

tok TOKYO OHKA KOGYO CO., LTD.


Integrated Report 2018

Year Ended December 31, 2018

Think big with nano, make life easy.



Challenge for
the Future



Publication of the Integrated Report 2018

TOKYO OHKA KOGYO CO., LTD. (TOK) has published annual reports since the fiscal year ended March 31, 2017 with the idea of integrating non-financial information including ESG, with traditional information disclosures centered on financial information. After changing the end of its fiscal year, this is the third time the Company has published a report with the idea of integrating, and we have changed the name of this publication to “Integrated Report” with the aim to augment information disclosure to reflect the inclusion of material issues for enhancing corporate value, as well as the initiation of a new medium-term plan and a new corporate governance system that started from the fiscal year ending December 31, 2019.

In Integrated Report 2018, we talk about our “value creation story” from the perspective of people on the front lines of marketing, R&D, manufacturing, and EHS (environmental, health and safety). Amid advances in new innovations around the world, such as AI, IoT, and 5G, these stories shed light on how TOK, having consistently created value in cutting-edge niche fields since its founding, creates shared value by providing solutions for issues faced by customers and society.

In writing this report, TOK referred to the International Integrated Reporting Framework promoted by the International Integrated Reporting Council (IIRC) and Guidance for Integrated Corporate Disclosure and Company-Investor Dialogue for Collaborative Value Creation issued by the Ministry of Economy, Trade and Industry. We also took into account the feedback received in dialogue with shareholders, investors and other stakeholders. This report represents our best efforts to bring together a variety of information related to value creation at TOK through company-wide collaboration among divisions.

August 2019

Noriaki Taneichi

*Representative Director,
President & Chief Executive Officer*

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Editorial Policy

Scope and time frame of this report

- Time frame
Fiscal year ended December 31, 2018
(January 1, 2018 to December 31, 2018)
(Includes some content after January 2019)

- Organization
TOKYO OHKA KOGYO CO., LTD. and its
consolidated subsidiaries and equity
method affiliates
(Due to the transfer of an equity method
affiliate in the fiscal year ended December
31, 2018, environment-related data has
been retroactively adjusted.)

Reference guidelines

- Environmental Reporting Guidelines
2018, published by the Ministry of the
Environment
- ISO 26000: 2010 – Guidance on Social
Responsibility, released by the
Japanese Standards Association
- GRI Sustainability Reporting Standards
- The International Integrated Reporting
Framework published by the IIRC
- Guidance for Integrated Corporate
Disclosure and Company-Investor
Dialogue for Collaborative Value
Creation published by the Ministry of
Economy, Trade and Industry



Forward-looking statements

This integrated report contains forward-looking statements that describe future prospects of TOKYO OHKA KOGYO CO., LTD. (the Company) in terms of business planning, earnings and management strategies.

Such statements are based on management's judgment, derived from information available to it at the time such information was prepared. Readers are cautioned not to rely solely on these forward-looking statements, as actual results and strategies may differ substantially according to changes in the Company's business environment.



Challenge for the Future

We develop with society and continue to fulfill our goals of being a responsible and innovative company.

Management Principles

Continue efforts to enhance our technology; Raise the quality levels of our products; Contribute to society; and, Create a frank and open-minded business culture.

Management Vision

Aim to be a globally trusted corporate group by inspiring customers with high value-added products that have satisfying features, low cost and superior quality.

The Source of the Value We Create

—Microprocessing Technologies That Create Inspiration

TOK delivers value in a wide variety of fields, including the manufacture of semiconductors, by rolling out microprocessing and applied technologies for the nanoscale* domain, along with implementing our strategy of building close relationships with customers and developing high value-added technologies from new standpoints.

* Nanometer (1nm) = one millionth of a millimeter; one hundred-thousandth the width of a human hair

TOK founder **Shigemasa Mukai**

During Japan's advanced stage of economic growth that began at the outset of the Showa era, when industrialization gained momentum, the founder of TOK, Shigemasa Mukai, provided industry with numerous world-leading products through sheer ingenuity and grit. The following words that Mukai repeatedly said to his employees have continued to live in our DNA to this day.



—Ideals when TOK was founded—

Challenge ourselves to develop products that entail any difficulties but are useful to society and are not offered by other companies

—Policy when TOK reemerged after World War II—

We shall conduct manufacturing to create products that others cannot imitate, to be original, to focus on high purity products, and to support manufacturing with advanced technological capabilities.

—On the establishment of the Tokyo Ohka Foundation for The Promotion of Science and Technology—

The development of Japan, a nation with few natural resources, depends on the development of innovative technologies from advances in fundamental research, and the application of these technologies in industry will lead to peace and prosperity for humanity.

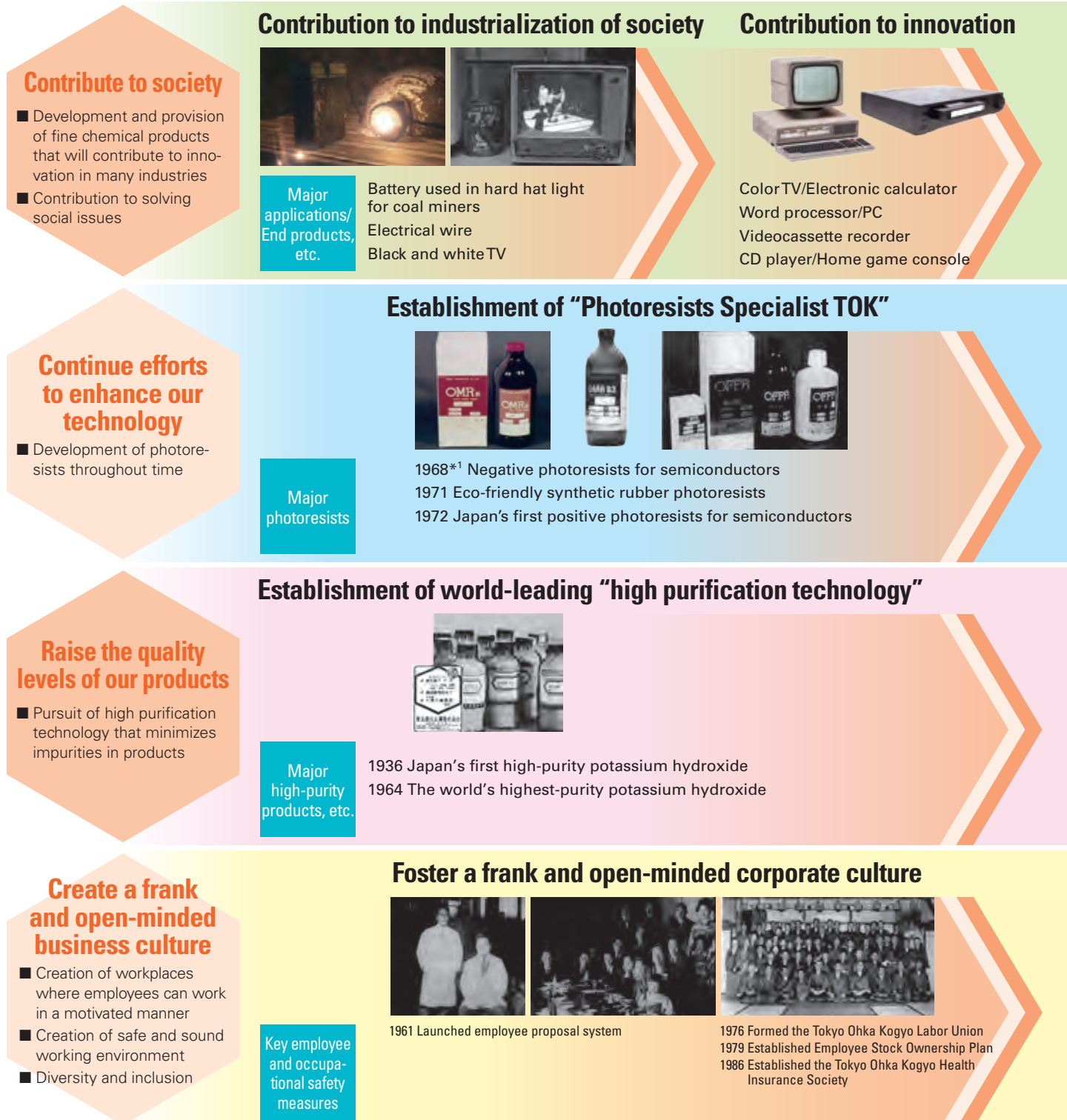
Value Creation Rooted in Our Management Principles

Over the 78 years since its founding, TOK has done its best to put into practice its four management principles, evolving along the way.

With a frank and open-minded business culture, we will carry on, contributing to society by continuing efforts to enhance our technology and raise the quality levels of our products.

Founding to 1969

1970–



*1 Years in front of product names indicate, in principle, the year the first product was shipped.
Circuit line width generations include TOK's estimates.

Management Principles Card



All Group employees carry a pocket-sized card with our management principles written down in Japanese, English, Korean or Chinese.

1990-

2000-

2010-

throughout time by developing and supplying semiconductor photoresists



Mobile phone
DVD player
Hybrid car



LCD
Smartphone
Tablet device



AI
IoT
Self-driving vehicle
5G communication

Line width **130*1nm**

Line width **130-32nm**

Line width **32-7nm**



1987 i-Line photoresists
1995 KrF excimer laser photoresists



2001 ArF excimer laser photoresists



2018 EUV photoresists

Impurities in products **Less than 1ppm*2**

Impurities in products **Less than 10ppt*2**



High purification of photoresists
Reductions in impurities in high-purity chemicals



High purification of photoresists
Reductions in impurities in high-purity chemicals
Ultra-high-performance clean solutions

Move to ppq*2 level

*2 ppm: parts per million, ppt: parts per trillion, ppq: parts per quadrillion

Expansion of human resources alongside growth

Training next generation of global personnel



1990 Introduced the childcare leave system
1991 Achieved 5.4 million hours of zero-accident (type 1) operations at the Sagami Operation Center
1993 Adopted the sick leave system



2003 Introduced the rehiring system
2005 Adopted the occupational rehabilitation system
2007 Introduced childcare time
2008 Introduced the expired paid leave reserve system



*3



2012 Introduced the Employee Stock Ownership Plan (ESOP) Trust (Trust matured in 2017)
2012 First woman appointed to a management position
2014 Started TOK Global Practical Training for Selected Members
2015 Formulated Data Health Plans for health & productivity management
2016 Set target of 20% or higher for women's recruitment ratio



*3 Received the Kurumin mark in 2012; selected as a constituent stock in the MSCI Japan Empowering Women Index in 2017 and 2019, MSCI Japan ESG Select Leaders Index in 2019, and SNAM Sustainability Index in fiscal 2018; and recognized in the 2018 Certified Health & Productivity Management Outstanding Organizations Recognition Program (White 500).

Our Value Creation

Our Focus

Our Foundation

Data Section

Accumulation of Unique Management Resources

TOK has never stopped contributing to innovation, addressing the needs of its customers and society throughout time, while accumulating robust financial capital and unique non-financial capital. The Company will further advance both types of capital and strengthen its capabilities for sustainable value creation.

Financial capital

Financial capital



- ◆ Financial foundation for the super-long term
- ◆ Dividend policy based on net assets

■ Balance Sheet Management

TOK seeks the optimal balance between investment, cash reserves and shareholder returns within the context of its niche top strategy, which has been in its DNA since its founding, aggressive risk-taking as an R&D-driven company, and competition with rivals larger in size.

■ Solid Financial Position

TOK's policy on cash reserves, consisting of working capital, investment reserves and risk reserves, takes into account requirements for developing technologies in anticipation of a super-long time frame, continuously tackling challenges over a super-long time frame, and responding to the unexpected, including major disasters. As of December 31, 2018, the Company had an equity ratio of 78.0% and a debt-to-equity ratio of 0.07 times, representing top-class financial soundness in the chemicals sector.

■ Strengthened Shareholder Returns

Beginning on December 31, 2018, the Company distributed dividends based on its new dividend policy targeting a DOE of 3.5%, with the objective of steadily and continuously returning profits to shareholders.

■ Pursuit of Higher Asset Efficiency

The Company targets an ROE of over 8%, and uses ROIC, IRR, etc. as indicators for monitoring investments and business strategies.

Manufactured capital

Manufactured capital



- ◆ World-leading microprocessing technology
- ◆ World-leading high purification technology

■ Microprocessing Technology

TOK continues to satisfy the sophisticated needs of its customers, i.e., manufacturers of semiconductors and electronic components, by accumulating and applying its world-leading microprocessing technology in the development and production of materials to make semiconductor circuit line widths fine, materials used to make high-density semiconductor packages, and materials for stacking semiconductor devices in three dimensions.

■ High Purification Technology

TOK supplies chemicals (clean solutions, thinner, developing solutions, etc.) of the highest purity in the world with an absolute minimum of impurities, realizing shared value with customers by improving yields on their mass production lines for cutting-edge devices. TOK has expertise in highly challenging domains, such as controlling performance down to the molecule.

■ Niche Top Products

Having inherited the DNA that has existed in TOK since its founding, we are developing a business to continue to create materials that support advanced technologies and that cannot easily be imitated by other companies. We are developing a business model able to continue developing and bringing to market new, high-end, high-value-added products. Our primary domains are niche business fields shaped by extremely disruptive and rapid cycles of technological change.

Intellectual capital

Intellectual capital



- ◆ Sustaining high levels of R&D investment
- ◆ Improving R&D efficiency

■ High Ratio of R&D Costs to Net Sales

The Company's R&D budget is equivalent to roughly 8% of consolidated net sales, which is primarily used to strengthen R&D functions in Japan and overseas, including the U.S., South Korea, and Taiwan. Our main focus is on research into functional polymer materials and the development of applied technologies. We are also concentrating on the development of better microprocessing and high purification technologies for the cutting-edge electronics field, in addition to the development of related equipment and production technologies. In new business development, we are accelerating open innovation.

■ Refining Our R&D Strategy

R&D efficiency (operating income/R&D costs) has been improving as a result of efforts to further refine our strategies in R&D fields and the marketing of technologies.

