





Message from Management

Sharing More Happiness with More People through the Chemical Business

Harness the power of chemicals to create new value that helps realize a sustainable society.

The Toagosei Group contributes to the development of society by supplying industry with commodity chemicals such as caustic soda and acrylic esters, along with high-value-added products based on distinctive technology, such as Aron Alpha® instant glues and ARONIX® UV-curable resin. In 2017, the Group began implementing its new medium-term management plan “Trajectory Toward Growth 2019.” Going forward, on the firm foundation of safe, reliable operations and product safety, Toagosei will strive to meet the expectations of shareholders, customers, business partners, local communities, employees, future generations and other stakeholders by creating original value that contributes to realizing a sustainable society.

Mikishi Takamura

President and Representative Director

Editorial policy

Starting this year, the Toagosei Group publishes the Toagosei Group Report, an advanced version of CSR report, to facilitate stakeholders' understanding of the Group's business strategies and initiatives. In addition to the management orientation, strategies, and business overview, non-financial information on environmental and social aspects is included.

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

Toagosei Co., Ltd. and Toagosei Group companies are covered by this report. The environmental data reported in this report are aggregate data corresponding to companies and sites in Japan engaged in manufacturing specified on Page 47 (“Business Activities and Environmental Impacts”). If the name of a plant is not preceded by a company name, it means it is a Toagosei plant.

Reference guidelines

Environmental Reporting Guidelines (Fiscal Year 2012 Version) published by the Ministry of the Environment of Japan

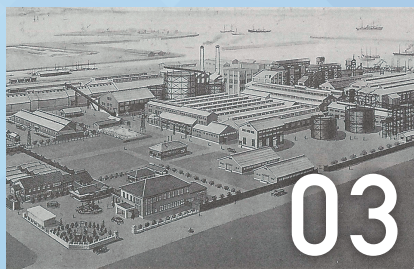
Date of issue of the Japanese version

March 2017 (Previous issue: March 2016. Next issue scheduled for March 2018)

Period covered

Graphs and tables in this report present aggregate data for one year from January 1 to December 31, 2016. Some articles include information on activities conducted in 2017.

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Our communication tools



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



Shareholder
 Newsletter for the
 104th Term



Toagosei Group
 Report 2017

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Corporate history

Since its foundation, the Toagosei Group has continuously created new value by leveraging the power of chemicals to meet the needs of a rapidly changing society. In 1960, Toagosei was the first company in Japan to commercialize acrylic esters (acrylates). First produced in 1963, Aron Alpha® redefined adhesives for the world. Looking to the future, the challenge remains to create value that exceeds society's expectations with the aim of "sharing more happiness with more people through the chemical business."

Development of functional chemicals

(1970s–present day)

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

Development of petrochemicals

(1960s–1990s)

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

Development of commodity chemicals

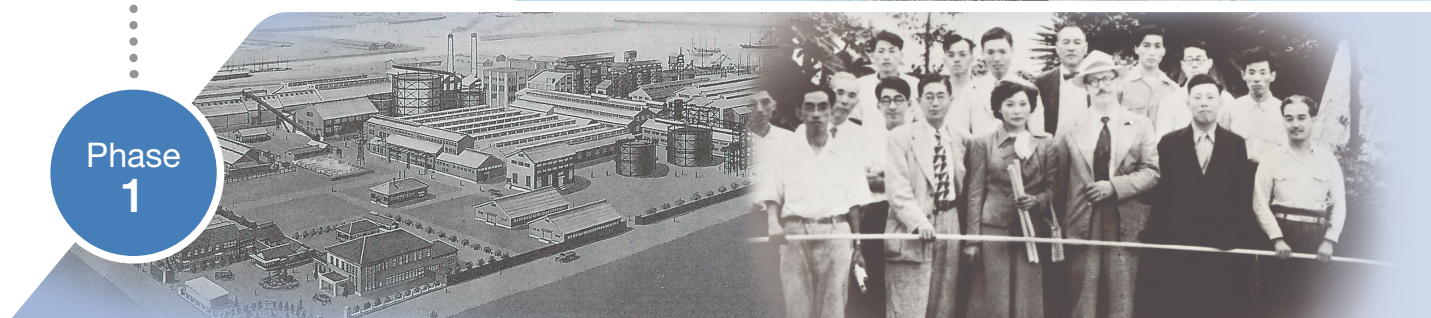
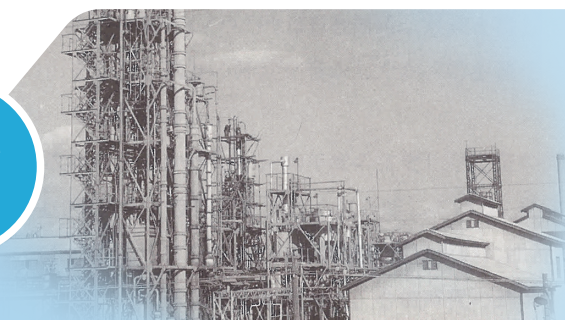
(1910s–1960s)

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

Phase
3

Phase
2

Phase
1



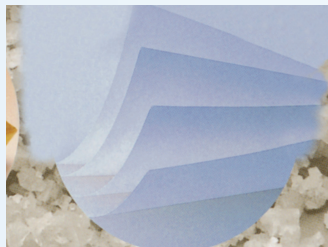
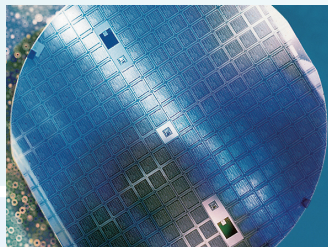
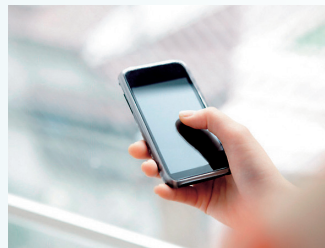
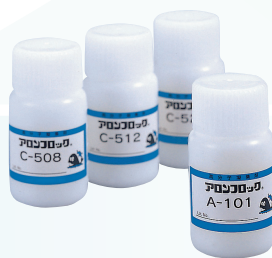
Gaining a strong presence in technologies and high-value-added products

(From now on)

Accelerating the Phase 3 strategy, Toagosei aims to promote a qualitative shift in the business base by expanding sales of functional and high-value-added products while strengthening overseas business development.

Phase
4

(From now on)



Toagosei Group's Profile

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

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

Company Profile

Establishment	July 17, 1944
Head Office	1-14-1 Nishi-Shimbashi, Minato-ku, Tokyo, Japan
President	Mikishi Takamura
Capital	20,886 million yen
Number of employees	2,411 on a consolidated basis (as of December 31, 2016)

Main business lines

Segment	Products
Commodity Chemicals	Caustic soda, caustic potash, sodium hypochlorite and other inorganic chlorides, sulfuric acid, acrylic monomers, industrial gases, etc.
Polymer & Oligomer	Acrylic polymers, polymer flocculants, UV-curable resins, etc.
Adhesive Material	Instant glues, functional adhesives
Performance Chemicals	High-purity inorganic products, inorganic functional chemicals
Plastics	Piping equipment, products for construction and civil engineering, nursing care products, elastomer compounds, and environmental related products



Nagoya Plant



General Center of Research and Development

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,
Hirano Plant, General Center of Research and Development,
Institute for Advanced Sciences



TOA-DIC Zhangjiagang Chemical Co., Ltd.

About the corporate logo



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

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.

Singapore

Toagosei Singapore Pte Ltd.

Thailand

Toagosei (Thailand) Co., Ltd.

South Korea

Toagosei Korea Co., Ltd.



Yokohama Plant



Head Office



Monozukuri Center (Aronkasei Co., Ltd.)



Oita Chemical

Principal Affiliated Companies

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

KOREA
 JAPAN
 CHINA
 TAIWAN
 THAI
 SINGAPORE

AMERICA USA

Toagosei America Inc.
 Elmer's & Toagosei Co.



Toagosei America

Toagosei Group's Products Serve Society

The Toagosei Group's products can be found throughout everyday life. They not only make our lives more comfortable, but also help protect the environment.

Commodity Business

Commodity Chemicals

Caustic soda

Caustic soda is a fundamental raw material used in manufacturing paper, pulp, textiles, chemicals, etc.



Sodium hypochlorite

Sodium hypochlorite is used for sterilizing tap water as well as in sewage treatment. Our products with minimal chloric acid or bromic acid underpin the supply of safe and clean water.



Acrylic monomers

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



Industrial gases

We supply a wide range of industrial gases, including oxygen, nitrogen and argon for customers mainly in the Chubu and Hokuriku regions.



Polymer & Oligomer

Polymers

Acrylic polymers

We offer a wide range of acrylic polymers, such as dispersants and thickeners, used in cosmetics, toiletries, etc.



Adhesive Material

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

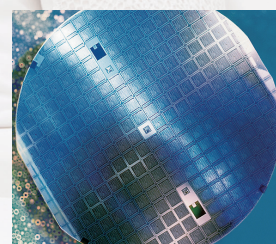
Aron Alpha and Krazy Glue have become synonyms for instant glues. Our wide range of organic-solvent-free, environmentally friendly adhesives satisfy diverse consumer needs.



Performance Chemicals

High-purity inorganic chemicals

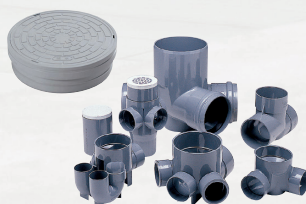
High-purity inorganic chemicals, such as liquid hydrogen chloride used in the manufacture of silicon wafers and semiconductor devices, are essential in various cutting-edge industrial fields.



Plastics

Small-diameter polyvinyl chloride chambers and manhole covers

We propose piping systems effective for drainage of buildings of every type, ranging from detached houses and condominiums to large facilities.



Construction materials

Waterproofing coating materials made from acrylic rubber protect roofs and exterior walls from rainwater penetration, thus extending the lifespans of buildings.



Businesses with core roles in the growth strategy

■ 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.



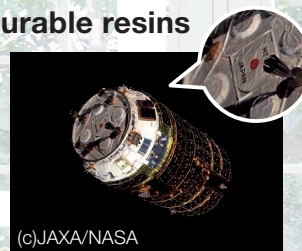
■ Functional adhesives

We offer a range of functional adhesives for industrial applications including reactive, hot-melt, and light-curable types. These adhesives are increasingly applied in cutting-edge industrial applications centering on electronic components and materials.



■ SQ Series photocurable resins

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



■ 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 Masks incorporating the odor-adsorbing deodorant KESMON® reduce the unpleasantness caused by odors.



■ Anjyu-brand nursing care products

Our nursing care products marketed under the Anjyu brand are addressing the growing demand associated with population aging. We are developing new products that meet needs in the nursing care field and help seniors in their daily lives.

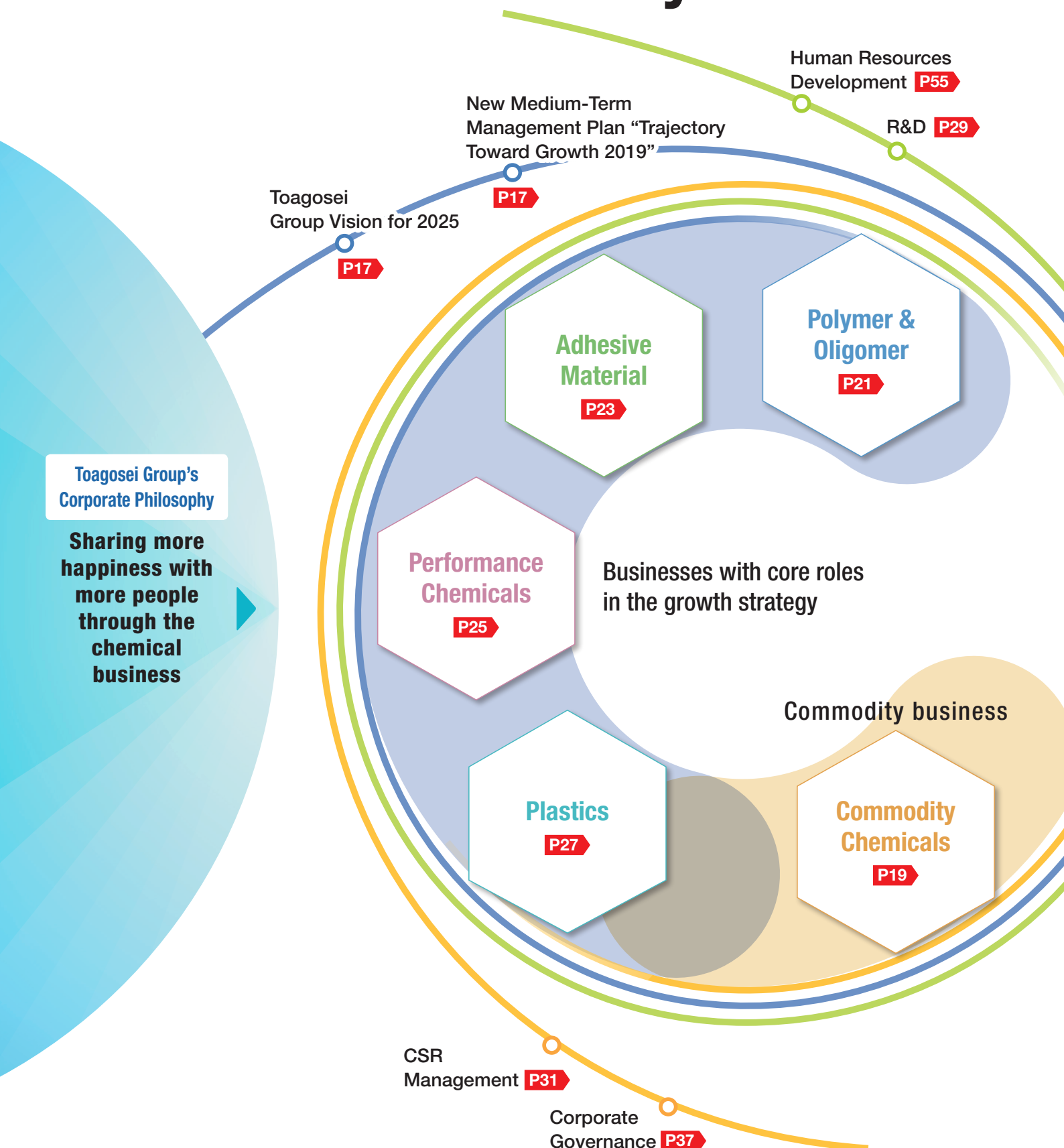


■ Elastomers

Elastomers have rubber-like elasticity but are as easily moldable as general-purpose plastics. Moreover, in view of their recyclability, they are attracting attention for environmental protection.

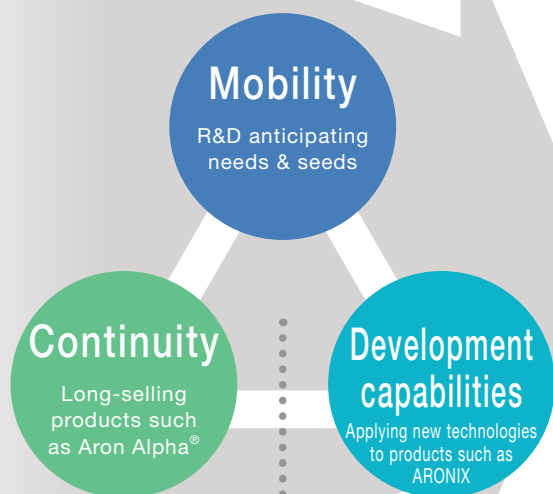


Toagosei Group's Value Creation Story



The Toagosei Group is pursuing sustainable growth by reinforcing the competitiveness of the commodity business and creating high-value-added products that meet needs and embody seeds, capitalizing on the Group's distinctive technologies. While strengthening ties with stakeholders, including shareholders, customers, business partners, local communities, future generations, and employees, we will vigorously tackle environmental protection. Our basic management policy emphasizes the Toagosei Group's role as an enterprise creating new value.

Toagosei Group's strengths



Create value by unleashing the power of chemicals and offer diverse product lineup to society from upstream to downstream

Products & services resolving social issues



Value offered to society by the Toagosei Group



Enhance corporate value by unleashing the power of chemicals

Financial and Non-financial Highlights

Financial data

	94th term 2006 (Dec. 2006)	95th term 2007 (Dec. 2007)	96th term 2008 (Dec. 2008)	97th term 2009 (Dec. 2009)
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Key financial results

Net sales	(millions of yen)	155,804	162,729	162,615	140,033
Operating income	(millions of yen)	12,950	12,719	11,668	11,158
Ordinary profit	(millions of yen)	13,603	13,462	11,057	11,538
Net income attributable to owners of parent	(millions of yen)	6,961	6,403	1,895	3,541
Net assets	(millions of yen)	116,913	118,939	113,048	113,700
Total assets	(millions of yen)	195,607	182,681	172,464	161,609
Cash flows from operating activities	(millions of yen)	11,600	15,651	13,280	22,701
Cash flows from investing activities	(millions of yen)	△10,093	△4,209	△8,776	△6,174
Cash flows from financing activities	(millions of yen)	583	△15,894	△4,057	△13,992

Key indicators

Net assets per share ^(*)	(yen)	795.12	807.02	761.96	788.06
Net income per share ^(*)	(yen)	53.28	49.04	14.54	27.70
Net worth ratio	(%)	53.1	57.7	57.6	61.5
ROE (ratio of net income to shareholders' equity)	(%)	6.8	6.1	1.9	3.6
ROA (ratio of ordinary profit to total assets)	(%)	7.1	7.1	6.2	6.9
Price earnings ratio	(times)	16.2	14.5	36.9	25.2

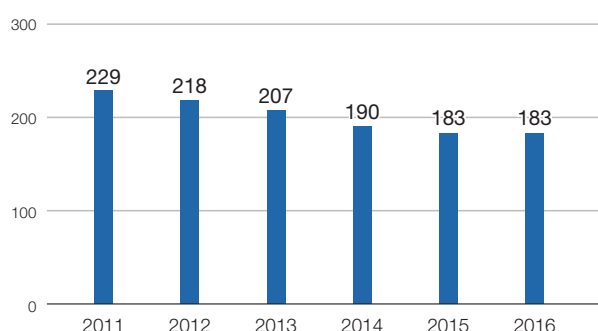
Other indicators

Capital investment	(billions of yen)	92	69	67	59
Research and development expenses	(billions of yen)	50	48	48	45
Interest-bearing debt	(billions of yen)	250	265	255	157
Cash dividend ^(*)	(yen)	7.50	8.00	8.00	6.00
Payout ratio	(%)	28.2	32.6	110.0	43.3
Number of employees		2,573	2,552	2,617	2,561

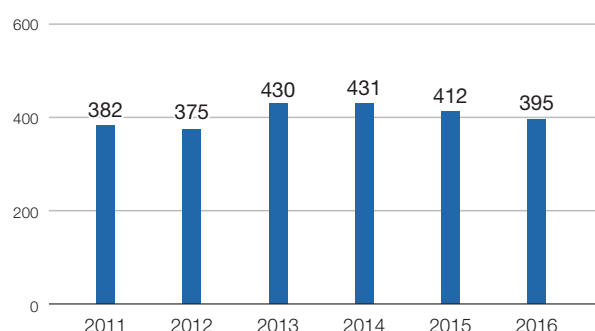
*1 The Company has implemented the share consolidation of common stocks at a ratio of one share per two shares effective on July 1, 2015. Net assets per share and net income per share are calculated assuming that the share consolidation was executed at the beginning of the 94th term.

Non-financial data

Energy consumption (Thousand kL, crude oil equivalent)



CO₂ emissions (Thousand tons, CO₂ equivalent)

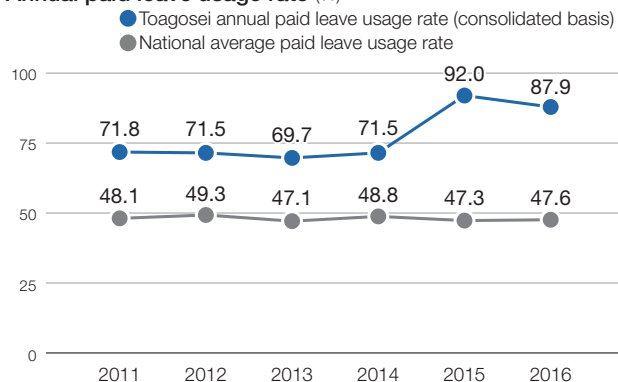


* CO₂ emissions increased in 2013 because the CO₂ emission coefficient for electricity increased substantially after the Great East Japan Earthquake.

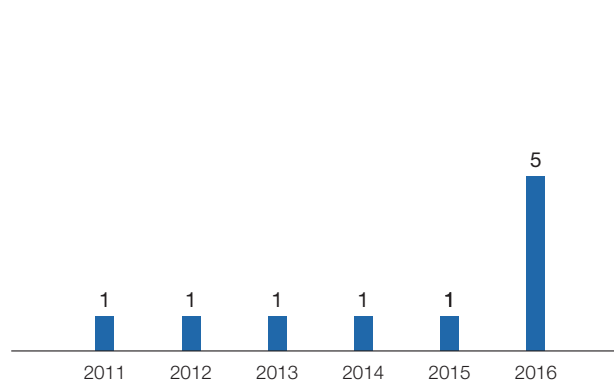
98th term 2010 (Dec. 2010)	99th term 2011 (Dec. 2011)	100th term 2012 (Dec. 2012)	101st term 2013 (Dec. 2013)	102nd term 2014 (Dec. 2014)	103rd term 2015 (Dec. 2015)	104th term 2016 (Dec. 2016)
153,779	153,007	148,203	151,081	148,912	139,848	135,382
21,271	17,338	14,583	14,501	12,015	12,347	16,147
20,941	17,569	15,250	15,346	12,892	13,201	16,935
13,133	13,000	9,699	9,605	8,414	6,696	13,801
125,027	127,776	136,240	148,148	157,349	163,020	173,003
173,847	171,046	181,451	193,086	201,168	208,018	219,520
24,843	17,828	23,293	18,023	16,098	23,313	21,989
△10,155	△9,041	△15,041	△6,852	△13,981	△4,592	△17,673
△4,117	△7,320	△3,377	△2,094	△3,063	△3,949	△3,939
874.34	939.23	1,001.99	1,090.91	1,159.65	1,201.46	1,276.10
104.10	101.99	73.58	72.88	63.88	50.86	104.83
63.4	72.4	72.8	74.4	75.9	76.0	76.5
12.5	11.1	7.6	7.0	5.7	4.3	8.5
12.5	10.2	8.7	8.2	6.5	6.4	7.9
7.3	6.2	9.2	12.3	15.0	20.5	11.0
103	104	128	74	78	58	51
45	46	44	38	39	37	36
135	125	122	131	132	126	123
9.00	10.00	10.00	10.00	12.00	18.00	26.00
17.3	19.6	27.2	27.4	37.6	47.2	24.8
2,533	2,534	2,509	2,483	2,442	2,441	2,411

*2 For the 103th 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.

