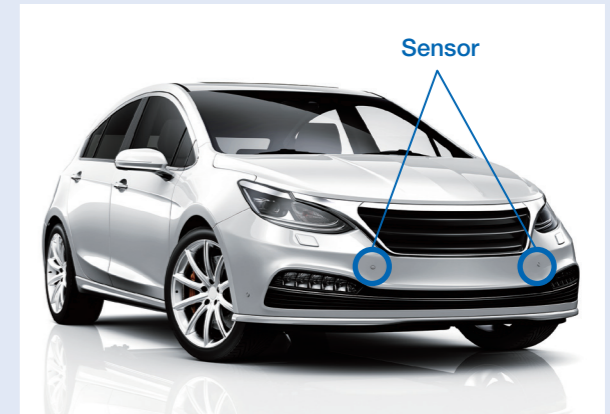
*A drug delivery system (DDS) is a drug delivery technology that exerts quantitative, spatial and temporal control in administering a drug to the human body, and delivers it to the required location in the body as targeted. This technology is essential not only for current drug therapies, but also for regenerative medicine and gene therapy, which are expected to develop rapidly in the future.

Introduction of R&D results and new products of 2021

1 ARONIX Sheet infrared sensor cover and filter

We have developed a glass-substitute resin for laser-based image detection and ranging (LiDAR), which is essential for automated driving.

Demand for high-precision sensing technology has been on the rise in recent years for use in automated vehicle operation, drone technology, and IoT. We developed ARONIX Sheet to meet this demand with sensor-covering and noise-cut filter functions. Combining the cover and filter, which were previously composed of separate parts, has not only reduced the number of parts and weight, but provided high durability and infrared transparency.



2 ARONTACK adhesive for decorative films

In recent years, the automotive industry has been considering alternatives to paint as decorative techniques that could control CO₂ emissions and improve creative designs. Among these, interest is being drawn to the film decoration method known as vacuum pressure molding (VDM), in which thermoplastic films with colored patterns, textured surfaces, and other design effects that cannot be reproduced with paint, are attached to three-dimensionally shaped parts using adhesive materials.

We have developed ARONTACK, an adhesive material for decorative films with excellent high-temperature adhesion suitable for this application. In the future, we plan to apply this technology to other fields where high heat resistance is required.



"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. The latest research results, including for the above products, can be viewed at our website.

"TREND" is available on the Toagosei website in Japanese. Home > R&D> TREND.

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



R&D Supporting the Growth Strategy

Basic Policies

The Toagosei Group's basic policies on research and development for 2022 are as follows:

- 1 Expansion of R&D bases
- 2 Yielding results of high-value-added products at an early stage
- 3 Exploring and concretizing R&D themes that lead to the creation of new businesses
- 4 Providing solutions with high dimensionality

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.

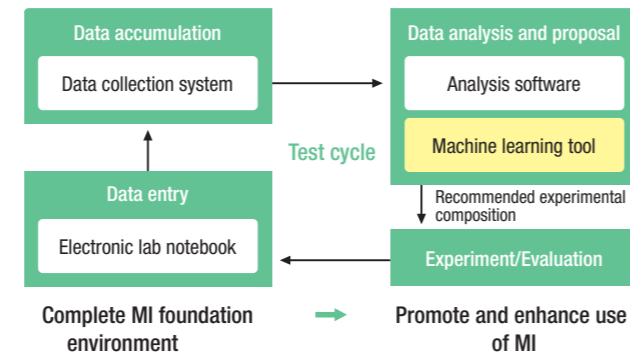
Strategy

We will actively invest resources in growth areas that can contribute to the SDGs, and promote the development of processing and evaluation technologies that meet customer requirements in order to achieve early results. We will continue to take on the challenge of achieving carbon neutrality, especially in areas such as automobiles.

In addition, we completed the construction of an infrastructure environment for materials informatics (MI) in 2021. As we move forward, we will promote the use of MI for actual development as we accelerate advanced R&D and improve development efficiency. In addition, we will promote the use of computational chemistry, which can make use of

publicly available materials information, to strengthen the MI infrastructure environment.

The materials informatics (MI) cycle

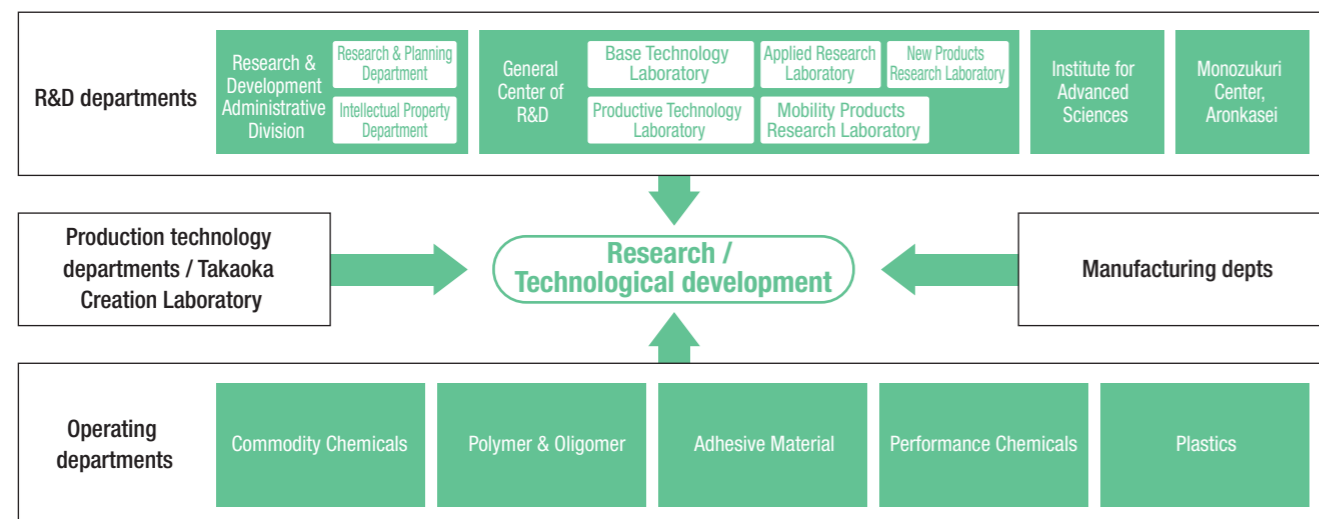


R&D System

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 new products in areas with growth potential, the General Center of R&D has organized a management system so all R&D activities from basic and applied research to product development 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. Moving forward, we will continue to strengthen our R&D organizational structure.

In order to further enhance our R&D capabilities, we are also looking to expand our development base for the creation of new businesses.

R&D System



R&D Base Initiatives

1 General Center of R&D

The Center functions as a core base for the development of the promising technologies and high-value-added products that will underpin the Toagosei Group's future. It consists of five laboratories: the Base Technology Laboratory, the Applied Research Laboratory, the New Products Research Laboratory, the Productive Technology Laboratory and the Mobility Products Research Laboratory. At Technology Development Laboratory II, completed in July 2021, we are advancing research and technology development with a higher degree of processing.

2 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.

3 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. We will reinforce and expedite the development function for instant glues and various other adhesive agents.

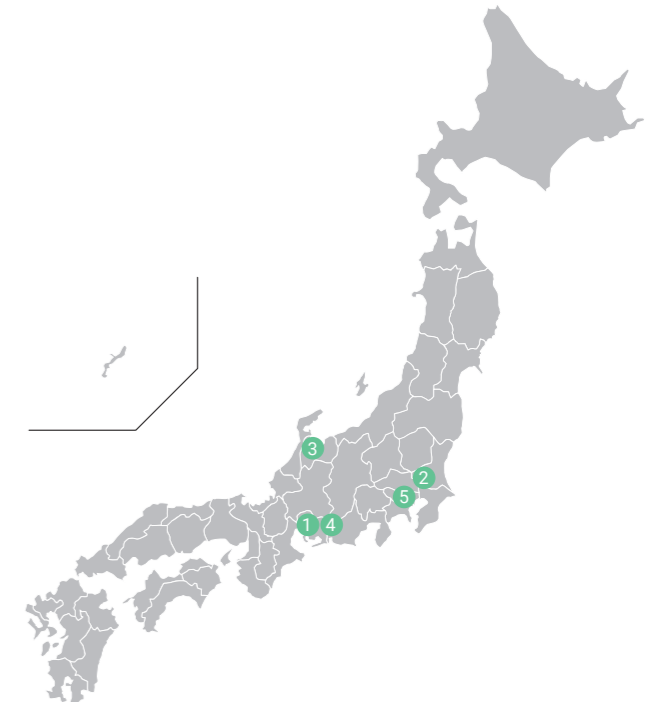
4 Monozukuri Center, Aronkasei

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.

5 Tokyo Technology Laboratory

Taking advantage of its convenient location (next to our head office), the facility is used for testing in the presence of customers and for evaluation and analysis of raw materials received from customers so that we can improve customer satisfaction through rapid testing response.



- 1 General Center of R&D
- 2 Institute for Advanced Sciences
- 3 Takaoka Creation Laboratory
- 4 Monozukuri Center, Aronkasei
- 5 Tokyo Technology Laboratory

R&D Human Resources Development

We actively promote joint research with universities and other institutions, and engage in exchanges such as dispatching employees and accepting intern students. Furthermore, we are continuously working to improve the knowledge and skills of our researchers by promoting their participation in internal and external lectures and seminars.

We believe that utilizing MI and computational chemistry provides researchers with a wealth of inventiveness and opportunities to expand their flexible thinking and perspectives, so we are promoting this as part of our human resource development efforts. We have also established an overseas trainee system with the aim of fostering human resources who can become active on the global stage by growing and developing at overseas research institutions.



Experimentation under way

Investment in Intellectual Property and Intangible Assets

Intellectual property strategy

The Group has established Intellectual Property Strategy Committees tasked with formulating and implementing IP strategies. An IP Strategy Committee is established for each high-value-added business segment. Each of these committees is chaired by the general manager of the business unit, and meets regularly with the business unit as well as the research and plant technology development department and the intellectual property department.

Furthermore, the Research and Production Technology meeting and the Board of Directors exercise effective oversight over the allocation of management resources, including intellectual property, and the implementation of strategies related to the business portfolio to ensure that these contribute to the sustainable growth of the Group.

Based on the content of discussions at IP Strategy Committee meetings, actions to pursue IP strategies are undertaken at IP review meetings held at the working-level. Meetings are held as needed, in which the divisions involved work together to build patent portfolios and share information on trends in markets and among competitors.

Strengthening R&D capabilities

We are advancing investment in human resources for our R&D department as we work to strengthen our R&D capabilities now and into the future.

In order to accelerate R&D, the Group has increased R&D expenditures, and we plan to further increase them in 2022. The ratio of R&D expenses to net sales was 2.8% in 2021. We will continue to promote investment in action for innovation.

Since it takes some time to develop human resources, and until patent applications can be made for economically valuable R&D results, we monitor the ratio of R&D personnel as an investment in the future.

In addition, we utilize AI to reduce the burden of patent searching and monitoring, and to improve operational efficiency, thereby increasing the efficiency of research and development.

Reward System for Proposals and Employee Inventions

The Group has established a Proposal System to encourage employee self-actualization and workplace improvement and enhancement by absorbing the varied originality, ingenuity and ideas of individual employees.

By 2021, more than 1,500 proposals had been received, leading to internal company revitalization. Of the proposals that have been adopted, more than 70% have been utilized by our Group.

In addition, when an employee devises an invention, idea, or design that is associated with work duties, we reward the employee through our Reward System for Employee Inventions. Furthermore, when we benefit from our own implementation of registered patents and other patents, or from licensing them to other companies, the Performance Reward System provides incentives for R&D that generates actual value for the Group's business. Excellent proposals and employee inventions will be considered by the Review Committee for recognition under the Award Program.

Through these efforts, we continuously promote employee stimulation, operational improvement, and strengthening of R&D capabilities.

Education in intellectual property and intangible assets

In order to raise awareness of intellectual property and intangible assets, and to reduce business risks, the Group provides department-specific and level-specific training (Off-JT and OJT) regarding intellectual property and intangible assets as follows: (1) for research and plant technology development department, (2) for business and sales department, (3) for new employees, and (4) for management personnel. In recent years, as the number of R&D personnel has increased, we have conducted exercises for young people in the production of invention proposals, and we are promoting the development of human resources for future intellectual creativity. In addition, we conduct trademark education, contract education, and compliance education. We also provide education on the use of electronic notarization and notary public services for the management of intangible assets such as industry know-how and trade secrets.

New business creation activities

In order to create new business operations, our Group collects and analyzes a variety of information, including intellectual property information. We share the analysis results with management and business divisions, with research and plant technology development departments, and with IP departments, in order to promote activities for the creation of new corporate value so as to expand business domains from existing technological domains.

In recent years, we have been working to take full advantage of the IP landscape, using IP information, publications, general market information and customer information to search for new applications and development themes for our technologies.

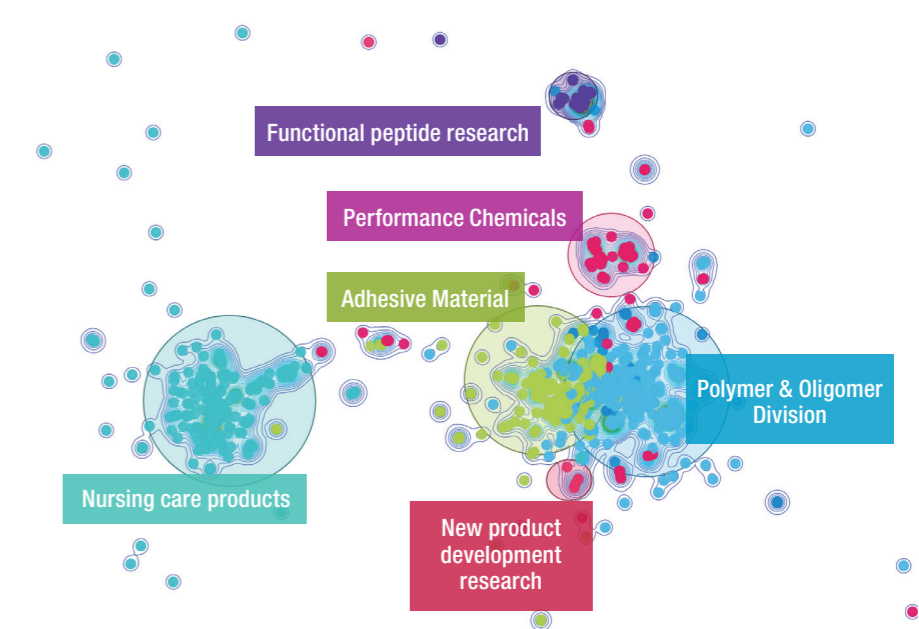
By visualizing the overall picture through a technical bird's-eye view, we stimulate discussions in the divisions that are involved, actively generating ideas.