■ Strategic Patent Portfolio

TOK has been expanding its portfolio of patents related to semiconductors, displays, and new businesses. The Company aims to develop reliable businesses with new promising technologies, and erect barriers to entry with its patent portfolio.

Human capital

Human capital



- Increasing investment in human capital
- Hiring foreign employees locally

Human Resources as a Company Asset

Based on the spirit of a frank and open-minded business culture, one of our management principles, the Company focuses its energy on creating safe and sound working environments where each and every employee can work in a motivated manner. The Company is also expanding investments in human capital in line with its human resources policy of never forgetting that business always starts with "people." The average annual salary at TOK has increased for nine consecutive years to reach ¥8.16 million*¹ as of December 31, 2018, and the average tenure figure rose to 20.8 years*¹, also increasing for a ninth straight year. The ratio of employees taking paid leave was 75.3%, much higher than the average of 58.4%*² for the manufacturing industry.

*¹ Non-consolidated basis

*² Source: Ministry of Health, Labour and Welfare's 2018 Summary of General Survey of Working Conditions for 2017 or fiscal 2016

Advancing Globalization of Personnel

The consolidated ratio of non-Japanese employees is on the rise, reflecting the expansion of customer-oriented sites overseas and an emphasis on merit-based hiring and promotions regardless of nationality. The Company has made progress appointing non-Japanese employees to top positions and promoting local hires to key positions at local subsidiaries. In sales and marketing departments in particular, local personnel who have a deep understanding of TOK's management principles and approach to marketing have made strong contributions to sales growth.

Social and relationship capital

Social and relationship capital



- Robust customer base and relationships based on trust
- Supplier engagement

Development of Customer-Oriented Sites Overseas

TOK has established manufacturing and development sites in the U.S., South Korea, and Taiwan where many of our customers are located. By introducing prototype production lines equal to customers' lines, we can quickly commercialize the results of development, and build a robust customer base with solid trust relationships in the fast-changing semiconductor/electronics industry.

Collaboration with Stakeholders Other Than Customers

As technical development in cutting-edge semiconductor fields grows increasingly difficult with each passing year, building ties with a variety of stakeholders aside from customers will become a key to solving issues and innovating on the technological front. TOK is working to build deep social and relationship capital through R&D. These efforts include discovering and supporting venture companies with superior technological capabilities, engaging in joint research with academics, and participating in a variety of consortiums.

Cooperation with Suppliers

The Company is strengthening and augmenting its engagement with suppliers, because cooperation with suppliers is essential to managing risks inherent in chemical substances, and because it is necessary to start at the raw material formulation stage in order to further raise the quality levels of its products.

Natural capital

Natural capital



- Creating environmental value through business activities
- Minimizing environmental risks

Provision of Environmentally Beneficial Products

One example of creating environmental value through business is our supply of photoresists that contribute to the miniaturization of semiconductors, which in turn reduces energy consumption. Furthermore, TOK has a top share* of the world market for g-Line and i-Line photoresists that are essential in the manufacture of power semiconductors used to conserve and control energy in renewable energy systems, electric vehicles and hybrid cars. Sales of g-Line and i-Line photoresists have reliably accounted for almost 10% of consolidated net sales.

* Share of sales volume for 2017 (Source: Fujii Keizai's "Whole View of Photo-functional Material and Product Market 2018")

Responsible Care Activities

As a manufacturer that handles chemical substances and uses large volumes of water in production processes, TOK focuses efforts on the minimization of environmental risk in the production process and throughout its supply chain. With laws, regulations and customer requirements regarding the management of chemical substances at increasingly high levels overseas, the Company also focuses on Responsible Care activities* as a part of its GMS (Group Management System) that reinforces the Group management structure globally.

* Activities in which companies handle chemical substances voluntarily take environmental, safety and health measures in every process from chemical substance development through manufacturing, logistics, use and final consumption to disposal and recycling, and announce the results of these activities while engaging in dialogue and communication with the public. (Defined by Japan Chemical Industry Association)



Our Material Issues

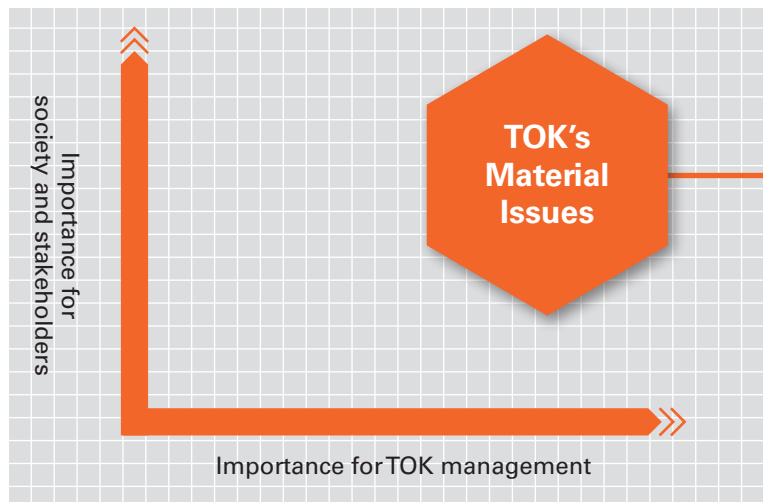
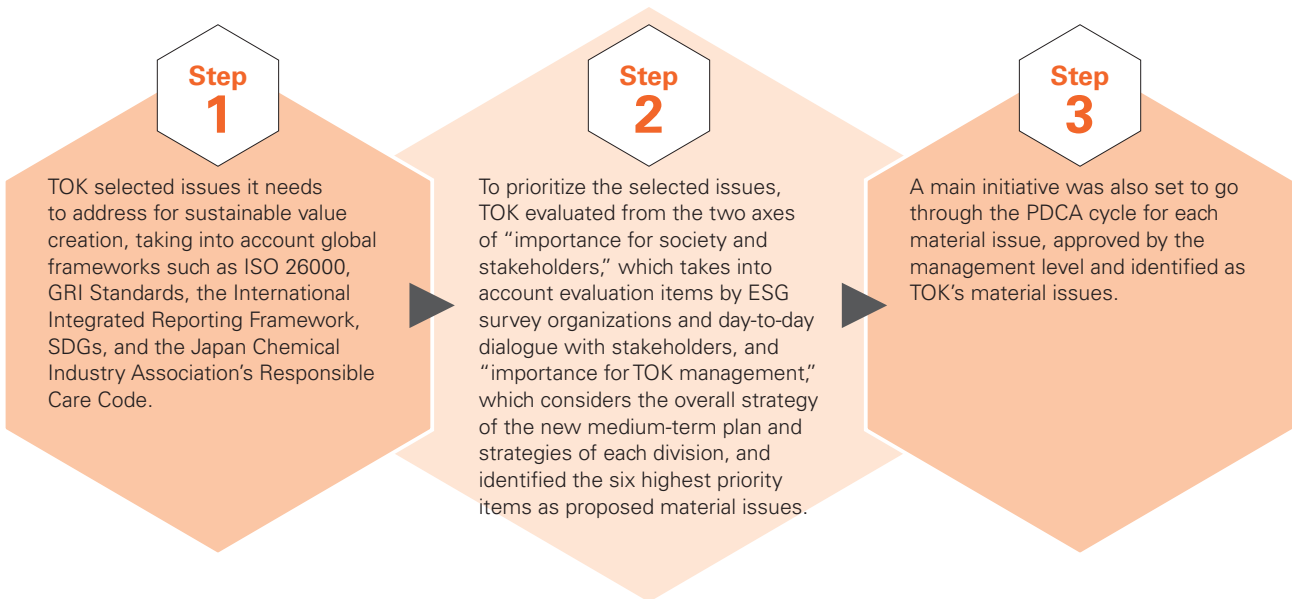
Identification of Material Issues for Enhancing Corporate Value

TOK has identified material issues to improve corporate value for further evolution of non-financial capital and to promote sustainable growth. Through efforts for these material issues, we aim to create shared value and enhance sustainable corporate value.

—Continuing Contributions to Society—






















TOK aims for sustainable enhancement of corporate value by contributing to resolving social issues through provision of high value-added products in cutting-edge fields, as well as sincerely and pro-actively fulfilling its social responsibilities through all of its activities (value chain). Going forward, we will focus on material issues, which are guidelines to respond to various stakeholders' expectations and trust, and to continue to "contribute to society," a management principle.

Material Issues Identification Process



Sustainable enhancement of corporate value through shared value creation

Material issues for enhancing corporate value

Material issues	ESG fields	Key initiatives	Related SDGs
Development and provision of high value-added products that will contribute to innovation	Social (S)	Further improve customer satisfaction	    
		Contribute to innovation and solving social issues	
Environmental protection	Environment (E)	Promote environmental management	      
		Address climate change issues	
		Promote resource recycling	
		Preserve air, water, and soil environments	
		Preserve biodiversity	
Chemical substance management		Precisely address laws and regulations	 
Enhancement of personnel measures	Social (S)	Strengthen personnel capabilities	   
		Diversity and inclusion	
Occupational health and safety/security and disaster prevention	Social (S)	Respect for human rights and fair working conditions	 
		Occupational health and safety/Reduction of risks posed by chemical substances	
Enhancement of corporate governance	Governance (G)	Strengthen the effectiveness of governance	
		Compliance	
		Risk management	

Our Value Creation
Solve social issues through business

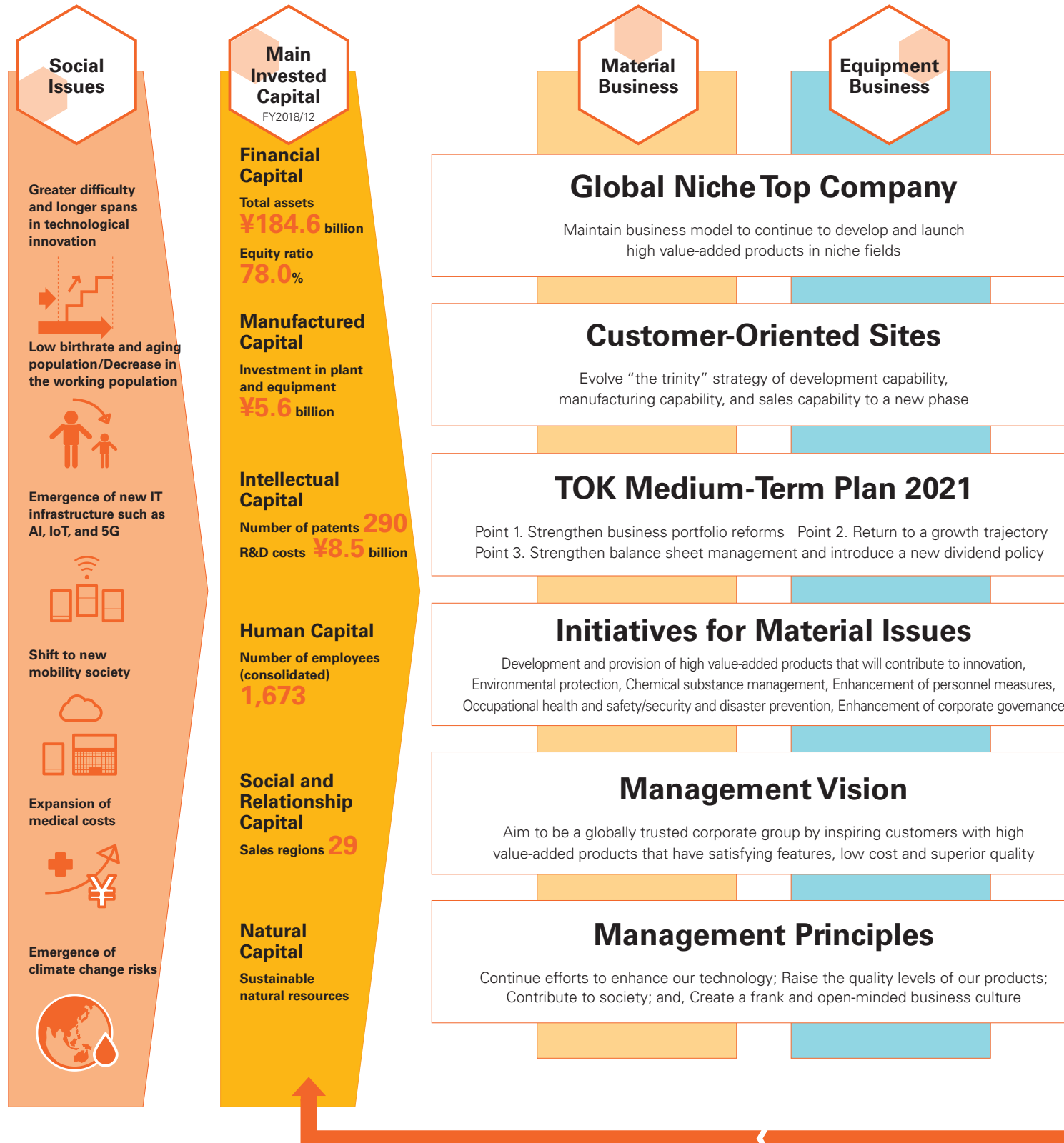
Our Foundation
Sustainable foundation for value creation