Annual paid leave usage rate (%)



Number of outside directors





Mikishi Takamura
President

Message from Management

We will contribute to a sustainable society through transformation of the business structure to become a value-creating corporate group.

■ Review of 2016

We made progress in qualitative transformation of the business structure to become a value-creating corporate group.

Based on our corporate philosophy of “sharing more happiness with more people through the chemical business,” we aim to achieve sustainable growth through the creation of new products and businesses while targeting higher corporate value over the medium and long term. Under our previous medium-term management plan, which ended in December 2016, we focused on the three objectives of “develop new next-generation products,” “strengthen and qualitatively shift the production and sales systems of existing businesses,” and “qualitatively shift to an appealing company.” For fiscal 2016 ended December 31, 2016, we posted consolidated net sales of ¥135.4 billion, operating income of ¥16.1 billion, operating margin of 11.9%, and net income attributable to owners of the parent of ¥13.8 billion.

During fiscal 2016, we made further progress in qualitative transformation of the business structure to become a value-creating corporate group. We steadily expanded our high-value-added product businesses such as acrylic polymers, functional adhesives and high-purity inorganic chemicals by reinforcing initiatives to develop new products tailored to customer needs. We manufacture and sell high-value-added products not only in Japan, but also in the U.S., China, Taiwan, South Korea, and Singapore. In 2016, we established a production and sales base for acrylic polymers in Thailand to serve the growing ASEAN market. We also upgraded and reinforced production systems for commodity chemicals such as caustic soda and acrylic monomers that are particularly sensitive to market conditions. We took various steps to strengthen CSR management. Our management base has been reinforced by the transition to a company with an audit & supervisory committee. We also stepped up our Responsible Care activities aimed at ensuring safe, stable operation and initiatives to support better employee work-life balance.

Looking ahead, our challenge is to proceed with the growth strategy to achieve further transformation of the business structure. As one

element of our response to this challenge, we will actively invest in human resources development and other initiatives designed to create workplaces where people are motivated. I am convinced it is important that we continue to engineer qualitative shifts aimed at making our company more appealing to employees.

■ New medium-term management plan “Trajectory Toward Growth 2019”

We will pursue a growth strategy that encompasses moves to strengthen our high-value-added product businesses and develop overseas operations.

In 2017, we embarked on a new medium-term management plan called “Trajectory Toward Growth 2019.” Our Group Vision for 2025 is fourfold: “A chemical corporate group with a strong presence in technologies and high-value-added products,” “A chemical corporate group operating production and sales activities in Japan and overseas, with overseas net sales ratio of over 25%,” “A chemical corporate group with abundant talented and motivated employees who drive business expansion,” and “A chemical corporate group having a stable profitable base, with net sales of over 200.0 billion yen.” The Group Vision indicates our commitment to accomplishing the growth strategy. To achieve the Group Vision, under the new medium-term management plan, we will pursue a growth strategy that encompasses strengthening high-value-added products businesses and developing overseas business. To clarify the positioning of each business segment and accelerate the growth strategy, we have classified business segments based on their strategic roles and realigned the organizational structure of the business accordingly. Previously, our operations spanned the four business segments of Commodity Chemicals, Acrylic Products, Specialty Chemicals, and Plastics (by Aronkasei). The newly reorganized structure is based on the four business units of Commodity Chemicals, Polymer & Oligomer, Adhesive Material, and Performance Chemicals. With Plastics, the Group now has a total of five business segments.

In the high-value-added products businesses with core roles in the growth strategy, we will

pursue development of new products and new businesses, develop business overseas, and seek M&A opportunities. In terms of the development of new products and new businesses, the core areas in which we seek to identify market needs are ICT such as electronic components, mobility including automobiles, and energy such as batteries. With respect to ARONIX® UV-curable resin, in which the Toagosei Group's world-class technologies are utilized, we will promote new products through integrated operation of three bases in Japan, China and Taiwan and look to expand business through M&A. With regard to Aron Alpha® instant glues for consumer use (marketed under the Krazy Glue® brand in the US and the Shanghai region of China), we are reinforcing our brand strategy in Japan, the U.S. and China through new product development, advertising, promotional and sales activities with the aim of increasing market share. Our major overseas business development initiatives are the establishment of a production line for acrylic polymers in Thailand and strengthening of local marketing capabilities to increase the Group's presence in the ASEAN market, which has a growing population.

In the Commodity Chemicals business, which is the foundation of the Toagosei Group's business, we will seek to improve productivity and reinforce our cost competitiveness by continuing to invest in new and upgraded production facilities.

Focus on developing human resources who can think for themselves

As part of efforts to further reinforce our business base and promote the growth strategy, the medium-term management plan emphasizes issues such as improving corporate governance; facilitating swifter decision-making through appropriate delegation of authority; creating environment where an increasingly diverse workforce, including women and seniors, can bring their capabilities into full play; and human resources development.

In terms of human resources development, we have established the Human Resource Development Department, a dedicated unit, to oversee training and institute recruitment-linked initiatives. The key concept in this area will be "the ability to think for oneself." Across R&D, manufacturing, sales and other aspects of work, all

kinds of unexpected things happen, both positive and negative. Yet, whatever the situation, it is those capable of independent thought and expression who are the best able to create new value.

Human resources development is a critical element also in overseas business development. Japanese employees currently occupy the important positions at our overseas sites, but we plan to increase promotion of local hires going forward.

Value creation by the Toagosei Group

We have contributed to the development of society over the years through the creation of new value in tune with the era.

Toagosei was the first company in Japan to achieve the successful commercialization of acrylic esters (acrylates) in 1960. Aron Alpha®, which we first began manufacturing for industrial use in 1963, has been a consistent bestseller in Japan and the U.S. We have developed a wide variety of Aron Alpha® products to meet diverse needs among consumers. ARONIX®, a UV-curable resin that meets the need for adhesives without using solvent having a large environmental load, is used to bond components of LCD televisions, and also in coatings for mobile devices. The roles played by our products have naturally evolved over the years. We have discontinued certain lines while adjusting our manufacturing methods in an effort to reduce environmental impacts. The Toagosei Group has always created value by transforming itself in line with the changes underway in society.

Dynamically responding to increasingly segmented needs

Modern society is changing at an ever-faster pace. To take the example of phones, mobile phones have evolved within a short period of time from feature phones into smartphones with increasingly large screens. At the same time, consumer needs are becoming more segmented based on attributes, such as age, gender and region. When we first commercialized acrylic esters, users were delighted with the advent of a new type of material. Today, the increasingly diverse and complex user needs mean it is difficult for one size to fit all. Within these constraints, the challenge is to make products our

customers will continue to choose.

Our employees must develop the ability to think for themselves so that we can develop new products that cater to individual needs while responding effectively to changes in society. As an enterprise, it is also vital that we cultivate dynamic development capabilities rather than seeking greater scale.

Major product development based on business seeds

Our R&D does not only start with user needs, but also with the seeds generated by thinking about the potential new applications for products aside from line extensions. The world was astonished when we commercialized Aron Alpha®, a resin that solidifies instantaneously with a small amount of moisture, and ARONIX®, a resin that hardens on exposure to light. It takes some time for such products to launch and gain acceptance, but this will only happen if they prove to be of practical utility in people's daily lives. By leveraging our technical strengths and identifying seeds, we continue to work on developing major new products embodying ideas and functions that exceed people's expectations.

■ Sharing more happiness with more people

We will continue to supply the “materials” that can contribute to the creation of a sustainable society.

The Toagosei Group will celebrate its 75th anniversary in 2019. As a chemicals manufacturer, we supply the “materials” that support many industries. These materials need to satisfy various conditions. They should not only contribute to the creation of a sustainable society through their functions, but also they should be able to be manufactured without wasting energy or resources and should be capable of supporting a wide range of industries over the medium and long term. Going forward, we will continue to supply materials of value to customers and society, working together with our employees and business partners. In closing, we sincerely ask shareholders, investors and other stakeholders for further understanding and continued support to the Toagosei Group from a longer-term perspective.

Mikishi Takamura

Profile

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



Feature

Medium-Term Management Plan “Trajectory Toward Growth 2019”

Based on our corporate philosophy of “sharing more happiness with more people through the chemical business,” the Toagosei Group is committed to sustainable growth by creating new products and new businesses, and to increasing its corporate value over the medium and long term.

Basic Policy for the Medium-Term Management Plan

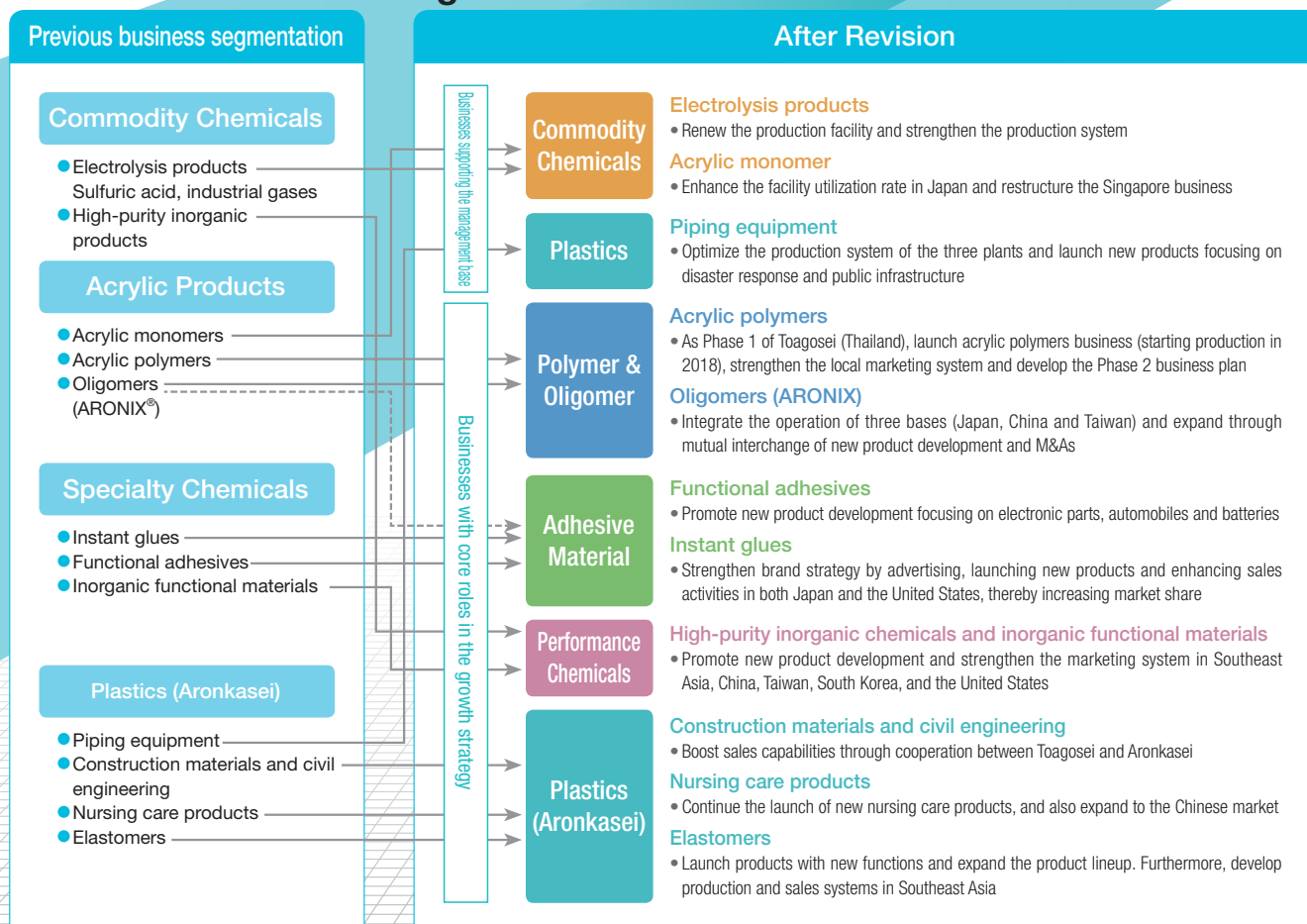
Toagosei Group Vision for 2025

Group Vision for 2025

- A chemical corporate group with a strong presence in technologies and high-value-added products
- A chemical corporate group operating production and sales activities in Japan and overseas, with overseas net sales ratio of over 25%
- A chemical corporate group with abundant talented and motivated employees who drive business expansion
- A chemical corporate group having a stable profitable base, with net sales of over 200.0 billion yen

2017

Revision of Business Segmentation



2025

75th
Anniversary

2019

First step.....

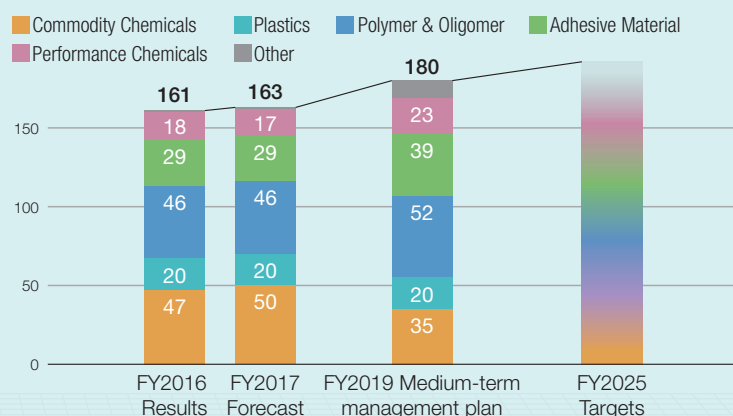
Medium-Term Management Plan “Trajectory Toward Growth 2019”

Quantitative targets

Net sales	Operating income	Operating income to net sales ratio	Net income attributable to owners of parent
155.0 billion yen	18.0 billion yen	11.6%	12.5 billion yen

*Assumptions for FY2019 targets: naphtha price of 32,000 yen/kl, exchange rate of 105 yen/USD

“Trajectory Toward Growth 2019” operating income (Billions of yen)



Investment Plan



In 2019, the Group will mark its 75th anniversary. With an eye to the future, to further strengthen the management base and to promote the growth strategy, we will also address the key challenges listed below.

(1) Thorough implementation of corporate governance

As a company with an audit & supervisory committee, we will comply with fair business practices and thoroughly implement corporate governance.

(2) Acceleration of management decision-making

We will accelerate management decision-making by promoting the delegation of authority from the Board of Directors to the Management Meeting and Executive Directors.

(3) Establishment of an environment that enables diverse human resources to play an active role within and outside the Company

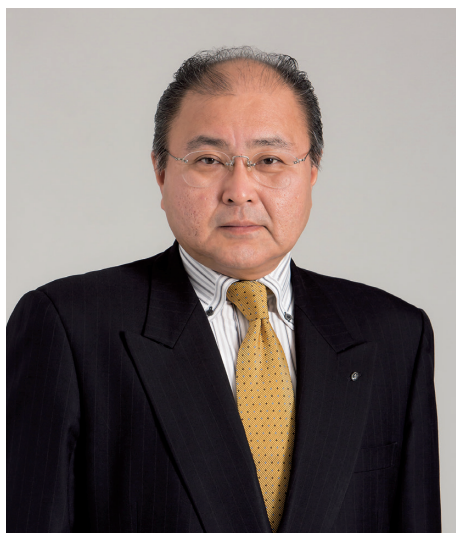
In order to establish an environment conducive to diverse working options, especially for women and seniors to play an active role, we will develop a work environment, flexible working styles, individual training programs and others.

(4) Human resources development

For the enhancement of management capabilities and operational capabilities as well as securing global human resources, we will bolster human resources development programs.

Business Overview and Growth Strategy

Commodity Chemicals



Fumito Furukawa

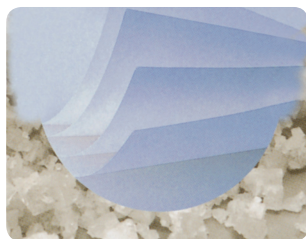
Executive Officer

General Manager, Commodity Chemicals Division

Principal products

● Caustic soda

Caustic soda is used in manufacturing processes including paper manufacturing.



● Acrylate esters

Acrylate esters are used as a raw material for pressure-sensitive adhesives.



Business Overview

Among Toagosei's businesses, the inorganic chemical business has the longest history. Caustic soda, chlorine, sodium hypochlorite, various chlorides, sulfuric acid, industrial gases, and the other inorganic chemicals Toagosei supplies are not only used as raw materials for chemical products, but are themselves also widely used as indispensable products in diverse industries and fulfilling important roles that contribute to contemporary affluent society.

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

FY2016 Results and FY2017 Forecast

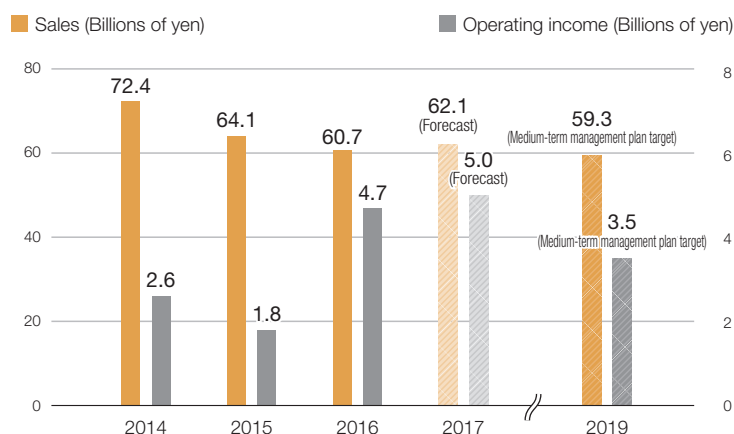
FY2016 Results

Segment sales decreased because of the decline of product prices of caustic soda and acrylic monomers. Operating income increased mainly owing to lower variable manufacturing costs attributable to stable prices of raw materials and fuels.

FY2017 Forecast

Segment sales are expected to increase mainly owing to correction of acrylic monomer product prices. Operating income is expected to increase because of increased sales of sodium hypochlorite and other products in addition to improved profitability of acrylic monomers.

Sales and Operating Income by Segment



Medium- to Long-term Growth Strategy

The Commodity Chemicals Business consists of general-purpose products including electrolysis products, acrylic monomers, and industrial gases. While sustaining the business base of the Toagosei Group by securing stable profit through improved productivity and strengthened cost competitiveness, the Commodity Chemicals Business is underpinning expansion of the business of high-value-added products such as high-purity inorganic chemicals and downstream acrylic products.

In the electrolysis business, we are vigorously investing in order to strengthen competitiveness and maintain and increase profit. In 2013, our Tokushima plant became the first in Japan to install an electrolysis machine for commercial operation using the gas diffusion electrode method, which can cut electricity consumption by 30%. In 2016, the Tokushima Plant became the first in western Japan with a manufacturing facility for sodium hypochlorite that satisfies the special grade standards specified by the Japan Water Works Association (JWWA). Moreover, upgrading of the electrolysis equipment for caustic potash at the Nagoya Plant is scheduled for completion in 2017. We are promoting introduction of high-performance electrolysis machines, including those using the gas diffusion electrode method, to further strengthen competitiveness.

In the acrylic monomer business, having started operation of a new facility for acrylic acids at Oita Chemical in 2014 in preparation for expansion of demand for downstream acrylic products over the medium to long term and to strengthen cost competitiveness, we are strengthening initiatives to boost production efficiency and achieve stable operation. In accordance with the medium-term management plan launched this year, we are working to establish a new business scheme for production and sales in Japan and overseas, including the Singaporean operations, to further improve the earnings power.

In the industrial gas business, we have been pursuing an aggressive strategy to expand the business. We are strengthening industrial gas sales in the Chubu and Hokuriku regions to boost facility utilization at the production base so as to establish an efficient production system. A large-scale capital investment plan with the objective of maintaining stable production far into the future is being implemented. The medium-term management plan is designed to position Toagosei as a highly profitable supplier by further strengthening competitiveness and improving operational efficiency of the gas business.

Products handled by the Commodity Chemicals Business are indispensable for lifelines and industrial bases that support the lives of people. Going forward, we will continue to contribute to society through stable supply of safe, reliable products.

Addressing Social Issues

Ecosystem protection

Social issues

Ballast water is local seawater or river water that is taken onto empty ships in special tanks at an unloading port for vessel stabilization. It is later discharged at a loading port. The potentially harmful effects on people of foreign marine organisms or bacteria carried with ballast water and the related disruption to ecosystems have become an international issue.