Improved patent value

Our Group promotes the enhancement of patent value as an investment in the future profitability of intellectual property. The value of the Group's patents is gradually increasing in both quality and quantity. This increase is being driven in particular by improvements in the quality of the patent value of our new product development business, which promotes the development of products related to mobility, electrical and electronic materials, and cellulose nanofiber.

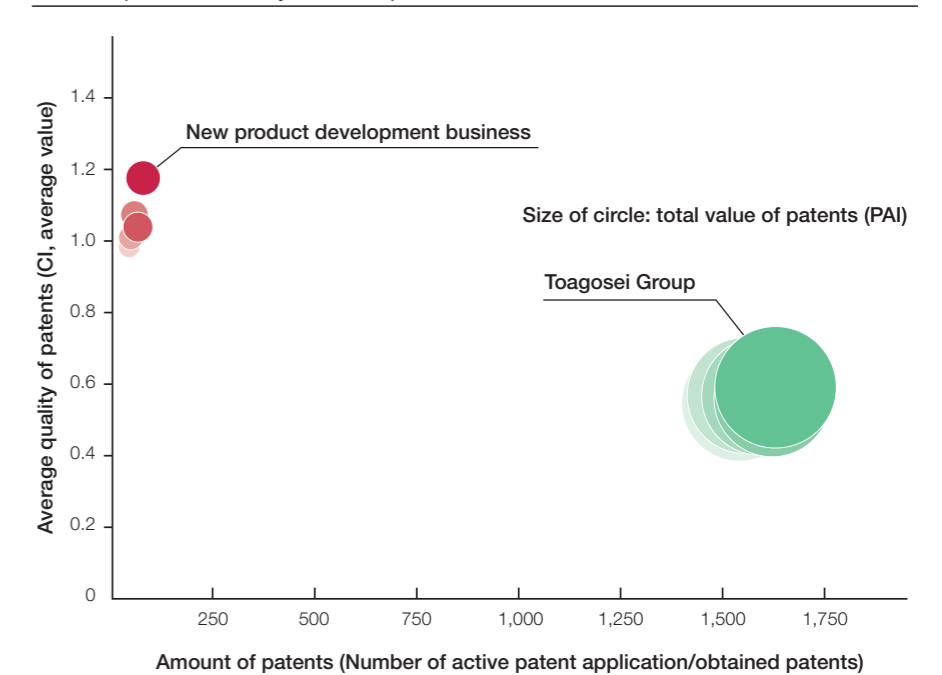
We will continue to invest in R&D for our new product development business and other high-value-added businesses, apply for patents that result from these investments, and obtain high-quality patents in a wider range of technological fields, thereby increasing the quality and quantity of patent value and enhancing the corporate value of our group for the future.

Technological fields for high-value-added products



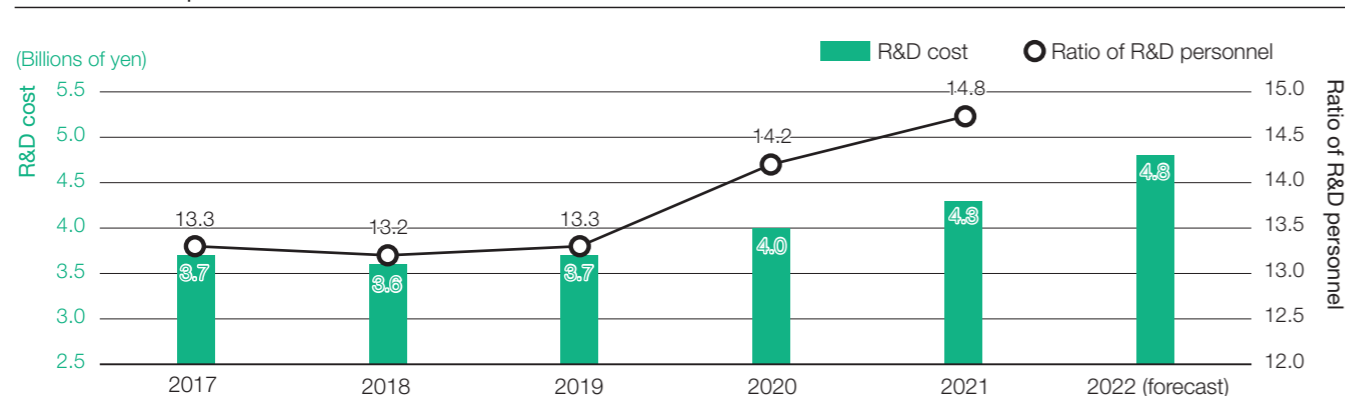
*Created using the VALUENEX Radar analytical tool from VALUENEX Japan Inc. This diagram shows a bird's-eye view with an overall picture of the Group's patented technologies for the survival of high-value-added products in Japan. Each point represents a single patent application, and the degrees of similarity between technologies are expressed by distance, for a visual representation of the distribution of technology areas for high-value-added products.

Value of patents held by the Group



*Created using the LexisNexis PatentSight® patent analysis tool from PatentSight Japan Inc. Color shading shows the transition of patent value from past to present (patent value as of the end of each year from 2017 to 2021). Competitive Impact™ (CI), an average value index for individual patents that multiplies the technical value calculated based on the number of citations by the market value calculated based on the country and status of application/rights. Patent Asset Index™ (PAI), the total value of patents calculated by adding up all the CI values.

Ratio of R&D expenses and R&D Workforce*



*Ratio of R&D personnel (%): number of R&D employees / Consolidated number of employees x 100

Commodity Chemicals

We deal in chemicals that form the basis of industry, supplying raw material products in a variety of fields, while also taking on the role of supplying raw materials for high-value-added products within the company. We primarily handle the following products.

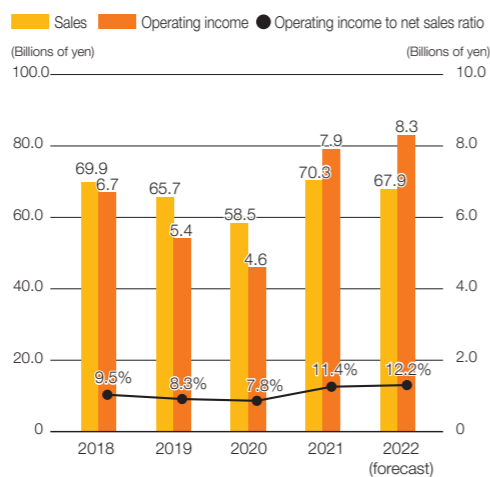
Inorganic chemicals business: Electrolysis-related products (caustic soda, caustic potash, chlorine, hydrochloric acid, sodium hypochlorite, iron perchloride, copper oxide, etc.), as well as sulfuric acid and agricultural products (sulfuric acid, potassium bicarbonate, etc.)

Acrylic monomer business: Acrylic products (acrylic acid, acrylic esters, etc.) and chemical products (ethylene carbonate, ATBS, etc.)

Industrial gas business: A wide range of industrial gases including oxygen, nitrogen and argon

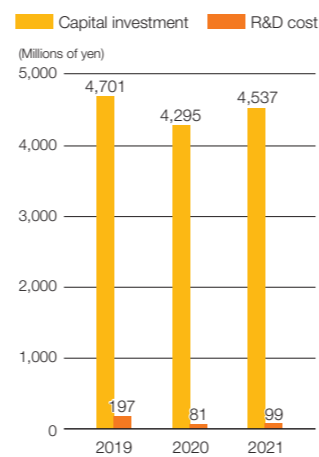


Sales and operating income by segment



Shoji Takayama
Executive Officer
General Manager,
Commodity Chemicals Division

Capital investment and R&D cost



2021 in Review

In 2021, recovery from the COVID-19 pandemic led to high production operating rates in most industries, resulting in higher sales and profits over the previous year. In particular, sales of acrylic monomer products for automotive components and semiconductor copy toners, as well as sulfuric acid, made a significant contribution. In addition, we moved forward with the expansion of facilities to extend sales to customers in growing fields.

Additional actions included those listed below were taken in response to environmental changes.

- (1) To help realize a carbon-free society, we opened a hydrogen station in Tokushima in November 2021 to supply fuel hydrogen for fuel cell vehicles (official operation from April 2022).
- (2) To help combat COVID-19, we began selling Aron Zia Clean 200 in May 2021, a hypochlorous acid solution for use in sterilizing the user's immediate environment.

Strengths and Growth Opportunities

- ▶ Achieved the industry's highest per-unit output performance and quality levels with a caustic potash high-performance electrolyzer
- ▶ Nationwide handling of special-grade sodium hypochlorite (use of sanitizing water supply and sewage) through high-purification technology
- ▶ Highly efficient reaction control in acrylic monomer production, and long-term stability of purification systems resulting in cost reduction and stability of quality
- ▶ High purification of ethylene carbonate using our proprietary refining technology, and its application in electronic materials
- ▶ Quality advantage due to advanced ATBS polymerization technology



Medium- to Long-term Growth Strategy

The core chemicals business has a long history centering on basic chemicals, and while it is fundamental to maintain stable operations and steady business management, it is also necessary to respond to changes in the demand structure of the industrial sector. In particular, from now on we will operate our business in such a way as to contribute to the realization of a carbon-neutral society by changing raw fuels, converting manufacturing methods, and making effective use of hydrogen.

Inorganic Chemicals Business

In the electrolysis business, we will promote carbon neutrality by reducing the amount of electricity used through changes in manufacturing methods, and by conducting electrolysis operations using green power.

We will also move forward with our contribution to achieving a carbon-neutral society through the effective use

of hydrogen produced by electrolysis.

In the sulfuric acid business, we will expand sales particularly to LIB cathode materials customers, and increase plant operating rates. Effectively utilizing the steam co-produced by this process can contribute to the carbon neutrality of the manufacturing site.

Acrylic Monomer Business

In the acrylic products business, we aim to establish a production and supply system in which we switch raw materials to bio-based products, thereby making progress toward carbon neutrality.

Ethylene carbonate is a product manufactured by only a few companies in the world. As demand for LIB electrolytes grows, we will promote the establishment of a production

system that meets the increasing demand.

ATBS is a product manufactured by only a few companies in the world. Demand for oil drilling applications is growing, and as we respond with a production system for those applications, we also aim to establish a production system from bio-based raw materials in response to the growing demand for bio-based products.

Industrial Gas Business

We have manufacturing sites in the Chubu and Hokuriku regions, where our sales are rooted in the local communities. The cryogenically produced oxygen, nitrogen, and argon that we sell contribute to reduced electricity consumption and CO₂ emissions.

In addition, we have one of the few high-pressure

gas tanker truck container maintenance facilities in the Chubu region. We will strengthen this facility to reduce the environmental impact of inspections, aiming for an environmentally friendly business from both manufacturing and delivery perspectives.

Focus Topic

> Hydrogen Station Established at the Tokushima Plant

At the Tokushima Plant, hydrogen is produced through electrolysis, in addition to caustic soda and chlorine. To make effective use of hydrogen, which is attracting interest as a next-generation energy source, a stationary hydrogen station, which supplies fuel cell vehicles (FCVs) with hydrogen obtained from the electrolysis facility, has been established on a site adjacent to the plant and has begun operations. Trucks equipped with hydrogen filling apparatus (mobile hydrogen stations) have also begun operating at two locations in Tokushima Prefecture.



Toagosei Hydrogen Station Tokushima

Polymer & Oligomer

We handle acrylic products used in a wide range of fields, from household goods to automobiles and electronic materials, as well as pharmaceuticals and cosmetics. We primarily handle the following products.

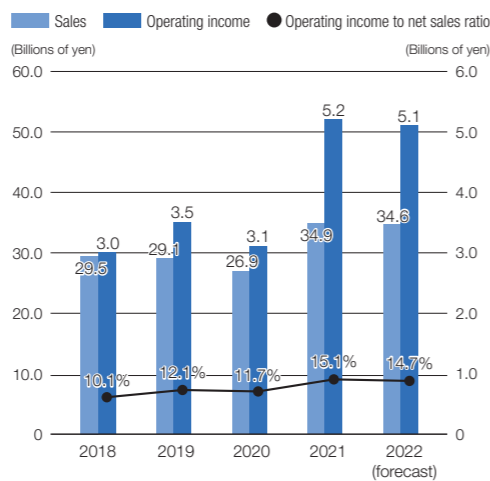
Acrylic polymers: Used in a wide range of applications such as pigment dispersants in paper manufacturing and paints, adhesives for liquid crystal displays, binders for lithium-ion batteries, and in pharmaceuticals and cosmetics

ARONIX UV-curing resin: Used in a wide range of fields such as inks, paints, and electronic materials due to its environmental advantages of being solvent-free

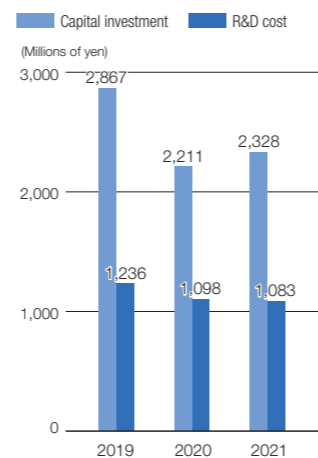
ARONFLOC polymer flocculant: Polymer flocculant is used as a treatment agent at sewage treatment plants



Sales and operating income by segment



Capital investment and R&D cost



Ichiro Igarashi
Executive Officer
General Manager,
Polymer & Oligomer Division

2021 in Review

In 2021, both non-consolidated and consolidated sales and profits increased year on year due to demand recovery from the impact of the COVID-19 pandemic, as well as expanded sales of products for the automotive, pharmaceuticals and cosmetics, and electronic materials industries.

In the domestic and overseas polymers business, sales and profits increased as a result of a recovery in polymers for automobiles and sealant construction materials, and also as a result of efforts to expand sales in high-value-added product fields such as lithium-ion batteries and pharmaceutical and cosmetic products.

In the domestic oligomers business, the stay-at-home trend drove PC-related demand, increasing year-on-year sales and profits.

Overseas business sites also reported year-on-year increases in income due to strong sales mainly of electronic materials due to economic recovery and stay-at-home demand, but profits declined due to the significant impact of soaring raw materials prices.

In the flocculant business, both sales and profits increased year on year due to a recovery trend from the decrease in demand caused by the impact of the COVID-19 pandemic.