Our Value Creation Process

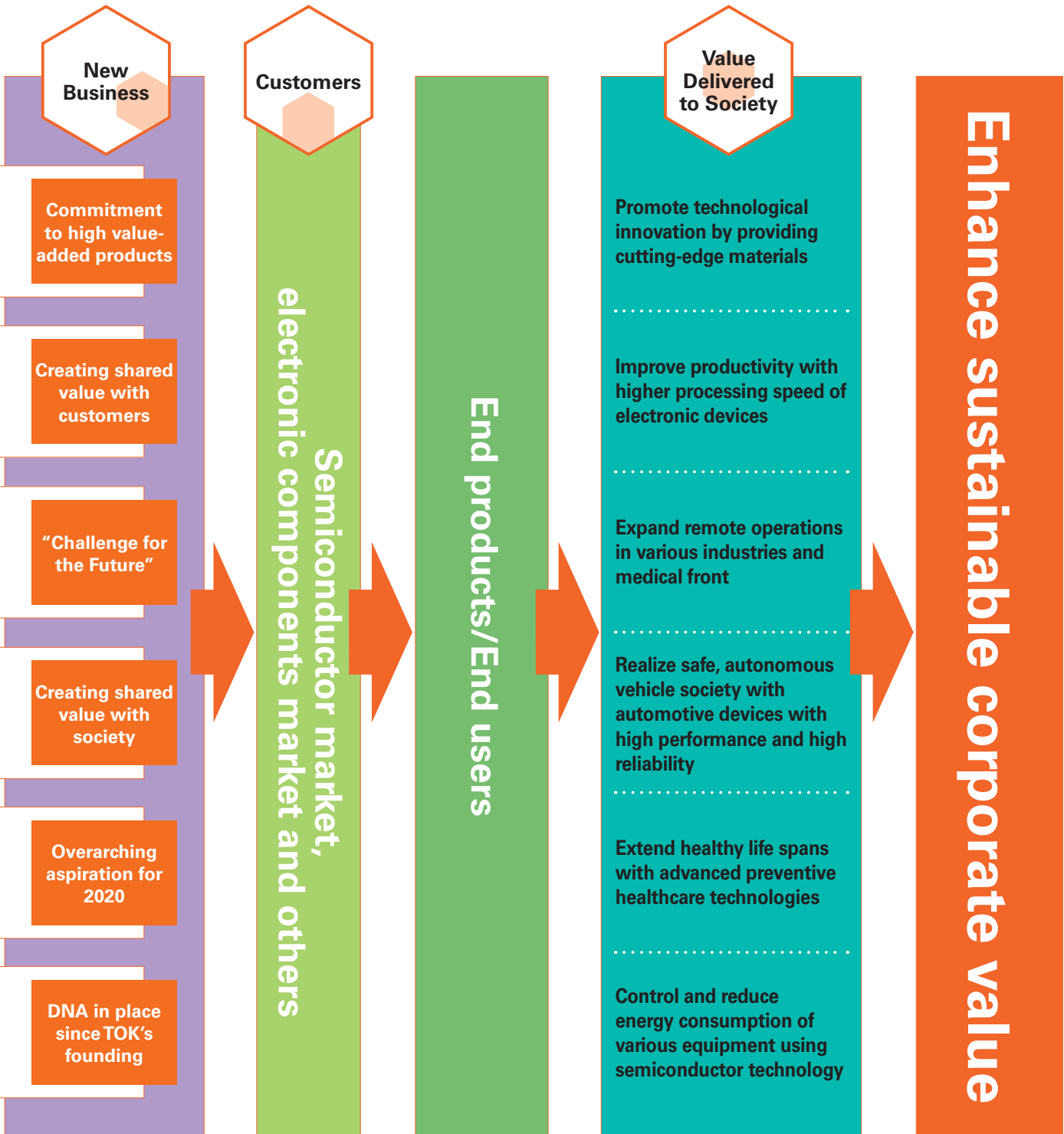
TOK's Sustainable Value Creation Process

As a global niche top company, TOK is contributing to solving social issues by developing products that are useful to society and are not offered by other companies, based on a solid customer foundation it has built within and outside of Japan. Sustainable value creation in the semiconductor-related and electronics-related businesses, where technologies change at an extremely fast pace, is supported by a financial foundation with a super-long-term view, world-leading technological capabilities, constant R&D and investment in human capital.



Under the TOK Medium-Term Plan 2021, we will create shared value by further evolving these management resources and focusing on initiatives for material issues and reinvesting toward sustainable value creation.

Performance targets for FY2021/12: Net sales **125.0 to 145.0** billion yen Operating income **15.0 to 20.5** billion yen



Reinvest toward sustainable value creation



TOK's Photoresists

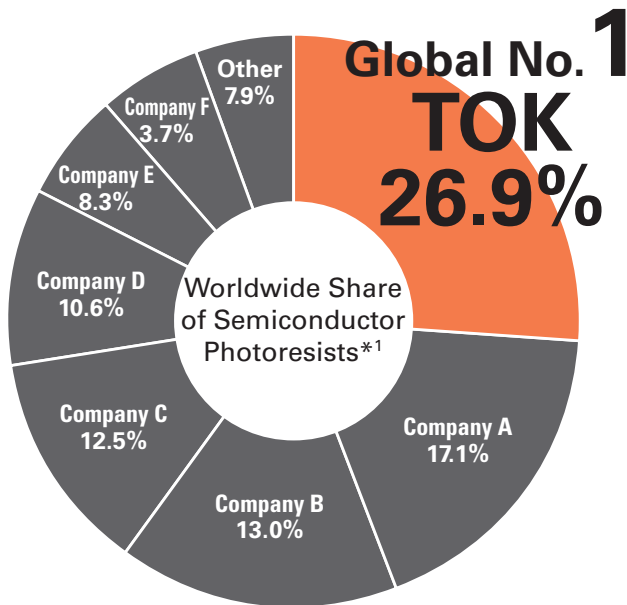
TOK is the world's No.1 manufacturer of photoresists, which are photosensitive materials indispensable for the manufacture of semiconductors. We will explain the functions and performance of photoresists in the semiconductor manufacturing process.

Breakdown

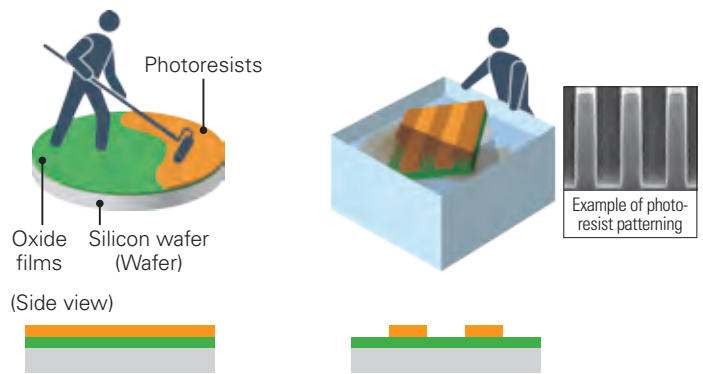
TOK's Semiconductor Photoresist Business

Front-end processes of semiconductor manufacturing

Process of making integrated circuits on a silicon circuit board and producing LSI chips. The process utilizes photoresists' resistance to etching.



*1 Based on actual total sales volume of ArF, KrF, g-Line and i-Line photoresists in 2017 (Calculated by TOK based on Fuji Keizai's "Whole View of Photo-functional Material and Product Market 2018")



Semiconductor manufacturing flow

Front-end processes

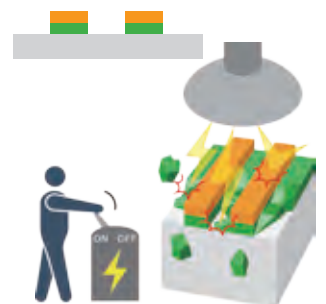
(2) Exposure

A photomask (circuit design) is transferred to the photoresist.



(4) Etching (Engraving)

Patterns are formed in the etching process. (Photoresist works as a protective film.)



Our Value Creation

We have accumulated deep knowledge of all front-end processes of semiconductor manufacturing through our engagement not only in photoresists, but also in high-purity chemicals and process equipment. This enables the creation of further high added value.



Creating Shared Value

Mount in various types of end products and create shared value

Our Strength

Providing photoresists that become growth drivers in both **front-end processes** and **back-end processes** of semiconductor manufacturing

Achieving SDGs



Our Value Creation

Our Focus

Our Foundation

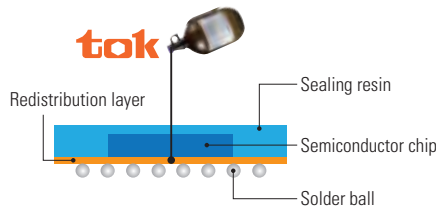
Data Section

Back-end processes of semiconductor manufacturing

Process of dicing individual semiconductor chips and inserting in each type of packaging. The process utilizes photoresists' thick-film forming capabilities.

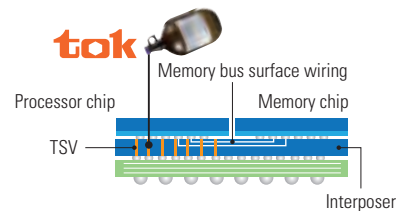
EX. 1

Fan-out wafer level packaging (FOWLP) with photoresists for RDL fabrication



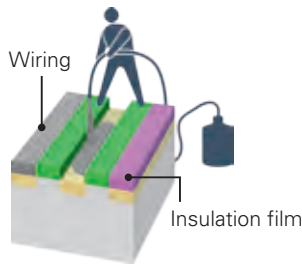
EX. 2

2.5D interposer with photoresists for RDL fabrication



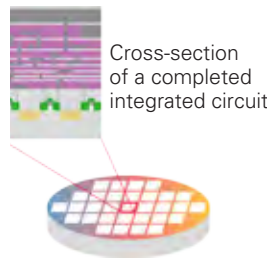
(5) Removal of photoresists

Photoresist having served its purpose is removed from the circuit board.



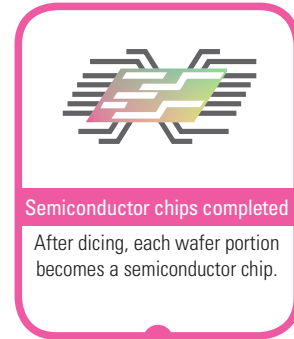
(7) Formation of insulation film and wiring

Aluminum or copper wirings are formed.



(9) Completion of an integrated circuit

Multiple ICs are created on wafer surface using microprocessing technology.



Semiconductor chips completed

After dicing, each wafer portion becomes a semiconductor chip.

(6) Formation of a semiconductor field

A semiconductor field is formed by coating with a diffusing agent and baking at high temperature.



(8) Formation of integrated circuits

ICs are formed by repeating the processes (1) through (7).



Back-end processes

(10) Dicing of wafers

Wafer is diced into chip-sized components.



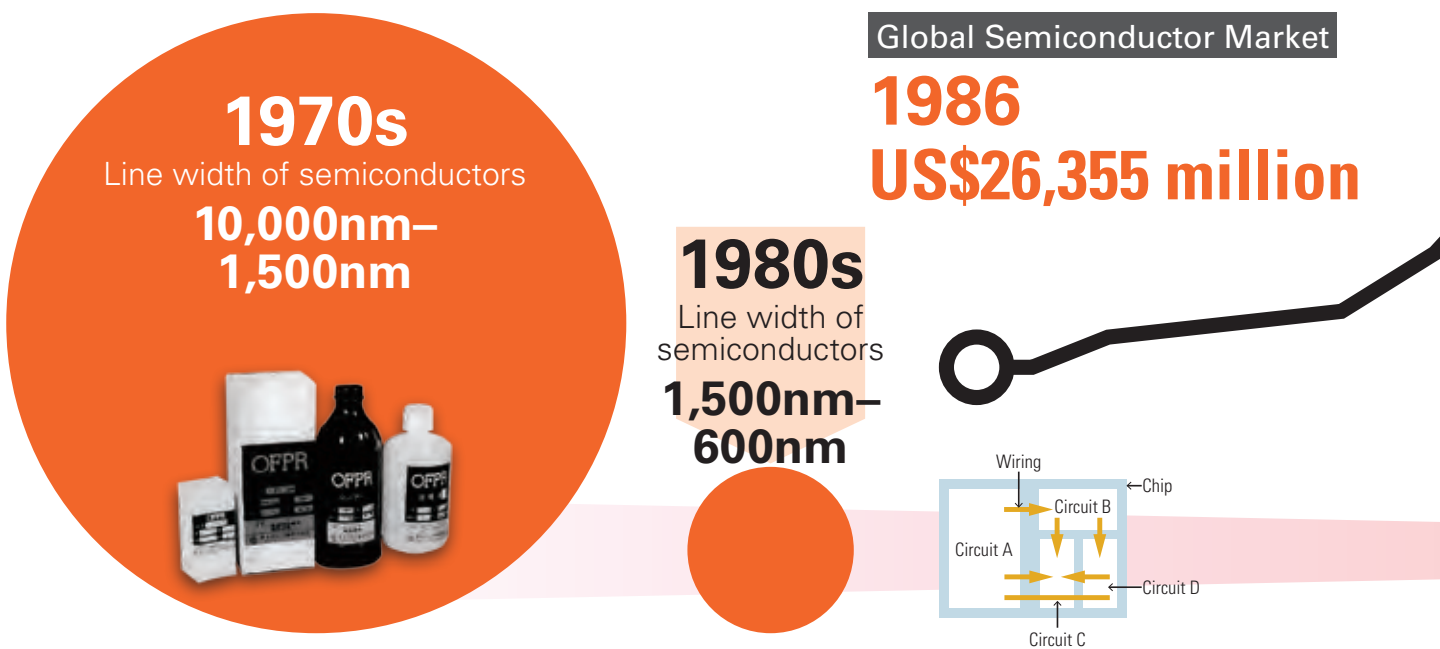
Core Values of the Photoresist Business

Even when making semiconductors with the same line width and specifications, the features required of photoresists and methods in which they are used can be vastly different depending on the semiconductor manufacturer. TOK's photoresist business provides finely tuned tailor-made products appropriately and swiftly for the different needs and requirements of each customer or process, contributing to the evolution of all types of industry and technological innovation and creation of an environmentally friendly society.