Toagosei Group's initiatives

The ballast water management system developed by the Toagosei Group with JFE Engineering Corporation combines filtration of large plankton and chemical treatment of ballast water. Used for chemical treatment are TG Ballast Cleaner®, a chlorinated mixture for killing aquatic microorganisms in the ballast water (main ingredient: sodium hypochlorite), and TG Environmentalguard®, which neutralizes any chlorine residue in the treated ballast water (main ingredient: sodium sulfite). The combined use of these two products helps avoid any secondary pollution by the sterilization agent and realizes an environmentally friendly method.

Toagosei is developing a network with business partner JFE Engineering to supply these chemicals to customers worldwide.



Ballast water treatment agents help preserve marine environments

Business Overview and Growth Strategy

Polymer & Oligomer



Susumu Miho

Executive Officer

General Manager, Polymer & Oligomer Division

Principal products

● Acrylic polymers

Acrylic polymers are used in cosmetic creams, cooling sheets, etc. to adjust viscosity.



● Oligomers (UV-curable resins)

ARONIX® UV-curable resins are used in printing inks and electronic materials.



Business Overview

Acrylic polymers are compounds based on acrylic acids or acrylic esters. They are used in diverse applications including dispersants, thickeners, pressure-sensitive adhesives, binders, and paint vehicles.

ARONIX® UV-curable resins are special acrylic monomers and oligomers developed by Toagosei that harden when exposed to UV light and the like. In addition to short curing time, they do not require solvent and thus are highly regarded as environmentally friendly products. Owing to these characteristics, ARONIX® is widely used in inks and paints as well as in coatings and adhesives for LCD.

FY2016 Results and FY2017 Forecast

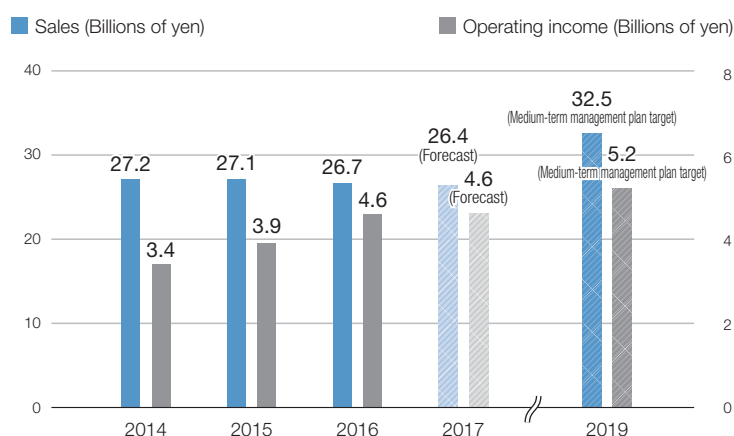
FY2016 Results

Sales of acrylic polymers benefitted from brisk sales of high-performance and high value-added products. On the other hand, sales of ARONIX® UV-curable resins declined, affected by generally lackluster demand. Operating income increased mainly because of an increase in sales of acrylic polymers.

FY2017 Forecast

Although increases in both sales and profit are forecasted for acrylic polymers, a decrease in segment sales and virtually no change in operating income from the previous year are expected mainly because both polymer flocculants and ARONIX® UV-curable resins are involved in intensifying competition for sales.

Sales and Operating Income by Segment



Medium- to Long-term Growth Strategy

The Polymer & Oligomer Business has a key role to play in the Group's growth strategy. In this segment, our priorities are to expand the existing business in the downstream acrylic products field, create new businesses, and expand the international business.

With respect to acrylic polymers, we are vigorously engaged in production efficiency improvement and new development. As a result, sales of such products as water-soluble polymers, emulsions, and solvent-free acrylic polymers (ARUFON®) are increasing. Regarding overseas business development, we have made a decision to produce acrylic polymers in Thailand with a view to starting operation in 2018.

In the oligomer business (ARONIX® UV-curable resins), despite the impact of a decrease in demand for paints for plastics, the principal application, we are making steady progress in development of high-performance products. Taiwan Toagosei Co., Ltd. and Toa-Jet Chemical Co., Ltd., which are based in Taiwan, and TOA-DIC Zhangjiagang Chemical Co., Ltd. in China are fine-tuning their products to meet the characteristics of their respective markets and thus promote local production for local consumption.

With an eye to creation of new businesses, we are identifying promising themes. Materials for automotive applications form a major product category with growth potential in the global market.

The key themes of the medium-term management plan launched in 2017 are high-performance products and internationalization. While further cultivating the existing fields in Japan and overseas, we will accelerate the ramp-up of new high-performance products.

In the polymer business, we will work to enhance production efficiency of mainstay water-soluble polymers and emulsion products and expand their application to peripheral fields. At the same time, we will sharpen the focus on development of materials for automotive applications and polymers for cosmetics with the aim of establishing high-performance powder products as a new mainstay.

Regarding the oligomer business, we aim to expand the business by leveraging differentiated products - adopting new production methods and ARONIX UV Series, while strengthening competitiveness of general-purpose products.

In overseas business development, Toagosei Singapore will focus on polymers with greater added value and improvement of production systems. For the oligomer business in Taiwan and China, we will work to enhance technology development capabilities at our local operations there and expand sales in local markets and neighboring countries to further promote local production for local consumption. Moreover, we will pursue early ramp-up of Toagosei (Thailand), which will begin operation in 2018, to enhance Toagosei's presence in Asia centering on these bases overseas.

Addressing Social Issues

Development of products friendly to people and the environment

Social issues

Regulated under Japan's Pollutant Release and Transfer Register (PRTR) legislation, volatile organic solvents are problematic because their use involves consumption of a lot of energy, and they are toxic to humans and also hazardous owing to their flammability. Demand is rising for eco-friendlier alternatives that can make safer use of limited resources.

Toagosei Group's initiatives

ARONIX® UV-curable resins are unique in that they harden quickly on exposure to ultraviolet light. They are used in diverse everyday applications ranging from paints and inks to adhesives and electronic materials. Toagosei has also developed a version of ARONIX® that dispenses with the use of volatile organic solvents. Since it does not require use of heat for volatilization and is easy to use, it can help customers be more energy-efficient by reducing energy consumption and cutting CO₂ emissions; the flammability risk and toxicity are also reduced.



The environmentally friendly ARONIX® series are used in diverse applications extending from printing to electronics.

Business Overview and Growth Strategy

Adhesive Material



Takashi Nakaya

Executive Officer

General Manager, Adhesive Material Division

Principal products

● Instant glues

Long-selling Aron Alpha®-brand instant glues are very popular.



● Functional adhesives

A range of functional adhesives including reactive and hot-melt types are used in electronic components and materials, etc.



Business Overview

Adhesives are useful in virtually every sphere of our lives: not only in everyday tasks such as repairing shoes, furniture and so on, but also for an increasing number of cutting-edge applications in the electrical and electronic products and automobiles, as well as the healthcare sector. In addition to the well-known Aron Alpha® instant glues, the Toagosei Group offers a range of functional adhesives for diverse industrial applications, such as electronic materials, automobiles, and precision equipment.

In product development, we are capitalizing on our original technologies to meet wide-ranging customer needs in Japan and around the world, enriching our product lines of adhesives of various types, including light-curable, reactive, and hot-melt types.

FY2016 Results and FY2017 Forecast

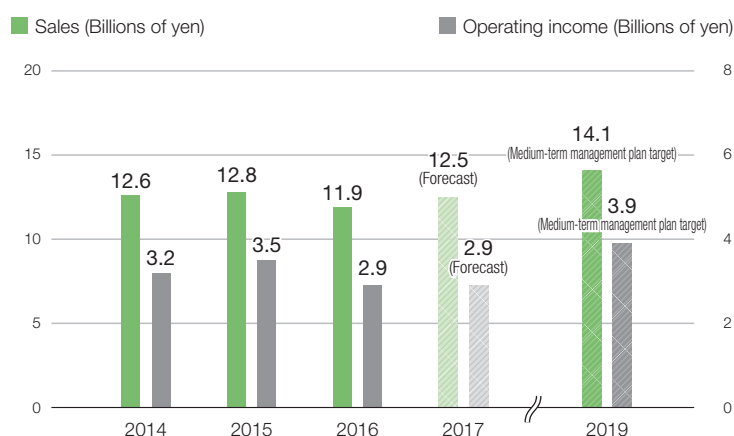
FY2016 Results

Sales of instant glues decreased in spite of steady domestic sales, primarily due to a fall in overseas sales because of the impact of fluctuating exchange rates. Sales of functional adhesives decreased owing to sluggish sales volumes mainly resulting from declining demand for high-performance information devices. Operating income declined principally as a result of the impact of rising fixed costs stemming from factors such as decreased sales of adhesives and increased advertising and promotional expenses.

FY2017 Forecast

We forecast increases in both sales and operating income underpinned by an increase in sales of functional adhesives for electronic materials and automobiles.

Sales and Operating Income by Segment



Medium- to Long-term Growth Strategy

Products handled by the Adhesive Material Division comprise instant glues marketed under the Aron Alpha® brand in Japan and the Crazy Glue® brand in the U.S., which have high market shares, and an extensive lineup of functional adhesives, including light-curable, reactive, and hot-melt types.

Aron Alpha® instant glues maintain an overwhelming market share in Japan. Indeed, products such as EXTRA High-Speed All-Purpose and EXTRA GEL have attained a powerful presence in the market. In 2016, we stepped up efforts to enhance brand recognition among younger Japanese consumers by introducing our products on the Internet and via Facebook, while also airing a new TV commercial. In the U.S. market, new products in the Crazy Glue® line offering even better quality and easier-to-use containers have gained a strong following in the market. In China, marketing efforts focused on convenience stores in the Shanghai region led to higher sales.

In the functional adhesives field, demand for reactive adhesives, used mainly for information devices and electronic materials, was affected by slowing growth in demand for high-end mobile devices. However, in collaborative product development with customers, we are capitalizing on our strengths, underpinned by extensive product lines and underlying technology development capabilities, and this ongoing effort is starting to bear fruit.

The newly launched medium-term management plan calls for vigorous advertising and launch of new products in Japan as well as sales expansion in the U.S. by combining the sales capabilities of Newell Brands, a new joint-venture partner, with our product development capabilities. The aim is to bolster the Aron Alpha® and Crazy Glue® brands of instant adhesives and increase their market shares. Going forward, to create attractive instant adhesives, we will strengthen development of not only new adhesives but also innovative containers while expanding sales channels.

Regarding functional adhesives, we will promote development of products for new substrate-related materials and battery cell materials, targeting growth fields, including information and communication, mobility, and energy. The newly established New Product & Film Development Department is spearheading the cultivation of new demand and new markets. At the same time, we will vigorously promote overseas development of products embodying our strengths.

Addressing Social Issues

Efficient use of resources

Social issues

As the growing scarcity of resources and energy makes the question of how best to use limited resources ever more pressing, increasing attention is being paid to the need for greater recycling of materials and, rather than discarding items, to extending usage by repair and maintenance.

Toagosei Group's initiatives

Widely used in Japanese households for sticking everyday items together or repairing things, Toagosei's long-selling instant glue brand, Aron Alpha®, contributes to more effective use of resources. These products are also widely known under the Crazy Glue® brand in the U.S. where DIY is popular. Crazy Glue® is available in many variants to address diverse needs in the U.S. market. Toagosei continues striving to offer customers ultra-convenient adhesives through development and improvement of adhesives that bond faster and come in easier-to-use containers.



Aron Alpha® instant glue is useful for repairs

Business Overview and Growth Strategy

Performance Chemicals



Hisashi Hara

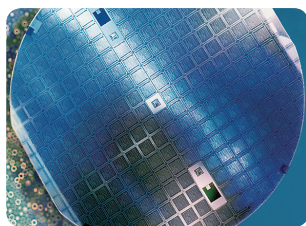
Executive Officer

General Manager, Performance Chemicals Division

Principal products

● Liquid hydrogen chloride

Liquid hydrogen chloride is used in semiconductor manufacturing processes.



● NOVARON[®] silver-based inorganic antimicrobial agent

NOVARON[®] silver-based inorganic antimicrobial agent is effective against microbes as well as for disabling viruses.



Business Overview

Toagosei manufactures extremely high-purity inorganic chemicals for industrial applications. High-purity liquid hydrogen chloride and high-purity liquid caustic potash are used for such purposes as etching and cleaning of semiconductors and other electronic materials.

Inorganic functional materials are the fruit of our original inorganic synthetic chemistry technologies. Our product lines include additives for electronic materials and for amenity care materials. IXE[®] ion-trapping agent is an additive that increases the reliability of electronic materials. Additives for amenity care materials perform their antimicrobial, deodorizing or other comfortable functions in coatings and kneading to textile and plastic products. Our goal is to develop new products attuned to the era that satisfy the needs of society.

FY2016 Results and FY2017 Forecast

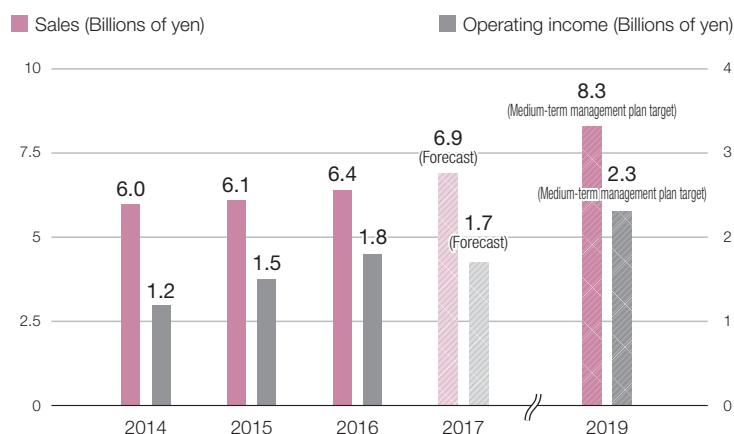
FY2016 Results

High-purity products sales increased, as the demand for products centering on semiconductor applications recovered. Sales of inorganic functional materials increased owing to favorable sales of IXE[®] ion-trapping agent, KESMON[®] inorganic deodorant, and other products. As a result, segment sales and profit increased.

FY2017 Forecast

Segment sales are expected to increase owing to higher sales of inorganic functional materials such as IXE[®] ion-trapping agent and KESMON[®] inorganic deodorant. A decrease in operating income is forecasted because of an increase in depreciation of capital investment for high-purity products.

Sales and Operating Income by Segment



Medium- to Long-term Growth Strategy

The Performance Chemicals Division consists of two departments: High-purity Inorganic Chemicals and Inorganic Functional Materials.

We offer diverse high-purity inorganic chemicals, including liquid hydrogen chloride and high-purity hexachlorodisilane (HCD[®]), which are indispensable in semiconductor manufacturing, and high-purity caustic potash such as Super Potash Ex used in the electronic materials field. Toagosei's presence in high-purity inorganic chemicals is increasing. The spread of autonomous driving technology, expansion of the information industry, and progress of IoT are expected to spur growth of the semiconductor sector, which is also a growth engine for the Toagosei Group. In response to rising demand in the semiconductor sector, we have put in place a two-plant system to ensure stable production and supply of liquid hydrogen chloride, as well as a business continuity plan (BCP), by establishing the Yokohama Plant and the Tokushima Plant as production bases for this mainstay product. In the high-purity inorganic chemicals business, we are fine-tuning our production and analytical technologies to enhance the product lineup with world-leading product quality. We will endeavor to further enhance quality and ensure stable supply while vigorously developing not only the Japanese market but also tapping growing overseas markets.

Our product lines in inorganic functional materials include additives for amenity care materials such as KESMON[®] inorganic deodorant and NOVARON[®] antimicrobial agent and those for electronic materials such as IXE[®] ion-trapping agent. Concern in society about odors has increased in line with greater preoccupation regarding cleanliness and needs for deodorants have led to the creation of a large market in recent years. KESMON[®] deodorant has immediate and lasting effectiveness for various odors. It is applicable to textiles to reduce sweat odor, air conditioners and air purifiers to remove indoor VOCs, and sheets and films for deodorizing household odors. We will improve the product supply system to meet diverse deodorizing needs. NOVARON[®] antimicrobial agent is contributing to a comfortable living environment by virtue of its antimicrobial and antiviral functions. In the electronics sector where particularly high reliability and durability are required, we are promoting the IXE[®] series of ion-trapping agents that trap impurity ions and enhance reliability of electronic components.

We aim at further growth and prosperity by leveraging the Group's expertise in enhancing purity and functionality of inorganic chemicals.

Addressing Social Issues

Advanced and diverse functions

Social issues

Increasing hygiene awareness is reflected in a growing preoccupation with odors, including antibacterial and antiviral measures. Hence the commercialization of many antiperspirants, deodorant sprays, antimicrobial wet wipes, and so on. Given the trend toward cleanliness and comfort, the challenge is to achieve products with more advanced and diverse functional features.

Toagosei Group's initiatives

KESMON[®] is a deodorizing agent developed by Toagosei that works by chemically reacting with the molecules that cause bad odors. It can help combat the various bad smells encountered in daily life, such as aldehyde gases inside houses or vehicles or the unpleasant odors from rotting food or drains, or else reduce the smell of sweat on clothing. Group subsidiary Aronkasei sells various nursing care products for consumers, including KESMON deodorizing sheets for portable toilets. Besides deodorizing agents, Toagosei is continuing to develop various functional inorganic products, including products with antimicrobial or antiviral functionality.



KESMON
deodorizing sheets

Business Overview and Growth Strategy

Plastics



Shinichi Sugiura

Director

President and Representative Director,
Aronkasei Co., Ltd.

Principal products

●Piping equipment

Polyvinyl chloride pipes and chambers contributing greatly to the diffusion of sewage systems.

PVC chambers and manholes



●Nursing care products



Portable toilets and other nursing care products are marketed under the Anjyu brand.



Portable toilets

Business Overview

Aronkasei Co., Ltd., a subsidiary engaged in the plastics business, developed the first rigid PVC piping product in Japan, called ARON PIPE. Since then, Aronkasei has been a pioneer in the field of piping equipment, offering joints, chambers and other items. Aronkasei is also a leading manufacturer of nursing care products, such as Anjyu brand portable toilets, utilizing its prowess in assembly and processing technologies. With ingenious manufacturing that leverages the attributes of plastics, Aronkasei is broadening its business field, which currently centers on piping equipment, nursing care products, and elastomers, from items that contribute to comfortable daily living to infrastructure development to sustain entire communities.

FY2016 Results and FY2017 Forecast

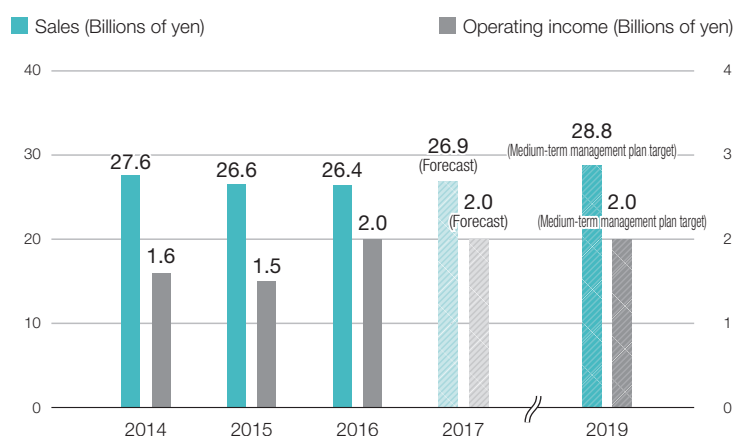
FY2016 Results

Sales of piping equipment decreased mainly due to declines in product prices reflecting intensifying competition in a severe market environment. Operating income rose primarily owing to increased sales of nursing care products and elastomer compounds combined with a decrease in variable manufacturing costs associated with a decline in the prices of major raw materials.

FY2017 Forecast

Although an increase in segment sales is forecast owing to increased sales of piping equipment and adjustment of sales prices, operating income is expected to be virtually unchanged because of higher raw materials prices and an increase in depreciation.

Sales and Operating Income by Segment



Medium- to Long-term Growth Strategy

The Plastics Segment consists of the piping equipment business, which supports the management base, and construction materials and civil engineering, nursing care products, and elastomer businesses, which have core roles in the growth strategy.

In the piping equipment business, following a decision taken in 2016 to reform the manufacturing system of the Kanto Plant (Ibaraki Prefecture), the Nagoya Plant (Aichi Prefecture), and the Onomichi Plant (Hiroshima Prefecture), the implementation phase has begun. In the construction materials and civil engineering business, a part of which, namely, sales of repair materials for construction and civil engineering, was transferred from Toagosei to Aronkasei in 2016, we pursued synergy between Aronkasei's sales and marketing capabilities and Toagosei's product development capabilities to expand the business.

In the nursing care products business, we worked to expand the business by introducing new products. Sales of rental products, namely wheeled walkers and handrails for outdoor use, exceeded the targets. Our major challenge is to expand the business in the field that is not covered by the long-term care insurance under Japanese law. The launch of the Ta-Da® Chair, which is a walking stick that can be transformed into a chair by one touch, heralded our initiatives in this regard.

The elastomer business achieved higher sales, supported by brisk sales for medical applications and beverages, as well as higher profit owing to reduced costs.

Under the new medium-term management plan, we will focus on reforming the three plants in the piping equipment business while working to expand sales by prioritizing measures for responding to incidents and aging of facilities. In the construction materials business, we intend to increase proposal-driven sales while working to capture demand associated with the Tokyo Olympics so as to further expand the business.

In the nursing care products business, in order to further expand business in the area not covered by long-term care insurance, we will strengthen development of products targeting active seniors and promote sales of nursing care products overseas centering on East Asia.

In the elastomer business, we will vigorously offer high-value-added products by developing products with new or enhanced functions while also considering overseas business development.

We will promote creation of new products by integrating the expertise of companies in the Toagosei Group and through collaboration. In addition, we intend to enhance productivity to reduce costs while at the same time making vigorous efforts to expand sales both in Japan and overseas.