In R&D, we made progress in development of polymers for high-performance semiconductors using a new polymerization method, and in development of specialty acrylate products for which biomass certification has been obtained.

Strengths and Growth Opportunities

- ▶ A full lineup of downstream acrylic products, applying our proprietary acrylic acid products
- ▶ Polymer structure control (straight chain, branching, cross-linked, particle diameter, molecular structure, etc.) using our polymerization technology
- ▶ UV curing is centered on multifunctional acrylates, with a lineup that also includes cationic oxetane curing systems.
- ▶ Manufacturing bases in fast-growing Asia, responding to regional needs



Medium- to Long-term Growth Strategy

As the core of the Group's growth strategy, the polymer and oligomer business aims to expand existing business operations in the downstream area of acrylics. At the same time, we aim to expand high-value-added products and to generate new business operations based on our superior synthesis and polymerization technologies, while also expanding overseas businesses.

Polymer Business

We will explore the potential of high-performance powder polymers, which are growing in the fields of pharmaceuticals, cosmetics, and electronic materials, and we will further advance our development of applications and technology.

Toagosei Singapore, an overseas base, aims to expand sales of paint dispersants and water treatment agents in the

Asian region by taking advantage of cost competitiveness provided by continuous polymerization of water-soluble polymers. Moreover, by positioning Toagosei (Thailand) as the development base for high-value-added water-soluble polymers, we will advance development and sales of products that respond to needs in ASEAN and throughout Asia.

Oligomer Business

We will advance the development of biomass acrylates to increase competitiveness in terms of quality and cost in the fields of electronics materials such as inks, paints, and resist agents, and to respond to the carbon neutral era.

Taiwan Toagosei and Toa-Jet Chemical Co. in Taiwan, as well as TOA-DIC Zhangjiagang Chemical Co. in China, are focusing efforts on the semiconductor and electronic

materials fields, and also on capturing demand in such trend-setting areas as 5G and the environment. We are also working to strengthen sales expansion not just locally but in neighboring countries as well.

In manufacturing, we are working to strengthen our business foundation by restructuring to form a tripartite system of production bases in Japan, Taiwan and China.

Flocculant Business

With its high-quality ARONFLOC polymer flocculant, Group member company MT AquaPolymer Inc. will provide superior products and fitting solutions for a wide range of wastewater and sludge purification operations. The transfer of powder flocculant business rights from another company provides us with an opportunity to advance development

of high-performance products utilizing the technologies of both companies. This enables us to strengthen our business foundation and enhance cost competitiveness by optimizing our production system to further expand our business both in Japan and overseas.

Focus Topic

> Platinum EcoVadis Sustainability Rating

Our Hirono Plant received the highest rating of Platinum (awarded to companies within the top 1%) in a sustainability evaluation by EcoVadis (headquartered in France).

In recent years, there has been an increase in the number of companies that use ESG evaluations as a standard for selecting suppliers. Many global companies use EcoVadis evaluation results as key criteria.

The Hirono Plant, which produces acrylic polymers for pharmaceuticals, cosmetics and toiletries, and delivers them as raw materials to the various manufacturers, will continue to work on advancing sustainability and providing high-value-added products.



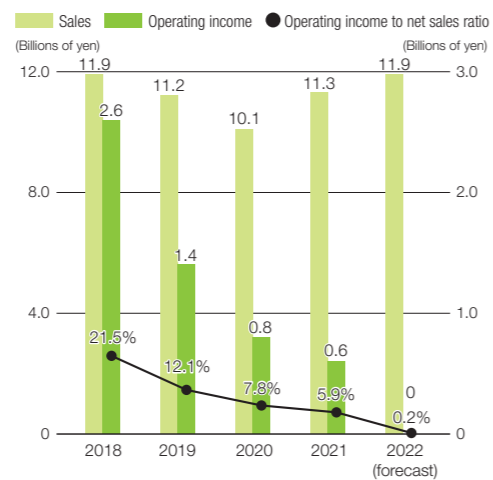
Adhesive Material

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

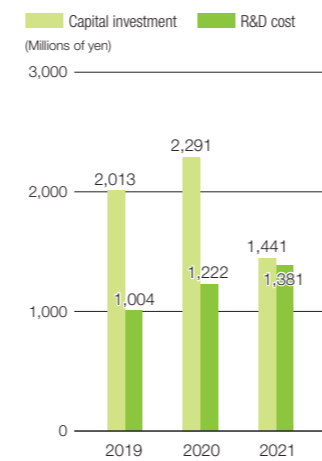
The products we handle include Aron Alpha, which is synonymous with instant glues, as well as a lineup of various high-performance adhesives that meet new needs in such fields as electronic materials, automobiles, and precision equipment.



Sales and operating income by segment



Capital investment and R&D cost



Katsuhiko Sumita
Executive Officer
Aron Alpha Division

2021 in Review

We have launched sales of Aron Alpha "Tough Power," an Aron Alpha general-use product with excellent water and heat resistance.

In overseas sales, we have strengthened our e-commerce effort in China. In the United States, we are developing new products to enhance the Crazy glue brand. And in Thailand, we have finished establishing our sales infrastructure so that we can now do our utmost to achieve results in 2022. In the Philippines, we have begun market research for a full-fledged market entry.

We have begun sales of a new Aron Alpha UV-curing instant adhesive product for industrial use. It is expected to be adapted to a wide range of applications by achieving thick-film curing and a finish that is completely free of whitening, which are difficult to achieve with conventional products. To sum up the business results, sales of adhesive materials increased due to a recovery in demand for automotive components, despite sluggish sales of high-performance adhesives for electronic devices due to the semiconductor shortage.

Strengths and Growth Opportunities

- ▶ Aron Alpha is a powerful brand loved by customers throughout the 50 years since it went on sale as a household product in Japan
- ▶ The market for instant adhesives continues to expand in Southeast Asia and North America
- ▶ Development capabilities that meet new adhesive needs brought on by technological innovations in telecommunications and automobiles
- ▶ Helping customers in their environmental improvement efforts by offering environmentally friendly adhesive systems that employ various adhesive compounding technologies such as UV curing, instant adhesion, and hot-melt adhesion



Medium- to Long-term Growth Strategy

As of January 2022, the Adhesive Material Division has been reorganized into two business divisions. These comprise the Aron Alpha Division, which specializes in domestic and international consumer products, further strengthening the Aron Alpha brand while taking responsibility for global strategies, and the New Products Development Division, which is responsible for development in growth areas such as mobility-related products.

Aron Alpha Business

By further enhancing the strength of the Aron Alpha brand, we will remain the top runner in instant adhesives.

In Japan, we will continue to offer new products with high customer satisfaction in response to such challenges as the entry of competing manufacturers and changes in the market (the increase in private brands and the expansion of e-commerce). For example, we will proactively communicate product development and suggested applications from the consumer's perspective, such as by emphasizing environmentally friendly adhesives that are

easy for children to handle, and adhesives that help save time while crafting.

Overseas, we will accelerate sales expansion through strategic marketing, mainly through e-commerce in China. In Southeast Asian countries, we will further strengthen our business by establishing our supply and sales system. In North America, we will boost the retail store presence of the Crazy glue brand name, which has a long history and widespread recognition in the market, by adding adhesive-peripheral products to the product lineup of adhesives offered alone.

Functional Adhesives Business

We are developing highly functional products that meet the needs of the growing field.

We will focus effort on the development of adhesives used for various components such as substrate materials, batteries, and sensing materials, targeting the information and telecommunications field, where 5G and even faster 6G

communications are expected to be put into practical use, and the mobility field, where the shift away from fossil fuels and the development of automatic driving technology are advancing.

In addition to exploring new domestic markets, we will aggressively pursue overseas deployment of products in which we have advantages.

Focus Topic

> New Aron Alpha Commercial

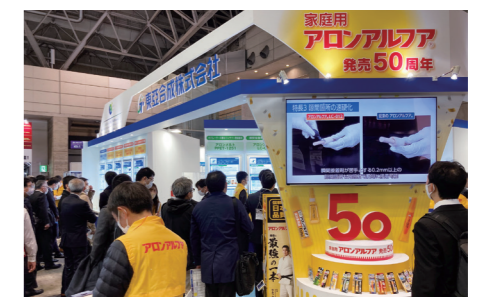
The TV commercial featuring 100kg-class judo competitor Aaron Wolf for the new product Aron Alpha "Tough Power" has been well received. The ad stresses our confidence that the "fast" and "strong" qualities of this new product are a match for those of Aaron Wolf.



> Trade Show Exhibit

Exhibited at the 5th Adhesives and Joining EXPO, and Smart Sensing 2021 trade shows

Despite the COVID-19 pandemic, a large number of visitors attended these events, and we were able to showcase the strengths of our group.



Performance Chemicals

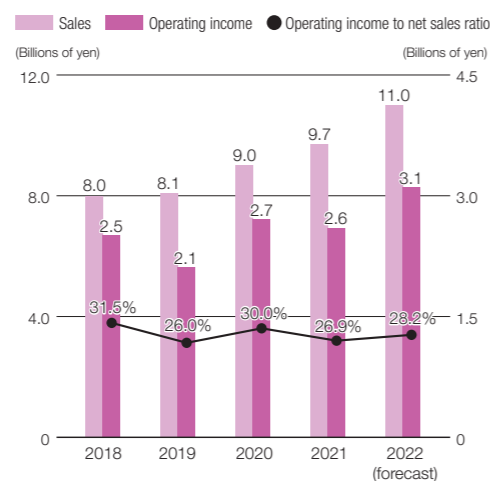
We handle high-performance products that are indispensable to more comfortable lifestyles. We primarily handle the following products.

High-purity inorganic chemicals business: High-purity inorganic chemicals with applications in semiconductor miniaturization and integration, such as liquid hydrogen chloride and high-purity alkaline products, as well as hexachlorodisilane.

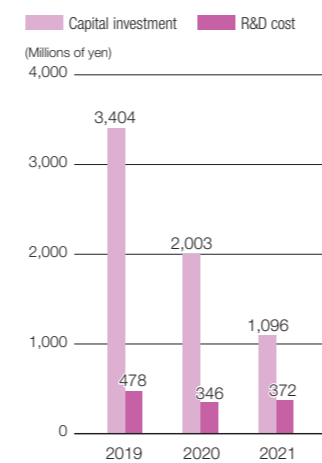
Inorganic functional materials business: A range of additives, such as IXE and IXEPLAS impurity ion-trapping agents that increase the reliability of electronic materials, as well as KESMON and NOVARON, which perform antimicrobial, antiviral, deodorizing and other comfort-enhancing functions in textile and plastic materials.



Sales and operating income by segment



Capital investment and R&D cost



Atsushi Tamura
Executive Officer
General Manager,
Performance Chemicals Division

2021 in Review

High-purity inorganic chemicals business

In response to growing global demand for semiconductors, we expanded our production system and aggressively expanded sales, resulting in significant growth of our high-purity inorganic chemicals business.

We also focused on improving quality as semiconductors continue to shrink in size and require even greater purity. Demand is strong across many applications, including telecommunications and automotive applications, and we expect this trend to continue in 2022.

Inorganic functional materials business

The COVID-19 pandemic has expanded the market for antimicrobial and antiviral products.

In addition to conventional antimicrobial products, we have expanded our business development in the area of antiviral processing agents. The market for amenity products such as deodorant processing agents has also expanded, and recognition of our quality has led to new adoption of our products. Demand for amenity processing agents for overseas markets is also expected to continue to increase.

Strengths and Growth Opportunities

- ▶ Supply chains capable of meeting growing global demand for semiconductors
- ▶ Expansion of semiconductor applications due to lifestyle changes and technological innovation
- ▶ High-purification technology and product development capabilities based on proprietary development
- ▶ Expansion of the functional textiles market, including overseas Asia, due to improved living standards
- ▶ Synthesis and particle control technologies (function, shape, particle diameter) for effective application-specific optimization
- ▶ Evaluation and analysis technologies and support systems to bring out product functionality



Medium- to Long-term Growth Strategy

In the area of high-purity inorganic chemicals, demand for semiconductors used in various fields is expected to continue to grow. We will therefore expand our facilities and strengthen the stable supply system in order to fulfill our supply responsibilities. Capitalizing on our track record with our existing products, we will also emphasize development of new products. Regarding inorganic functional materials, we will provide products that make life more comfortable, such as antimicrobial, antiviral, and deodorizing products, while further strengthening overseas development and expansion to contribute to market expansion.

High-purity Inorganic Chemicals Business

We believe that shipments of high-purity inorganic chemicals will remain strong not only in Asia, which is the center of the semiconductor market, but also in the United States, due to the return to domestic markets. In order to meet future increases in demand and quality requirements accompanying miniaturization and high integration, we will aggressively make capital investments to strengthen our

manufacturing facilities and rebuild our quality assurance system to establish a rock-solid supply system. In addition to our main product, liquid hydrogen chloride, we will focus on expanding sales of alkali products as the second pillar of our business. We will also promote R&D of new products to respond to technological innovations in semiconductors.

Inorganic Functional Materials Business

We will also focus effort on expanding application fields, especially for existing products. We will strengthen our efforts in the healthcare field in response to the social momentum toward antimicrobial and antiviral products. Focusing effort on the development of antiviral processing agents that are effective against various types of viruses, we aim to meet the requirements of society and further capture

demand. As we realize that the needs for existing products are expanding, we are developing new products to meet growing demand.

In order to meet demand from overseas, we have staffed each of our Asian bases with personnel engaged in market development for amenity processing agents as we work to expand our business overseas.

Product Development

We changed the name of this segment from "Inorganic Performance Chemicals" to "Performance Chemicals" in order to promote the development of high-performance materials without limiting them to inorganic products. From 2022 on, business operation of Performance Chemicals will include the business handled by the New Business Planning Department within the New Products Development Division.

In the healthcare field, we will focus effort on the development of new medical materials in order to launch sales of several medical device products within a few years. We will also start mass production and sales of AronFibro cellulose nanofiber during 2022, aiming to see it put to use in a wide range of fields (see also Special Feature: New Products Development Division, P24).

Focus Topic

> Development of New Antiviral Processing Agents

An antiviral processing agent we have developed is increasingly being adopted in various application fields, and its effectiveness against COVID-19 has been confirmed. We plan to continue to focus on development in 2022, and further adoption is expected.



Household deodorizing, antimicrobial and antiviral products

Plastics

Supported by our three core business operations, we provide highly functional value-added products that are indispensable to a sustainable society. We primarily handle the following products.