Semiconductor Line Width*¹ and Global Semiconductor Market Size*²

*1 Includes TOK's estimates for the decades shown

*2 Source: World Semiconductor Trade Statistics

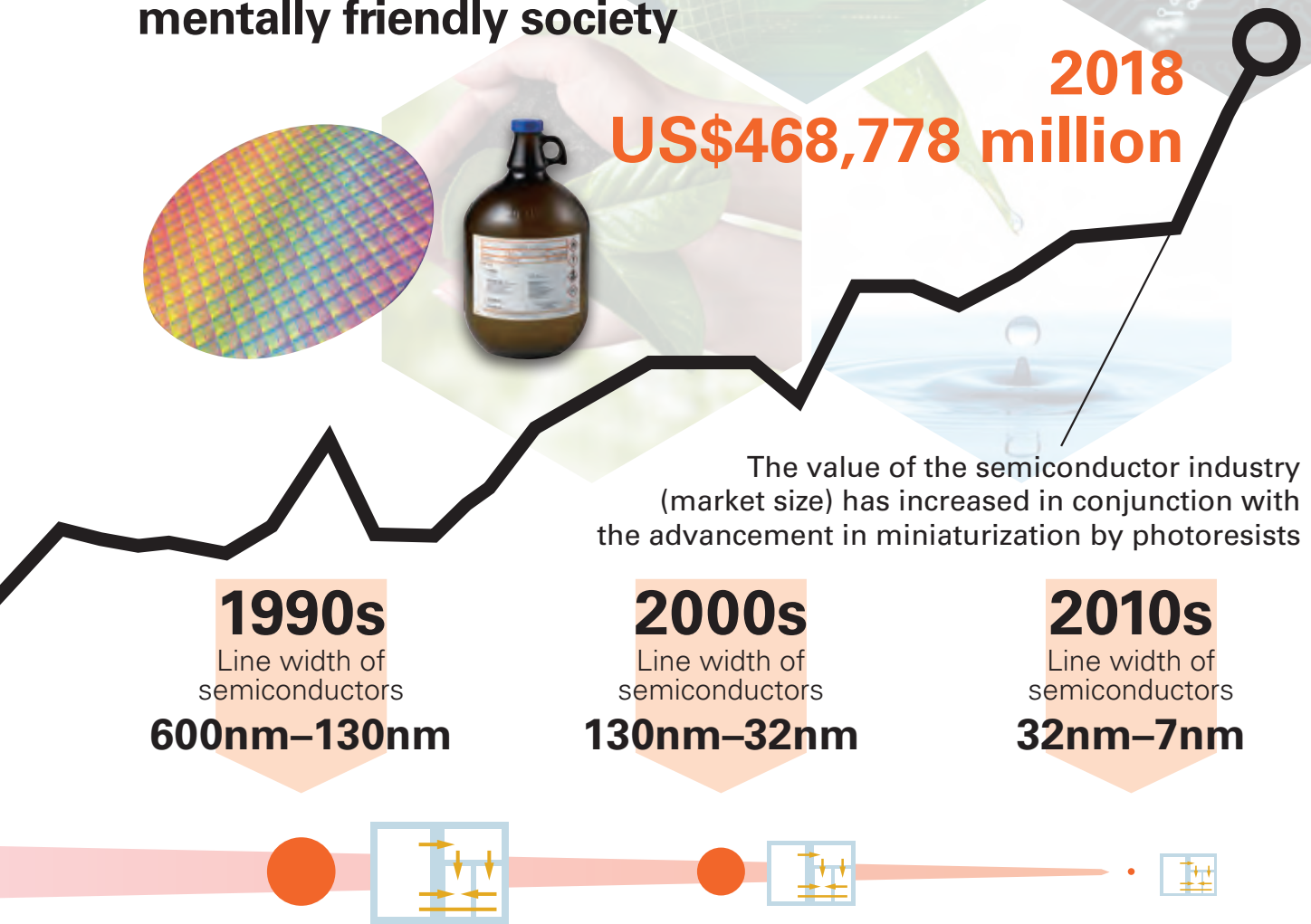


TOK's Core Values

Factors Adding Value to Semiconductor Photoresists

- Sensitivity
- Resolution
- Roughness*
* Fluctuations in line width
- Etching resistance
- Substrate adhesiveness
- Processing applicability
- Purity
- Substance safety
- Cost

Contributing to the evolution of all types of industry and technological innovation/creation of an environmentally friendly society



Our Value Creation

Our Focus

Our Foundation

Data Section

Higher processing speeds and lower manufacturing costs of semiconductors



Higher performance, greater compactness, lower power consumption, and lower cost of electronic devices

We have **the capability** of swiftly providing finely tuned tailor-made photoresists for the different needs and requirements of each customer or process



Customer A	Process A	Process B	Process C
Customer B	Process 1	Process 2	Process 3
Customer C	Process I	Process II	Process III



TOK at a Glance

Business Portfolio

We are leveraging the Material Business, our current earnings driver centering on cutting-edge domains, and realizing synergy with our Equipment Business, which is cultivating new niche business domains.

Material Business

Develops high value-added products as an earnings driver

Electronic functional materials

Photoresists

Widely used materials indispensable for the **microprocessing** of devices including semiconductors, LCDs, and other electronic products



High-density integration materials

Packaging photoresists and MEMS materials compatible with **multilayer stacking** accompanying advances made in semiconductor microprocessing



High-purity chemicals

High-purity chemicals

Developing solutions, clean solutions, rinsing solutions, thinners and other chemicals with **world-leading high purity**



Inorganic and organic chemicals

Chemicals used in a wide range of industries



Other
0.1%

Material Business:
Electronic functional materials
55.9%

Equipment Business

Getting one step ahead of market needs in synergy with the Material Business

Process equipment

Semiconductor manufacturing equipment

TOK's Zero Newton wafer handling system that enables significant increases in efficiency of the **3D packaging process** of semiconductors



LCD panels manufacturing equipment

Various types of process equipment including UV curing machines used to manufacture **flexible displays**, coating machines that can achieve high-precision performance, and coating machines for R&D



Equipment Business
2.5%

Material Business:
High-purity chemicals
41.5%

FY2018/12
Consolidated
net sales
105.2
billion yen

Materials

Equipment

—M&E (Materials & Equipment) Strategy—

Material Business



Strengthen our value creation in all directions in the 2D and 3D semiconductor markets

SWOT analysis by segment
>>> Refer to pages 58 and 62

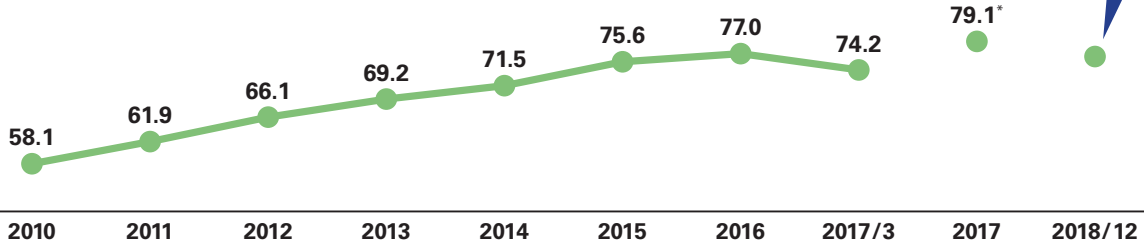


Equipment Business

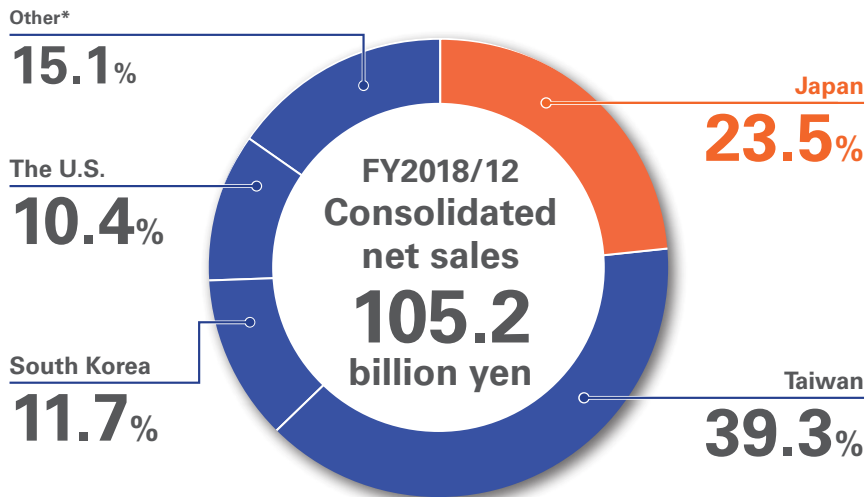
Global Expansion

As a result of our focus on the semiconductor field and strategy of building close relationships with customers, overseas net sales account for approximately 75% of consolidated net sales, and are on an upward trend.

Overseas sales ratio (%)



* Due to a change in fiscal year-end, the fiscal year ended December 31, 2017 was an irregular nine-month period in Japan, and 12 months overseas.



* Other: China, Europe, and Singapore, etc.

Japan

Headquarters/Five plants/
Two operation centers/
Distribution control center

- Headquarters (9 sites)
- Number of employees (consolidated): 1,199

The United States

TOKYO OHKA KOGYO
AMERICA, INC.

- 1 local subsidiary (2 sites)
- Number of employees (consolidated): 113

South Korea

TOK Advanced
Materials Co., Ltd.

- 1 local subsidiary (1 site)
- Number of employees (consolidated): 121

Taiwan

TOK TAIWAN
CO., LTD.

- 1 local subsidiary (3 sites)
- Number of employees (consolidated): 175

* Number of employees: as of December 31, 2018

Product Portfolio

We excel in niche areas in both the front-end process and back-end process of semiconductor manufacturing, and we excel at both miniaturization and 3D packaging. We also offer cutting-edge value in the fields of high-purity chemicals, which are non-photosensitive materials, and equipment.

<h3>Semiconductor Manufacturing Field</h3> 			g-Line/i-Line Photoresists Global No.1*	KrF Excimer Laser Photoresists Global No.1*	
ArF Excimer Laser Photoresists	EUV (Extreme Ultraviolet) Photoresists	EB (Electron Beam) Photoresists			
Interlayer Insulating Film	Diffusing Agents	Materials for Shrink Process			
Materials for Cover Coat	Directed Self-Assembly Materials (DSA)	High-Purity Chemicals			
<h3>Semiconductor Packaging Manufacturing Field</h3> 			Bump Photoresists	Resists for Wafer-level CSP	High-Purity Chemicals
<h3>Image Sensor/MEMS Manufacturing Field</h3> 			Materials for Photosensitive Permanent Films	Resists for Micro Lens	High-Purity Chemicals
			Lift-off Resists		
<h3>3D Packaging Field</h3> 			3D Packaging Equipment Zero Newton	Adhesive Materials	High-Purity Chemicals
<h3>Panel Manufacturing Field</h3> 			TFT Resists	Resists for Color Filters	UV Curing Machines
			Resists for Organic EL	High-reliability Transparent Materials	High-Purity Chemicals
<h3>High-Purity Chemicals</h3> 			Clean Solutions	Thinner	Developing Solutions
			Organic Chemicals	Inorganic Chemicals	

VALUE

VALUE

* Share of sales volume for 2017 (Source: Fuji Keizai's "Whole View of Photo-functional Material and Product Market 2018")



Main Target Markets, Applications, and End Products, etc.

All of TOK's products are based on the B-to-B business, and people never see our products in their daily lives. However, these materials are essential for the evolution of end products, and they contribute to various innovations and to solving a range of social issues.



To Our Stakeholders — A Message from the President —



Challenge for the Future

I will drive TOK's sustainable value creation by strengthening our marketing to "Meet Social Expectations with Chemicals."

Noriaki Taneichi

Representative Director, President & Chief Executive Officer



TOK's Value Creation

◆ Providing High Added Value for Customers in All Our Output

The smartphone has become embedded in our lifestyles, as an essential part of our daily lives. The maturing smartphone market is unlikely to grow much more, given its large size already. In the coming era of 5G and IoT, however, the smartphone is evolving into a “hub” of new innovations, as one of the most important items that connect people with society. Smartphones compatible with 5G are forecast* to spread at a faster pace than previous mobile phones.

Do you know how much the data storage capacity of a major smartphone brand has increased over the 11 years since it emerged in the U.S. in 2007? It has actually increased 128 times. This could not have been achieved without fine chemical manufacturers like TOK supplying unceasingly evolving photoresists and other materials to global semiconductor manufacturers, helping them narrow the line width of semi-

conductors to less than one quarter of what they were 11 years ago. This advance, called semiconductor miniaturization, has allowed higher performance and smaller sizes in not only smartphones, but also many other types of electronic devices.

Semiconductor miniaturization has continued to contribute to the sustainable development of society by improving environmental performance and ensuring safety and security in our daily lives.

In addition to photoresists, all of our products and services deliver high added value for customers. Our products start as an input in the value creation process of customers, and have a special influence on the quality of customers’ output in terms of product quality and yields. In other words, the “Development and provision of high value-added products that will contribute to innovation,” one of TOK’s material issues, entails contributing to industrial evolution and technological innovation by providing high value-added tailor-made products alongside customers on the cutting edge of the world of technology. I believe this is the true essence of value creation at TOK, and a driving force behind the creation of shared value for our customers and society, which helps solve social issues.

* Source: IHS Markit

◆ Meeting Customer and Social Expectations with Chemicals

The semiconductor industry accounts for about 0.5%*¹ of global GDP, but the ripple effects are several ten times higher than this figure when including the impact semiconductors have on final products and other industries. Semiconductors are essential for industry, and have been one of the most important industries from the standpoint of solving issues faced by the human race and for the sustainable development of society. Make no mistake, the value delivered by semiconductors will continue to increase into the future as well. Moreover, this means that the social responsibilities and public mission of TOK, as the world’s leading*² manufacturer of photoresists, an irreplaceable material in semiconductor production, will only increase in importance.

Since being offered the position of president of TOK last year, I had been thinking about my final decision. The reason why was because I was regretful for the slow progress made

on reforming the business portfolio in the final year of the “TOK Medium-Term Plan 2018” as the person in charge of new business development, and also because I had spent the previous 14 years focused on marketing to create new business pillars to complement photoresists. I

needed this time to ask myself what only I could accomplish as president of TOK, and also to reassess the *raison d’être* for TOK in society.

While mulling for several months, I noticed that two Japanese characters in the Company’s name (Ohka) mean more than “applied chemistry.” They also mean to “meet expectations with chemicals,” and this is where TOK finds its *raison d’être*. The process of “meeting customer expectations with chemicals,” and ultimately solving the social issues behind customer expectations, is fundamentally the marketing that I had poured my heart into for many years. Once I realized this, it clearly dawned on me what my mission is. I will drive the creation of new value by further enhancing our marketing and continuing to hone our world-leading technological capabilities that have been accumulated over the past 80 years or so.

*1 Based on 2017 results (calculated by TOK based on data from the World Bank and World Semiconductor Trade Statistics)

*2 Share of sales volume for 2017 (Calculated by TOK based on Fuji Keizai’s “Whole View of Photo-functional Material and Product Market 2018”)

Honing our world-leading technological capabilities while further enhancing marketing

◆ **Becoming a “100-Year Company” in 2040**

Another reason to enhance marketing is to fortify TOK's ability to sustainably create value.