Addressing Social Issues

Support for lifestyles of seniors

Social issues

With a quarter of the population already aged 65 or over, Japan will soon be a super-aged society. The constraints on the availability of hospital or nursing home beds mean that many will require care at home. The need to improve conditions for in-home care and reduce the burden on care givers is becoming an increasingly pressing social issue.

Toagosei Group's initiatives

Aronkasei is developing a line of nursing care products under the Anjyu brand to support safer and more comfortable in-home care for the elderly, including portable toilets and bathing chairs designed to make bathing easier for care givers. The Toagosei Group is committed to supporting better lifestyles for seniors through the manufacture and sale of nursing care products for use in various settings.



Bathing chairs

R&D

to Support Growth Strategy

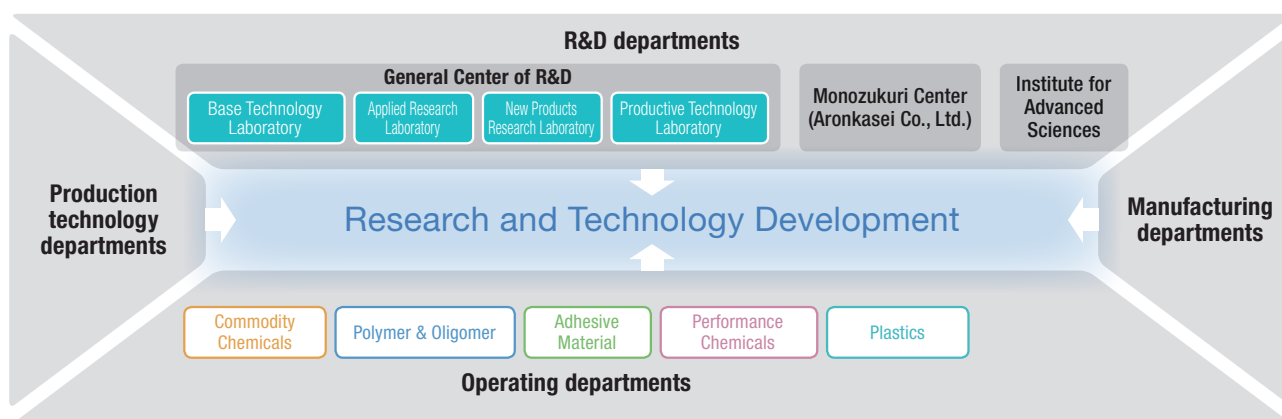
R&D at the Toagosei Group

Research and development needs to be focused on the businesses and technologies that will be needed 10 or 20 years from now. Leveraging the strengths of the Group, R&D teams strive to be the first to offer the world new high-value-added functionality rather than plain vanilla materials. On the research side, Toagosei endeavors to apply its technical core competences in new areas, conduct exploratory research to identify promising new technologies and functions, and gain the technical expertise needed to develop high-value-added products and new businesses.

R&D System

The Toagosei Group aims to benefit society while ensuring the Group's sustainable development by supplying a wide range of useful chemical products. To accelerate product development in existing areas and hasten the development of products in new areas with growth potential, the General Center of R&D management is organized so all R&D activities from basic and applied research to product and technical development are fully integrated, with research personnel deployed flexibly on key projects to maximize R&D efficiency. The Group invests significantly in personnel training to enhance the creativity and skills of individual researchers.

R&D System



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

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

“TREND” is available on the Toagosei website in Japanese.

From the top page, select R&D, and then select TREND.

<http://www.toagosei.co.jp/develop/theses/> (in Japanese only)



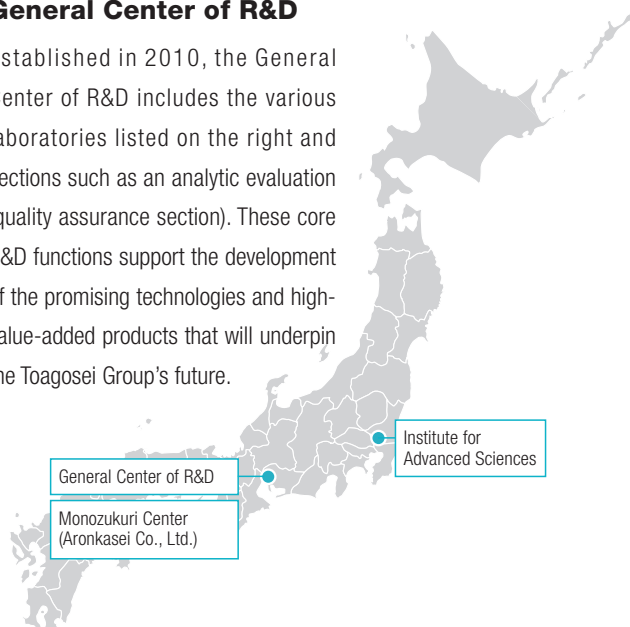


General Center of R&D

R&D bases and initiatives

General Center of R&D

Established in 2010, the General Center of R&D includes the various laboratories listed on the right and sections such as an analytic evaluation (quality assurance section). These core R&D functions support the development of the promising technologies and high-value-added products that will underpin the Toagosei Group's future.



General Center of R&D

Monozukuri Center
(Aronkasei Co., Ltd.)Institute for
Advanced Sciences

Base Technology Laboratory

- In addition to actively supporting research and development for your production lines, focusing on the four pillars of "analysis," "physical properties evaluation," "new synthesis," and "inquiry," we aim to establish elemental technologies that will constitute strengths of the Toagosei Group in the future.

Applied Research Laboratory

- We also conduct blue-skies research outside our current business and in areas where we lack the technologies to commercialize products, beginning from the first stage all the way to product realization.

New Products Research Laboratory

- We aim to develop new products in partnership with customers by leveraging the technologies we have cultivated through basic research, applied research, product development, and production technology development.

Productive Technology Laboratory

- In addition to improving production capability, reducing costs and enhancing qualities in existing business, we work together with the laboratories in the General Center of R&D to accelerate the development process.

Institute for Advanced Sciences

The mission of 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 Keio University.



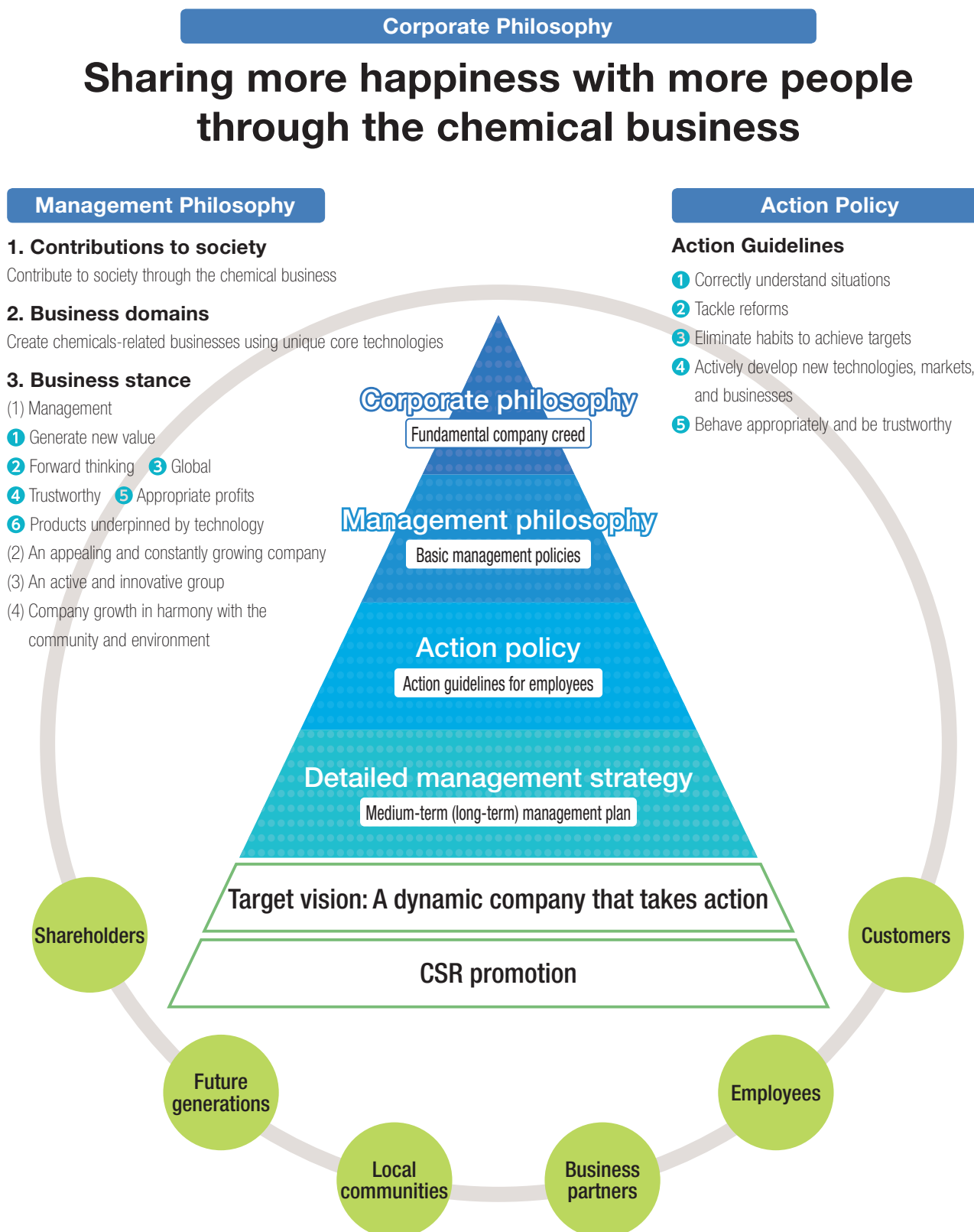
Monozukuri Center (Aronkasei Co., Ltd.)

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 elastomers and other products through collaboration with the General Center of R&D.



CSR Management

Toagosei Group's Corporate Philosophy and CSR



Toagosei Group's CSR

CSR Policy

The Toagosei Group formulates its CSR policy and carries out comprehensive citizenship activities based on its corporate philosophy of "sharing more happiness with more people through the chemical business."

CSR Policy

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

*Toagosei's stakeholders: Customers, shareholders, employees, local communities, business partners, and future generations

History of CSR Activities

1958	● Annual Environment and Safety Convention (current All TOA Responsible Care (RC) Convention) launched	2010	● Toagosei's ballast water purification agents gained final approval from the International Maritime Organization.
1993	● Corporate Philosophy established	2011	● Security and Export Control Rules established
	● Basic Policy for Responsible Care established	2012	● Toagosei Group Risk Management Rules established
1995	● Joined the Japan Responsible Care Council		● Participation in the Japan Initiative of Product Stewardship (JIPS), voluntary initiatives led by JCIA
1998	● Social Contribution Committee established		● Installation of an electrolysis system applying the gas-diffusion electrode method completed at Toagosei's Tokushima Plant.
2000	● Environmental accounting system introduced	2013	● Mandatory retirement age raised to 65 years old.
	● Support of the Long-range Research Initiative (LRI) of the Japan Chemical Industry Association (JCIA), voluntary research programs on the potential impacts of chemicals on human health and the environment	2014	● Toagosei's president signed the revised Responsible Care Global Charter of ICCA.
2001	● Executive officer system introduced		● Construction of the Tahara Solar/Wind Electricity Generation Plant completed
	● 2001 Environmental Report (1st edition of the report) published		● Compliance Handbook (1st edition) issued and distributed
2003	● First outside directors appointed		● Toagosei Group Basic Policy on Corporate Governance established
2004	● Toagosei Group Code of Conduct and Toagosei Group Manual of Behavioral Standards established	2016	● Transitioned to a company with an audit & supervisory committee
	● Compliance Committee and Corporate Ethics Helpline established		● Gained <i>Eruboshi</i> certification based on the Act on Promotion of Women's Participation and Advancement in the Workplace
2006	● Internal Control Section established		● Toagosei Group Report, an advanced CSR report facilitating stakeholders' understanding of the Group's business activities, published
	● Resolution on the basic policy for internal control systems	2017	
2008	● CSR Policy, including the CSR Committee strengthening the CSR promotion system covering Group companies, established		
	● CSR Report (enriching the former Environmental and Social Activities Report) published		
2009	● Toagosei's president signed the CEO's letter of commitment to the Responsible Care Global Charter of the International Council of Chemical Associations (ICCA).		※1 LRI : 人の健康や環境に及ぼす化学物質の影響に関する自主研究活動(Long-range Research Initiative)
	● Green Procurement Guidelines established		※2 ICCA : 国際化学工業協会協議会(International Council of Chemical Association)
			※3 JIPS : Japan Initiative of Product Stewardship

Communication with Stakeholders

Stakeholders	Target	Engagement opportunities
Customers	● Stable supply of high-quality, highly functional products	● Communication through sales & marketing activities, exhibitions, etc.
Shareholders	● Enhancement of corporate value, appropriate information disclosure, stable dividend payment	● Holding of a general meeting of shareholders etc. ● Appropriate information disclosure (legal disclosure, voluntary disclosure)
Employees	● Fostering of human resources ● Realization of a working environment conducive to employee self-fulfillment	● Provision of education and training ● Implementation of various systems ● Publication of the Group's internal newsletters
Local communities	● Co-existence with local communities	● Various activities in response to the needs of local communities (social contribution activities, dialogues with local residents, etc.)
Business partners	● Strengthening of the value chain through fair and equitable transactions	● Communication through purchasing activities
Future generations	● Fostering of future generations	● Internships ● Plant tours

CSR Management

CSR Now and in the Future

2016 CSR targets and initiatives

The Toagosei Group is promoting CSR management as the foundation for the growth strategy. Based on this recognition, we formulated the Toagosei Group CSR Policy and Targets for 2016. Breaking down the Group's targets, each Group company and department established its targets and promoted CSR activities integral to business activities. We implemented a PDCA cycle for CSR management, aiming to create a virtuous circle. Regarding human rights and diversity, we are strengthening initiatives to promote the work-life balance and women's participation and advancement while endeavoring to create a working environment where diverse people can bring their capabilities into full play while pursuing satisfying careers. Regarding occupational health and safety, we are continuing implementation of measures to prevent recurrence of accidents. Utilizing a tool developed by the Ministry of Economy, Trade and Industry for self-assessment of workplace capabilities, we appraise our workplaces to ensure safety. Our initiatives to document "know-why" have taken root. Regarding environmental protection, we halved the emissions of PRTR-specified substances in fiscal 2016 by introducing a new system. Risk assessment of chemical substances is performed so that the people handling chemical substances have an accurate understanding of those substances. Regarding product safety, we

greatly enhanced product labelling in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Regarding product assurance, implementation of measures to prevent recurrence of complaints and thorough sharing of information has reduced the number of complaints.

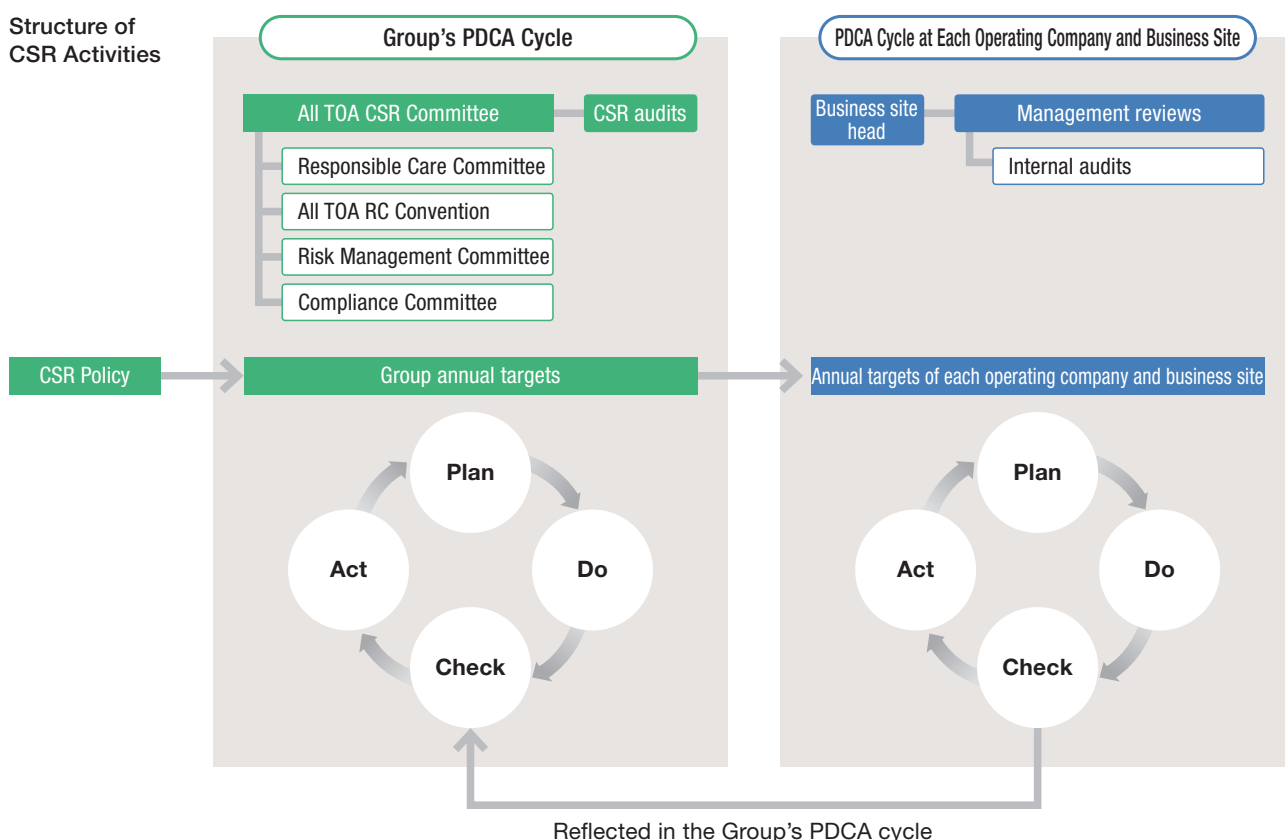
CSR Management

The Toagosei Group is continually improving CSR activities in accordance with the CSR 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 All TOA CSR 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.

Structure of CSR Activities



Functions and Activities of the Responsible Care Implementation Organization

Group's PDCA Cycle

All TOA CSR Committee

The All TOA CSR Committee is the highest decision-making body for deliberating and deciding upon policies, targets and plans to maintain and improve the status of the entire Group's CSR initiatives.

The 2016 All TOA CSR Committee meeting was held on November 7. The Committee reviewed CSR activities in 2016 in the fields of compliance, corporate governance, RC management, and social contribution & communication, and deliberated on CSR policies and targets for 2017.

CSR Audits

CSR audits are carried out prior to the CSR Committee meeting. Audit Administrators, designated by the Chairperson of the CSR Committee, visit each operating company and business site to audit the status of CSR initiatives. The results of these audits are reported back to the CSR Committee.

In 2016 CSR audits of 17 business sites, including four overseas subsidiaries, were conducted in the period from May to September. As a result of audits, there were 376 findings and recommendations and 50 good practices were noted. Audit results are shared throughout the Group to further improve CSR activities.

Responsible Care Committee

The Responsible Care (RC) Committee exhaustively examines the status of RC activities at each operating company and business site. It also considers how best to pursue RC activities in the following fiscal year.

The 2016 RC Committee meeting was held on October 26 and the Committee reviewed the status of implementation of RC activities and issues.

All TOA Responsible Care Convention

The All TOA Responsible Care (RC) Convention is held to enhance the quality of RC activities at each Group company and promote horizontal deployment of best practices.

At the 2016 All TOA RC Convention held at the Nagoya Plant on June 23 and 24, 12 cases of RC activities related to quality, the environment, and safety were presented. A panel discussion was held on the theme of the "Advent of the era for employment of the elderly," with panelists from four workplaces exchanging views (See page 50.) In addition, a guest speaker made a presentation on safety.

Risk Management Committee ▶ P.40

Compliance Committee ▶ P.41

PDCA Cycle at Each Operating Company and Business Site

Management Reviews

Management reviews are held by the heads of each business site in order to ensure the effectiveness of management systems, pursue continual improvement, and make changes where needed.



Internal Audits

Internal audits are carried out to objectively evaluate whether management systems are being operated and implemented effectively. Audit results are reported to management reviews.