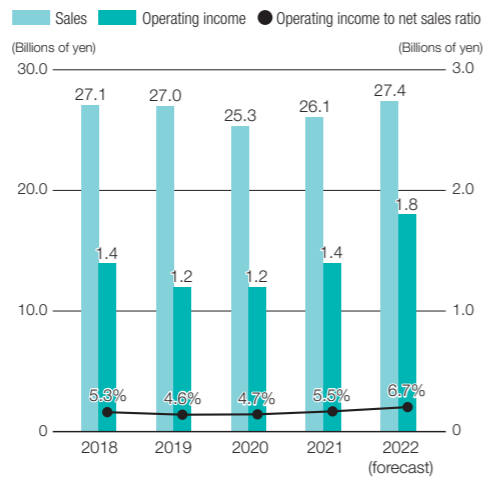
Piping equipment business: Providing products such as PVC pipes, joints, and drainage chambers, mainly in the fields of water supply, sewage, rainwater, and drainage crucial to social infrastructure

Nursing care products business: Supplying Anjyu-brand nursing care products in the fields of excretory/bathing care and mobility/ambulatory products.

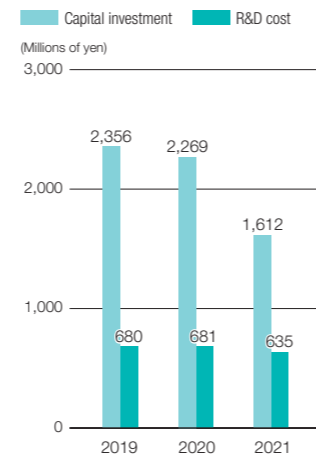
Elastomer business: Providing thermoplastic materials in various fields such as electrical appliances, food products, healthcare, etc.



Sales and operating income by segment



Capital investment and R&D cost



Ryosuke Fujiwara
Aronkasei Co., Ltd.
President and Representative Director

2021 in Review

● **Piping equipment business:** Sales of commodity products such as pipes and joints declined due to sluggish demand, but sales increased for products used in the disaster prevention field, which is a priority area of focused effort, as well as construction materials, and contracted processing products. Despite the lag in shift of raised costs caused by the price hike in the key raw materials to product prices, profits increased due to growth in sales of high-value-added products. Overall, the business posted increases in both sales and profits.

● **Nursing care products business:** Sales volume of bath care products increased significantly as opportunities for home-based nursing care increased due to the spread of

COVID-19, but sales of excretory care products decreased due to production disruptions at overseas production contractors resulting from anti-virus measures. Overall, the business posted an increase in sales but a decrease in profits.

● **Elastomer business:** Sales increased due to recovery in demand from major customers, as we focused on expanding sales of existing products and adopting new grades. Although local market development and sales activities were restricted as a result of antivirus measures in Thailand, where we have an overseas production base, progress was made in customer evaluation and new adoption of new products, resulting in higher sales and profits for the business as a whole.

Strengths and Growth Opportunities

- ▶ Ability to develop highly functional products that contribute to fields involved in countermeasures for flooding and inundation, earthquake resistance and disaster prevention, as well as infrastructure aging (piping equipment business)
- ▶ The power of the Anjyu brand and the development capability to catch up with demand for nursing care in a super-aging population society (nursing care products business)
- ▶ A BCP response that optimizes a two-site production system comprising a Thai plant and a domestic plant (elastomer business)
- ▶ Compounding technology capable of precision responses to the product characteristics that customers require (elastomer business)



Medium- to Long-term Growth Strategy

In the piping materials business, we aim to improve profits by shifting management resources to high-value-added products amid shrinking number of housing constructions due to the declining population. In the nursing care products business, we will focus on improving product functionality in the domestic nursing care field, where demand is increasing with the aging of the population, as we work to expand the market with an eye to cultivating overseas demand. The elastomer business will aggressively develop high-performance products and expand overseas demand to effectively utilize the production base in Thailand. At Aronkasei, we will contribute to society by optimizing the allocation of management resources to each business and solving problems promptly.

Piping Equipment Business

We are accelerating the speed of manufacturing and system development with an eye to collaborating with other companies, focusing on the priority fields of countermeasures for flooding and inundation, earthquake resistance and disaster prevention, as well as infrastructure aging, which are becoming increasingly important due to national and local government initiatives to promote a plan

for greater national resilience. In response to the shortage of personnel in the construction industry, where the problem is becoming increasingly pronounced, we are shifting our portfolio to high-value-added products, focusing on the development of high-performance products that can shorten and simplify construction times and reduce workloads.

Nursing Care Products Business

Measures to cope with the aging of the population will continue to be a major social issue through 2050, when the Baby Boom and "Junior" Baby Boom generations will both be within the senior citizen age range. Demand related to nursing care services and home-based nursing care is on the rise due to the growing number of people requiring nursing care. Amid this trend, we, as a leading manufacturer of nursing care products to support those in

need of care, will actively invest in the development of new products that solve problems in the nursing care industry, fully applying our market and product development capabilities, and the plastic processing technologies we have cultivated under the Anjyu brand. We will also work on perfecting our product functions so that we can catch up with demand from aging populations overseas, where the trend is progressing close behind that in Japan.

Elastomer Business

We have refined our advanced compounding and blending technologies for thermoplastic elastomers that users can recycle during processing, mainly as an alternative to vulcanized rubber products. We aim to enhance our presence as a manufacturer capable of providing high-performance component parts and materials while catching up with the growing demand in the medical, food, automotive, and household electronics fields

amid worldwide population growth. Furthermore, in addition to our accumulated know-how, MI technology and other technologies will be used to improve the speed of development. We also aim to achieve further growth in the global market by effectively utilizing our production base in Thailand to ensure a stable supply of products and maintain a BCP perspective as we work aggressively to capture Asian demand.

Focus Topic

> Nagoya Plant, Injection Plant No. 2 expansion

In order to strengthen the foundation of our piping materials business, we have been improving the efficiency of our production bases, and as part of this effort, we have established Injection Plant No. 2 with labor-saving equipment at our core Nagoya Plant. Our Kanto, Onomichi and Nagoya Plants will comprise our system of three injection molding bases for PVC, which is expected to make a significant contribution to logistics optimization.



Nagoya Plant, Injection Plant No. 2 (completed in March 2021)

Sustainability Management Promotion System

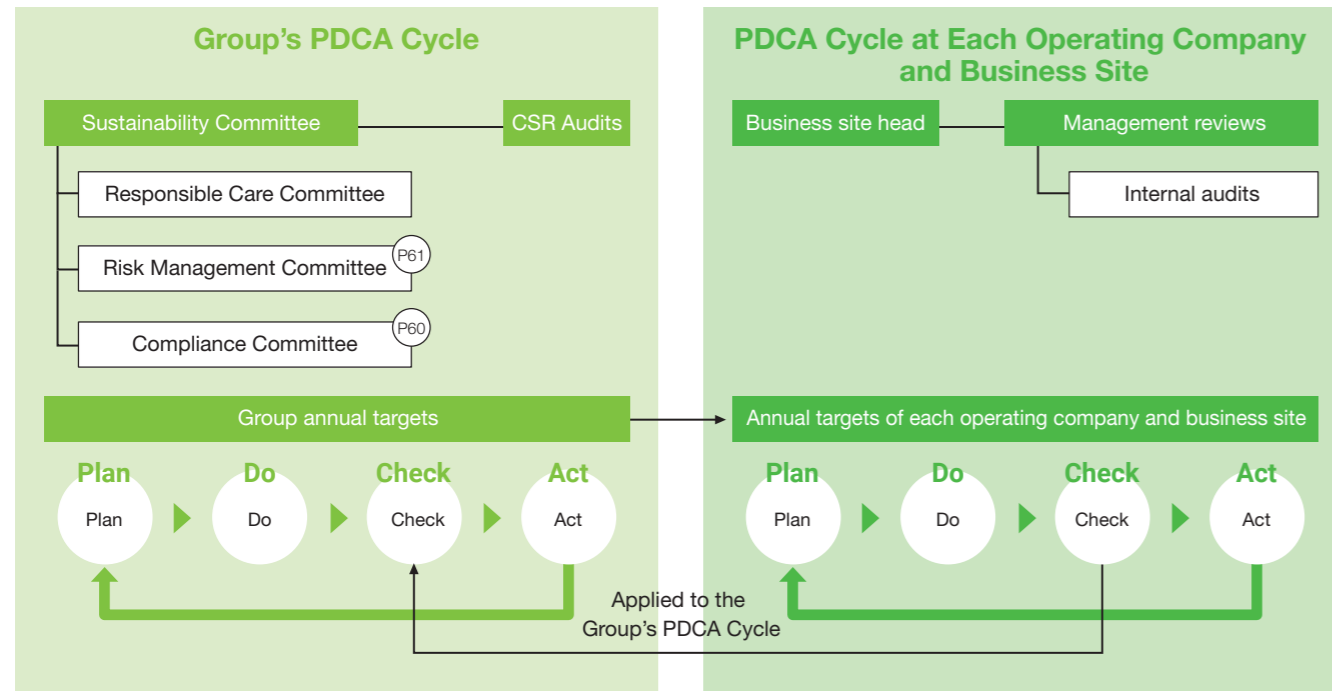
Sustainability Policy

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

Toagosei 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.



Sustainability Committee

This is a conference body that deliberates and makes decisions on policies, targets, and plans in order to maintain and improve Group-wide CSR initiatives.

Responsible Care Committee

This is a conference body that comprehensively reviews the status of RC activities at each company and business site, and discusses the development of RC activities for the next fiscal year.

CSR Audits

Prior to meetings of the Sustainability Committee, the person delegated by the Chairperson to be in charge of auditing checks the status of CSR initiatives at each business site of each company, and reports the results of this audit at the Sustainability Committee meeting.

Risks Accompanying Social Change and Countermeasures

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.

The following chart shows major risks that we recognize as having the potential to materially affect our business operations. In 2021, we promoted measures to prevent the spread of COVID-19 and produced a roadmap for reducing CO₂ emissions.

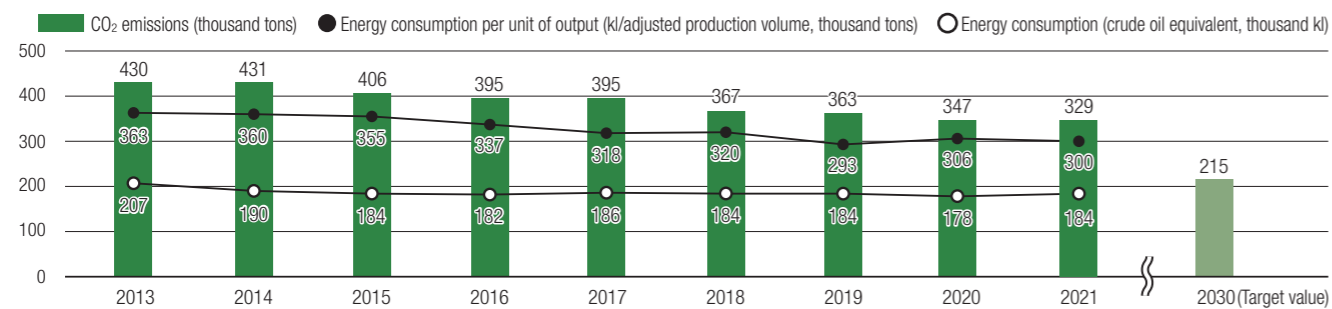
Potential risks	Examples	Countermeasures
Natural disasters	Earthquake, climate change (typhoon, torrential rain), etc.	Seismic retrofiting, regular disaster prevention drills, insurance coverage
Accidents	Fires, explosions, and leaks of chemical substances	Installation of automatic stopping devices, holding of disaster prevention meetings when equipment is installed or replaced, holding disaster prevention drills, and insurance coverage
Changing market needs and intensifying competition	Fluctuating demand environment, emergence of alternative materials	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	Violation of laws and regulations and lawsuits filed, surcharges imposed	Prepare system in coordination with the departments in charge and surveillance and examination by the Compliance Committee
Impairment of fixed assets	Decline in profitability, falling market prices, etc.	Careful assessment of profitability prior to capital investments
Product liability, recall, and inferior quality	Damage caused by inferior quality of products, decreased sales of the relevant products	Establishment of system for quality inspections, product liability insurance coverage
Information leakage	Information leakage by a business partner or employee, cyberterrorism, etc.	Non-disclosure agreement with business partners, employee education, information security measures
Soaring prices of raw materials, fuel, and other materials and changes in the prices of crude oil and naphtha	Increase in manufacturing costs, valuation losses on inventories, etc.	Rectifying product sales prices and rationalizing operations based on a price formula
Infectious and communicable diseases	Restricted distribution and operational activities caused by COVID-19, influenza, etc.	Installation of disinfectants, etc., creation of teleworking environment, establishment of guidelines of actions regarding COVID-19
Suspension of raw material and fuel supplies and supply chain interruption	Suspended operations due to accidents etc. at suppliers	Purchasing from multiple sources and maintaining constant communication with suppliers
Environmental pollution and calls for sustainability	Social needs to reduce soil, air, and water pollution and CO ₂ emissions	Reducing energy consumption and environmentally hazardous substances, promoting measures with the Sustainability Committee at the center
Foreign exchange fluctuations	Increase of costs due to the depreciation of the yen	Using foreign currencies for import payments
Stock market fluctuations	Significant losses incurred by share holdings	Verifying and reporting the effectiveness of holding shares, selling stocks

Environment

Global Warming Mitigation

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Medium- to long-term targets for CO ₂ emissions (Scope 1+2) <ul style="list-style-type: none"> ● 50% reduction compared to FY2013 by 2030 ● Achieve zero by 2050 	CO ₂ emissions: 329k tons (23% reduction from 2013)	★★★	Medium- to long-term targets for CO ₂ emissions (Scope 1+2) <ul style="list-style-type: none"> ● 50% reduction compared to FY2013 by 2030 ● Achieve zero by 2050
Activities to Prevent Leakage of Fluorocarbons	No leakage from accidents and below obligation to report as stipulated Law concerning the Recovery and Destruction of Fluorocarbons	★★★★	Strengthen management by implementing management system for chlorofluorocarbon

Energy consumption and CO₂ emissions at domestic manufacturing sites over the past 8 years



Initiatives to Realize a Recycling Society

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Final landfill rate: 0.5% or less Thorough sorting of waste and appropriate disposal Promotion of recycling and waste volume reduction	Final landfill rate: 0.12% Details of generated waste identified, recycling promoted	★★★★	Final landfill rate: 0.5% or less Thorough sorting of waste and appropriate disposal Promotion of recycling and waste volume reduction