Our founder Shigemasa Mukai's philosophy has been passed down through the generations, and TOK has sustained growth with a business model that prioritized the continued development and introduction of high value-added products to the niche markets with rapidly changing technologies. With this in our DNA, we will not waver from the basic strategy of continuing to advance our world-leading high purification technology and microprocessing technology while staying in tune with customer needs.

However, to expand profits further and become a “100-year company” in 2040, we must continue to prosper in existing businesses while building new earning pillars. The pace of technological change in the electronics industry has accelerated, and development has become increasingly difficult every year. In the context of prospering and establishing new earning pillars against this backdrop, starting development after discussions with customers is already too late. We must enhance our marketing strategy to quickly build a marketing model in which we proactively repeat the cycle of hypothesis and verification.



◆ **Meeting Social Expectations with Chemicals for a Sustainable Earth**

While solidifying our ability to sustainably create value, we will continue to put into practice the four management principles we have had since our founding: “Continue efforts to enhance our technology,” “Raise the quality levels of our products,” “Contribute to society,” and “Create a frank and open-minded business culture.”

Given the rapid pace of change in the business environment and deepening seriousness of social issues such as climate change, I felt we must slightly reinterpret these four management principles in order to increase their effectiveness while redoubling our efforts. Going forward, we will put our management principles into practice based on a rewritten mission to “Explore new technologies and enhance technological capabilities to meet social expectations with chemicals for a

sustainable earth.”

By “meeting social expectations with chemicals,” we aim to enhance marketing and realize an abundant society with more conveniences. TOK will continue to refine its strengths that facilitate sustainable value creation on the cutting edge, while listening to the voices of its customers and working closely with them in various regions around the world. At the same time, we will improve our ability to take a bird's eye view of trends in society and markets.

The newly added “for a sustainable earth” reflects the rather large role that TOK should play in combating the increasing risks caused by climate change. For example, data

servers for the cloud computing environments that have grown exponentially over the past few years use a fair number of cutting-edge semiconductors that consume less power, but more electricity than is saved on the semiconductor side is required for air conditioning systems to cool down these computers. This

is because excess unconsumed energy is released as heat, one issue that we intend to solve by advancing semiconductors and the materials used to make them.

I majored in chemistry at university, partially out of concern for environmental problems, and I have long been very interested in environmental-related businesses. As products related to technologies that control electrons, TOK has provided cutting-edge photoresists that help reduce power consumption in semiconductors, i-Line photoresists for power semiconductors, as well as 3D packaging equipment and plasma ashing systems for power devices. TOK will develop materials that contribute to technologies for controlling heat and light in a bid to create new environmentally friendly products. In terms of technologies for controlling heat, we are developing high-functional films with high heat resistance, high chemical resistance, and ultra-low dielectric constants for use in high value-added lithium-ion batteries, for example. In terms of technologies for controlling light, TOK has been advancing joint development with Pixelligent Technologies, LLC in the U.S., in which it made an investment in April 2018, with the aim of creating high refractive index materials that should considerably help reduce power consumption.

In addition to these initiatives, TOK will enhance marketing in environmental-related fields while expanding its lineup of high value-added environmentally friendly products. The Company is in position to promote the creation of value for a sustainable earth.



Continue to hone our strengths that enable sustainable value creation on the cutting edge while working closely with customers

TOK Medium-Term Plan 2021



Review of the “TOK Medium-Term Plan 2018”

TOK recorded its first operating loss since going public in the fiscal year ended March 31, 2009, soon after the collapse of Lehman Brothers. Although the Company secured operating income in the following year of 2010, thanks to business structural reform, in order to reenergize shaken employee morale and aim for a new stage of growth, TOK formulated “Overarching aspiration” as its long-term management vision targeting 2020, 10 years into the future. Under the “TOK Medium-Term Plan 2018,” launched as a three-year plan for achieving our numerical target for operating income of ¥20 billion in 2020, we endeavored to “Reform business portfolios,” “Evolve strategy of building close relationships with customers,” “Develop global personnel” and “Strengthen management foundation” while making aggressive strategic investments.

Although TOK was able to see results in line with objectives for KrF excimer laser photoresists for 3D-NAND, high-density integration materials and high-purity chemicals, the Company was unable to get major customers to adopt its ArF excimer laser photoresists as expected, partly resulting from delays in major customers’ production plans, and it encountered delays in developing the Equipment Business and new business. As a result, operating income did not meet the target of ¥15 billion in the final year of the plan. Even though the global semiconductor market was expanding on an unprecedented scale, we regret disappointing many of our shareholders and investors by not reaching a new record high in profits, despite being the subject of their interest as a company with advantages in miniaturization, higher densities, and 3D packaging. During the new medium-term plan, TOK aims to stage a comeback in areas that led to the shortfall, namely ArF excimer laser photoresists, the Equipment Business, and the creation of new businesses.

However, TOK made considerable progress setting a foundation for sustainable growth in the future. The Company was able to secure a good position in the development of EUV photoresists for the 7nm node on the cutting edge of semiconductor miniaturization, thanks in part to results from open innovation. We successfully developed and won a major contract for ultra-high-performance clean solutions for the 10nm node. Our strategy of building close relationships with customers has advanced to a new stage, as we are building development systems even closer with this customer for reaching even

greater levels of miniaturization. In high-density integration materials, sales have grown to roughly quadruple their level six years ago, reflecting strong growth in materials for fan-out wafer level packaging, which contribute to the smaller sizes and lower energy consumption of smartphones, and MEMS materials, which enable high-density integration. I was extensively involved in the launch of this business about 10 years ago, coming up with a marketing strategy while working closely with the development team. Our decision to specialize in the development of next-generation high-resolution positive photoresists and not immediately enter the market was the right move in hindsight. With this as a model example of TOK’s future marketing strategy, we will steadily tackle growing customer needs in the 5G and IoT era.

With the preparations we made during the “TOK Medium-Term Plan 2018,” we will return to a growth trajectory while firmly leveraging our reinforced R&D and production bases inside and outside Japan. The “TOK Medium-Term Plan 2021,” launched in the fiscal year ending December 31, 2019, was created with “meeting customer and social expectations with chemicals” in mind.

Return to a growth trajectory by steadily reaping the benefits of preparations made to date

Basic Policies and Targets of the “TOK Medium-Term Plan 2021”

Under the “TOK Medium-Term Plan 2021,” we continuously aim to be a globally trusted corporate group by inspiring customers with high value-added products, the “Overarching aspiration for 2020” in our long-term management vision. Our qualitative goal is to “Cultivate niche markets that the TOK Group should develop.”

With the semiconductor industry likely to expand over the long term, TOK is prepared to aggressively pursue business opportunities in the Chinese market in particular. However, due to strong uncertainties arising from semiconductors being a focal point of the trade friction between the U.S. and China recently, we have set ranges for quantitative targets, and aim for operating income in the ¥15.0–20.5 billion range for the fiscal year ending December 31, 2021. With this target, we are focusing on measures to strengthen business portfolio reforms and return to a growth trajectory with the aim of attaining record-high profits in the second year of the plan. While this would be one year later than our target for operating income of ¥20 billion in 2020, we are keen to achieve this target.

◆ Growth Drivers in 5G, IoT and Innovation

As growth drivers for strengthening business portfolio reforms, we are focusing on maximizing opportunities that will arrive in the coming 5G and IoT era. It is estimated* that 5G will add a total of \$2.2 trillion to the global economy by 2034, and account for 5.3% of GDP growth, and semiconductors are likely to represent a large portion of this.

In addition to smartphones and tablet devices, all sorts of things, like automobiles, home appliances, and industrial equipment, will be connected to networks, and data obtained from various sensors will be processed digitally. All of these devices will require high-speed data processing capabilities in a society with 5G and IoT. Semiconductors will continue to see even greater demand for higher performance. Leveraging the advantages of 5G, namely high-speed, high capacity, low latency, and multiple simultaneous connections, it will become possible to alleviate personnel shortages in healthcare, construction, and logistics situations through remote operations. The spread of 5G and IoT will make it possible to solve a variety of social issues like this.

The TOK Group will focus on the following business strategies leveraging its technological capabilities accumulated over many years in the semiconductor front-end (miniaturization) and back-end (packaging, 3D packaging, etc.) processes, as well as its close relationships of trust with customers on the cutting edge of technology. TOK aims to help solve many issues faced by society while achieving the quantitative targets in the “TOK Medium-Term Plan 2021.”

* Source: GSMA Intelligence “The Mobile Economy 2019”

◆ ArF/EUV Photoresists

In ArF excimer laser photoresists for 10nm-level semiconductors, which are likely to be increasingly used in mobile devices, HPC*, game consoles and 5G base stations, TOK targets higher sales in the U.S. and South Korea, where customers have already adopted our photoresists, while seeking to expand sales in China. The Company also aims to steadily increase sales of EUV photoresists for 7nm semiconductors in Taiwan, where mass production is ramping up.

* High Performance Computing: Massive calculations and data processing performed by super computers and other high-performance computers

◆ KrF/i-Line Photoresists

In KrF excimer laser photoresists for 3D-NAND, which is expected to find greater use in data servers, mobile devices, automotive equipment and 5G base stations, TOK will firmly latch onto opportunities presented by more layers being added to 3D-NAND, along with higher production volumes, in Japan and Asia. For i-Line photoresists, TOK is engaging in R&D to create more added value to meet new emerging needs in line with advances in semiconductor devices.

◆ High-Purity Chemicals

As with ArF excimer laser photoresists, the Company plans to increase sales of clean solutions and high value-added thinner to customers that have already adopted our products for 10nm-level semiconductor processes in North America and Taiwan. Moreover, TOK will make efforts to expand sales of high-purity chemicals in China.

◆ High-Density Integration Materials

Among high-density integration materials for semiconductor devices, which are likely to be used in mobile devices and HPC applications, TOK intends to maintain its share in packaging materials with existing customers, while focusing on expanding sales to OSAT* manufacturers and winning adoption for cutting-edge processes. In MEMS materials, the Company aims to increase sales for high-frequency devices and expand the customer base in order to increase sales further.

* Outsource Assembly and Test: A business model that only entails the back-end process for semiconductor foundries

◆ Equipment Business

As the core product of the Equipment Business, TSV* equipment is the most promising piece of equipment for semiconductor 3D packaging and high-integration technologies. However, earnings have been stagnant in this segment due to the slow launch of the TSV market. Investors and analysts have criticized our strategy, suggesting we integrate it with the Material Business segment or withdraw entirely.

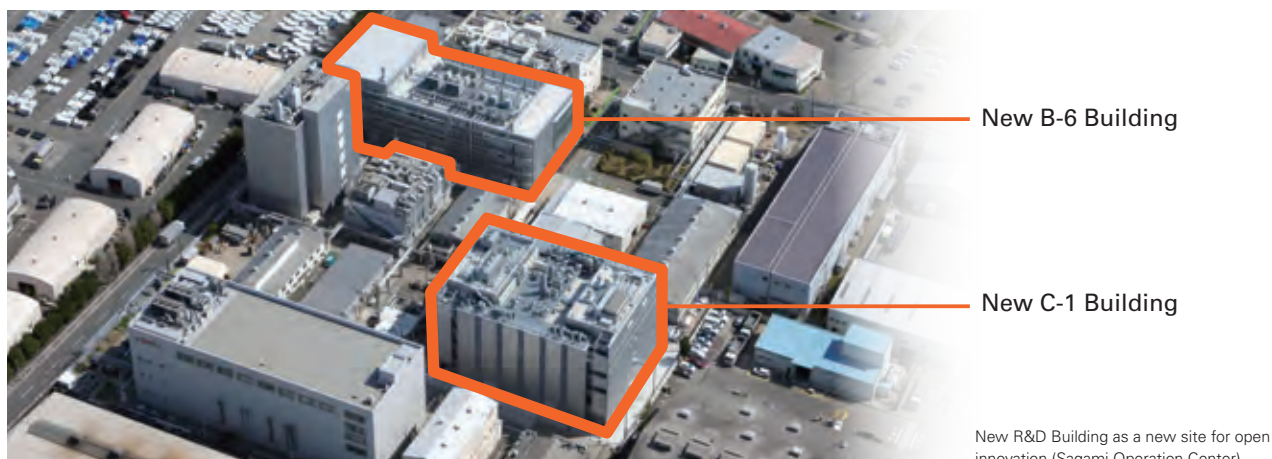
However, the Company’s Equipment Business focuses on niche domains that differ from major equipment manufacturers. We are focusing our energies on the M&E (Materials & Equipment) strategy for proposing “processes” that draw out the maximum potential of the characteristics of materials, based on our deep knowledge of semiconductor materials. Recently, our plasma ashing system and TSV equipment have been adopted for the production of power devices. We are confident that there are still many opportunities for growth backed by the Company’s strengths and recent social issues. To address the high cost structure, a feature of providing original solutions for each process at customers, we are moving ahead with measures to increase efficiency including integration of a related subsidiary and cost reduction.

* Through Silicon Via



M&E (Materials & Equipment) Strategy

Aim to achieve the quantitative targets in the “TOK Medium-Term Plan 2021” and help solve the many issues faced by society



◆ New Business

New business development plays a crucial role in strengthening business portfolio reforms. TOK is concentrating resources in the three fields of high-functional films, optical materials, and life science-related materials.

In high-functional films, an application of the Company's dry film photoresist technologies to porous polyimide, TOK is focusing on the expansion of sales and development of applications, as customers have begun to adopt our films in separators for lithium-ion batteries used in special applications that require high heat resistance and safety.

In optical materials, which enable both control and sensitivity of light, we are leveraging our production expertise for photoresists to develop nanoimprint materials and high refractive index materials.

In life science-related materials, the Company is keen to expand sales in Europe with biochips leveraging our photoresist technology beginning to be used in DNA sequencers*.

* DNA sequencer: This system rapidly decodes the base sequences of DNA, and is expected to contribute to the advancement of medical care and drug discovery.