ISO 9001/ISO 14001 Certification

	Operating company / Business site	Certification body	Registration	
			ISO9001	ISO14001
Japan	Toagosei, MT AquaPolymer Sakaide Plant, Oita Chemical, Toa Business Associe, Toa Logistics, Shikoku Toa Logistics, Hokuriku Toa Logistics, Aron Packaging, TG Corporation, Toa Kenso, Toa Techno-Gas, Toa Kogyo, MT Ethylene Carbonate Head Office	LRQA	December 1995	December 1998
	Aronkasei	Japan Chemical Quality Assurance (JCQA)	December 2001	April 2002
Overseas	Toagosei Singapore (Singapore)	LRQA	December 2001	January 2007
	Toagosei America (U.S.)	Smithers Quality Assessments	March 1998	April 2011
	TOA-DIC Zhangjiagang Chemical (China)	SGS	May 2009	May 2009
	Toa-Jet Chemical (Taiwan)	AFNOR Asia	July 2010	—

Overview of CSR Activities

Classification	Focus in 2016	Targets for 2016
 Corporate Governance	<ul style="list-style-type: none"> Strengthening of corporate governance 	<ul style="list-style-type: none"> Strengthening of corporate governance <ol style="list-style-type: none"> Efficient self-inspection Periodic check of Group companies
	<ul style="list-style-type: none"> Strengthening of responses to risk 	<ul style="list-style-type: none"> Strengthening of risk management <ol style="list-style-type: none"> Joint crisis response drill by the head office and sites Periodic risk assessment about BCP etc. by the Risk Management Committee
	<ul style="list-style-type: none"> Timely and appropriate information disclosure to stakeholders 	<ul style="list-style-type: none"> Effective information dissemination from the Group's perspective
 Compliance	<ul style="list-style-type: none"> Inculcation of awareness of the vital importance of compliance. Thorough understanding of laws and regulations relevant to operations 	<ul style="list-style-type: none"> Inculcation of compliance consciousness <ol style="list-style-type: none"> Ongoing compliance education Continuous monitoring by the Compliance Committee No major violation, including administrative guidance
	<ul style="list-style-type: none"> Mitigation of global warming 	<ul style="list-style-type: none"> CO₂ emissions: 408k tons
	<ul style="list-style-type: none"> Waste reduction and recycling 	<ul style="list-style-type: none"> Volume of waste discharged externally: 10% reduction year on year Final landfill volume: 5 tons or less
 Environmental Protection	<ul style="list-style-type: none"> Reduction of emissions of chemical substances 	<ul style="list-style-type: none"> Emissions of substances subject to PRTR: 60 tons or less
	<ul style="list-style-type: none"> Strengthening of accident prevention measures 	<ul style="list-style-type: none"> Zero explosion or fire accidents Zero serious leakage accidents of harmful substances or hazardous materials
	<ul style="list-style-type: none"> Promotion of the Zero-accident Campaign 	<ul style="list-style-type: none"> Zero lost-time injuries (employees and partner business sites)
 Occupational Health and Safety	<ul style="list-style-type: none"> Appropriate responses to chemical substance management policies 	<ul style="list-style-type: none"> Product label compliance with the revised Industrial Safety and Health Act
	<ul style="list-style-type: none"> Enrichment of green procurement 	<ul style="list-style-type: none"> Preparation and registration of purchase specifications
	<ul style="list-style-type: none"> Continuous improvement of product quality 	<ul style="list-style-type: none"> Total number of complaints: 215 or fewer
 Quality Assurance	<ul style="list-style-type: none"> Enhancement of quality and safety of physical distribution 	<ul style="list-style-type: none"> Reduction in the number of physical distribution problems
	<ul style="list-style-type: none"> Respect for human rights and diversity 	<ul style="list-style-type: none"> Maintenance of an employment rate of persons with disabilities of 2.0% Promotion of work-life balance (achievement of an average annual paid leave usage rate of 100%) Promotion of active participation by women Promotion of active participation by employees over 60
	<ul style="list-style-type: none"> Enrichment of social contribution activities 	<ul style="list-style-type: none"> Support for nature conservation, beautification and greening, and culture and sports activities Charitable donations and gifts Thorough aesthetic maintenance activities in the vicinity of business sites
 Enhancement of Contributions to Society and Communication	<ul style="list-style-type: none"> Harmonious coexistence with local communities 	<ul style="list-style-type: none"> Expansion of community dialogues Dissemination of company information

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%)

Results in 2016	Achievement	Targets for 2017	Relevant page(s)
<ul style="list-style-type: none"> Each site and operating company performed periodic self-inspection, physical inventory count, internal control audits, etc. appropriately. Received minutes of meetings of the Boards of Directors of Group companies and checked the details 	★★★★	<ul style="list-style-type: none"> Strengthening of corporate governance <ol style="list-style-type: none"> Efficient self-inspection Periodic check of Group companies 	P37
<ul style="list-style-type: none"> The head office and sites jointly conducted a crisis response drill. The Risk Management Committee performed periodic risk assessment about BCP, etc. 	★★★★	<ul style="list-style-type: none"> Strengthening of risk management <ol style="list-style-type: none"> Joint crisis response drill by the head office and sites Periodic risk assessment about BCP etc. by the Risk Management Committee 	P37 P40
<ul style="list-style-type: none"> The content of the shareholder newsletter and various other publications and media enriched 	★★★★	<ul style="list-style-type: none"> Effective information dissemination from the Group's perspective 	
<ul style="list-style-type: none"> Group-wide education about the Subcontractor Act and education at workplaces using the Compliance Handbook etc. held The Compliance Committee met periodically and conducted continuous monitoring. 	★★★★	<ul style="list-style-type: none"> Inculcation of compliance consciousness (Ongoing compliance education) Continuous monitoring and check by the Compliance Committee 	P41
<ul style="list-style-type: none"> Target not achieved. Received administrative guidance 	★	<ul style="list-style-type: none"> No major violation, including administrative guidance 	
<ul style="list-style-type: none"> CO₂ emissions: 395k tons 	★★★★	<ul style="list-style-type: none"> CO₂ emissions: 376k tons or less 	
<ul style="list-style-type: none"> Volume of waste discharged externally: 9,160 tons (2% reduction year on year) Final landfill volume: 50 tons (including waste associated with removal of facilities and periodic cleaning) 	★	<ul style="list-style-type: none"> Volume of waste discharged externally: 8,170 tons or less (5% reduction year on year) Final landfill volume: 0.5 tons or less *Excluding the volume associated with removal of facilities and buildings for both indicators 	P43 P47
<ul style="list-style-type: none"> Emissions of substances subject to PRTR: 42 tons 	★★★★	<ul style="list-style-type: none"> Emissions of substances subject to PRTR: 42 tons or less 	
<ul style="list-style-type: none"> Two incidents (tank damage, exhaust gas ignition due to a lightning strike) 	★	<ul style="list-style-type: none"> Zero explosion or fire accidents 	P48
<ul style="list-style-type: none"> One incident of exceeding effluent standards 	★	<ul style="list-style-type: none"> Zero serious leakage accidents of harmful substances or hazardous materials 	
<ul style="list-style-type: none"> Five lost-time injuries (1 incident involving an employee and 4 at partner business sites) 	★	<ul style="list-style-type: none"> Zero lost-time injuries (employees and partner business sites) 	P49 P50
<ul style="list-style-type: none"> Compliance completed 	★★★★	<ul style="list-style-type: none"> Strengthening of product label management 	P51
<ul style="list-style-type: none"> Preparation and registration completed as planned 	★★★★	<ul style="list-style-type: none"> Preparation and registration of purchase specifications 	
<ul style="list-style-type: none"> Total number of complaints: 226 	★★	<ul style="list-style-type: none"> Total number of complaints: 200 or fewer 	P52
<ul style="list-style-type: none"> Target number not achieved 	★★	<ul style="list-style-type: none"> Reduction in the number of physical distribution problems 	P53
<ul style="list-style-type: none"> Maintained an employment rate of persons with disabilities above 2.0% 	★★★★	<ul style="list-style-type: none"> Maintenance of an employment rate of persons with disabilities of 2.0% 	
<ul style="list-style-type: none"> Target not achieved (Group average annual paid leave usage rate of 87.9%) 	★★	<ul style="list-style-type: none"> Promotion of work-life balance (achievement of an average annual paid leave usage rate of 100%) 	
<ul style="list-style-type: none"> Formulated and announced an action plan for promoting active participation by women based on the Act to Advance Women's Success in Their Working Life Increased job categories open to women in manufacturing departments, formulated regulations that promote return of women to work Progress of measures to promote active participation by employees over 60 was behind schedule 	★★	<ul style="list-style-type: none"> Promotion of active participation by women (execution of the action plan for promoting active participation by women) 	P54
<ul style="list-style-type: none"> Employees participated in volunteer activities, cleanup activities, social welfare events in communities, etc. Cooperated in sports festivals and other community events; opened grounds, gymnasiums, and other company facilities to the public Participated in and donated to an overseas study support program; donated money for disaster relief in stricken areas; donated money and gifts to social welfare organizations and local governments 	★★★★	<ul style="list-style-type: none"> Support for nature conservation, beautification and greening, and culture and sports activities Charitable donations and gifts Participation in the Human Resources Fostering Program in Chemistry, diversity promotion, and other projects 	P58 P59
<ul style="list-style-type: none"> Periodically engaged in inspection patrols and cleanups on the periphery of plants 	★★★★	<ul style="list-style-type: none"> Thorough aesthetic maintenance activities in the vicinity of business sites 	
<ul style="list-style-type: none"> Conducted plant tours and workplace tours Participated and cooperated in community disaster prevention drills Business sites and Group companies held meetings with community groups and community dialogues. 	★★★★	<ul style="list-style-type: none"> Expansion of community dialogues Dissemination of company information 	

Corporate Governance

P Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
<ul style="list-style-type: none"> Strengthening of corporate governance <ol style="list-style-type: none"> 1)Efficient self-inspection 2)Periodic check of Group companies 	<ul style="list-style-type: none"> Each site and operating company performed periodic self-inspection, physical inventory count, internal control audits, etc. appropriately. Received minutes of meetings of the Boards of Directors of Group companies and checked the details 	★ ★ ★	<ul style="list-style-type: none"> Strengthening of corporate governance <ol style="list-style-type: none"> 1)Efficient self-inspection 2)Periodic check of Group companies
<ul style="list-style-type: none"> Strengthening of risk management <ol style="list-style-type: none"> 1)Joint crisis response drill by the head office and sites 2)Periodic risk assessment about BCP etc. by the Risk Management Committee 	<ul style="list-style-type: none"> The head office and sites jointly conducted a crisis response drill. The Risk Management Committee performed periodic risk assessment about BCP, etc. 	★ ★ ★	<ul style="list-style-type: none"> Strengthening of risk management <ol style="list-style-type: none"> 1)Joint crisis response drill by the head office and sites 2)Periodic risk assessment about BCP, etc. by the Risk Management Committee
<ul style="list-style-type: none"> Effective information dissemination from the Group's perspective 	<ul style="list-style-type: none"> The content of the shareholder newsletter and various other publications and media enriched 	★ ★ ★	<ul style="list-style-type: none"> Effective information dissemination from the Group's perspective

Directors



Outside Director

Etsuo Sakai

Outside Director

Satoru Nakanishi

Director
(Audit & Supervisory
Committee Member)

Hideo Kato

Outside Director
(Audit & Supervisory
Committee Member)

Kazuo Hara

Outside Director
(Audit & Supervisory
Committee Member)

Tsutomu Harada

Outside Director
(Audit & Supervisory
Committee Member)

Yasuo Kitamura

Director
President and
Representative Director,
Aronkasei Co., Ltd

Shinichi Sugiura

Director
General Manager,
Group Management
Division

Katsuyuki Ito

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

Soichi Nomura

President and
Representative Director

Mikishi Takamura

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

Nobuhiro Ishikawa

Director
General Manager,
Supply Chain
Management Division

Akira Komine

Director
General Manager,
Administrative Division

Yoshitaka Suzuki

Corporate Governance System

Basic Approach

The Toagosei Group established the Toagosei Group Basic Policy on Corporate Governance on February 4, 2016. Based on the corporate philosophy of "sharing more happiness with more people through the chemical business," the Group strives to fulfil its corporate social responsibility by positioning the enhancement of corporate governance as a key priority for management. The Group pursues transparent, fair, swift and resolute decision-making through effective corporate governance, in order to achieve sustainable growth and to increase its corporate value over the medium and long term. The Group is committed to the continuous enhancement of corporate governance.

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

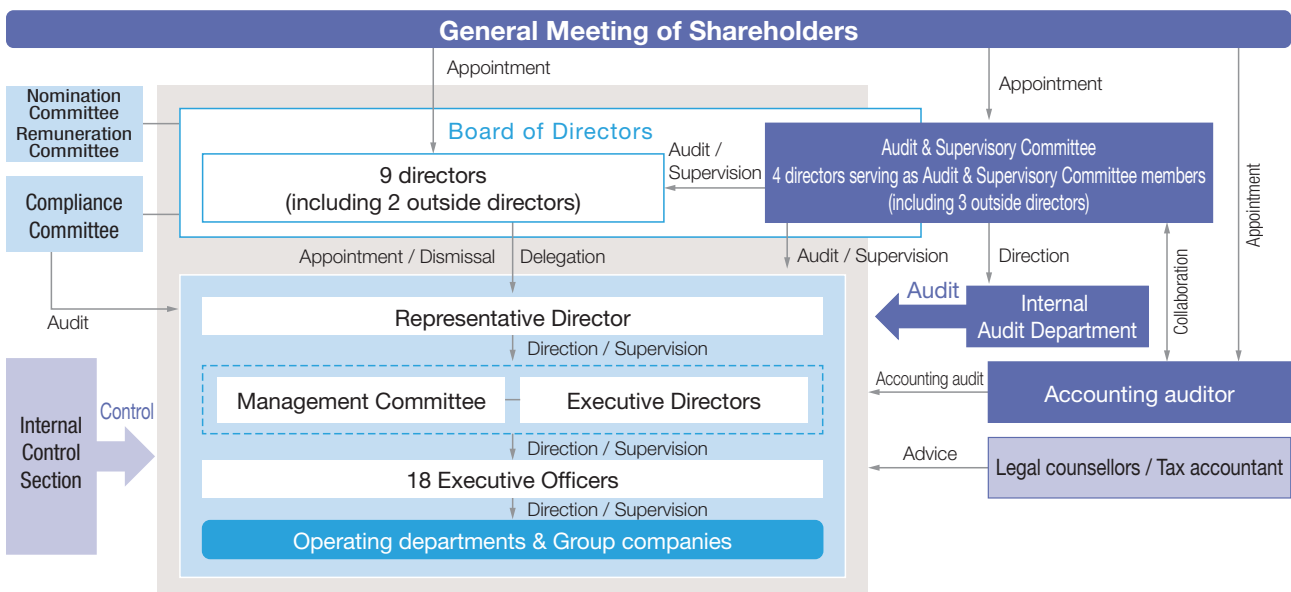
1. Respect shareholders' rights and ensure their equality.
2. Consider the interests of various stakeholders, including shareholders, customers, business partners, employees and local communities. Build good relationships with these stakeholders and cooperate appropriately with them.
3. Disclose corporate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

Corporate Governance System

The Company transitioned to a company with an audit & supervisory committee on March 30, 2016. Audit & Supervisory Committee members, including several independent outside directors, have voting rights on the Board of Directors so that audit and supervision over business execution have been strengthened. The Articles of

Incorporation provide that important decision-making for management may be delegated in whole or in part to directors. Thus, a system is in place that separates supervision and business execution and enables swift decision-making with regard to business execution.

Corporate Governance System



Corporate Governance

Management System

The Board of Directors, consisting of seven internal directors, two outside directors who have no interest in Toagosei, and four directors who also serve as Audit & Supervisory Committee members (of whom three are outside directors), makes decisions on important management matters stipulated by laws and regulations and the Articles of Incorporation and supervises business execution. In addition, the Management Committee consisting of executive directors meets every week, in principle. As well as deliberating on and reporting important management matters, the Management Committee also functions as an organ for prior review of matters to be discussed by the Board of Directors.

Toagosei has an executive officer system for swift decision-making and efficient business execution. Terms of office of directors and executive officers are one year to clarify their responsibilities for business execution.

Audit System

The Audit & Supervisory Committee consists of four directors (including three outside directors). Audit & Supervisory Committee members attend important meetings and request the Group's

directors, executive officers, employees, and the accounting auditor to provide timely and appropriate reports and thereby audit legal compliance with respect to performance of duties by directors and other officers, appropriateness of the Company's business operations, internal control, financial conditions, and other matters.

The Internal Audit Department has been established to assist Audit & Supervisory Committee members with their duties. The Internal Audit Department is staffed with several employees who are assigned to the Internal Audit Department on a full-time basis. The Audit & Supervisory Committee members are endeavoring to conduct effective audits by sharing necessary information with the accounting auditor and the Internal Control Section.

Internal Control

The Basic Policy on Internal Control has been established by the resolution of the Board of Directors in order to strengthen corporate governance. In accordance with this policy, duties related to internal audits are performed by the Internal Audit Department, which is an organization independent from management and follows the guidance and instruction of the Audit & Supervisory Committee. The department conducts internal audits to monitor the Toagosei Group's compliance

Messages from Outside Directors



Etsuo Sakai, Outside Director

(Professor, Graduate School of Materials and Chemical Technology, Tokyo Institute of Technology)

The Toagosei Group is making a concerted effort to achieve sustainable growth and increase corporate value over the medium to long term through creation of new products and new businesses. I am committed to contributing to the Group's sound development and growth through my involvement in decision-making on important management matters and audit and supervision of business execution from an independent perspective as an outside director of Toagosei, utilizing my expert knowledge and experience cultivated as a professor specializing in materials and chemical technology. I am resolved to do my utmost to meet the expectations of Toagosei's various stakeholders, including shareholders, local communities, customers, business partners, and employees.



Kazuo Hara, Outside Director

(Audit & Supervisory Committee Member)

Toagosei transitioned from a company with a board of auditors to a company with an audit & supervisory committee in March 2016 in order to swiftly and accurately respond to change in the business environment. The Audit & Supervisory Committee consisting of four directors serving as Audit & Supervisory Committee members (of whom three are outside directors) audits and supervises the Board of Directors' business execution from a stance independent of the Board of Directors. I am endeavoring to conduct highly effective audits and supervision, utilizing my knowledge and experience concerning accounting and tax affairs as a tax accountant so that Toagosei can achieve sustainable growth and higher corporate value over the medium to long term based on a fair and highly transparent corporate governance system.

and appropriateness of business operations.

The Internal Control Section performs duties related to internal control (duties to ensure appropriate financial reporting), based on Japan's internal control reporting system (J-SOX). A system has been established such that the Internal Audit Department and the Internal Control Section collaborate and function effectively to ensure that the Group's business operations as a whole are conducted appropriately in compliance with the relevant laws and regulations.

Measures for continuous strengthening of corporate governance

Fiscal year	Item
2001	Executive officer system introduced
2003	Appointment of outside directors started
2006	Internal Control Section established Basic Policy on Internal Control established by resolution
2016	Toagosei Group Basic Policy on Corporate Governance established Transition to a company with an audit & supervisory committee

Risk Management

Risk Management Committee

Based on the Toagosei Group Risk Management Rules, the Toagosei Group has established the Risk Management Committee. To manage risks to which the Group is exposed, the Committee regularly identifies and assesses risks, formulates risk countermeasures, and checks the status of the countermeasures.

Potential risks

- Natural disaster / infectious disease
- Other risks related to the external environment
- Environmental and safety risk
- Product risk
- Legal risk
- Public communications-related risk
- Financial risk
- Personnel and labor risk
- Geopolitical risk
- Economic risk
- Social risk

Review of the Business Continuity Plan (BCP)

In 2016, training was conducted through collaboration among sales departments, operating departments, logistics departments, and purchasing departments, assuming that an explosion occurred at a plant of Toagosei. The issues identified by the training were discussed at a meeting of the Risk Management Committee and actions for improvement have been implemented.

Response in the Event of a Crisis

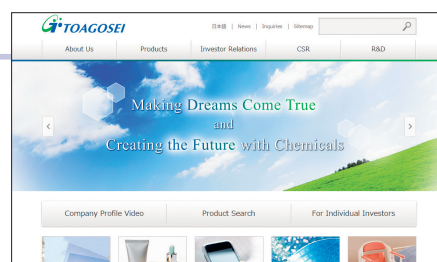
Based on the Toagosei Group Risk Management Rules, the Toagosei Group has established the Toagosei Group Crisis Response Rules that specify concrete measures in the event of a crisis. Moreover, the Emergency Action Manuals have been prepared according to phenomena and sites and training is conducted regularly. In 2016, joint crisis training was held by Toagosei's head office and Tokushima Plant and by Aronkasei's head office and Nagoya Plant.

Information Leakage Risk Countermeasures

In accordance with the rules related to information control, the Toagosei Group has prepared and is continuously updating a list of confidential information in which trade secrets are identified as part of countermeasures for the risk of information leakage. In addition to education for inculcating awareness of the importance of information management, we are continuously improving the information security system. In 2016, the Group conducted training to deal with targeted email attacks and raised employee awareness about the risk of virus infection.

Information Disclosure

Toagosei is endeavoring to disclose information on the Group appropriately in a timely manner based on the laws and regulations as well as rules and regulations stipulated by the Tokyo Stock Exchange. Moreover, we hold a briefing for analysis of financial results. Our proactive information disclosure also includes publication of the Toagosei Group Report, which is a combination of a CSR report with information on business strategies, and enrichment of disclosure in English, in order to facilitate stakeholders' understanding of the Toagosei Group.



Toagosei's Corporate Website

We are enriching information disclosure on the corporate website.

<http://www.toagosei.co.jp/english>



Compliance

P Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
<ul style="list-style-type: none"> Inculcation of compliance consciousness 1) Ongoing compliance education 2) Continuous monitoring by the Compliance Committee 	<ul style="list-style-type: none"> Group-wide education about the Subcontractor Act and education at workplaces using the Compliance Handbook, etc. held The Compliance Committee met periodically and conducted continuous monitoring. 	★★★	<ul style="list-style-type: none"> Inculcation of compliance consciousness (Ongoing compliance education) Continuous monitoring and check by the Compliance Committee
<ul style="list-style-type: none"> No major violation, including administrative guidance 	<ul style="list-style-type: none"> Target not achieved. Received administrative guidance. 	★	<ul style="list-style-type: none"> No major violation, including administrative guidance

Corporate Ethics and Legal Compliance

Code of Conduct and Manual of Behavioral Standards

As guidelines on the behavior required of all officers and employees and to support them in their efforts to be exemplary citizens, the Toagosei 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 published in 2014 to ensure employee awareness.

Compliance Committee

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

Corporate Ethics Helpline

The Group has both in-house and external Corporate Ethics Helplines, which are whistleblower hotline systems for early detection and resolution of compliance issues.

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 consciousness. In 2016, we conducted education according to positions for new employees and managerial personnel and Group-wide education about the Subcontractor Act. Workplaces took initiatives and held education utilizing the Compliance Handbook.