Environmental Impact Reduction Measures

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Emissions of substances subject to PRTR: 41 tons or less Prevention of environmental pollution: Preservation of water quality, atmosphere, and soil as zero serious environmental accidents	Emissions of substances subject to PRTR: 47 tons Zero serious environmental accidents due to proper maintenance and management of exhaust gas and wastewater equipment	★★★	Emissions of substances subject to PRTR: 41 tons or less Zero serious environmental accidents due to proper maintenance and management of environmental equipment

*Detailed data is available on the Toagosei website in Japanese.
 Home > Sustainability > Responsible Care Management > RC Activities > Environmental Conservation
https://www.toagosei.co.jp/csr/effort/rc/environmental_security.html



Environmental Accounting

Environmental investments and expenses by cost category

Types of environmental conservation costs (Content of major initiatives)		Investment (Millions of yen)	Costs (Millions of yen)
① Cost within business area		2,560	6,457
Breakdown	1 Pollution prevention costs (costs to prevent atmospheric and water pollution)	1,781	5,306
	2 Environmental preservation costs (costs to prevent global warming, promote energy-saving, prevent destruction of the ozone layer)	630	752
	3 Material recycling costs (costs to use materials efficiently and for disposal and treatment of industrial waste)	149	399
② Upstream/downstream costs (costs incurred in downstream/upstream from manufacturing and service activities: green procurement, etc.)		0	32
③ Management activity costs (costs to maintain and operate environmental management system, monitor and measure environmental impact, and offer environmental education)		24	454
④ R&D costs (costs to research and develop products and other items that contribute to environmental protection and reduce environmental impact during manufacturing)		6	828
⑤ Social activity costs (costs to protect nature and environmental improvement such as greenification, donate and support environmental protection organizations, and activities related to local residents)		6	162
⑥ Environmental damage costs (costs to recover nature and for compensations related to environmental conservation)		0	19
⑦ Other costs related to environmental conservation		4	151
Total		2,600	8,103

● Scope of calculations: Companies and offices listed in the chart below (Business Activities and Environmental Impacts section)
 ● Period covered: January 1 to December 31, 2021
 ● Calculation method:

- Calculated using our Calculation Rules prepared with reference to the Environmental Accounting Guidelines (2005 version) of the Ministry of the Environment of Japan.
- Compound costs that include expenditures for purposes other than environmental conservation are prorated in proportion to their impact on the environment then counted as environmental costs.
- Investment figures represent budgeted amounts, while expense figures represent actual amounts. Items for which effects could be clearly calculated were calculated in monetary and quantitative units.
- However, effects that are difficult to quantify, such as risk aversion and deemed effects, are not included.

Business Activities and Environmental Impacts

Scope			Period
Toagosei Group	Toagosei	Plants Nagoya Plant, Yokohama Plant, Takaoka Plant, Tokushima Plant, Sakaide Plant, Oita Plant, Kawasaki Plant, Hirono Plant (Fukuoka Prefecture)	One year from January 1 to December 31, 2021
	Toagosei	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	

INPUT	2020		2021				
	Energy Consumption	Energy consumption (crude oil equivalent, thousand kl)	178	184	Water Consumption	Water resources (million m ³)	55
	Per unit of output (kl/adjusted production volume, thousand tons)	0.308	0.300				

Toagosei Group Production Sites in Japan

OUTPUT	2020		2021				
	Business Activities	Production volume (thousand tons)	1,128	1,217	Industrial Waste	Volume of industrial waste generated (tons)	65,903
					Volume reduced internally (tons)	48,789	47,098
					Volume discharged externally (tons)	10,787	11,400
					Final landfill volume (tons)	96	78
					Final landfill rate (%)	0.15	0.12
Environmental Impacts on Water Resources	Total effluent volume (million m ³)	43	44	Environmental Impacts on Atmosphere	CO ₂ (CO ₂ equivalent, thousand tons)	347	329
	COD (tons)	83	73		SO _x (tons)	38	39
	Total nitrogen (tons)	29	26		NO _x (tons)	76	69
	Total phosphorus (tons)	2.2	2.0		Soot and dust (tons)	8	6
	Substances subject to PRTR (tons)	2	2		Substances subject to PRTR (tons)	35	44

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

Social

Human Resources Initiatives

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Maintenance of employment rate of persons with disabilities of 2.4% or higher	Employment rate of persons with disabilities: 2.57% (as of December 31)	★★★★	Maintenance of employment rate of persons with disabilities of 2.4% or higher
Average annual paid leave usage rate: 100%	Average annual paid leave usage rate: 90.5%	★★	-
Female hiring ratio: 30% or more among new career-track employees, 20% or more among regular service employees	Female hiring ratio: 30% career-track employees, 30% regular service employees (as of April 1)	★★	Period: Five years between April 1, 2021 to January 1, 2026 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)	Ratio of female managers: 3.4% (As of January 1, 2022)		Ratio of female managers: 5% (13 individuals as of January 1, 2026)
Promote the prevention of lifestyle-related diseases ● Rate of employees taking thorough health screening: 100% ● Ratio of employees exercise as habit: 40% ● Rate of employees maintaining desirable weight: 70% Promote smoking cessation ● Smoking rate: 15%	Rate of employees taking thorough health screening: 70% Ratio of employees exercise as habit: 23% Rate of employees maintaining desirable weight: 62% Smoking rate: 26%	★★	Promote the prevention of lifestyle-related diseases ● Rate of employees taking thorough health screening: 100% ● Rate of employees maintaining desirable weight: 70% ● Smoking rate: 23% (achieve 15% by 2026) Promote initiatives to make exercise a habit ● Ratio of employees exercise as habit: 40%
Continue balancing infection prevention and business activities	Issued a total of 51 guidelines of actions regarding COVID-19 by the end of December Establish a rule for working when there is possibility of infection or when infected Promoted teleworking to avoid crowding Installed alcohol disinfectants, contactless thermometers, antimicrobial protection films	★★★★	Continue balancing infection prevention and business activities

Respect for Human Rights

The Toagosei 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

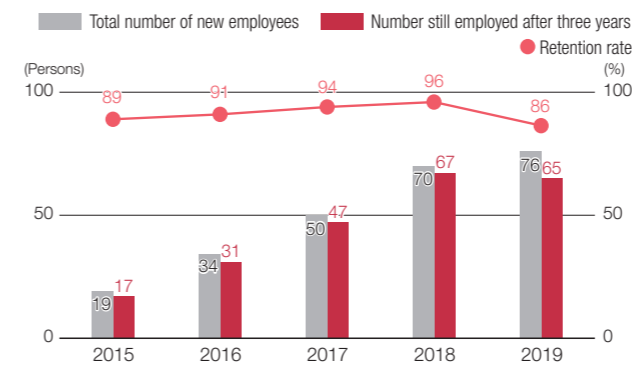
human rights through education for managers and other employees to ensure that Group employees do not engage in discriminatory acts or human rights violations. We have set up internal and external reporting channels and, in the event that any type of human rights violation is detected, have made it possible to promptly take corrective measures following investigation by a committee whose members include outside specialists.

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. We are also actively recruiting both new graduates and mid-career hires as human resources to undertake our growth strategy.

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



▶ Development of Young Employees

We have designated the first three years of employment as a priority period for cultivating junior employees, a period during which the focus is on developing human resources who can think independently, involve others, and act autonomously. Through level-specific training, we aim to effect step-by-step improvements in employees' basic capacities as exemplary citizens, and other abilities necessary to perform their duties.

Working closely with colleagues who joined Toagosei at the same time and engaging in amicable rivalry encourages better behaviors and self-growth.

▶ Self-development

To enable each employee to work autonomously at acquiring skills, the Group offers distance education, e-learning courses, and online video courses that contribute to knowledge acquisition and development of individual skills in areas such as basic business abilities, management skills, and job-specific expertise.

▶ Human Resource Development Policy and System

In order to realize our Medium-Term Management Plan, we need a tenacious organization that can respond flexibly to business expansion and changes in the environment. We are advancing human resource development and organizational support measures to strengthen front-line field capabilities in order to adapt to the coming era.

In order to develop talented and motivated human resources who will be responsible for the company's growth, we offer a variety of educational programs including level-specific training, selective and elective training, distance education, and e-learning.

▶ Specialized Education

We have specialized technical education staff that pursue education across the Group.

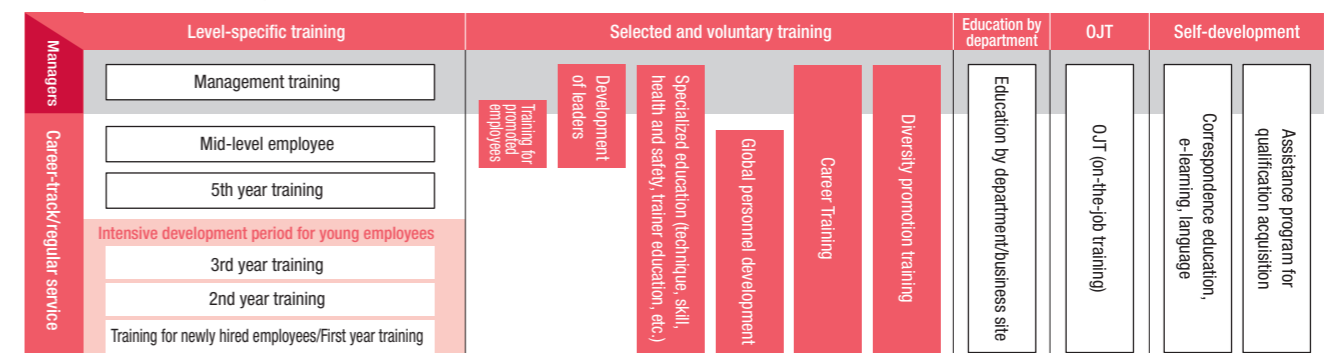
Technical education includes an interactive program that enables participants to not only acquire basic knowledge, but also to exchange views about the workplace equipment they choose to study. The introduction of a simulator for process education has enabled trainees to learn about process principles,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

In health and safety training, we are 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.



Hands-on health and safety training

Education System Diagram



Creating an Employee-friendly Workplace

► Promotion of Work-life Balance

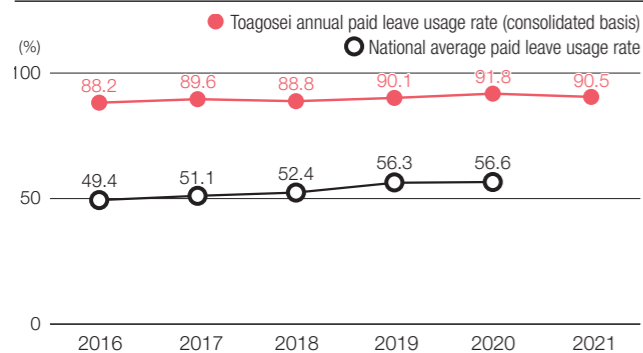
Our Group has striven to achieve work-life balance based on the belief that when employees spend their days feeling fulfilled in both their personal and professional lives, they can apply their abilities to the fullest, which leads to growth and development of our business.

While curbing prolonged working hours, we encourage employees to actively take their annual paid leave, and the Group's annual paid leave usage has remained at a high level since 2016.

Furthermore, we have established various systems to promote flexible work styles among employees in the belief that doing so will help foster an autonomous corporate culture and improve productivity. The teleworking system now allows employees to work from home or other Company-approved locations in one-hour increments for up to 10 sessions per month.

In January 2021, we also introduced a flextime system that does not specify mandatory work hours (core time), and a paid leave system that allows employees to take their paid leave in one-hour increments.

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 2020)

* 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.

► Support in Balancing Work with Parenting / Nursing Care

To create a fulfilling working environment for a diverse workforce, we commit ourselves to supporting employees in balancing work with parenting and/or nursing care. In January 2021, we conducted an employee awareness survey on job satisfaction and work environment congeniality. In January 2022, we expanded our support systems for balancing work and home life in order to create an environment in which more employees can play an active role.

To help employees balance work and parenting, we changed our system to enable employees to extend their childcare leave until the end of March after their child reaches the age of three if they are unable to enroll their child in a daycare center. Furthermore, eligibility for shortened working hours for childcare has been expanded to include children in the third grade of elementary school and younger.

Regarding support for balancing work and nursing care, the upper limit on the period for shortened working hours for nursing care has been abolished, and the number of days granted for nursing care leave has been increased to 20 days per year. In addition, we have established a new financial support system under which the Company provides a certain percentage of remuneration for a portion of the nursing care leave period.

► Leave System for Spouse Relocation and Reentry System

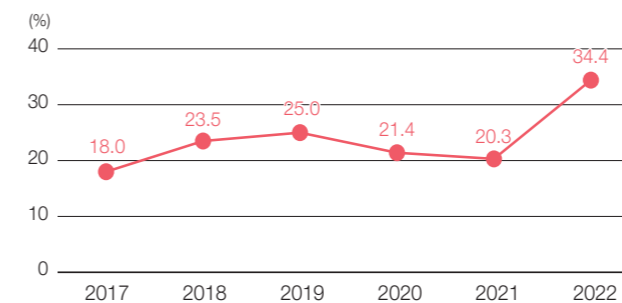
Toagosei has introduced the Leave System for Spouse Relocation, which allows leave of up to three years for employees accompanying their spouses on overseas assignment. It enables us to flexibly accommodate employees' family situations, and had been used by two employees as of 2021. We also have a Reentry System that allows people to register as candidates for reemployment after they have resigned due to family circumstances, such as transfer of a spouse, childcare, or nursing care, and wish to reapply for employment with the company.

Diversity Promotion

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

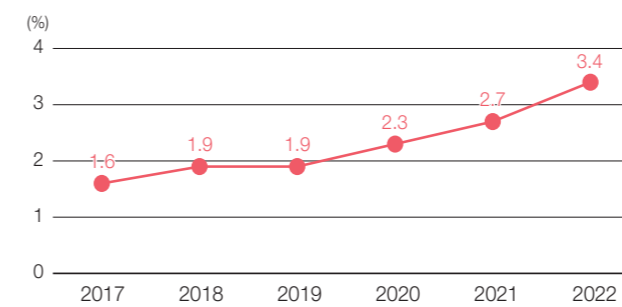
Since 2016, we have established the promotion of women's empowerment as one of our key CSR goals, and have been working to create a system that enables women to fully exercise their abilities. Through our employer action plan for the five years from 2021, based on the Act on Promotion of Women's Participation and Advancement in the Workplace, we have set the following goals: an annual 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 retention rate for female new graduate recruits of 90% or more as of March 31, 2026.