◆ Investment Plan

TOK plans to spend a total of ¥31 billion on capital investments over the next three years in order to smoothly execute the aforementioned business strategies and maintain investments with long-term perspectives extending into and beyond the next medium-term plan.

Overseas, the Company is expanding production facilities in the U.S., South Korea, and Taiwan, and reaping benefits from R&D conducted during the previous medium-term plan while making preparations for future growth.

In Japan, TOK continues to invest in the Sagami Operation Center, its main R&D site for core technologies. Moreover, the Company is investing in a super clean room for the development of next-generation miniaturization products, and is constructing an open innovation facility to create new value with many stakeholders, which will be completed in September 2019.

◆ Company-Wide Strategies for Sustainable Value Creation

The series of business strategies and investment plans I have described so far have been formulated within the scope of our projections at this juncture, but actual technological innovation could exceed our expectations, or the projections of anyone else, and place unprecedented demands on speed.

With this in mind, the TOK Group intends to focus on the following four company-wide strategies and reinforce balance sheet management, in order to rapidly respond to sudden changes in the future, and to realize sustainable value creation.

Implement business strategies to steadily address recent needs, and company-wide strategies to realize sustainable value creation

◆ Company-Wide Strategy (1)

Accurately identify and rapidly address the customers' voice to build an even larger and stronger pipeline to customers—Rapidly and steadily work to develop a support structure rigorously focused on customer satisfaction along with R&D

Approximately five years have passed since the Company embarked on its strategy of building close relationships with customers, developing “the trinity” of development, manufacturing, and sales by establishing local sites close to customers in the U.S., South Korea, and Taiwan, the leaders in cutting-edge semiconductor fields. These local customers have adopted many of our products, especially our cutting-edge products. Our strategy of building close relationships with customers has become the norm, and is deeply ingrained in all employees at all front lines of the Group. On the other hand, every year the level of difficulty increases in developing products for cutting-edge fields, leading to an increase in projects requiring the collective capabilities of the TOK Group, and not just the resources of local sites overseas.

In this context, TOK plans to make its pipelines to customers larger and stronger by rapidly providing local customers with the highest added value from any site in the world.

◆ Company-Wide Strategy (2)

Strengthen marketing, increase understanding of the customers' value creation processes and translate these efforts into new value creation—Through rigorous marketing, TOK will carefully identify solutions that lead to the creation of new value for customers as it makes intensive and proactive efforts to address those solutions

As we described above, our capability to develop high value-added tailor-made products by listening to customers and working closely with them over and over again is a strength of TOK that has been passed down since its founding. When I joined the Company, my superiors told me to simply get out of the office and visit customers, ingraining in me the importance of face-to-face communications. As a result of putting this idea into practice in Taiwan and the U.S., TOK was honored with best supplier awards from a major customer in the U.S. TOK will maintain this ability to work with customers, and will enhance its ability to sustainably create value. To this end, we will strive to resolve issues customers have not noticed yet, using our technologies based on proactive hypotheses and verifications of customers' value creation processes.

Supplier awards received in recent years

● Intel Corporation
"Preferred Quality Supplier (PQS) Award"
(2018, 2016)

● Texas Instruments Inc.
"Supplier Excellence Award" (2018)

● Taiwan Semiconductor Manufacturing Company Limited
"2017 Excellent Performance in Lithography Material" (2017)
"IMQR Award" (2016)



◆ Company-Wide Strategy (3)

Strengthen human resources who can perform research, make decisions, and take actions on their own initiative—Bolster human resources that will pursue the possibilities of business with a variety of customers and continue to tackle challenges until they succeed

With close communications with customers embedded in its DNA, TOK has grown allowing customers to shape our HR development. In semiconductor-related business, sales to overseas customers now account for almost 80% of the total, and enhancing training for young employees has become an urgent issue. Accordingly, the Company plans to create a training system that mainly focuses on practical hands-on training in addition to classroom instruction during the first year of the "TOK Medium-Term Plan 2021," and then launch the new training system in the second year.

We are also augmenting our training system for employees in overseas sites. One of my most precious assets is the experiences I had in the semiconductor photoresist business for six years each in Taiwan and the U.S., which exposed me to the business philosophies of our customers overseas, as well as the experience I gained managing local employees. Based on these experiences, I aim to strengthen our human resources at overseas sites.

◆ Company-Wide Strategy (4)

Strengthen management foundation

The Group Management System (GMS) is an initiative TOK undertook during the previous medium-term plan to prevent potential risks from emerging and to minimize the impact of such risks in all of the activities of the Group, since overseas sales account for roughly 80% of the total. In the current medium-term plan, the Company aims to increase the sophistication of the GMS. TOK has reinforced corporate governance, establishing the Nomination and Compensation

Advisory Committee in December 2018, appointing a Chairman and Representative Director in January 2019, and issuing corporate governance guidelines in April 2019. Under this new structure, the Company

will pursue more effective corporate governance. To use management resources more efficiently, we continue to focus on balance sheet management, as explained below.

◆ Strengthen Balance Sheet Management

TOK intends to strengthen balance sheet management in continuation from the previous medium-term plan, focusing on an optimal balance between investment, cash reserves, and shareholder returns while responding to changes in the business environment.

TOK will ensure it has sufficient cash reserves to continue with the development of technologies that distinguish itself from rivals, taking on challenges even if development time frames become considerably longer. At the same time, management aims to improve ROE by enhancing asset efficiency while monitoring indicators such as ROIC and IRR. The Company will maintain R&D functions and expand production capacity at overseas sites, and keep risk reserves for rapidly restoring and rebuilding operations when the unexpected happens, including major disasters. TOK will ensure it has the wherewithal to fulfill its responsibilities as the world's leading supplier of photoresists.

◆ New Shareholder Return Policy and Dividend Policy

TOK has updated its policies on shareholder returns and dividends for shareholders by more clearly explaining its approach to cash reserves with an emphasis on the steady and continuous return of profits to shareholders.

Starting with year-end dividend for the fiscal year ended December 31, 2018, the Company adopted a dividend policy that targets a DOE of 3.5% and increased the annual dividend by ¥32 to ¥96 per share. Management plans to distribute an annual dividend of ¥120 per share, up ¥24, for the fiscal year ending December 31, 2019.

As before, TOK flexibly conducts share buybacks as a means of returning profits to shareholders.

Updated our policy for steady and continuous shareholder returns, targeting a DOE of 3.5%

Aiming to Create Shared Value

◆ Putting Our “Contribute to Society” Corporate Philosophy into Practice throughout Our History

As discussed above, during a few months after being offered the position of President, I thought over the *raison d'être* for TOK in society, and took a long look back at TOK's involvement in society over the course of its history.

Since its founding, “Contribute to society” has been a core aspect of the Company's management philosophy, and TOK has had no shortage of opportunities to put this principle into practice in various situations. For example, our founder Shigemasa Mukai endeavored for six years to finally develop high-purity potassium hydroxide in 1934, an essential material in batteries for hard hat lights worn by coal miners back then. TOK played an instrumental role in improving the safety of coal mines, a major social issue during the early Showa era.

Furthermore, in 1955, TOK was the first company to successfully produce high-purity potassium silicate in Japan, a product it called Ohkaseal. This material lowered the cost of cathode-ray tubes used in black and white TVs, hastening their proliferation in households. Soon after World War II, Japanese citizens had a new form of entertainment in their lives that formed a cornerstone of the information society.

Among the experiences I have had since joining TOK in 1986, one of the most remarkable was TOK's development of the Spinless® coater in 2003 as a key piece of equipment for LCD production. The Spinless® coater reduced the amount of photoresists required in production by one-third, and even though this meant the Company's shipments of photoresists would decline, the Company prioritized the release of this product in order to reduce the impact on the global environment and help customers cut costs.

Moreover, TOK has made even greater contributions to society than these contributions in the display field by helping to reduce power consumption through the miniaturization of semiconductors, and providing photoresists and equipment for power devices, as has been mentioned before.

◆ Identification of Material Issues to Enhance Corporate Value

Taking stock of these contributions to society that TOK had made through these businesses, management created a list of material issues for enhancing corporate value as the first step for organically linking together its growth strategy to become a “100-year company” and the development of new businesses that will become its second and third pillars of earnings. The material issues for the TOK Group have been identified as “Development and provision of high value-added products that will contribute to innovation,” “Environmental protection,” “Chemical substance management,” “Enhancement of personnel measures,” “Occupational health and safety/security and disaster prevention,” and “Enhancement of corporate governance.” By aiming to contribute to the achievement of SDGs related to these material issues, TOK will strive to sustainably increase corporate value and create shared value.

◆ Formulation of the 2030 Vision

There are about 18 months left until the final fiscal year of our “Overarching aspiration for 2020” that was created in 2010. Our long-term management vision will remain “Aim to be a

globally trusted corporate group by inspiring customers with high value-added products.” At the same time, TOK began to formulate its 2030 Vision this fiscal year, including new quantitative targets.

We are now running simulations of potential changes in the business environment and management resources over the next decade with senior department manager-class employees who will steer the operations of the Group in 2030. Using a backcasting approach, we are working on the composition of the business portfolio, quantitative targets and priority measures for 2030. We intend to share our 2030 Vision with stakeholders at a proper time during the current medium-term plan. I hope our stakeholders look forward to learning more about TOK's plans for value creation.

Formulating a new long-term management vision by backcasting



Kawasaki Plant in the 1940s



Special Feature

TOK in Society

— Creating Shared Value through Business —

Megatrends

Megatrends have begun to emerge with new innovations in mobility, such as CASE (Connected, Autonomous, Shared and Electric) and MaaS (Mobility as a Service). In most of these fields, the scope of value provided by semiconductors and semiconductor materials has been growing. With Level 3 (Conditional Driving Automation) reaching a practical stage, major automobile manufacturers and IT platformers are competing more fiercely to develop Level 4 (High Driving Automation) and Level 5 (Full Driving Automation) systems. Recently, SoCs*, the “brains” of automobiles, and automotive storage solutions have become more important. In this context, 10–7nm level semiconductors at the cutting edge of miniaturization, and 3D-NAND with vertically stacked memory cells, have drawn attention as solutions.

* System on a Chip: A semiconductor device with multi-functional parts in a single IC chip

A Conveni- Mobility

Shared

Outline of definitions for self-driving car levels, and progress towards each

Level	Level 1	Level 2	Level 3	Level 4	Level 5
Name	Driver Assistance	Partial Driving Automation	Conditional Driving Automation	High Automation	Full Automation
Outline of definition	The system executes either a longitudinal or lateral vehicle motion control subtask under limited domains.	The system executes both longitudinal and lateral vehicle motion control subtasks under limited domains.	The system executes all dynamic driving tasks under limited domains. The driver must respond appropriately to requests to intervene when the system encounters problems.	The system executes all dynamic driving tasks and responds when it encounters problems under limited domains.	The system executes all dynamic driving tasks and responds when it encounters problems under all conditions (namely, not in limited domains).

* Source: Road Transport Bureau, Ministry of Land, Infrastructure, Transport and Tourism’s “Guideline regarding Safety Technology for Automated Vehicles in Japan” (refers to U.S. SAE J3016 (2016), etc.) (September 2018)

Risks and Opportunities

Level 4 and more advanced self-driving vehicles will require not only the world’s highest-performing SoCs and automotive storage, in terms of high-speed, large-capacity, space-saving and low-power-consuming devices, as the human-replacing “brains” that will make instantaneous decisions about driving conditions, but also require strong functional safety features to minimize risks to human life and the risk of accidents. TOK’s customers, semiconductor manufacturers, view self-driving vehicles as a new business opportunity and have been concentrating their resources on the development of semiconductor devices that offer both the highest performance in the world and functional safety. Keen to turn this into an opportunity for new value creation, TOK is developing and providing cutting-edge materials while fine-tuning them for the variances in each process at each customer through its customer-oriented sites in Japan, the U.S., South Korea, and Taiwan.



Connected



Autonomous



Electric

Development of High Value-Added Products

EUV photoresists

ArF excimer laser photoresists

KrF excimer laser photoresists

High-purity chemicals

Achieving SDGs



Convenient and Safe Society

Value



Providing Cutting-Edge Materials for the "Brains" of Next-Generation Mobility

More specifically, TOK develops and provides EUV photoresists and ArF excimer laser photoresists for 10–7nm level semiconductors, which include SoCs used in automated driving systems, as well as clean solutions materials^{*1}. The Company also develops and supplies KrF excimer laser photoresists for 3D-NAND, including memory used in automotive storage solutions. Lately, in order to advance miniaturization and increase layers, TOK has been concentrating on the development of EUV photoresists and clean solutions materials for 5nm semiconductors, as well as KrF excimer laser photoresists for 3D-NAND with 100 or more layers. Once these are developed, TOK will be able to contribute even more to the realization of a convenient and safe mobility society.

EUV photoresists/
ArF excimer laser photoresists



High-purity chemicals
(clean solutions materials)



EUV photoresists market forecast:
CAGR 225.7%*2
(2018→2022)

ArF excimer laser photoresists market forecast:
CAGR 5.8%*2
(2018→2022)

KrF excimer laser photoresists market forecast:
CAGR 6.1%*2
(2018→2022)

Impurity contamination level for cutting-edge high-purity chemicals:
ppq*3 level

^{*1} Clean solutions, thinner, developing solutions and other high-purity chemicals for semiconductor production processes
^{*2} Based on sales volume (Calculated by TOK based on Fuji Keizai's "Whole View of Photo-functional Material and Product Market 2018")
^{*3} 1 ppq = 1 part per quadrillion



Tireless Challenge to Become an Only One, Number One Company

At the Tongluo No. 2 Plant, which develops and produces clean solutions for 10–7nm level cutting-edge semiconductors, quality management is extremely strict because our products are used in cutting-edge processes at customers. Materials production methods have become more advanced alongside the miniaturization of circuit line widths. In addition to refining raw materials, we effectively utilize software and hardware to improve quality and manage EHS in order to provide the best value to our customers, while also taking the environment into consideration and ensuring occupational health and safety.

Based on the Group slogan "Challenge for the Future," we aim to become an only one, number one company through the provision of value that exceeds customer expectations, by enhancing the functions of the customer-oriented site in Taiwan and flexibly responding to changes in the market.