Compliance regarding Business Activities

In order to ensure that the Group's business activities are in compliance with laws and regulations, we distribute tools for awareness enhancement and conduct reviews by internal organizations. For example, regarding the Antimonopoly Act and the Subcontractor Act, the Antimonopoly Act Compliance Manual states Toagosei's guidelines and describes initiatives and the Compliance Handbook specifies dos and don'ts. Employing both "soft" and "hard" approaches, we are working to prevent any violation. For example, revising product prices requires review by the Antimonopoly Act Compliance Committee. To raise overall awareness about compliance, the Compliance Handbook covers matters for which care should be exercised in connection with business activities, such as the use of social media and the need for thorough information management.

T O P I C S

Ongoing Compliance Education

In addition to the Group-wide compliance education by e-learning and other means, we are stepping up education at each Group company. In 2016, Aronkasei held an in-house seminar on the risks concerning contracts. By making a concerted effort to maintain the tempo of compliance education, the Group is endeavoring to inculcate awareness of the vital importance of compliance.



In-house seminar on contracts
(at Aronkasei head office)

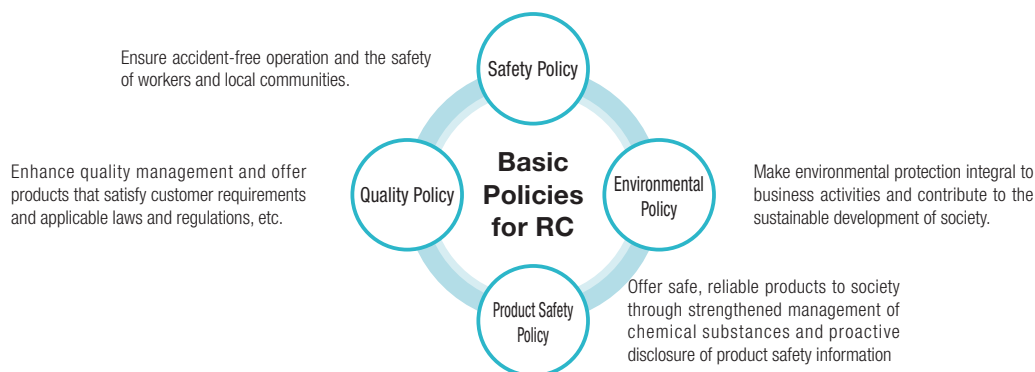
Responsible Care Management

Basic policies for RC

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

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

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



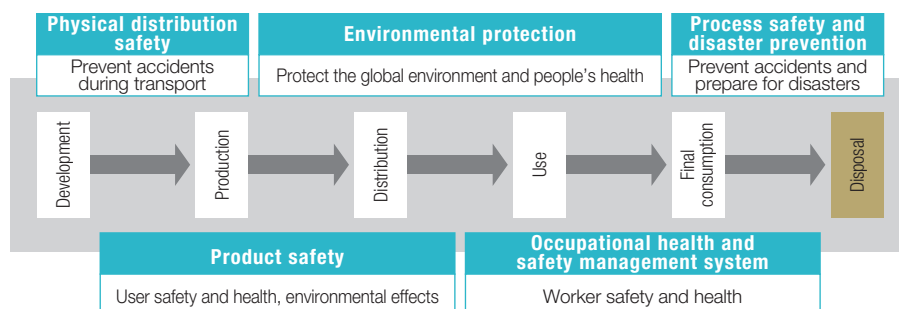
Toagosei Group and Responsible Care

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

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

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

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





Environmental Protection

P Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
<ul style="list-style-type: none"> CO₂ emissions: 408k tons Volume of waste discharged externally: 10% reduction year on year Final landfill volume: 5 tons or less 	<ul style="list-style-type: none"> CO₂ emissions: 395k tons Volume of waste discharged externally: 9,160 tons (2% reduction year on year) Final landfill volume: 50 tons (including waste associated with removal of facilities and periodic cleaning) Emissions of substances subject to PRTR: 42 tons 	<ul style="list-style-type: none"> ★ ★ ★ ★ ★ ★ ★ 	<ul style="list-style-type: none"> CO₂ emissions: 376k tons or less Volume of waste discharged externally: 8,170 tons or less (5% reduction year on year) Final landfill volume: 0.5 tons or less *Excluding the volume associated with removal of facilities and buildings for both indicators Emissions of substances subject to PRTR: 42 tons or less

Global Warming Mitigation Measures

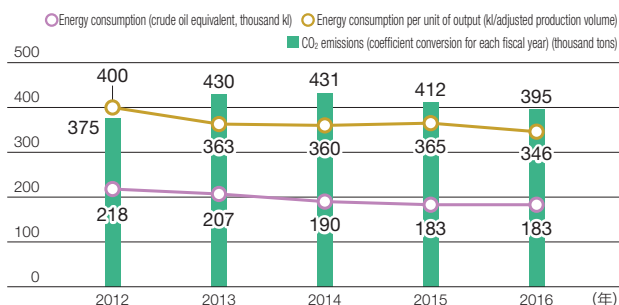
Reducing CO₂ Emissions by Reducing Energy Consumption

The Toagosei Group engages in energy-saving activities to reduce CO₂ emissions. While energy consumption at manufacturing bases in Japan in 2016 decreased slightly on a crude oil equivalent basis, CO₂ emissions decreased 17,000 tons, or 4%, year on year. Following improvement due to the introduction of gas diffusion electrodes at the Tokushima Plant in 2013, energy consumption per unit of output was flat until 2015. However, it improved 5.2% year on year in 2016 because of an increase in production volume. We will continue to

rigorously manage energy consumption per unit of output through improvement in production efficiency.

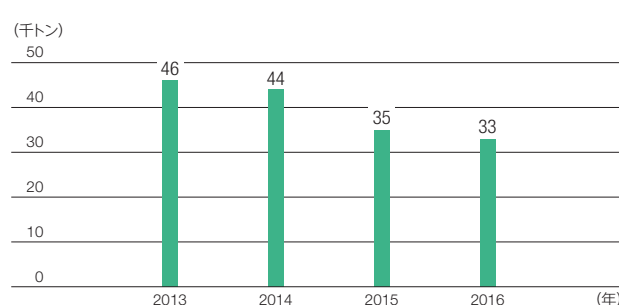
We have reported CO₂ emissions at our five overseas production sites in this report since 2013. We achieved a 28% decrease in total CO₂ emissions in 2016 from the 2013 level. We will now set targets in light of the global targets until 2030 adopted in the Paris Agreement (COP21) and take measures to further reduce CO₂ emissions.

Five-year Change in Energy Consumption and CO₂ Emissions



*The CO₂ emissions increase in 2013 is attributable to a dramatic increase in the CO₂ emissions coefficient for electric power as a result of the Great East Japan Earthquake.

Four-year Change in CO₂ Emissions at Five Overseas Production Sites*



*Scope of reporting: five overseas production sites

- Toagosei America Inc.
- Toagosei (Zhuhai) Limited
- Toagosei Singapore Pte Ltd.
- TOA-DIC Zhangjiagang Chemical Co., Ltd.
- Toa-Jet Chemical Co., Ltd.

Environmental Communication

In pressing ahead with management that emphasizes compliance, the Group engages in business activities based on compliance with environment-related laws and regulations. Our business sites have concluded pollution prevention agreements with prefectures and municipalities and engage in environmental management in unison with government and local communities.

Accident and Complaints Information

- In 2016, there was one incident of exceeding effluent standards reported to the competent authority. To prevent any reoccurrence, we are improving facilities and work procedures and reviewing effluent control systems.

Status of Conclusion of Pollution Prevention Agreements

Company	Parties to pollution prevention agreements
Toagosei	Nagoya Plant (Nagoya City), Yokohama Plant (Yokohama City), Takaoka Plant (Takaoka City), Tokushima Plant (Tokushima Prefecture, Tokushima City, Kitajima Town), Hirono Plant (Hirono Town), Institute for Advanced Sciences (Tsukuba City)
Aronkasei	Kanto Plant (Koga City)
Oita Chemical	Oita Plant (Oita Prefecture, Oita City)
MT Ethylene Carbonate	Osaka Plant (Takaishi City)

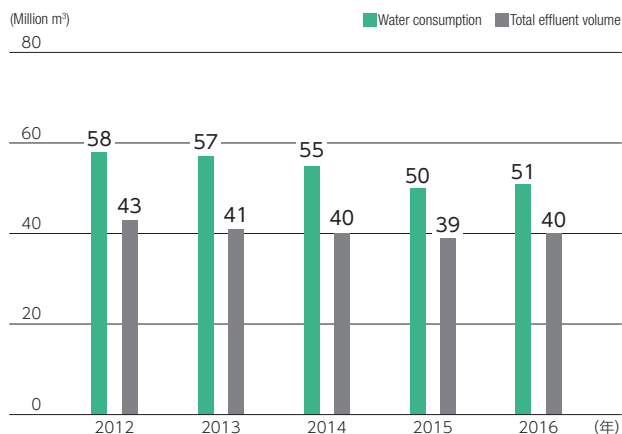
Environmental Impact Reduction Measures

Protection of Water Quality

The Toagosei Group considers water a limited resource and strives to promote its efficient use. Accompanying a production increase, the Group's water consumption in Japan rose 2.4% year on year to 51 million m³, and total effluent volume rose 2.8% to 39 million m³. To comply with government effluent emission standards and regulation values in agreements with local communities for biological oxygen demand (BOD), hydrogen-ion exponent (pH), and other indicators, we set voluntary control values and rigorously control effluents. At plants adjacent to semi-enclosed sea areas (Tokyo Bay, Ise Bay, Seto Inland Sea), we have installed automatic measurement systems for chemical oxygen demand (COD), total nitrogen, and total phosphorous and support management of total volume control.

At our five overseas production sites (shown on the previous page) as well, we manage water resource consumption in compliance with the effluent regulations of each country. Total water consumption at the overseas production sites in 2016 was 0.2 million m³.

Five-year Change in Water Consumption in Japan



Protection of Air Quality

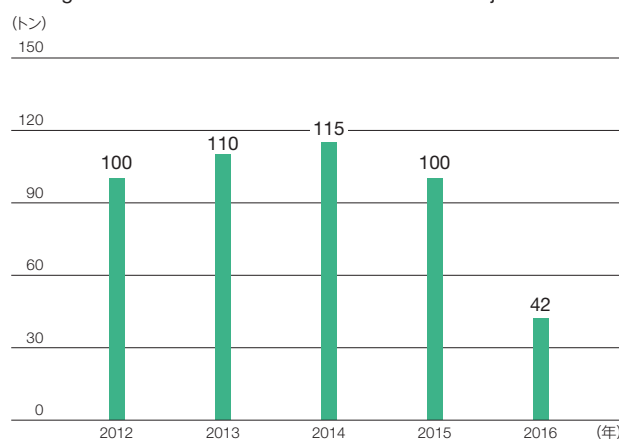
To comply with government emissions standards and regulation values in agreements with local communities for sulfur oxides (SOx), nitrogen oxides (NOx), and dust, the Group sets voluntary control values and rigorously controls exhaust. We are reducing emissions of SOx, NOx, and dust by improving facilities such as conversion of plant boiler fuel from heavy oil to natural gas (utility gas).

Chemical Substance Emissions Reduction

The Group's business sites submit notifications in compliance with the Law concerning Pollutant Release and Transfer Register (PRTR Law). In 2016, we reduced emissions of chloromethane (methyl chloride) at the Sakaide Plant, which accounted for a large proportion of PRTR-controlled substances up to 2015, by 49 tons from the previous year using new absorption and removal facilities put into operation in November 2015.

We accurately ascertained the Group's emissions reductions and emissions volumes for other substances subject to PRTR and reduced emissions by 58 tons from the previous year.

Change in Emissions of Chemical Substances Subject to PRTR



Emissions of Principal Substances Subject to PRTR (t)

Major emissions	2015	2016
Chloromethane (methyl chloride)	65.9	17.2
Dichloromethane (Methylene chloride)	7.1	10.1
Chloroethylene (vinyl chloride)	7.2	7.6
Toluene	2.6	2.3



Environmental Protection

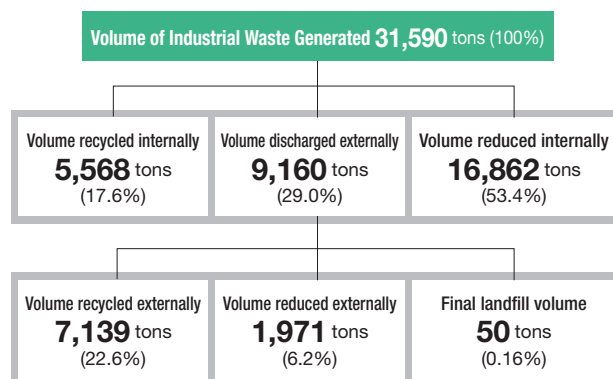
Initiatives to Realize a Recycling Society

Reduction in Final Landfill Volume and Waste Recycling Measures

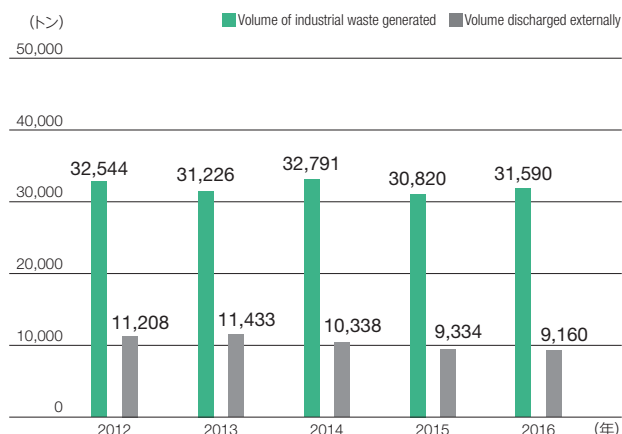
The Group's final landfill volume in 2016 was approximately 50 tons, and the final landfill rate was 0.16%. Until now, at the Nagoya Plant once every few years several dozen tons of waste accompanying the manufacture of iron (III) chloride solution has been disposed of by landfill, and 2016 was one such year. However, because of updating of facilities for treating wastewater containing iron (III) chloride, we expect to maintain a final landfill rate of less than 0.1% in fiscal 2017 and beyond.

Although the volume of industrial waste discharged externally decreased to 9,160 tons from 9,334 tons the previous year, we were unable to achieve our target of a 10% reduction year on year.

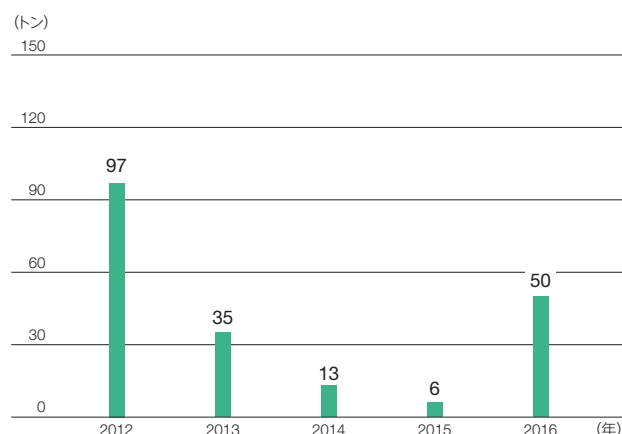
Industrial Waste Disposal Flow



Change in Volume of Industrial Waste Generated and Volume Discharged Externally



Change in Industrial Waste Final Landfill Volume



Environmental Accounting

The Toagosei Group introduced environmental accounting in 2000 to ascertain costs related to environmental activities and their benefits and to utilize the data as a basis for decision-making for the purpose of engaging in more efficient environmental protection activities. We have disclosed the details to stakeholders to facilitate understanding of our environmental posture. In 2016, we actively updated energy-saving equipment. We are continuously investing in facilities improvement, operation, and maintenance to prevent emissions of harmful substances into the atmosphere and hydrosphere. We also continuously engage in research and development that contributes to environmental protection.

● **Scope of calculations:** The companies and business sites listed on page 47 (Business Activities and Environmental Impacts).

● **Period covered:** January 1 to December 31, 2016

● **Calculation method:**

- 1) Calculations are based on Toagosei's accounting rules prepared with reference to the Ministry of the Environment's Environmental Accounting Guidelines (2005).
- 2) Complex costs, which include costs for purposes other than environmental protection, are proportionately divided in accordance degree of impact on the environment and treated as environmental costs.
- 3) Investment amounts are treated as budget amounts, and expense amounts are treated as actual costs.
- 4) Items for which benefits can be clearly calculated are presented in monetary value and in physical units. However, benefits that are difficult to quantify, such as risk avoidance and deemed benefits, are excluded.

Environmental Investment and Cost by Category

Environmental Protection Cost Categories (Major items)		Investment (Millions of yen)	Cost (Millions of yen)
(1) Business Area Cost		1,225	5,533
Breakdown	1) Pollution Prevention Cost (cost for preventing air pollution, cost for preventing water pollution)	751	4,825
	2) Global Environmental Protection Cost (cost for preventing global warming and energy conservation, cost for preventing ozone depletion)	254	394
	3) Resource Circulation Cost (cost for efficient utilization of resources, cost for recycling and disposal of industrial waste)	220	314
(2) Upstream / Downstream Costs (cost generated in upstream and downstream business areas associated with production and service activities: green purchasing, etc.)		21	4
(3) Administration Cost (cost for the implementation and maintenance of an environmental management system, cost for monitoring and measuring environmental impacts, cost for environmental training of employees)		99	514
(4) R&D Cost (R&D cost to develop products that contribute to environmental protection, R&D cost to curtail environmental impact at the product manufacturing stage)		9	242
(5) Social Activity Cost (Cost for environmental improvement activities, including nature conservation and planting of greenery, cost related to donation to or financial support of environmental groups, cost associated with various social activities related to local communities)		0	29
(6) Environmental Remediation Cost (cost to restore the natural environment to its original state, cost to cover degradation suits connected with environmental protection)		0	48
(7) Other Cost		10	120
Total		1,364	6,491

Benefits in Monetary Value

Type of benefits	Volume	Benefit
Benefit of recycling of items with value	2,460 tons	45 million yen

Benefits in Physical Units (Change from 2015)

Type of benefits	Benefit
Reduction of energy consumption (crude oil equivalent)	Reduction of 167 kl
Reduction of CO ₂ emissions	Reduction of 17,000 tons
Reduction of final landfill volume	Increase of 44 tons

Biodiversity Conservation Activities

Group business sites participate in the community activities aimed at biodiversity conservation shown in the table below.

The Nagoya Plant participated in corporate forest growing activities in 2016, as it did the previous year. Corporate Forestation Project is a project in which Aichi Prefecture, municipalities in the Prefecture, NPOs, and companies have concluded an agreement for the purpose of protecting the natural environment of the Owari, Kamo, and Horai areas. Plant employees used handsaws and shears to cut and prune trees and clear weeds and other undergrowth in a forest located along the Tokai Nature Trail in Iwayado Park under the direction of an NPO.



Corporate Forestation Project activity (Nagoya Plant)

Activities Aimed at Biodiversity Conservation

Business Site	Activities
Toagosei Group	Participation in the CO ₂ Reduction/Light Down Campaign sponsored by the Ministry of the Environment
Toagosei Nagoya Plant	Corporate forest development activities
Toagosei Yokohama Plant	Tsurumi Clean Campaign and Tsurumi River Clean Campaign cleanup activities
Toagosei Yokohama Plant, Kawasaki Plant, Head Office	Use of "forest thinning support paper" to contribute to forest thinning by Kanagawa Forest Neighborhood Association and Forest Neighborhood Association
Toagosei Takaoka Plant	Fushiki Fureai Forest community forest improvement volunteer activities Participation in the Oyabe River Fishermen's Association salmon fry release
Toagosei Tokushima Plant	Takamaruyama Thousand Year Forest and Tokushima Cooperative Forest Development tree thinning and forest improvement volunteer activities Received a fiscal 2016 forest CO ₂ absorption certificate (110.58 tons) from the governor of Tokushima Prefecture as a result of the above activities
Toagosei Hirono Plant	Participation in planting of Japanese black pine trees in the Hirono Disaster Mitigation Green Zone Tree-planting Festival
Aronkasei Monozukuri Center, Nagoya Plant	Tokai City Adopt Program Shimpo Greenbelt Sports Park greenbelt zone foster parent registration and cleanup activities
Aronkasei Monozukuri Center	Company biotope maintenance and management



Environmental Protection

Business Activities and Environmental Impacts

Scope of calculations				Period covered
Toagosei Group	Toagosei	Plants	Nagoya Plant, Yokohama Plant, Takaoka Plant, Tokushima Plant, Sakaide Plant, Kawasaki Plant, Hirono Plant	One year from January 1, 2016 to December 31, 2016
		Research centers	General Center of Research and Development (Aichi Prefecture), Institute for Advanced Sciences (Ibaraki Prefecture)	
	Group companies	Aronkasei	Kanto Plant (Ibaraki Prefecture), Nagoya Plant, Monozukuri Center (Aichi Prefecture), Shiga Plant, Onomichi Plant	
		Oita Chemical	Oita Plant	

Energy Consumption

	2015	2016
Energy consumption (crude oil equivalent, thousand kl)	183	183
Per unit of output (kl/adjusted production volume, thousand tons)	365	346

Water Consumption

	2015	2016
Water resources (million m ³)	50	51

INPUT

Toagosei Group Production Sites



OUTPUT

Business Activities

	2015	2016
Production volume (thousand tons)	1,057	1,090

Industrial Waste

	2015	2016
Volume of industrial waste generated (tons)	30,820	31,590
Volume discharged externally (tons)	9,334	9,160
Final landfill volume (tons)	6	50

Environmental Impacts on Water Resources

	2015	2016
Total effluent volume (million m ³)	39	40
COD (tons)	109	109
Total nitrogen (tons)	26	30
Total phosphorus (tons)	1.1	1.2
Substances subject to PRTR (tons)	7	8

Environmental Impacts on Atmosphere

	2015	2016
CO ₂ (CO ₂ equivalent, thousand tons)	412	395
SO _x (tons)	37	27
NO _x (tons)	64	71
Soot and dust (tons)	11	7
Substances subject to PRTR (tons)	94	34

Safety and Disaster Prevention

P Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
<ul style="list-style-type: none"> Zero explosion or fire accidents 	<ul style="list-style-type: none"> Two incidents (tank damage, exhaust gas ignition due to a fire caused by a lightning strike) 	★	<ul style="list-style-type: none"> Zero explosion or fire accidents
<ul style="list-style-type: none"> Zero serious leakage accidents of harmful substances or hazardous materials 	<ul style="list-style-type: none"> One incident of exceeding effluent standards 	★	<ul style="list-style-type: none"> Zero serious leakage accidents of harmful substances or hazardous materials

Safety and Disaster Prevention Initiatives

Disaster Prevention Meetings

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

Disaster Drills

Each business site regularly conducts disaster drills in cooperation with fire departments and other agencies to ensure readiness in the case of an emergency. Business sites located in industrial complexes confirm coordination and roles in joint disaster drills with local joint disaster prevention councils so that they are able to deal with emergencies. In March 2016, the Kawasaki Plant, which is located in the Keihin Industrial Zone, conducted a joint disaster drill with the Ukishima Joint Disaster Prevention Council.