Employment Rate of Women among New Graduates (consolidated basis)



* As of April 1 of each year

Percentage of women in managerial positions (non-consolidated basis)



* As of January 1 of each year

► Greater Choice of Workplaces Where Women Can Display Their Capabilities

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 workplace 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.

► Women's Career Training

We respect the varied attributes of each individual, and are committed to creating a system that allows each individual to fully demonstrate his or her abilities. We therefore promote the success of diverse employees, including women.

Starting in 2021, we have been providing career training for female employees in career-track positions to help dispel their apprehensions about their careers and be motivated to work with a long-term career vision.

VOICE

New Product Development Section, Technology Development Department, Nagoya Plant **Y.K.**

User of the Leave System for Spouse Relocation

When my husband was transferred to Bangkok, Thailand in 2019, I used the Leave System for Spouse Relocation for about 1.5 years. During my leave of absence, I was able to work on self-improvement by attending Thai language classes and studying for certification. When the COVID-19 contagion had abated, I also had the opportunity to travel around within Thailand and experience the local culture.

When my husband's overseas assignment was decided, I had already learned of this program and was able to accompany him without a second thought. When a decision was made for our return to Japan, I was very grateful for the smooth transition back to work and career continuity.

I want to thrive on my experiences and memories of Thailand from my leave of absence there while pushing forward with my day-to-day work.



VOICE

Maintenance Engineering Section, Manufacturing Department, Tokushima Plant **S.K.**

Greater Choice of Workplaces Where Women Can Display Their Capabilities

I am responsible for the upkeep of electrical instrumentation equipment in the maintenance department. It can be difficult because we often have to work outdoors, especially in the summer when it gets so hot that sweat ruins my makeup. But I'm always glad to feel that sense of accomplishment when inspections and construction are completed and facilities have been improved.

I am blessed to have such great supervisors and coworkers, and never feel that my gender makes a big difference in my work. I feel this is the right job for me, since I'm such a curious person, and it lets me make use of the knowledge I gained at technical college while taking on new things and fully exerting my mind and body every day.



▶ **Active Senior Employees**

In 2013, the Group extended the mandatory retirement age from 60 to 65 by introducing a system for retirement at 65. In order to support even more active and autonomous career development among senior human resources, we provide career training for personnel in their 50s. During the training, participants reflect on their past experiences, reconfirm their values, strengths and weaknesses, and design an ideal self they aspire to become in the future.

▶ **Employment of Persons with Disabilities**

Our Group includes 49 people with disabilities, ranging broadly in age from their 20s to 60s, and working in 37 departments across the country.

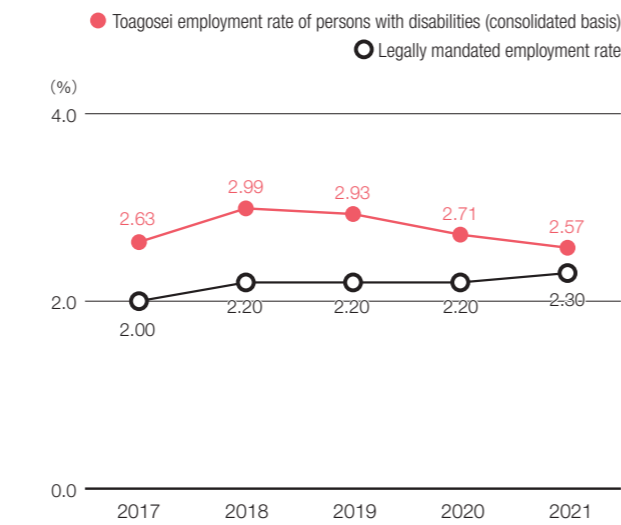
In order to support the independence of people with disabilities, we are working to expand their employment, and as of the end of 2021, the employment rate of people with disabilities across the Group as a whole was 2.57%.

The Aronkasei Monozukuri Center is housed in a building that is certified as specified under the Act for Promoting Easily Accessible Public Transportation and Facilities for the Aged and the Disabled (the "Barrier-Free Law").

The facility is safe and secure for all, with ramps and multipurpose toilets installed to facilitate smooth access for wheelchair users.

We will continue to work toward achieving normalization as we promote the development of a workplace environment where people with disabilities can work with peace of mind.

Review of the employment rate of persons with disabilities over the past five years



* As of December 31 of each year

VOICE

Design Group, Monozukuri Center, Aronkasei Group **Y.S.**

Employment of Persons with Disabilities

I was in a car accident 25 years ago and have been in a wheelchair ever since. I am now designing piping products using CAD at the Monozukuri Center. I transferred to Aronkasei shortly after the Monozukuri Center was established.

At first, I expected to encounter problems of some kind, despite its being called barrier-free. But since the Monozukuri Center was built with barrier-free access in mind from the design stage, it really is so barrier-free that I can feel assured there's no place that can't be accessed in a wheelchair. I was very surprised, particularly by the ramp leading from the first floor to the rooftop.

I have been working here for about 10 years now, and I am grateful that this manufacturing center has allowed me to work here without any problems.



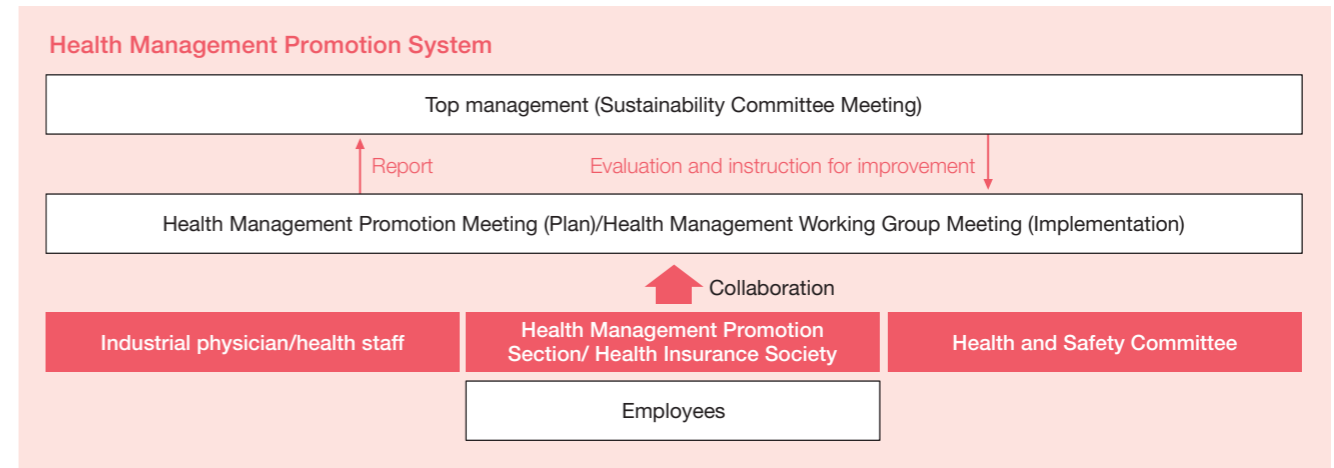
Approach to Health Management

▶ **Promotion of Health Management**

We are promoting efforts to maintain and improve the health of our employees because we believe that creating a vibrant and creative organization in which each and every employee can work in comfort and with vitality is an investment that will eventually lead to the growth of the company. Through these efforts, we aim to achieve

zero occurrence of long-term absences from work (three consecutive months or more) due to illness by 2025.

To reduce the risk of illness among employees, we have established a Health Management Promotion System in cooperation with the health insurance association, and are implementing the PDCA cycle for health measures.



▶ **Promotion of Disease Prevention**

In order to reduce the risk of disease among employees and enable them to work with vigor and vitality, we prioritize the prevention of lifestyle-related diseases, and are working to enhance physical examinations, promote specific health guidance, and improve the rate of repeated regular health check-ups and more thorough health screenings.

In addition, through the introduction of a health management system, the health staff will monitor the health status of employees company-wide, identify issues, and improve the level of the health management system to promote appropriate health guidance and health promotion measures. Additional smoking cessation efforts are being undertaken with anti-smoking campaigns.

▶ **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 fourth consecutive year. This program is implemented by the Ministry of Economy, Trade and Industry (METI) in collaboration with Nippon Kenko Kaigi (the Japan Health Council), which is comprised of leaders from the business community, medical-related organizations, and local governments, to recognize



corporations that are implementing particularly excellent health management practices.

We will continue to strengthen our health management practices as we regard the physical and mental health of each individual employee to be an important asset.

▶ **Health Maintenance and Promotion**

Even within the constraints of the COVID-19 pandemic, we are working on creative activities to promote health in local communities, such as organizing recreational and walking events and assisting with gym user fees.



Park golf activity at the Nagoya Plant

Enhancement of Contributions to Society and Local Communication

▶ Social Contribution Activities Activities for Aesthetic Maintenance and Conservation of Biodiversity

The Group conducts activities for social contribution, aesthetic maintenance, and conservation of biodiversity, including volunteer cleanups, zoo sponsorships, and sports support.

The main results for 2021 are shown in the table on the right. Although various community activities have been suspended due to the COVID-19 pandemic, we are contributing to society, helping to maintain aesthetics, and preserving biodiversity through cleanup activities at each of our business sites.

Site	Activity
Site in Japan	Local and neighborhood cleanup activity
Nagoya Plant	Sponsoring of Higashiyama Zoo
Head Office	Sponsoring of table tennis league T LEAGUE
Yokoyama and Kawasaki plants	Participation in general environmental survey of Tokyo Bay
Yokoyama and Kawasaki plants, head office	Partial use of paper that support tree thinning and the Morino Chonai-Kai

▶ Communication with Local Communities

Amid the COVID-19 pandemic, the company continues to refrain from activities such as event gatherings of large numbers of people. However, after implementing COVID-19 countermeasures, we carry out events such as plant tours, school visits, and visiting lectures, as well as donations and contributions for the development of the next generation.

In 2021, we made donations to the Children's Future Support Fund*1 (led by the central government) and the Ashinaga Ikueikai (Ashinaga Scholarship Society)*2 to support the schooling, education, and livelihood of children, who have the future. The main results for 2021 are shown in the table on the right.

Through these activities, we aim to promote interest in chemistry and understanding of our company among members of local communities and the next generation of students and children.

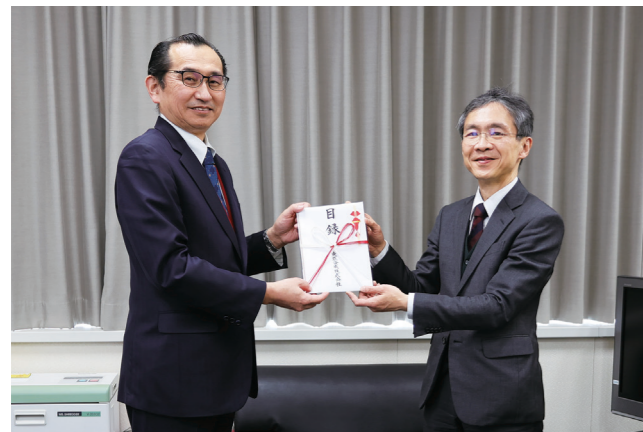
*1 Children's Future Support Fund

This is a government-administered fund established to support families and children in financial need. Donations are mainly used to assist educational support groups, children's cafeterias, and people formerly placed in foster care facilities.

*2 Ashinaga Ikueikai (Ashinaga Scholarship Society)

This is a private non-profit organization that supports children who have lost a parent due to such causes as illness, disaster or suicide, as well as children from families in which a parent is unable to work due to disability. Donations are used primarily for scholarships for orphans in Japan and support for orphans of the Great East Japan Earthquake.

Site	Activity
Head Office	Donation to Children's Future Support Fund Donation to Ashinaga Ikueikai (Ashinaga Scholarship Society)
Nagoya Plant	Publication of Seiryu local PR newsletter
Takaoka Plant	Special lecture and discussion with students at the University of Toyama
Sakaide Plant	Plant tour by Sakaide Technical High School Donation of disaster meal to Sakaide City Council of Social Welfare
Toagosei America inc.	Donations during thanksgiving day and Christmas BBQ with local communities
TOA-DIC Zhangjiagang Chemical Co., Ltd.	Visits to school for special needs
Toagosei (Zhuhai) Limited	Donation of audio equipment to orphanages
Toagosei Singapore Pte Ltd.	Donation to social welfare related businesses
Toagosei (Thailand) Co., Ltd.	Donation of projector to hospitals
Each site	Cooperate in donation of blood and Aron Zia Clean 200 hypochlorous acid solution to local municipalities



Visit to the Cabinet Office, which oversees the Children's Future Support Fund



Meeting with students receiving support through Ashinaga Ikueikai (Ashinaga Scholarship Society)

Responsible Care Management

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.

We have been a member of the Japan Responsible Care Council (JRCC) since its inception, and we are actively

involved in RC activities in support of the aims of the Responsible Care Global Charter.

Please refer to the Toagosei website for details on basic policy, etc.

Home > Sustainability > Responsible Care Management
<https://www.toagosei.co.jp/english/csr/effort/rc.html>



Safety and Disaster Prevention

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Zero explosion or fire accidents	Zero explosion or fire accidents	★	Zero explosion or fire accidents
Zero serious leakage accidents of harmful substances or hazardous materials	1 serious leakage accident of harmful substances or hazardous materials		Zero serious leakage accidents of harmful substances or hazardous materials

Occupational Health and Safety

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Zero lost-time injuries	Lost-time injuries: 2	★	Zero lost-time injuries
Identify risks of stumbling and falling and their countermeasures	Significant reduction in falling accidents	★★★	Identify hidden risks and their countermeasures
Increase sensitivity toward danger	Educate proper risk prediction method	★★	

Product Safety

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Response to domestic and overseas laws and regulations	Responded to domestic and overseas chemicals-related laws and regulations		Response to domestic and overseas laws and regulations
Expanded the scope of usage of the chemicals management system		★★★	Expansion of the scope of usage of the chemicals management system
Ensuring of preparation and updating of SDS in accordance with GHS	Responded to requests to submit SDS and various other surveys		Ensuring of preparation and updating of SDS in accordance with GHS

Quality Assurance

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Reduction in the total number of complaints	Reduction in number of contamination complaints: Target achieved	★★★	Make quality risk evaluations a routine and promote FMEA Standardize measures to prevent accidents and leakage

Physical Distribution Safety

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Reduction in the number of physical distribution problems	No major complaints and leak accidents Complaints in distribution reduced but target was no achieved	★★	Reduction in the number of physical distribution problems

* Detailed data for each item is available on the Toagosei website in Japanese.
 Home > Sustainability > Responsible Care Management > RC Activities > Environmental Conservation
<https://www.toagosei.co.jp/csr/effort/rc/>



Governance

Corporate Governance

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Make arrangements to comply with the revised corporate governance code due to the change in our listing category on the Tokyo Stock Exchange	Decision to transfer to the Tokyo Stock Exchange Prime Market Publication of Corporate Governance Report based on revised content	★★★★	Strengthening corporate governance
Promote capital policies under the Medium-Term Management Plan	2021 Consolidated payout ratio 33.3% Consolidated total return ratio 62.1%	★★★★	Continue capital policies under the Medium-Term Management Plan
Control and supervision of Group companies and provision of appropriate guidance	Carried out monitoring via CSR audits Strengthen governance of payment process of overseas subsidiaries	★★★★	Control and supervision of Group companies and provision of appropriate guidance
Effective information disclosure from an all-Group perspective	Strengthen information disclosure through the TOAGOSEI GROUP REPORT, etc.	★★★★	Timely and appropriate information disclosure to stakeholders

Our Approach and Policies (Vision)

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 fulfill 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.