Chih-hung Peng Manufacturing Dept. 2, Manufacturing, Tongluo Plant, TOK TAIWAN CO., LTD.

Our Value Creation

Our Focus

Our Foundation

Data Section

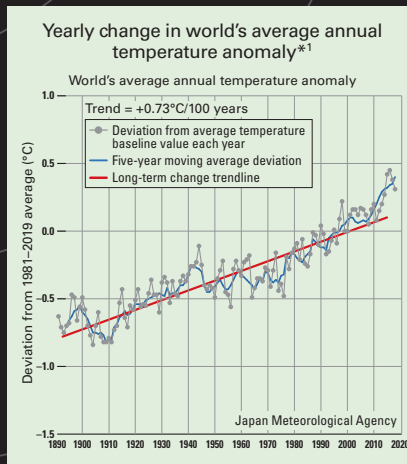
Special Feature

TOK in Society

— Creating Shared Value through Business —

Megatrends

In 2018, the average world temperature (average of temperatures near the earth's land and ocean surfaces) was +0.31°C warmer than the baseline value (30-year average between 1981 and 2010), the fourth-highest temperature since statistics began to be compiled in 1891. While fluctuating up and down, the average annual world temperature has followed an uptrend, rising at a rate of +0.73°C every 100 years over the long term. Research papers indicate that there have been more years with high temperatures since the mid-1990s*1, and this global warming phenomenon has led to more frequent extreme weather events related to climate change, such as larger hurricanes and typhoons.



*1 Source: Japan Meteorological Agency

Risks and Opportunities

Targets of SDGs for combating climate change include “take action to mitigate and adapt to climate change,” “strengthen resilience and adaptive capacity,” “integrate climate change measures into national policies, strategies and planning,” and “improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.” On this basis, national governments, local governments, and corporations are taking steps to minimize climate change risks.

TOK believes addressing climate change risks is an important management issue, and its Environmental Policy calls for action to “promote activities to conserve energy and mitigate global warming.” For the “environmental protection” material issue, TOK is working on “promotion of environmental management” and “addressing climate change issues.” Specifically, the Company has a PDCA cycle in place to make iterative improvements in energy-related CO₂ emissions per base unit, energy consumption per base unit and energy consumption per base unit in distribution. Viewing its products as opportunities to create environmental value, TOK focuses its efforts on helping to reduce power consumption in semiconductors through the miniaturization of semiconductors, and the development and production of environmentally friendly products.



Constantly Creating New Value while Fulfilling Responsibilities as a Supplier

Until the late 1990s, g-Line and i-Line photoresists had propelled advances in the miniaturization of semiconductors. Today, these photoresists are essential materials in the production of power semiconductors, LEDs and sensors, and have become the most-used photoresists in the world*. In addition to reliably supplying i-Line photoresists, TOK has developed new photoresists based on i-Line photoresists for efficiently fabricating SiC (silicon carbide) power semiconductors, a type of next-generation power semiconductor (see page 47 “Creating New Environmental Value through Business”). In this way, the Company focuses on creating new value by applying its technologies in cutting-edge fields. We believe this ability to continuously find new value in legacy products is one factor driving TOK’s sustainable growth potential.

Takeshi Kurosawa *Imaging Material Marketing Div., Marketing Dept.*

* 62.5% of the total the photoresist market on a sales volume (gallon) basis in 2017
(Calculated by TOK based on Fuji Keizai's “Whole View of Photo-functional Material and Product Market 2018”)



Stable Supply of Environmentally Friendly Products

g-Line photoresists

i-Line photoresists

Achieving SDGs



climate issues

Value

World's Top Share in Materials for Key Energy Conservation Components

Power semiconductors are key energy conservation components in renewable energy systems, including wind and solar power generation that help reduce the risk of climate change, as well as electric vehicles, hybrid cars, and energy-saving home appliances.

TOK has the largest market share*² in the world for g-Line and i-Line photoresists, which are essential in the manufacture of power semiconductors, and these photoresists have reliably accounted for almost 7 to 10% of consolidated net sales. The volume of g-Line and i-Line photoresists used differs greatly at each semiconductor manufacturer, because they use different volumes and thicknesses in coatings of photoresists. TOK will continue to fulfill its responsibilities as a supplier with top market share by carefully addressing customer needs and stringently managing quality, with the ultimate aim of helping to reduce climate change risks.



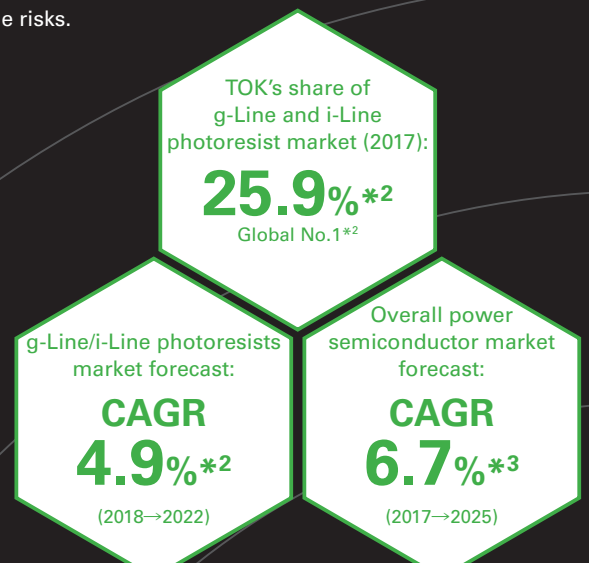
Electric vehicles



Energy-saving home appliances



Smart houses



*² Based on sales volume (Calculated by TOK based on Fuji Keizai's "Whole-View of Photo-functional Material and Product Market 2018")

*³ Manufacturer shipment value basis (Source: Yano Research Institute "A Survey on the Global Power Semiconductors Market (2018)", released on January 15, 2019)



i-Line photoresists



Special Feature

tok in Society

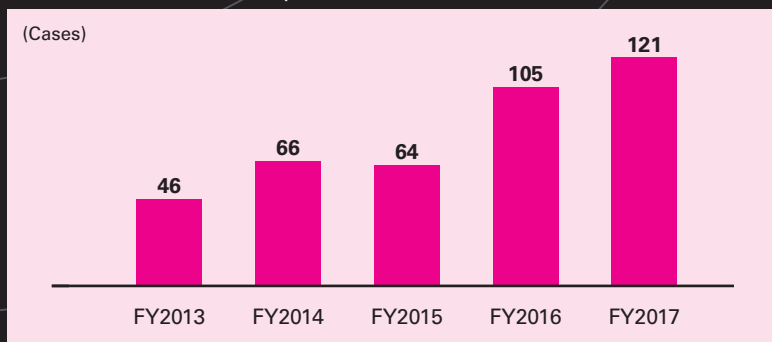
— Creating Shared Value through Business —

Social Issues

Lithium-ion batteries used in smartphones and other mobile devices are also used in electric vehicles, hybrid cars, rolling stock, and industrial machinery. Lithium-ion batteries are essential for our convenient and comfortable life and social infrastructure.

However, the risk of a fire increases when lithium-ion batteries are subject to mechanical shock. Around 2007, there were a few incidents where smartphones and other devices burst into flames because their structures were susceptible to shock. Over the four years since fiscal 2013, the number of such fire incidents has more than doubled, an issue in society in search of a solution.

Number of fire incidents in products with lithium-ion batteries



Source: National Institute of Technology and Evaluation's news release on January 24, 2019



Lower-risk parts and materials need to be developed for lithium-ion batteries, an essential part of our lives

Safety and with Heat

Shared



Lithium-ion battery for special B-to-B applications

Risks and Opportunities

Separators inside lithium-ion batteries can be damaged by external shock, which may cause an internal short between the cathodes and anodes inside the battery, and spark a fire. For this reason, companies in the industry are researching and developing ways to make separators and other battery materials more heat resistant and durable, and companies are also developing next-generation batteries such as solid-state batteries that are safer and more efficient. TOK views this as an important business opportunity to develop new businesses. As a result of efforts to develop materials able to lower the risk of fire in lithium-ion batteries, TOK brought high-functional films to market in 2017.

* Photos of batteries and smartphones on this page are sample images.



Development of New High Value-Added Products

High-functional films

Achieving SDGs



Security
Control
Value

Control Heat with Strong Heat Resistance

The Company's high-functional films are a completely new product developed by applying past technologies we had in the dry film business. High-functional films feature high heat resistance, high chemical resistance, and ultra-low dielectric constants for excellent safety and insulation performance. TOK has been developing these films as an application for separators in lithium-ion batteries. Recently, its high-functional films have begun to be used as separators for high value-added lithium-ion batteries in special B-to-B applications that require outstanding fire-resistance performance. Moreover, TOK has received inquiries from a large number of new customers about its high-functional films as a material for improving the quality of electronic materials, thanks to the film's ability to control heat with its outstanding heat resistance. TOK will continue to invest heavily in further improving the functionality of high-functional films and the development of applications.

High heat resistance

High chemical resistance

Ultra-low dielectric constants

High-functional films

Aiming to Be More Useful to Society in More Ways

High-functional films are a completely new material that offers high heat resistance, high chemical resistance, and ultra-low dielectric constants by achieving both rigid molecular structures and uniform micropores. To take full advantage of these characteristics, TOK developed proprietary designs and production methods. In particular, the production process for "rolling" the film required a unique combination of our knowledge of "materials" and "equipment," representing the culmination of our M&E (Materials & Equipment) strategy. As a result, TOK has received strong interest in these films from a large number of customers. As the technological development team, we are overjoyed to have created a product that satisfies such advanced needs. We hope that the high-functional films that we created will be useful to society in a wide range of fields, from products found in our daily lives to specialty fields. In the meantime, we are continuing to work on further advancing core technologies and accumulating more know-how in each application while improving maintenance performance.

Yoshitsugu Kawamura PF Business Promotion Div., New Business Development Dept.



TOK Medium-Term Plan: Review of the Past Two Medium-Term Plans

TOK Medium-Term Plan 2015 (FY2014/3–FY2016/3)

In 2012, TOK established customer-oriented sites that use an integration of “the trinity” platform covering development, manufacturing, and sales in South Korea where the semiconductor industry was displaying remarkable growth, and accelerated its strategy of building close relationships with customers overseas, especially in the U.S., South Korea, and Taiwan, under the TOK Medium-Term Plan 2015.

Management Objectives/Features

- ◊ Deepen and expand existing business domains
- ◊ Swiftly launch new business domains
 - ◆ Surpass record-high profits
 - ◆ Carry out large-scale investment to enhance business foundations that support sustainable growth
 - ◆ Expand business domains to include the renewable energy field



Results

- ◊ Achieved record-high profits
FY2015/3 Operating income: ¥13.2 billion
- ◊ Strategy of building close relationships with customers made significant progress



TOK Advanced Materials Co., Ltd. (South Korea) TOK TAIWAN CO., LTD. (Taiwan)

◊ Diversified earnings drivers

- ArF excimer laser photoresists:** Growth in North America
- KrF excimer laser photoresists:** Double-digit annual growth rates for Asia
- g-Line and i-Line photoresists:** Secured positive growth
- High-density integration materials:** Expanded to major OSAT manufacturers, made progress in developing new customers
- High-purity chemicals:** Succeeded in development and sales expansion of high-grade products

Strategy

Company-Wide Strategies

- Build close relationships with regional users
- Reform business portfolios
- Develop global personnel

Important Strategies

[Earnings drivers]

- Continue growth of semiconductor photoresists
- Capture business for advanced packaging materials
- Expand LCD materials by capturing demand related to high-resolution LCD panels for tablet devices and smartphones
- Continue multifaceted development of existing technologies that will contribute to sales
- Recover earnings in the Equipment Business, fully commercialize TSV equipment

[Strengthen business potential]

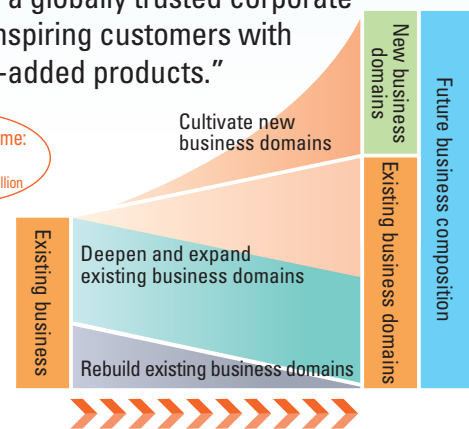
- Strengthen development of ArF excimer laser photoresists (for the 10nm level) to secure market share
- Develop next-generation clean solutions
- Develop new materials in the renewable energy field
- Enter the optoelectronics field

Long-Term Management Vision (formulated in 2010)

Overarching aspiration for 2020

“Aim to be a globally trusted corporate group by inspiring customers with high value-added products.”

Operating income:
¥20.0 billion



Major Indicators

	2014/3	2015/3	2016/3
Net sales	75,269	88,086	89,969
Material Business	72,866	84,611	87,280
Equipment Business	2,484	3,581	2,748
Operating income	10,025	13,253	12,438
Profit attributable to owners of the parent	7,549	8,818	7,716
Free cash flow	(2,610)	3,380	7,517
Capital investments	14,577	7,276	5,919
Depreciation and amortization	2,672	4,276	5,631
R&D costs	6,389	6,903	7,015
Cash dividends applicable to the year per share (Yen)	52.00	60.00	64.00
ROE (%)	5.8	6.2	5.3
Equity ratio (%)	87.5	84.3	85.1
Payout ratio (%)	30.9	30.5	36.1
Worldwide semiconductor market (Millions of U.S. dollars)*1	335,843	335,168	338,931
Exchange rate (¥/\$)*2	103	120	112

*1 Source: World Semiconductor Trade Statistics (calendar year) *2 As of the end of each fiscal year

TOK Medium-Term Plan 2018 (FY2017/3-FY2018/12)

Achieving record-high profits under the TOK Medium-Term Plan 2015 provided us with momentum for the overarching aspiration for 2020 (operating income of ¥20 billion), and TOK began proactive investments to focus on strengthening the management foundation and reforming business portfolios.