Disaster drill (Kawasaki Plant)



Water spraying using a fire truck equipped with a telescopic hydraulic platform (Kawasaki Plant)



Water spraying using a fire hose (Kawasaki Plant)

T O P I C S

Chlorine Gas Workshop for Firefighters (Yokohama Plant)

At the request of the Yokohama City Fire Academy, on February 16, 2016 a workshop was held on chlorine gas and emergency measures. This training is part of the special disaster course in the Academy's specialized education curriculum, and many of the 52 participating Yokohama City firefighters are on active service at fire stations in Yokohama.

The workshop consisted of a briefing on the electrolysis business, a lecture covering basic knowledge of chlorine, and a countermeasure drill to deal with chlorine leakage. Firefighters have to operate at potentially dangerous disaster sites, and the participants listened attentively to the lecture and briskly performed each step of the drill with a sense of mission and determination in the execution of their duties.

It is the duty of the Yokohama Plant to mobilize for countermeasures if an accident involving leakage of chlorine or another gas occurs in Kanagawa Prefecture (in the role of designated responder). To discharge its responsibility as a business site that produces chlorine, the plant will not only work to prevent disasters by endeavoring to ensure that leakage accidents do not occur, but also respond to any leakage accidents that occur outside the plant premises and continue this type of cooperation and coordination with the fire department.



Learning at the workshop



Hands-on training with chlorine gas

Occupational Health and Safety

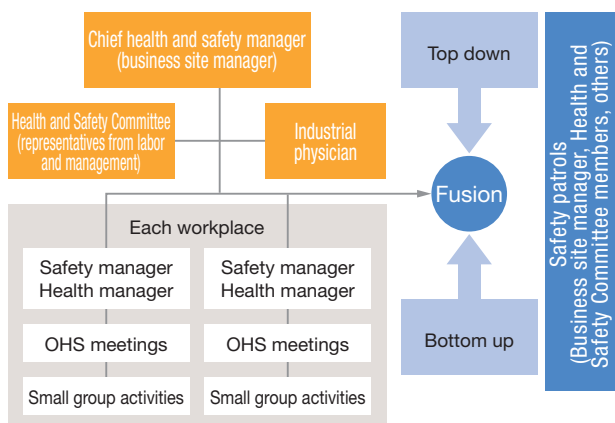
P Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
● Zero lost-time injuries (employees and partner business sites)	● Five lost-time injuries (1 incident involving an employee and 4 at partner business sites)	★	● Zero lost-time injuries (employees and partner business sites)

Occupational Health and Safety Initiatives

Occupational Health and Safety Management System

The Responsible Care Committee has determined priorities for occupational health and safety (OHS) promotion and key policies and measures, and the Toagosei Group is engaging in health and safety activities accordingly. Each business site is raising the level of health and safety by fusing top-down initiatives originating from the site manager and bottom-up initiatives from workplaces.

OHS Management System



Health and Safety Committees and OHS Meetings

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

OHS Activities

To promote the Zero-accident Campaign throughout the Toagosei Group and share information on causes and countermeasures for even minor accidents, Toagosei manages OHS activities using a common database for domestic and overseas operations. Each business site and workplace engages in its own OHS activities, and best practices are presented at the All TOA Responsible Care Convention as takeaways for participants to utilize at their own workplaces. At the 2016 Responsible Care Convention, a panel discussion and lectures were also held (see TOPICS on the following page). In fiscal 2016 Tadaaki Ono, a foreman in a manufacturing section at the Kawasaki Plant, received the “Minister of Health, Labour and Welfare’s special award for outstanding foremen in occupational safety” in recognition of such down-to-earth safety activities.

Overseas business sites engage in activities attuned to the culture and customs of each country, as described in the TOPICS section on the following page.

Accident Prevention

In 2016, five lost-time injuries occurred (one involving an employee and four at partner business sites), and we were unable to achieve the target of zero lost-time injuries. Twelve no-lost-time injuries occurred (ten involving employees and two at partner business sites), the same number as the previous year. Two of the lost-time injuries and four of the no-lost-time injuries were chemical burns caused by contact with harmful substances, meaning that similar accidents are being repeated. Two of the lost-time injuries and three of the no-lost-time injuries were injuries from falling accidents. Aiming to achieve the target of zero accidents, we will review safety management and education systems for partner business sites and outside contractors.

Number of Occupational Accidents

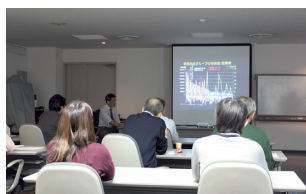
(Accidents)

	Toagosei Group		Partner business sites, others		Total	
	Lost-time injuries	No-lost-time injuries	Lost-time injuries	No-lost-time injuries	Lost-time injuries	No-lost-time injuries
2012	3(2)	8(1)	4	4	7	12
2013	1	17	1	1	2	18
2014	1	7	3(1)	3	4	10
2015	4(1)	9	1	3	5	12
2016	1	10(1)	4	2	5	12

*Numbers in parentheses indicate accidents at overseas business sites.

Employee Health Management

Toagosei conducts periodic medical examinations for the purpose of employee health management and provides health counseling to persons with abnormal findings. Each business site devises and engages in health improvement activities, such as holding on-site health seminars in cooperation with local government, and endeavors to raise employee awareness of health management. We also employ various approaches to promoting employee health, such as planning hikes, walks, and other company events that involve exercise. In accordance with the most recent revision to the Industrial Safety and Health Act, we prevent health problems caused by chemical substances by conducting chemical substance risk assessments at each workplace.



Health workshop (Head Office)

Mental Healthcare

To create workplaces where people do not develop mental health issues and enable employees to accurately ascertain their own stress level, we conduct an annual stress check in cooperation with an external specialist medical institution. On the basis of the stress check results, we analyze causes of stress in each workplace and take measures such as arranging consultations with industrial physicians and providing mental health training for managers. Furthermore, we have set up a telephone consultation service to enable employees and their family members to anonymously obtain counseling. We will continue to engage in effective mental healthcare in accordance with the provisions of the Industrial Safety and Health Act and other relevant laws and regulations.



Mental health lecture (Hirono Plant)

T O P I C S

OHS Initiatives

Toagosei provides safety education as part of the training for new employees as well as for employees in their second year of service. Employees attend an external experiential safety seminar in which they experience simulated dangers such as being caught up in machines, electric shock, and falling to examine case studies of disaster situations. In this experiential learning, each individual employee engages in work with safety in mind, considers facilities that eliminate danger, and learns the importance of formulating work procedures.



Experiential safety education (external seminar)

Panel Discussion at the Responsible Care Convention

At the 2016 Responsible Care Convention (see page 34), panelists holding various posts from four workplaces engaged in a panel discussion on workplace issues and innovations, using photographs and other materials, based on the theme "Advent of the era for employment of the elderly." For instance, they shared information on topics such as shoe insoles that alleviate the fatigue of routine work done while standing, fall detector transmitters for use in patrolling large plants, and power-assisted suits for use in carrying heavy objects. The participants had a detailed exchange of views about workplace problems that cannot be avoided given the current mandatory retirement age of 65.



Panel discussion at the Responsible Care Convention

Health and Safety Initiatives (Singapore)

In Singapore, Toagosei engages in health and safety activities in accordance with local laws and regulations (Singapore Safety Standard S506), conducts internal audits, and undergoes external audits by the Ministry of Manpower and Singapore Civil Defence Force (firefighting).

Taking into consideration the religious background of employees, we have also installed a curtain and placed a change of clothes in emergency showers (for employees for whom modesty regarding exposure of the body is a religious duty) that are to be used if people become contaminated with toxic chemicals.



Emergency shower with a curtain

Product Safety

P Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
<ul style="list-style-type: none"> Product label compliance with the revised Industrial Safety and Health Act 	<ul style="list-style-type: none"> Compliance completed 	★ ★ ★	<ul style="list-style-type: none"> Strengthening of product label management
<ul style="list-style-type: none"> Preparation and registration of purchase specifications 	<ul style="list-style-type: none"> Preparation and registration completed as planned 	★ ★ ★	<ul style="list-style-type: none"> Preparation and registration of purchase specifications

Appropriate Management of Chemical Substances

Chemicals Safety Management System

In the Toagosei Group, the first task at the product development stage is to conduct a safety examination. We also perform necessary safety tests when making notifications required by laws and regulations, such as when a product falls under the category of a new chemical substance. At disaster prevention meetings held before test production or scaling up of production, we discuss process safety and disaster prevention during manufacturing as well as product safety, compliance with legal and regulatory requirements, environmental impacts, and other matters. Since 2016 we have also conducted chemical substance risk assessments at each workplace in accordance with the Industrial Safety and Health Act.

Provision of Safety Information

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

Provision of SDS and product labels conforming to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) in local languages has or will become mandatory not only in Japan, but also in Pacific Rim countries and Europe. We are updating product labels as needed in compliance with the laws and regulations of each country.



Example of a monomer label (for Korea)

Green Procurement

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

Provision of Safe, Worry-free Life Support Products

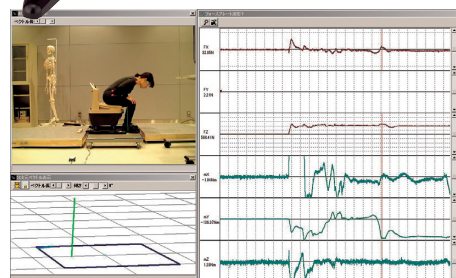
To provide customers with safer, worry-free products, Aronkasei is reinforcing its inspection system, which involves evaluation testing and JIS certification. In particular, the Life Support Products Department offering mainly nursing care products used by the elderly and persons with physical disabilities, ensures product safety and quality by satisfying various standards and through assessments and inspections. Since the physical condition of users varies widely, the company uses motion analysis equipment to simulate complex operating conditions, utilizes the simulation data in design and product specifications, and conducts a wide variety of evaluations and inspections such as repeated strength and impact testing using universal testing machines and other equipment. These initiatives contribute to the provision of products that customers can use with greater safety and peace of mind, as indicated by recognition from third-party evaluation organizations, such as JIS certification for assistive products.



Portable toilet



Armrest strength test



Motion analysis simulation

Quality Assurance

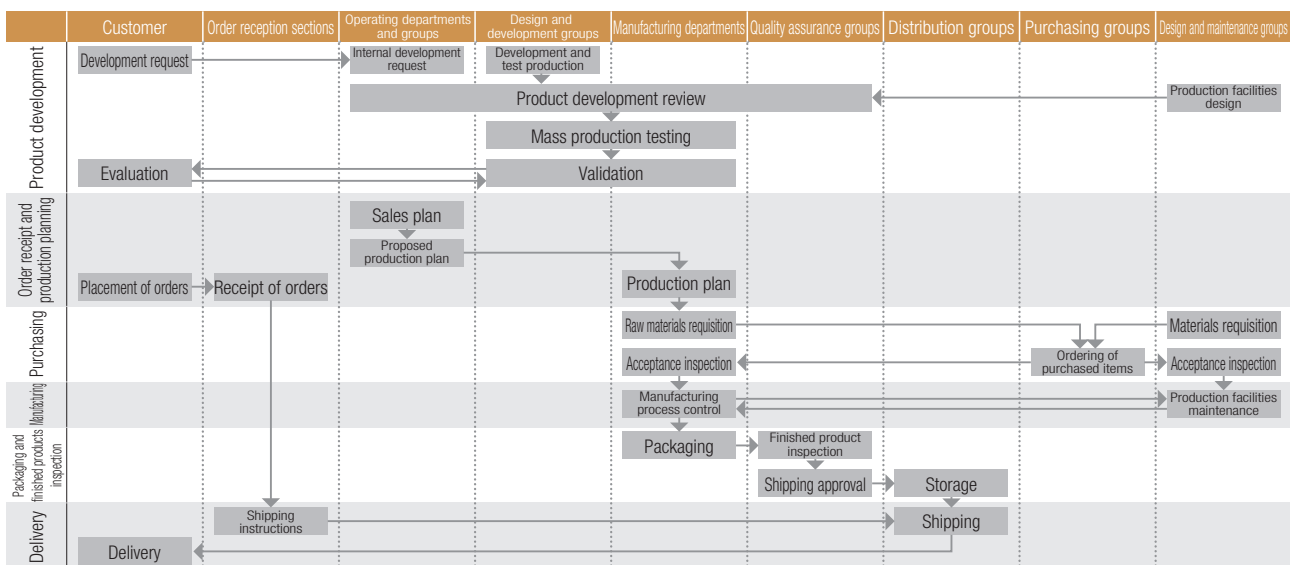
P Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
● Total number of complaints: 215 or fewer	● Total number of complaints: 226	★ ★	● Total number of complaints: 200 or fewer

Quality Assurance System

The Toagosei Group has established a quality policy to enhance quality management and offer products that satisfy customer quality requirements and applicable legal and regulatory requirements, and is working to enhance the quality assurance system. We acquire ISO 9001 certification and develop quality management systems based on ISO standards and are promoting unification of systems and operations. We set Group targets related to continuous improvement

of product quality and improvement of customer satisfaction. Each organization formulates targets and action plans based on a breakdown of the Group targets and engages in improvement activities. As shown in the quality assurance system diagram, we have clearly defined the roles and responsibilities of each organizational unit and are undertaking performance improvement through effective operation of systems in all sections and groups.

Quality Assurance System

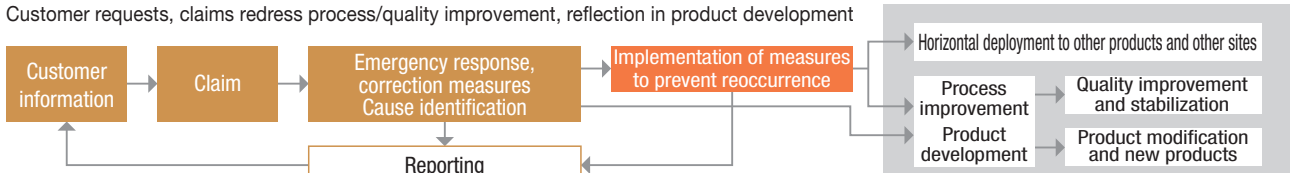


Initiatives in Response to the Voice of the Customer

We have put in place and operate a mechanism for responding to complaints and claims. A sales organization receives information and promptly communicates with the plant quality assurance group. Then the related departments and groups closely collaborate in determining the root cause, devise effective measures to prevent reoccurrence, promptly report to the customer, and implement countermeasures. Through this mechanism, information related to complaints and

claims, measures to prevent reoccurrence, and improvement examples are shared throughout the Toagosei Group. Furthermore, we endeavor to prevent similar problems and raise the level of quality assurance across the entire Group by promoting continuity of measures for preventing reoccurrence of complaints and confirmation of their effectiveness as a Group-wide activity.

Customer requests, claims redress process/quality improvement, reflection in product development



Physical Distribution Safety

Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
● Reduction in the number of physical distribution problems	● Target number not achieved	★★	● Reduction in the number of physical distribution problems

Safety Management during Product Transport

Safe Transport and Delivery Promotion Structure

Each business site organizes conferences with carriers to promote safe transport and safe loading and unloading. At the conferences, the business sites set annual targets and annual activity plans. Through periodic patrols, they confirm from various perspectives whether rules for carrying out safe operations are being rigorously observed. They also periodically visit each carrier and exchange information in the interest of safety improvement.

Horizontal Deployment of Problem Information

The logistics sections undertake sharing and horizontal deployment of information at all plants by registering problems in shipping and transport in a database. Toagosei also issues the Logistics Bulletin, which contributes to safety management by introducing case examples of actual problems that have occurred at carriers and reporting results of statistical analysis of problems. As a result of these initiatives, physical distribution problems have steadily decreased in number.

Conduct of Emergency Response Training

In disaster prevention training periodically conducted at each business site, collaborative drills covering contingencies such as handling gas leaks are conducted with the participation of carriers. To prepare in case of leakage of harmful substances in a traffic accident or other mishap during transport, we conduct training to enable us to respond in close cooperation with carriers, such as practice in using the respirators equipped on trucks and confirmation of information communication procedures. To that end, at each business site we work together with carriers to provide education on the properties and toxicity of transported products and education related to safety assurance and emergency measures when a leak occurs and to inspect and maintain the emergency equipment and materials placed on vehicles. We have also prepared emergency equipment and materials at business sites and put in place a system for promptly forming and dispatching emergency response teams.



Driver joint safety meeting

T O P I C S

Promotion of Operational Reforms in Distribution

In January 2017, the Logistics Department was established to centrally manage logistics sections and improve physical distribution quality. The Department will contribute to strengthening business competitiveness by strengthening collaboration between operating departments and other Group organizational units and partner carriers, engaging in operational reforms in physical distribution, and establishing an efficient, stable shipping system.



Logistics Department

Human Rights

P Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
● Maintenance of an employment rate of persons with disabilities of 2.0%	● Maintained an employment rate of persons with disabilities above 2.0%	★ ★ ★	● Maintenance of an employment rate of persons with disabilities of 2.0%
● Promotion of work-life balance (achievement of an average annual paid leave usage rate of 100%)	● Target not achieved (Group average annual paid leave usage rate of 87.9%)	★ ★	● Promotion of work-life balance (achievement of an average annual paid leave usage rate of 100%)
● Promotion of active participation by women ● Promotion of active participation by employees over 60	● Formulated and announced an action plan for promoting active participation by women based on the Act on Promotion of Women's Participation and Advancement in the Workplace ● Increased job categories open to women in manufacturing departments, formulated regulations that promote return of women to work ● Progress of measures to promote active participation by employees over 60 was behind schedule	★ ★	● Promotion of active participation by women (execution of the action plan for promoting active participation by women)

Respect for Human Rights

Human Rights Protection Initiatives

● Respect for Human Rights and Harassment Countermeasures

The basic stance of the Toagosei Group toward investors, customers, and employees is to be "a company that values people." We respect fundamental human rights and strive to create workplaces where the individuality of people from diverse backgrounds is appreciated and they can make full use of their abilities. 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.



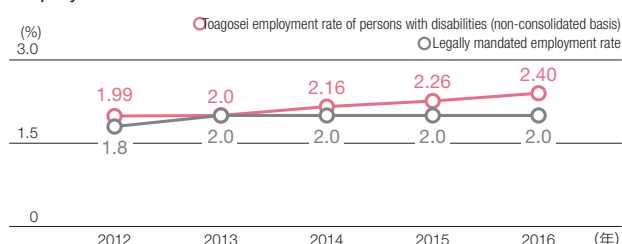
Human rights seminar (Tokushima Plant)

Enhancement of Employment Systems

● Employment of Persons with Disabilities

To support the independence of persons with disabilities, the Group is striving to expand employment of persons with disabilities. The employment rate of persons with disabilities at the end of 2016 was

Employment Rate of Persons with Disabilities



2.40% for Toagosei Co., Ltd. and 2.28% for the Group as a whole. A total of 43 persons with disabilities work in the Group, 13 of whom have severe disabilities. In 2017 and beyond, we will continue to cultivate a workplace environment where persons with disabilities can work with peace of mind.

● Employment of Older Persons

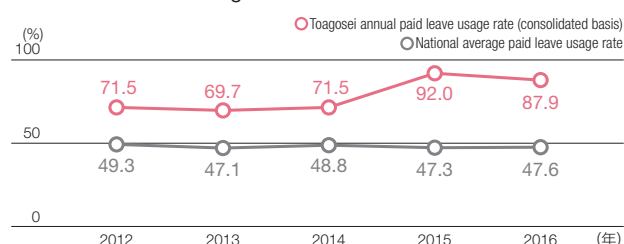
The Group is actively enhancing measures for the employment of older persons in light of revision of the pension system and other factors. We raised the mandatory retirement age from 60 to 65 in April 2013 to respond to a change in the age of eligibility for public pensions and are endeavoring to utilize the abilities of seniors.

Initiatives for Work-Life Balance and Gender Equality

The Group aims to realize work-life balance for employees. To enable employees to successfully balance work and home life and have a positive impact in both spheres, we engage in initiatives such as conducting a review of working hours and controlling total working hours, introducing a shift working system that provides more holidays, introducing a work-at-home system, and encouraging employees to take annual paid leave.

In 2016, ten Group employees made use of childcare leave. We will continue to cultivate an environment that enables employees to develop their careers while balancing work and private life and assist them in realizing their own individual work styles.