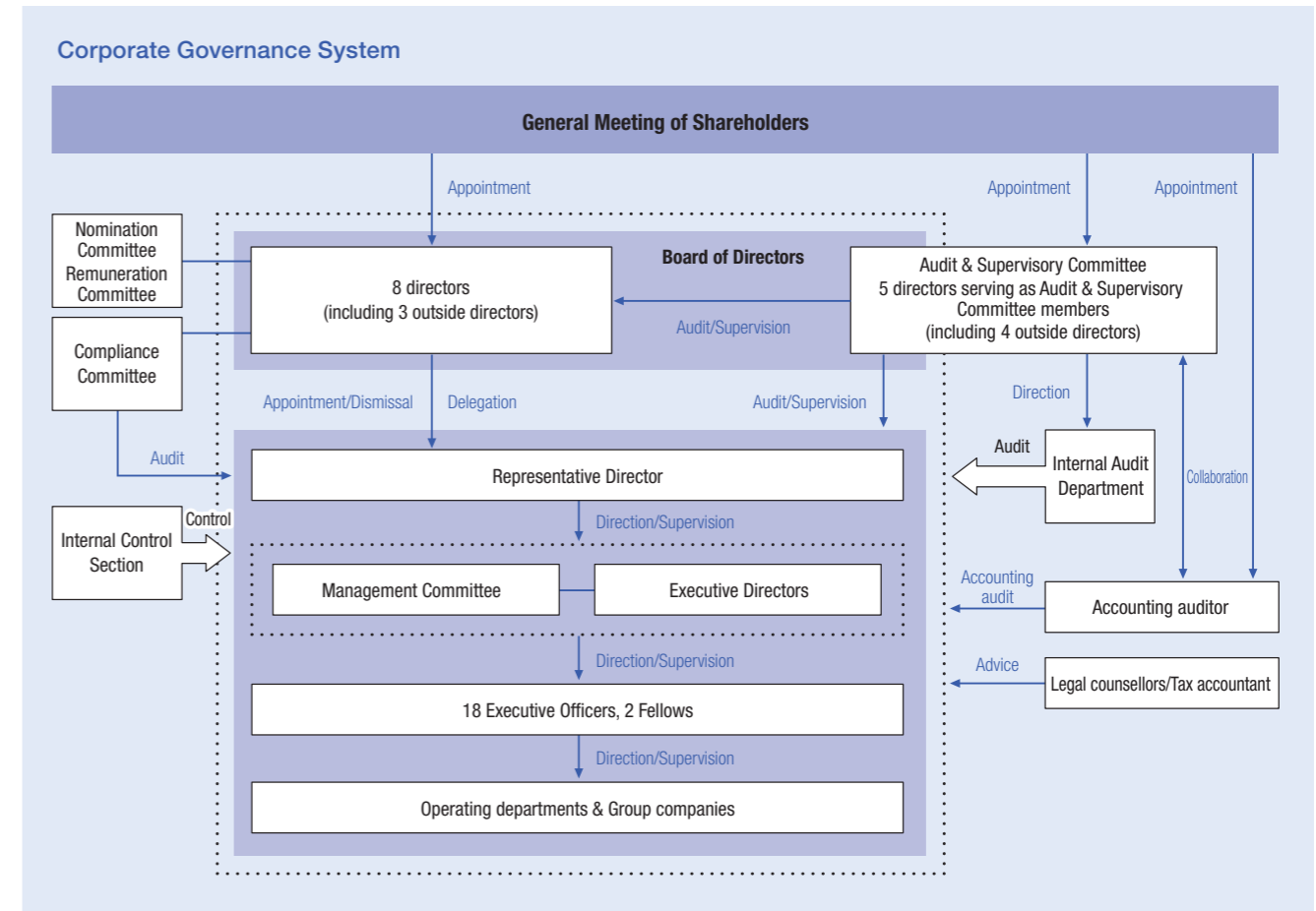
The Group’s basic approach to corporate governance is shown on the right.

Basic Approach to Corporate Governance

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

We are a company with an Audit & Supervisory Committee, and have a system to accelerate decision-making by securing management oversight functions. This is done by separating business execution by directors and executive officers from the supervision by the Board of Directors, which includes outside directors, of management decision-making and business execution.



Progress of initiatives to strengthen corporate governance

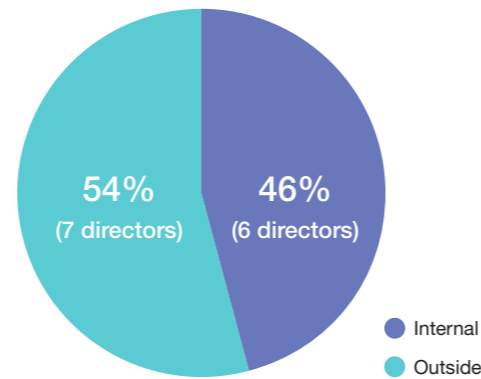
Year	Item	Change in the number of outside directors
2001	Executive officer system introduced of outside directors	
2003	Appointment of outside directors started	
2006	Internal Control Section established	1
	Basic Policy on Internal Control established by resolution	
2016	Toagosei Group Basic Policy on Corporate Governance established	5
	Transition to a company with an audit & supervisory committee	
2017	Start of assessment for the effectiveness of the Board of Directors	
2018	The proportion of outside directors in the voluntary Nomination Committee/Remuneration Committee increased to a majority	
2019	Increased the number of outside director to seven	7
2020	Introduction of stock compensation plan	

▶ Directors and the Board of Directors

Toagosei's Board of Directors consists of 13 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.

Composition of the Board of Directors



* As of March 31, 2022

▶ Audit & Supervisory Committee

The five-member 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, the status of internal control systems construction and operation, financial conditions, and other matters.

▶ Management Committee

The Management Committee, composed of five executive directors, meets every week, in principle, for the purpose of accelerating management decision-making and improving the efficiency of business advancement. It engages in practical discussions, from an operational perspective, of matters delegated to it based on resolutions by the Board of Directors.

▶ Profile of Directors

Name	Role	Attendance at the Board of Directors meetings in 2021	Nomination Committee/ Remuneration Committee member	Compliance Committee member ^{*4}	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	13/13			●	●	●			
Susumu Miho		13/13		●		●	●			
Masahiro Kimura		10/10 ^{*1}		●			●			
Taizo Serita		.. ^{*2}		●		●		●	●	●
Yasuhiro Koike	Outside	13/13	●				●			
Yuichiro Mori	Outside	10/10 ^{*1}							●	
Hidetoshi Furukawa	Outside	.. ^{*2}			●			●		
Yoshitaka Suzuki	Audit & Supervisory Committee Member	13/13 ^{*3}						●	●	●
Nobuhiko Takano	Audit & Supervisory Committee Member	13/13	Outside					●		
Kiyoko Ishiguro	Audit & Supervisory Committee Member	13/13	Outside						●	
Masahiko Yasuda	Audit & Supervisory Committee Member	13/13	Outside		●			●		
Koichi Danno	Audit & Supervisory Committee Member	13/13	Outside		●			●		

*1 Since appointment to office in March 2021 *2 Appointed to office in March 2022 *3 Number of times during the term of office of directors who are not members of the Audit & Supervisory Committee *4 In addition to the above, two executive officers, one in-house attorney and one outside attorney are appointed as committee members.

▶ Nomination Committee, Remuneration Committee

To enhance objectivity and transparency in corporate management, the Board of Directors has established, as its advisory bodies, the Nomination Committee and the Remuneration Committee, comprising one director who is not an independent outside director and several independent outside directors.

Upon request from the Board of Directors for advice, the Nomination Committee deliberates and reports to the Board of Directors on matters such as succession planning for representative directors, procedures for appointing candidates as directors or representative director, candidate qualifications and reasons for appointment, as well as on independence criteria for independent outside directors, including perspectives on diversity of personal attributes and skills.

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.

▶ 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:

- 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.
- 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.

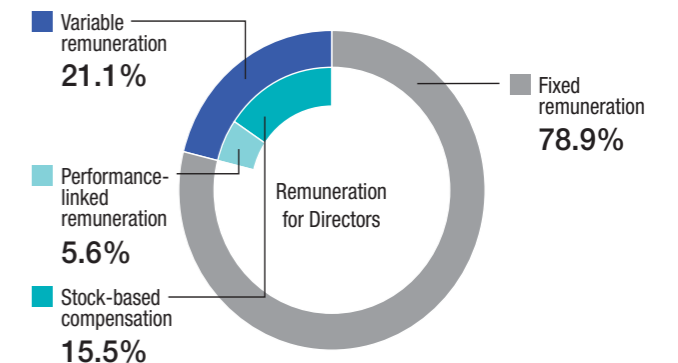
The amounts of the performance-linked remuneration are determined and paid based on the Company's performance in the previous business year, such as consolidated operating income, as well as duties and responsibilities according to the positions and the business environment, among other factors. Performance-linked 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 (January 2021-December 2021)

Classification	Total amount of remuneration (Millions of yen)	Total amount by remuneration type (Millions of yen)			Number of directors (Persons)
		Fixed remuneration	Performance-linked remuneration	Stock-based compensation	
Directors (not serving as Audit & Supervisory Committee members)	199	162	9	26	11
of which, Outside Directors	26	26	-	-	4
Directors (Audit & Supervisory Committee Member)	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 2022

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, operation, and effectiveness of the 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. In particular, all members gave favorable responses regarding scheduling, agenda management, and the atmosphere of deliberation, with several recognizing the ingenuity of report materials and content, confirming and sharing that improvements in management have progressed since last year.

We confirmed and shared several opinions noting that the first free-discussion meeting held in 2021

to exchange views on the medium- to long-term management direction without issuing a resolution was very meaningful. On the other hand, we also confirmed and shared that there are issues to be addressed through deliberations regarding the appropriate number and diversity of directors, compensation and succession planning, further improvement of prior explanations and management methods, the medium- to long-term management direction, and the sharing of opinions from shareholders and investors.

4 Initiatives to improve effectiveness

The following measures are to be implemented in 2022 to improve the effectiveness of the Board of Directors.

- In order to deepen discussions among directors on medium- to long-term management direction and growth strategies, a free discussion forum that does not pass resolutions is to be established separately from the formal Board of Directors meetings, as was done in 2021. Since 2022 is also a year for formulating a new Medium-Term Management Plan, this discussion will be used in its formulation.
- Other items that have been identified as relevant issues will also be taken up for discussion at the time of the Board of Directors meeting.
- Operational methods and prior explanations are to be further worked out.

▶ 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 engages in active discussions and consists of three directors, two executive officers, one in-house attorney and one outside attorney, for a total of seven members, with the heads of the corporate planning, sales, technology, environmental safety, quality assurance, and legal departments serving as secretariat.

▶ 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.

▶ Support System for Outside Directors

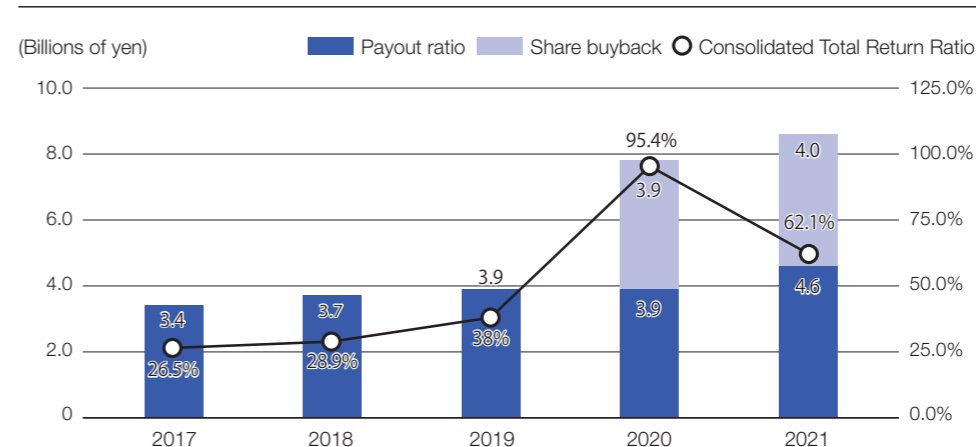
We have taken various steps to establish the environment that enables outside directors to properly supervise that mid- and long-term management directions are deliberated in a multi-dimensional way and the Company's management strategies are executed appropriately. Specifically, we provide outside directors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

The Company's basic policy is to maintain stable dividends and increase the consolidated total return ratio, aiming for a consolidated payout ratio of approximately 30% and a consolidated total return ratio of approximately 50%.

In the fiscal year 2021, the Company paid a dividend of 36 yen per share (interim: 17 yen, term-end: 19 yen) and bought back 3,999 million yen of its own shares, with a consolidated payout ratio of 33.3% and a consolidated total return ratio of 62.1%.

Consolidated Total Return Ratio



▶ Dialogue with Shareholders and Investors, and Information Disclosure

● Basic Policy and Framework

In the Toagosei Group Basic Policy on Corporate Governance, the Company stipulates that we "respect the rights of our shareholders and ensure their equality," and that we "engage in constructive dialogue with shareholders who have an investment policy that aligns with medium- to long-term shareholder profits."

In terms of information disclosure, we act 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, the Rules of Tokyo Stock Exchange and other related regulations. In addition, in order to disclose information to all stakeholders in a timely, appropriate, and fair manner, and to gain an accurate understanding of our group, we are actively promoting the disclosure of release text and financial statements in English starting from 2022 in order to eliminate uneven amounts of information depending on the language.