Annual Paid Leave Usage



*Source for national average: General Survey on Working Conditions (Ministry of Health, Labour and Welfare)



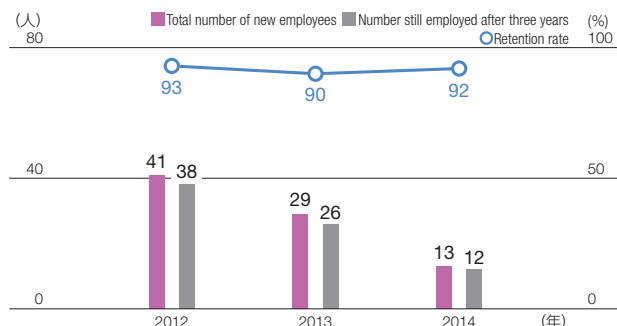
Human Resources Development

Human Resources Development

Recruiting Activities

The Toagosei Group seeks people with the enthusiasm and tenacity to think and tackle issues independently and see tasks through to the end. We make known the human resources we seek through company information sessions, websites, and other means to ensure understanding of our requirements by greater numbers of people. 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.

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



Human Resources Development Policy and Systems

To realize the Group Vision, the Toagosei Group is strengthening its high-value-added businesses and implementing a growth strategy that includes overseas development. Each individual employee is the source of power to achieve the Group Vision, and we consider our employees an important corporate asset that creates added value. With the aim of developing excellent, highly motivated human resources who will drive the Group's growth, we have established the Human Resource Development Department in the Group Management Division. To support employees pursuing self-growth and actualize and maximize the latent potential of each individual, the Department conducts a wide range of educational programs, including level-specific training, training for promoted employees, and other group training as well as e-learning, distance learning, and overseas training.

Technical Education and Training

To further strengthen development of personnel with on-site skills and transmission of technologies and skills to the next generation of employees, we integrated the Technical Training Center, which has been responsible for technical education, into the Human Resource Development Department. We have assigned employees responsible for technical education to the Nagoya Plant, where they provide instruction in basic knowledge required by technical departments (operation, equipment, unit operation, safety, etc.).

Group training is a forum for participants to not only acquire basic knowledge, but also deepen their understanding of equipment by exchanging views about the equipment they use in their workplaces. Participants prepare reports about the equipment they use in the workplace before participating in group training. In the process of making a report about the equipment prior to training, we endeavor to pass on knowledge and know-how from veteran employees.

We are also developing personnel who ensure stable operation through experience-based training, efforts to raise safety awareness, and enhancement of safety education, such as hazard prediction training.



Foreman nominee training

Self-development and Career Development Assistance

The Group has arranged distance education and e-learning courses that contribute to knowledge acquisition and skills development in areas such as basic business abilities, management skills, and job-specific expertise. We support the growth of employees who have completed such training by operating a training expense assistance program and preparing an environment that facilitates employee self-development. In addition, we assist with employee career development by conducting the TOEIC test and actively supporting acquisition of public qualifications.

Global Human Resources Development

To develop human resources who respond to globalization of the business environment and support overseas expansion, Toagosei has instituted the Overseas Training Program. We seek to foster a global mindset among employees early on in their careers by dispatching employees to our overseas business sites and to universities and research institutions to gain overseas experience.

Study Program in Japan

For the purpose of fostering human resources who have acquired the advanced executive skills and specialized skills necessary to become future executives, Toagosei has instituted the MBA Trainee Program in Japan. Selected employees study at business schools in Japan for systematic improvement of executive skills.

Suggestion Scheme, Service Invention Compensation Scheme

Toagosei has instituted the Suggestion Scheme to identify original, ingenious inventions and ideas of individual employees and promote employee self-expression and workplace refinements and improvements. Also, when an employee has made a service invention,

device, or design, we reward the accomplishment through the Service Invention Compensation System. Excellent suggestions and service inventions are recognized through the Awards System via a review committee. Through these initiatives, we continuously seek to energize employees and promote business process improvement and innovation.

Active Participation by Women

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

The Toagosei Group made promotion of active participation by women a key CSR objective for 2016 and has started development of a structure to enable women to fully demonstrate their abilities and formulated an action plan for proactively promoting active participation by women. Toagosei has set action plan objectives of a female hiring ratio exceeding 30% each year and tripling of the ratio of female managers by January 1, 2021 (compared to January 1, 2016).

Eruboshi Certification

Toagosei has obtained certification from the Minister of Health, Labour and Welfare under the *Eruboshi* system as an outstanding company for promoting women's participation under the Act on Promotion of Women's Participation and Advancement in the Workplace. We have met certification criteria for four evaluation items: recruitment, continued employment, working hours and other working conditions, and diversity of career courses. We will continue to support active participation by women in the workplace.

Assignment of Women to Manufacturing Sites

In the interest of promoting active participation by women, Toagosei is preparing a suitable workplace environment and expanding job categories available to women to manufacturing sites, where few women have worked until now. Since 2015 we have assigned women to workplaces operating under the shift working system at manufacturing sites.

RICOCHALLE

Toagosei endorses an initiative that encourages selection of career paths in the fields of science and engineering by female students (RICOCHALLE, short for Science and Engineering Challenge) sponsored by the Cabinet Office, the Ministry of Education, Culture, Sports, Science and Technology, and Japan Business Federation (KEIDANREN). As part of our support for this initiative, in 2016 we conducted plant and research laboratory tours for female junior and senior high school students. Through the tours, we convey to the students the fascination and unlimited potential of science and the existence of workplaces where women can energetically work and flourish even in the chemical industry.



Conducting an experiment (General Center of R&D)

VOICE

Expansion of Job Categories Available to Women

I currently do shiftwork at a sulfuric acid manufacturing site. Before joining the company, I was anxious when I heard that the company wanted me to work in a workplace where no woman had ever been previously assigned. However, at a time when women are making inroads into various jobs, I decided to join because I wanted to believe in my own potential and wanted to open up a new path in the company. Although I face difficulties in my assigned workplace, such as physical labor, workplace improvements such as a review of tools to enable employees to work even with little physical strength are progressing. I want to continue to apply a woman's perspective to create a worker-friendly workplace environment for all employees.



Risa Mizuno
Specialty Product Section,
Manufacturing Department 1
Nagoya Plant



Human Resources Development

Creating an Employee-friendly Environment

Annual Paid Leave Usage Rate and Control of Overtime Work

With the aim of realizing work-life balance for employees, Toagosei has controlled overtime work by stressing the importance of working efficiently and introducing in 2011 a no-overtime day throughout Toagosei. Subsequently, since the habit of working efficiently has taken hold, since fiscal 2015 we have further promoted the taking of annual paid leave. As a result, the Toagosei Group's annual paid leave usage rate rose from 71.5% in 2014 to 92.0% in 2015 (calendar year basis). Although the usage rate fell year on year in 2016, we maintained a high rate of 87.9%. We will continue efforts to create an employee-friendly environment by promoting taking of annual paid leave.

Spouse Overseas Transfer Leave System and Reentry System

To assist employees in balancing work and family life, in January 2017 Toagosei introduced the spouse overseas transfer leave system, which allows leave of up to three years for employees accompanying their spouses on overseas assignment, and the reentry system for registering candidates for reemployment in cases where employees have resigned due to family circumstances such as transfer of a spouse, childcare, or nursing care. Through operation of these systems, we aim to deal flexibly with the family circumstances of employees.

Self-declaration System

To promote appropriate assignment of employees, Toagosei has instituted the self-declaration system. Once a year, employees express their thoughts and wishes about their own work to the company, and employees and their immediate managers discuss the declaration contents in an interview.

Employee Support Systems

Toagosei has instituted the following systems to create an employee-friendly environment.

- Leave systems such as marriage leave, mourning leave, nursing care leave, and half-day paid leave
- Flextime work system, short-time work system
- Dormitory and company housing system
- Spouse overseas transfer leave system
- Reentry system
- Work-at-home system

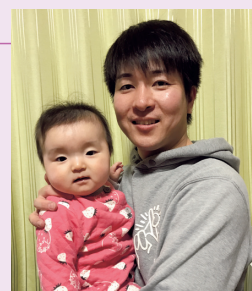


Risshi Dormitory

VOICE

Taking of Childcare Leave by Men

My wife and I had a child last year, and I took childcare leave. Since for a time after the birth my wife and child stayed with her parents far away from our home, opportunities to meet my child were few and far between. However, taking childcare leave gave me more time to spend with my child. While on leave, there were times when I looked after my child alone, and I think that learning for myself how hard childrearing is was a really meaningful experience. Since my wife also took childcare leave, we were concerned about our income. However, I learned that the employment insurance childcare leave benefits system had been revised and benefits enhanced in 2014 and was able to go ahead and take leave with peace of mind. I want to continue to be a man who enjoys childrearing and hope that the practice of men taking childcare leave will further take hold in society.



Noboru Tanaka
General Affairs & Legal Department
Administrative Division



Enhancement of Contributions to Society and Communication

P Targets for 2016	D Results in 2016	C Achievement	A Targets for 2017
<ul style="list-style-type: none"> Support for nature conservation, beautification and greening, and culture and sports activities Charitable donations and gifts 	<ul style="list-style-type: none"> Employees participated in volunteer activities, cleanup activities, social welfare events in communities, etc. Cooperated in sports festivals and other community events; opened grounds, gymnasiums, and other company facilities to the public Participated in and donated to an overseas study support program; donated money for disaster relief in stricken areas; donated money and gifts to social welfare organizations and local governments 	★★★	<ul style="list-style-type: none"> Support for nature conservation, beautification and greening, and culture and sports activities Charitable donations and gifts Participation in the Human Resources Fostering Program in Chemistry, diversity promotion, and other projects
<ul style="list-style-type: none"> Thorough aesthetic maintenance activities in the vicinity of business sites 	<ul style="list-style-type: none"> Periodically engaged in inspection patrols and cleanups on the periphery of plants 	★★★	<ul style="list-style-type: none"> Thorough aesthetic maintenance activities in the vicinity of business sites
<ul style="list-style-type: none"> Expansion of community dialogues Dissemination of company information 	<ul style="list-style-type: none"> Conducted plant tours and workplace tours Participated and cooperated in community disaster prevention drills Business sites and Group companies held meetings with community groups and community dialogues 	★★★	<ul style="list-style-type: none"> Expansion of community dialogues Dissemination of company information

Social Contribution Activities

Social Contribution Committee Activities

The Toagosei Group has set up a labor-management joint Social Contribution Committee at the Group and business site level and actively engages in social contribution activities, such as collection of used stamps, support of sports, and monetary donations in the event of a major disaster.

● Gifts to nursing care facilities

The Social Contribution Committee uses monetary donations to purchase products incorporating Group products and donates them to nursing care welfare facilities and other facilities through community social welfare councils.

Aesthetic Maintenance Activities

Business sites engage in aesthetic maintenance activities in nearby areas, such as picking up litter, weeding, and planting seedlings, with many employees participating.



Cleanup at Shimpo Greenbelt Park (Aronkasei Nagoya Plant)



Tending a flowerbed beside a street (Yokohama Plant)

T O P I C S

Social Contribution Activities at Overseas Business Sites

The Toagosei Group has production and sales bases overseas and engages in social contribution activities rooted in local communities in line with the Group's management philosophy and CSR policy. Toagosei America donated toys to families unable to purchase Christmas presents and made a charitable contribution to the Good Samaritan Food Pantry, a local charitable organization, as part of its social contribution activities in 2016.



Donating money to a charitable organization (Toagosei America)



Enhancement of Contributions to Society and Communication

Enhancement of Communication

Harmonious Coexistence with Local Communities

The Toagosei Group engages in business activities rooted in local communities, and it is essential to maintain harmonious coexistence and communication with these communities. Our domestic and overseas business sites strive to create many opportunities for direct communication with area residents and are vitalizing communities and building relationships of trust through dialogues and exchanges.

● Plant Tours

The Group's domestic and overseas business sites regularly conduct plant tours. They promote understanding of the Group by conducting tours tailored to the requests of visitors, mainly students from nearby primary, junior high, and senior high schools and members of neighborhood associations.



A plant tour for local high school students (Tokushima Plant)



Members of a local neighborhood association viewing vegetables at a plant factory (Takaoka Plant)

● Fostering the Next Generation

The Group's domestic and overseas business sites offer internships for university, high school, and vocational school students and also conduct educational activities for primary, junior high, and senior high school students, such as hands-on learning and classes at schools. Through these learning opportunities, we seek to arouse interest in chemistry, promote understanding of business activities, and introduce youngsters to the world of work.



A class at a primary school (Oita Chemical)

● Support for Earthquake Disaster Reconstruction

The Hirono Plant, located in the town of Hirono in Fukushima Prefecture, is fully engaged in support activities in collaboration with neighborhood associations and organizations involved in local revitalization to assist communities stricken by the Great East Japan Earthquake of 2011 in their recovery efforts. These activities include support for community events, the donation of a microbus, and tree planting in a disaster mitigation green zone.



Tree planting in the Hirono Disaster Mitigation Green Zone (Hirono Plant)

T O P I C S

We support for Tobitate! (Leap for Tomorrow) Young Ambassador Program

With the objective of developing global human resources, Toagosei endorses and supports the Tobitate! (Leap for Tomorrow) Young Ambassador Program, a collaborative initiative between the government and the private sector that supports overseas study by university and high school students.



Source: Tobitate! Study Abroad Japan website

Site Report

Japan (Plants and Research Laboratories)

*Number of employees as of December 2016

Yokohama Plant

Number of employees: 121

The Yokohama Plant is endeavoring to achieve zero accidents and zero injuries while also eliminating serious environmental problems by engaging in process safety and disaster prevention activities and strengthening environmental measures. It will continue to bolster its process safety and disaster prevention capabilities, reduce environmental impacts, and strengthen systems for the stable supply of high-quality products and quality assurance.



Principal production items

- Caustic soda, hydrochloric acid, sodium hypochlorite, high-purity liquid hydrogen chloride, easily soluble copper oxide, etc.

Tokushima Plant

Number of employees: 110

Under a basic policy covering safety assurance and stable operation through the rigorous practice of peer review, the Tokushima Plant worked to ensure thorough compliance with fundamentals through full participation of plant and partner business site employees and achieved a zero-injury record. It improved operational efficiency through stable management and operation of new and expanded facilities.



Principal production items

- Caustic soda, hydrochloric acid, sodium hypochlorite, high-purity liquid hydrogen chloride, etc.
- Inorganic ion exchangers, silver-based inorganic antimicrobial agents, inorganic deodorant, etc.

Kawasaki Plant

Number of employees: 41

The Kawasaki Plant systematically refreshed safety knowledge throughout the workforce and provided education covering operating techniques and facilities and equipment with the objective of continuing safe, stable operation. On July 12, 2016, it achieved more than 8,000 consecutive days of zero-accident and zero-injury operation. The number of zero-injury days reached 8,172 on December 31, 2016, and injury-free operation is continuing for the twenty-second year.



Principal production items

- Polyvinyl chloride resin, special monomer with sulfonic acid group

Nagoya Plant

Number of employees: 356

The Nagoya Plant engaged in RC activities under the slogan "Raising the level of manufacturing technology through full participation." It ensured safe, stable plant operation while endeavoring to develop and raise the level of manufacturing technology at each worksite through full employee participation, with a focus on education, and by aiming for zero complaints and nonconformities attributable to manufacturing technology.



Principal production items

- Caustic soda, hydrochloric acid, sodium hypochlorite, sulfuric acid, etc.
- Acrylic monomers, oligomers, polymers, etc.

Takaoka Plant

Number of employees: 161

The Takaoka Plant is inculcating activities to ensure safe, secure, stable operation, as part of an ongoing campaign launched in 2014. It is also enhancing communication with the local community by holding community dialogue gatherings with members of neighborhood associations and other interested parties and engaging in local cleanups and other community contribution activities.



Principal production items

- Aron Alpha® and other general-use adhesives and industrial adhesives
- Inorganic products related to potash, etc.

Sakaide Plant

Number of employees: 16

The Sakaide Plant vigorously engaged in activities to prevent any reoccurrence of accidents and problems and achieved a zero-accident and zero-injury record. In its environmental protection activities, it achieved a sharp reduction in environmental impacts, reducing emissions by 77% year on year, by focusing on the stable running of newly installed PRTR substance recovery facilities.



Principal production items

- Acrylic polymer flocculants, etc.

Hirono Plant

Number of employees: 57

In 2016, the Hirono Plant endeavored to prevent occupational injuries and continued a zero-injury record that began in 2005. In environmental protection efforts, it achieved its CO₂ emissions reduction target by introducing dryer waste heat collection facilities and carrying out comprehensive inspections of steam traps in the plant.



Principal production items

- Acrylic polymers etc.

CSR Management Underpinning Growth

General Center of Research and Development

Number of employees: 148

The General Center of Research and Development is accelerating new product creation based on an R&D system that integrates four centers and laboratories and achieving development of highly safe, environmentally friendly high-performance materials. In its research work, the Center is maintaining a zero-accident record by strengthening hazard prediction (KY) activities utilizing close-call case studies.



Research Organizations

- Base Technology Laboratory, Applied Research Laboratory, New Products Research Laboratory, Productive Technology Laboratory

Institute for Advanced Sciences

Number of employees: 8

The Institute for Advanced Sciences engages in joint research related to functional peptides. In its safety activities, it deepens understanding of standards and prevents them from becoming a mere formality by developing and reviewing workplace safety standards and is maintaining a zero-injury record by routinely engaging in close-call activities and hazard prediction (KY) activities.



Research Area

- Bioinformatics-related research

Oita Chemical

Number of employees: 45

Oita Chemical aspires to be a safer, more secure plant through three basic operating policies: harmonious cohesion, safety and zero accidents, and streamlining. The company places importance on building rapport with the local community through initiatives such as RC community dialogues and classes at nearby primary and junior high schools.



Plant

- Oita Plant

Principal production items ● Acrylic acids etc.

Kanto Plant (Aronkasei Co., Ltd.)

Number of employees: 46

In 2016, the Kanto Plant identified locations where there is risk of workers being caught in or between equipment, a key priority in safety activities, and also identified locations where there is high risk of falling based on aggregation of close-call data, and implemented physical countermeasures. It converted in-plant lighting to LED lighting with the aim of both improving environmental performance and achieving a more comfortable workplace environment.



Principal production items

- Plastic joints, chambers

Nagoya Plant (Aronkasei Co., Ltd.)

Number of employees: 85

In 2016, the Nagoya Plant continued previous initiatives such as cleanups in the surrounding area, training of teachers from nearby elementary schools, and internships. It also engaged in initiatives to further contribute to the community, including discussing with the mayor of Tokai City a framework for future cooperation.



Principal production items

- Plastic pipes, joints, manholes, etc.
- Elastomer compounds etc.

Shiga Plant (Aronkasei Co., Ltd.)

Number of employees: 58

In light of the lessons learned from an occupational injury that occurred in 2014 as a result of aging facilities, the Shiga Plant made prevention of occupational injuries its highest priority and once again conducted a safety assessment of aging facilities and equipment and dangerous objects as an occupational health and safety initiative.



Principal production items

- Portable toilets made of resin, furniture style portable toilets, bathing chairs and stools, meter boxes, etc.

Onomichi Plant (Aronkasei Co., Ltd.)

Number of employees: 64

The Onomichi Plant focused on creating a comfortable workplace environment in accordance with the Industrial Safety and Health Act, installing facilities to relieve fatigue, and managing the working environment. To raise awareness of environmental protection, it held an exchange meeting on the environment with nearby companies, holding a roundtable discussion about reciprocal plant tours and environmental measures.



Principal production items

- Plastic joints, chambers, manholes, manhole covers, various parts, etc.

Monozukuri Center (Aronkasei Co., Ltd.)

Number of employees: 87

The Monozukuri Center proactively offered tours for schools and organizations in the surrounding area as a form of communication with the local community and strengthened cooperative relationships with local municipalities. As a social contribution activity, it engaged in cleanup activities at Shimo Greenbelt Sports Park together with Aronkasei's Nagoya Plant.



Research Area

- Discovery research, intellectual property, design, technology development, materials research
- Business development (piping materials, nursing care products, elastomers, new businesses)

Overseas (manufacturing company)

Toagosei America Inc.

Number of employees: 58

Regrettably, two accidents reported to the U.S. Occupational Safety and Health Administration occurred at Toagosei America last year (neither accident resulted in lost time). This year, all employees have renewed their commitment to eliminating accidents and injuries.



Plant ● Ohio, USA

Principal production items

- General-use adhesives, industrial adhesives, etc.

Toagosei Singapore Pte Ltd.

Number of employees: 29

Toagosei Singapore continuously engages in zero-accident activities, such as strengthening of safety education and risk assessment, and there were no accidents or lost-time injuries in 2016. The company will continue to provide thorough CSR education reflecting risk assessment and strive to ensure dissemination and sharing of the information obtained.



Plant ● Singapore

Principal production items

- Acrylic esters, acrylic polymers, etc.

Toagosei (Zhuhai) Limited

Number of employees: 52

In 2016, Toagosei (Zhuhai) commissioned an outside specialist to conduct inspections of its business processes with the objective of deepening understanding of work-related laws and regulations. It also introduced quality hazard prediction (KY) and production innovation (SK) activities and strove for workplace-driven product quality improvement.



Plant ● Zhuhai, Guangdong Province, China

Principal production items

- General-use adhesives, industrial adhesives, etc.

TOA-DIC Zhangjiagang Chemical Co., Ltd.

Number of employees: 51

In 2016, as an injury prevention activity, TOA-DIC Zhangjiagang Chemical endeavored to eradicate potential risks by conducting facilities and work inspections, for which purpose it referred to cases at Group companies and utilized equipment diagnosis performed by a third-party organization. As a result, the company achieved zero lost-time injuries and zero serious accidents.



Plant ● Zhangjiagang, Jiangsu Province, China

Principal production items

- Acrylic monomers etc.

Toa-Jet Chemical Co., Ltd.

Number of employees: 23

In 2016, Toa-Jet Chemical developed operation-related standards as part of its zero-accident activities. It prepared work standards incorporating countermeasures for problems experienced previously, implemented safety activities involving education of employees, and achieved zero lost-time injuries and zero serious accidents.



Plant ● Guan-Inn Industrial District, Tau-Yuan, Taiwan

Principal production items

- Acrylic monomers etc.



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