● 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. While

we hold financial results briefings (twice a year) and individual interviews with institutional investors and the media, from the second quarter of the fiscal year through December, 2021, we also decided to begin disclosing transcripts of the briefings to stakeholders who were unable to attend the meetings.

We also hold plant tours for students and residents of local communities.

● 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 infections, following on the March 2021 General Meeting of Shareholders, the March 2022 shareholders meeting was also held under infection control measures, including remote attendance from a separate room by some directors and livestreaming of the shareholders' meeting.

Compliance

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Continuous compliance education	Offered compliance programs to new and promoted employees	★★★★	Continuous compliance education
Continuation of monitoring and checks by the Compliance Committee	Held Compliance Committee meetings (twice)		Continuation of monitoring and checks by the Compliance Committee
Offered lecture based on the results of the questionnaire survey on compliance	Offered seminar on harassment for managers		
	Offered e-learning program on harassment		
No major violation	No major violation	★★★★	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 carried by all employees to ensure employee understanding.

▶ Compliance Committee

The Company has established a Compliance Committee that includes external members (outside legal counsel). 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 2021, on top of education according to positions for new employees and managerial personnel, workplaces held education utilizing the Compliance Handbook.

In an easy-to-understand manner, 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. We also conduct educational programs as needed, using our e-learning system.

▶ 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.

Risk Management

P	D	C	A
Targets for 2021	Results in 2021	Achievement	Targets for 2022
Periodic risk assessment by the Risk Management Committee	Held the Risk Management Committee (twice)	★★★★	Periodic risk assessment by the Risk Management Committee
Continuation of implementation of measures for reducing risk at each site	Continuation of implementation of measures for reducing risk at each site		Continuation and enhancement of a crisis response drill jointly conducted by the Head Office and sites
Continuation of a crisis response drill jointly conducted by the Head Office and sites	Held joint drill between head office and plants		Continuation of drills at each site in preparation for earthquakes/accidents
Continuation of drills at each site in preparation for earthquakes/accidents	Holding of disaster prevention drills, safety confirmation drills, etc. at each site		

▶ 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.

▶ 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 2021, joint crisis training was held by the Head Office and the Oita 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.



Joint crisis response training



Kiyoko Ishiguro
Outside Director and Audit & Supervisory Committee Member
Lawyer

Masahiko Yasuda
Outside Director and Audit & Supervisory Committee Member
Certified public accountant

Dialogue between Outside Directors

Kiyoko Ishiguro
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Masahiko Yasuda

“With seven outside directors of diverse core backgrounds participating in discussions, I believe the Board of Directors system is functioning effectively. (Ishiguro)”

“As outside directors, we must fulfill a check-and-balance role while also encouraging healthy debate of risk-taking. (Yasuda)”

The role of outside directors

Yasuda In recent years, the role played by outside directors has come to be seen as extremely important in corporate governance. What I consider important is advice from the perspective of improving corporate value over the medium to long term, and management oversight. More specifically, this means providing fair opinions and expert knowledge from a third-party standpoint, free from company-internal ties.

Ishiguro That’s right. At the same time, I understand that I am to be involved in executive business decisions crucial to management in my position representing the common interests of shareholders. Furthermore, since I am an attorney, I try to be mindful in my comments of whether there are any errors in the interpretation of important laws and regulations such as the Companies Act, and whether business is being conducted properly. On the other hand, since my profession

predisposes me to be negative about risk-taking, I also try to lend an ear to positive opinions as much as possible.

Yasuda Still, a defensive viewpoint like yours, Ms. Ishiguro, is very important. Since I have more than ten years’ accounting-based experience in each of the two fields of management consulting and M&A advisory services, most of my comments are going to be from a finance/accounting and corporate governance perspective. One of today’s major challenges is business growth, so I try to give advice on what points to keep in mind when taking risks proactively, and on how to keep from taking a backward-looking approach. As members of the Audit & Supervisory Committee, both you and I are also responsible for auditing the execution of duties by directors, internal control, and financial conditions, so I think it is important for us to speak out on both offensive and defensive considerations.

Ishiguro My own involvement in the audits gives me more opportunities to learn the candid opinions of the company and its employees, which I believe is very beneficial for the outside directors in the performance of our duties. In addition, since I am the first female board member, I would like to share my thoughts and opinions from a perspective that men do not have. The company has also provided opportunities for women to share their thoughts on work environment and career advancement by holding roundtable meetings with female employees in conjunction with factory site visits, and through participation in Compliance Committee meetings. We are now seeking out ways to apply these ideas to a transformation of consciousness at the company.

Toagosei Group Board of Directors

Yasuda Our Board of Directors includes a diverse range of people from academia, management, legal, tax, and finance as outside directors, which I think is great because it allows diverse opinions from outside the company to be conveyed directly to those responsible for business execution.

Ishiguro From March 2022, seven of the 13 directors are to be outside the company, which puts outside directors in the majority. Since the issues facing corporate management are so multifaceted, I too think it is good to have people with a variety of core backgrounds participating in discussions. Compared to other companies, I feel that outside perspectives are functioning effectively for us.

Yasuda One issue I find challenging is that, since proposals are brought up to the Board of Directors only after a conclusion has been reached in management conferences, if we are not careful, the Board of Directors could be relegated to a formal rubber-stamping role. I therefore seek out explanations of how important issues were debated so I can understand how each agenda item was deliberated at the management conference. I believe that by sharing this information, the quality of the board’s discussions is improved, enabling us to grant approval with a sense of conviction.

Ishiguro I agree. The purpose of a dissenting opinion from the Board of Directors is not to quash a proposal. Its purpose is to identify possible problems that could arise when the proposal is implemented, and to encourage caution toward those problems in execution. A dissenting opinion also means that we want the person responsible for operations to have the logic to persuade others, so that he or she can fulfill the obligation to provide shareholders with an explanation and gain their understanding. I hope that the inside directors will not be afraid of the issues and objections we raise, and will deal with them in a positive manner.

Yasuda In that sense, I think the debates at the board meetings have changed a lot since I first became a director. The points I have asked about each time are reflected in the explanatory materials for the agenda from the beginning, so the content of the presentations is easier

to understand. Investment projects such as dissolution of joint ventures, joint investments in ventures, and business restructuring have also come to be included in the agenda. Since these involve vigorous discussions each time, there are cases in which a conclusion cannot be reached in a single board meeting. This truly is a sign of healthy checks and balances.

Ishiguro That’s right. I feel that there is a stronger attitude now toward taking the promotion of active participation by women seriously. In the field, however, there is still deep-rooted thinking that goes something like, “I understand what you are saying, but that would be difficult in this workplace.” We need to make people aware that the challenge we face is how to change that. Transforming awareness takes time, which is the very reason I think we must work on it now.

Toward even greater increases in corporate value

Yasuda The COVID-19 pandemic reminded us that as a materials manufacturer, we are required to be at the forefront with agile changes and adaptation as we anticipate how end-product manufacturers will respond to changes in demand structure. We have net negative interest-bearing assets, that is, net cash, and we maintain a large number of financial assets. The most important issue for us is how to make the most of this so that we can enhance shareholder returns and invest in growth in a forward-looking manner. It goes without saying that M&A is also a crucial option for accelerating growth. Since many of these investments are expected to generate long-term returns rather than being necessarily directly linked to current profits, we must be able to thoroughly explain to stakeholders not only the benefits that aggressive risk-taking brings to management, but also its evaluation in terms of risk and capital efficiency. As outside directors, I think we must fulfill a check-and-balance role while also encouraging healthy debate.

Ishiguro At the same time, since the source of a company’s growth potential is its human resources, it will become crucial to recruit excellent human resources, provide incentives to motivate them to continue working for the company, and ensure the transparency and objectivity of personnel evaluations that are the prerequisites for such recruitment. In particular, since every company is going to find it difficult to secure human resources, I would like to see the company focus on corporate PR and advertising activities to spread public awareness of the many diverse products in which Toagosei products are used, and of us as a materials company.

Yasuda Something like “Using TG, working hard.” Our materials are used in many of the new products all around us, and ideally, everyone in the world will come to know this.

Ishiguro I think so too.

Directors (As of March 30, 2022)



Mikishi Takamura
President and Representative Director

April 1980 Joined the Company
March 2010 Director of the Company
Since November 2015 Current Position



Nobuhiro Ishikawa
Vice President and Representative Director, General Manager, Corporate Strategy Division

April 1977 Joined the Company
March 2014 Director of the Company
Since January 2016 Current Position



Susumu Miho
Director, General Manager, Supply Chain Management Division, General Manager, Logistics Department, Supply Chain Management Division and General Manager, Tokyo Sales Department

April 1984 Joined the Company
March 2018 Director of the Company
Since January 2021 Current Position



Masahiro Kimura
Director, General Manager, Technology & Production Administrative Division and General Manager, Research & Development Administrative Division

April 1986 Joined the Company
Since March 2021 Director of the Company



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

April 1985 Joined Aronkasei Co., Ltd.
Since March 2022 Director of the Company



Yoshitaka Suzuki
Director Audit & Supervisory Committee Member

April 1982 Joined the Company
March 2017 Director of the Company
Since March 2022 Director (Audit & Supervisory Committee Member) of the Company



Yasuhiro Koike
Outside Director Outside Director
Since March 2018 Director of the Company
Main concurrent positions: Professor, Keio University; Director, Keio Photonics Research Institute, Keio University; Outside Director, Nagase Brothers Inc.



Yuichiro Mori
Outside Director Outside Director
Since March 2021 Director of the Company
Main concurrent positions: Attorney (Jones Day Law Offices, a foreign law firm), Supervisory Director at DREAM Private REIT Inc.



Hidetoshi Furukawa
Outside Director Outside Director
Since March 2022 Director of the Company
Main concurrent positions: Outside Director, Isetan Mitsukoshi Holdings Ltd.; Chairman, Kobe City Property Research Foundation



Nobuhiko Takano
Director Audit & Supervisory Committee Member Outside Director
Since March 2018 Director (Audit & Supervisory Committee Member) of the Company
Main concurrent positions: Certified Tax Accountant (Nobuhiko Takano Tax Accountant Office), Outside Auditor of NICHIAS Corporation



Kiyoko Ishiguro
Director Audit & Supervisory Committee Member Outside Director
Since March 2019 Director (Audit & Supervisory Committee Member) of the Company
Main concurrent positions: Attorney at Law (Noda Memorial Law Office), Outside Auditor of TORAJI Corporation, Outside Director of Nippon Seiro Co., Ltd.



Masahiko Yasuda
Director Audit & Supervisory Committee Member Outside Director
Since March 2019 Director (Audit & Supervisory Committee Member) of the Company
Main concurrent positions: Certified Public Accountant (Masahiko Yasuda Certified Public Accountant Office), President and Representative Director of Benedi Consulting Co., Ltd.



Koichi Danno
Director Audit & Supervisory Committee Member Outside Director
Since March 2020 Director (Audit & Supervisory Committee Member) of the Company
Career Highlights: (Former) Director, Sumitomo Mitsui Banking Corporation; (Former) President and Representative Director, SMBC Friend Securities Co., Ltd.

Financial Highlights

		99th term 2011 (Dec. 2011)	100th term 2012 (Dec. 2012)	101st term 2013 (Dec. 2013)	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)	109th term 2021 (Dec. 2021)
Key financial results												
Net sales	(Millions of yen)	153,007	148,203	151,081	148,912	139,848	135,382	144,708	150,066	144,955	133,392	156,313
Operating income	(Millions of yen)	17,338	14,583	14,501	12,015	12,347	16,147	17,543	16,408	13,782	12,336	17,676
Ordinary profit	(Millions of yen)	17,569	15,250	15,346	12,892	13,201	16,935	18,492	17,403	15,230	13,054	18,983
Net income attributable to owners of parent	(Millions of yen)	13,000	9,699	9,605	8,414	6,696	13,801	12,911	12,748	10,387	8,142	13,771
Net assets	(Millions of yen)	127,776	136,240	148,148	157,349	163,020	173,003	187,487	191,296	198,579	197,642	206,612
Total assets	(Millions of yen)	171,046	181,451	193,086	201,168	208,018	219,520	239,338	241,164 ^{*3}	247,211	241,832	258,955
Cash flows from operating activities	(Millions of yen)	17,828	23,293	18,023	16,098	23,313	21,989	15,166	19,841	18,615	20,671	21,219
Cash flows from investing activities	(Millions of yen)	(9,041)	(15,041)	(6,852)	(13,981)	(4,592)	(17,673)	(23,186)	(11,910)	(15,855)	(11,362)	(10,239)
Cash flows from financing activities	(Millions of yen)	(7,320)	(3,377)	(2,094)	(3,063)	(3,949)	(3,939)	(4,047)	(4,908)	(4,582)	(8,491)	(8,644)

Key indicators

Net assets per share ^{*1}	(yen)	923.23	1,001.99	1,090.91	1,159.65	1,201.46	1,276.10	1,387.36	1,416.24	1,472.09	1,505.69	1,613.90
Net income per share ^{*1}	(yen)	101.99	73.58	72.88	63.88	50.86	104.83	98.08	96.85	78.91	62.43	108.14
Net worth ratio	(%)	72.4	72.8	74.4	75.9	76.0	76.5	76.3	77.3 ^{*3}	78.4	79.8	77.9
ROE (ratio of net income to shareholders' equity)	(%)	11.1	7.6	7.0	5.7	4.3	8.5	7.4	6.9	5.5	4.2	7.0
ROA (ratio of ordinary profit to total assets)	(%)	10.2	8.7	8.2	6.5	6.4	7.9	8.1	7.3 ^{*3}	6.2	5.3	7.6
PER (price earnings ratio)	(times)	6.2	9.2	12.3	15.0	20.5	11.0	14.6	12.5	16.1	19.4	10.7

Other indicators

Capital investment	(Billions of yen)	10.4	12.8	7.4	7.8	5.8	5.1	10.0	12.5	15.8	13.6	11.9
Research and development expenses	(Billions of yen)	4.6	4.4	3.8	3.9	3.7	3.6	3.7	3.6	3.7	4.0	4.3
Interest-bearing debt	(Billions of yen)	12.5	12.2	13.1	13.2	12.6	12.3	12.1	11.6	11.5	11.3	11.2
Cash dividend per share ^{*2}	(yen)	10.00	10.00	10.00	12.00	18.00	26.00	26.00	28.00	30.00	30.00	36.00
Payout ratio	(%)	19.6	27.2	27.4	37.6	47.2	24.8	26.5	28.9	38.0	48.1	33.3
Number of employees		2,534	2,509	2,483	2,442	2,441	2,411	2,393	2,429	2,473	2,527	2,539

*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.

*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.