Positioning/Management Objectives/Features

- Key three years for achieving the overarching aspiration
- Continue striving to deepen existing business domains and swiftly launch new business
 - Continue proactive investments for the overarching aspiration
 - Aim for record-high profits in the final year
 - Aim for ROE of over 7% and enhance returns to shareholders



Results/Issues

- Strengthened R&D and production bases
Conducted capital investments of ¥21.7 billion



TOK TAIWAN CO., LTD.



New R&D Building at the Sagami Operation Center

- Leveraged strengths in the cutting-edge semiconductor field

EUV photoresists: Highly evaluated by major customers
KrF excimer laser photoresists: Adoption for 3D-NAND (Japan, Asia)/ Increasing demand accompanying expansion of 3D-NAND mass production (Japan, Asia)
High-density integration materials: Adoption for FOWLP (semiconductor field) by a major customer/Adoption by customers in Japan and overseas resulting in expanded adoption and application (electronic components field)
High-purity chemicals: Expanded adoption for next-generation process by a major customer (Asia)/Adoption of and increased demand for new clean solution (Asia, the U.S.)

- Midway through reforming business portfolios

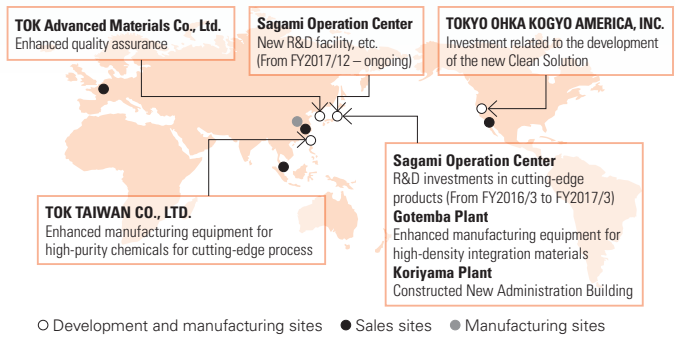
ArF excimer laser photoresists: A major customer did not adopt (Asia), and major customers' production plans delayed (Asia, the U.S.)
Equipment Business: Delayed expansion of 3D packaging process market
New business: Delay in commercializing focused themes (high-functional films, nanoimprint, etc.)

Strategy

Company-Wide Strategies

- [Reform business portfolios]
 - Renew mainstay products
 - Create new business/new materials
 - Recover earnings in the Equipment Business and develop versatile applications of TSV technology
- [Evolve strategy of building close relationships with customers]
 - Strengthen development of ArF excimer laser photoresists (10nm or less)
 - Further increase market share of KrF excimer laser photoresists (Thick-film photoresists for 3D-NAND)
 - Strengthen customer support structure in Chinese market
- [Develop global personnel]
 - Promote development of core human resources with a Group-wide perspective, as well as recruitment and promotion of diverse personnel appropriate for global business
- [Strengthen management foundation]
 - Build a governance system aiming to reduce risks accompanying globalization and to raise corporate value

Main Capital Investments under the TOK Medium-Term Plan 2018



Major Indicators

	2017/3	2017/12*1	2018/12
Net sales	88,764	92,411	105,277
Material Business	86,558	90,532	102,626
Equipment Business	2,252	1,921	2,697
Operating income	9,954	9,194	10,505
Profit attributable to owners of the parent	6,343	6,007	6,875
Free cash flow	(926)	4,169	6,298
Capital investments	9,378	6,731	5,636
Depreciation and amortization	6,118	6,035	7,063
R&D costs	8,207	6,921	8,526
Cash dividends applicable to the year per share (Yen)	64.00	64.00	96.00
ROE (%)	4.4	4.1	4.7
Equity ratio (%)	84.6	82.2	78.0
Payout ratio (%)	43.8	46.3	58.2
Worldwide semiconductor market (Millions of U.S. dollars)*2	412,221	468,778	412,086*4
Exchange rate (¥/\$)*3	112	113	111

*1 The fiscal year ended December 31, 2017 was an irregular nine-month period due to a change in fiscal year-end. *2 Source: World Semiconductor Trade Statistics (calendar year)
 *3 As of the end of each fiscal year *4 Forecast-based amount for 2019

Our Value Creation

Our Focus

Our Foundation

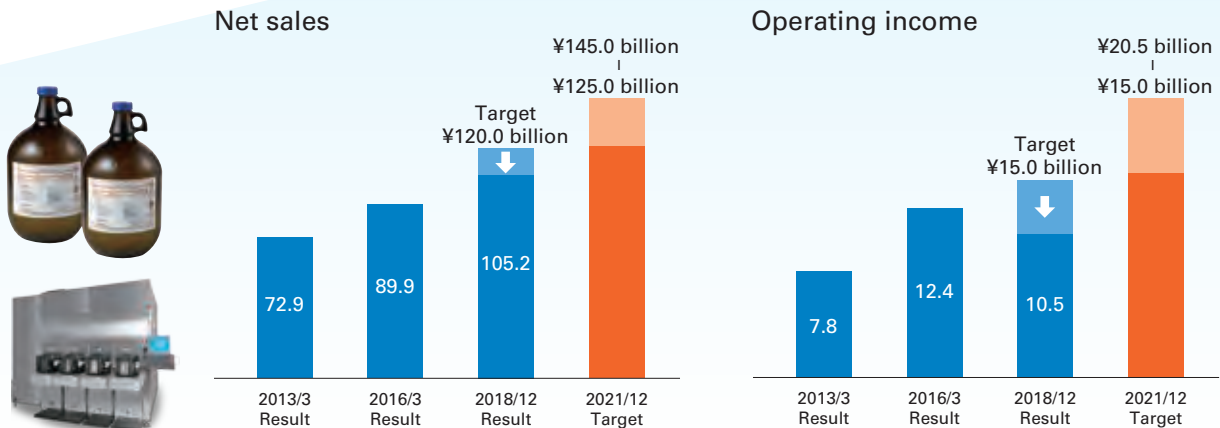
Data Section

Overview of the TOK Medium-Term Plan 2021

Management Vision

Aim to be a globally trusted corporate group by inspiring customers with high value-added products that have satisfying features, low cost and superior quality.

Performance/Targets



(Billions of yen)	2018/12 Result	2019/12 Forecast	2020/12 Target	2021/12 Target
Net sales	105.2	111.6*	120.0–130.0	125.0–145.0
Operating income	10.5	10.5*	13.5–15.0	15.0–20.5
ROE (%)	4.7%	—	—	Over 8.0%
Exchange rate (Yen/US\$)	111	105	105	105

* Figures announced on February 14, 2019

Features of the TOK Medium-Term Plan 2021

Point
1

Strengthen business portfolio reforms

⇒ Ambitiously develop the technologies required by 5G, IoT & Innovation

Point
2

Return to a growth trajectory

⇒ Operating income target: ¥15.0 billion to ¥20.5 billion (Fiscal year ending December 31, 2021)

Point
3

Strengthen balance sheet management and introduce a new dividend policy

⇒ A new dividend policy targeting a DOE of 3.5%

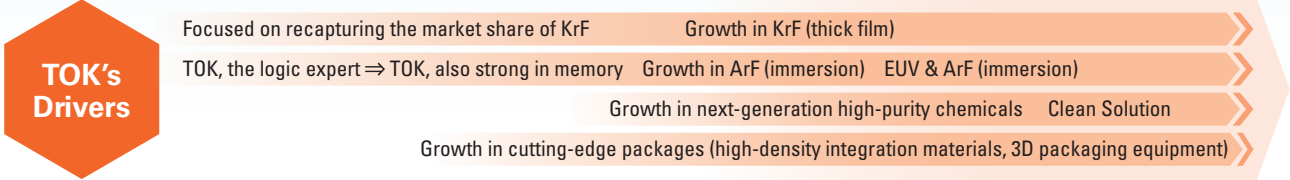
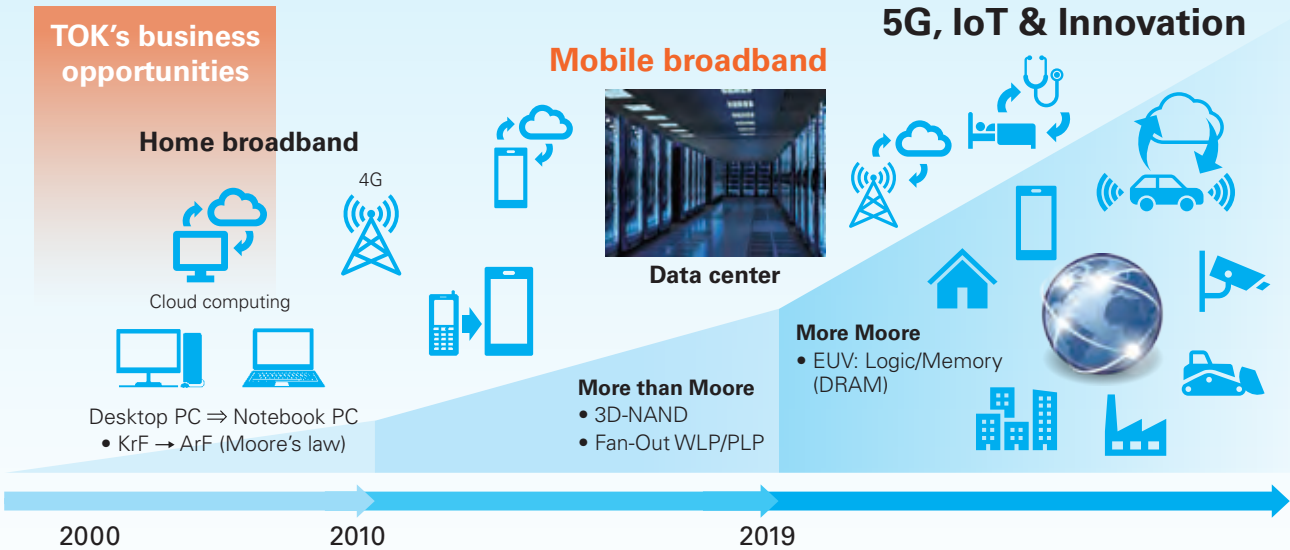
Dividends applicable to the year per share forecast = ¥120

(Fiscal year ending December 31, 2019)

⇒ Flexibly conduct share buyback as a means of returning profits to shareholders



Background and Aims behind Formulation



Business Strategy 1: EUV/ArF Photoresists

EUV photoresists to drive sales growth of cutting-edge photoresists
Expand sales of ArF excimer laser photoresists for the Chinese market

Business Strategy 2: KrF Excimer Laser Photoresists

Sales growth to be driven by growing demand arising from increased production of 3D-NAND, etc.

Business Strategy 3: High-Density Integration Materials

Strive to increase sales through advances in cutting-edge packaging technology

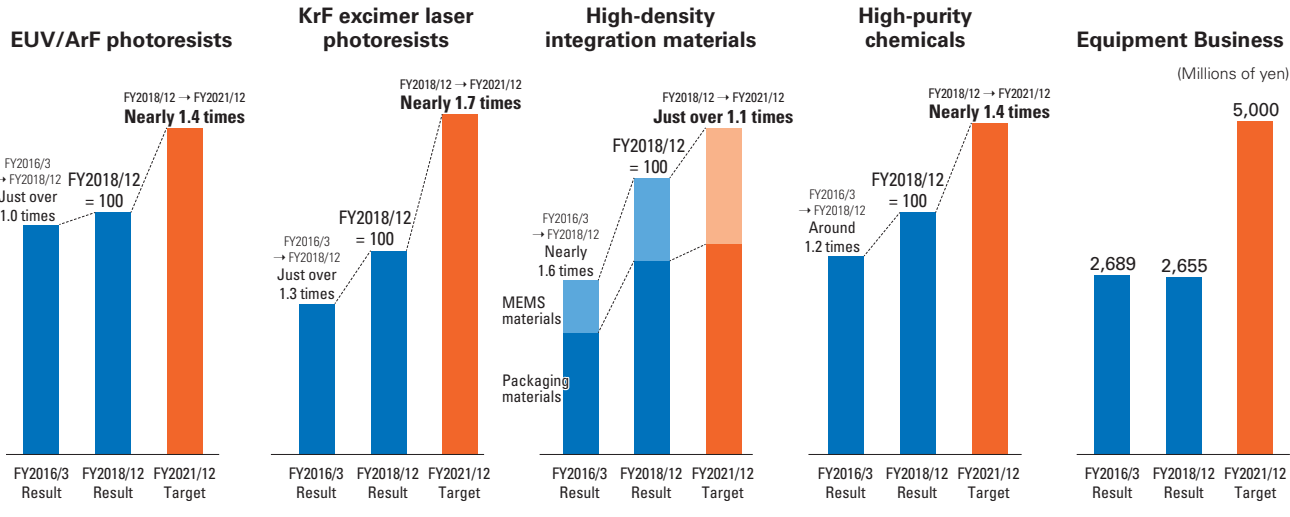
Business Strategy 4: High-Purity Chemicals

The U.S. and Asia are projected to contribute to increased sales

Business Strategy 5: Equipment Business

3D packaging and power devices are expected to grow/Increase orders based on TOK's track record
Development and manufacture of manufacturing equipment for next-generation displays

Sales Results and Target of Each Growth Driver



Our Value Creation

Our Focus

Our Foundation

Data Section



Company-Wide Goal

“Cultivate niche markets that the TOK Group should develop”

Company-Wide Strategies

(1) “Accurately identify and rapidly address the customers’ voice to build an even larger and stronger pipeline to customers”

Rapidly and steadily work to develop a support structure rigorously focused on customer satisfaction along with R&D

(2) “Strengthen marketing, increase understanding of the customers’ value creation processes and translate these efforts into new value creation”

Through rigorous marketing, TOK will carefully identify solutions that lead to the creation of new value for customers as it makes intensive and proactive efforts to address those solutions.

(3) “Strengthen human resources who can perform research, make decisions, and take actions on their own initiative”

Bolster human resources that will pursue the possibilities of business with a variety of customers and continue to tackle challenges until they succeed

(4) “Strengthen TOK management foundation”

Focus on further sophisticating Group management, improving corporate governance, and promoting balance sheet management to utilize management resources more efficiently

Strategy for New Business

High-functional films

Secure new technological seeds as TOK’s core technologies and deploy them to multiple applications

Optical materials

Expand new materials fields such as nanoimprint materials and high refractive index materials

Life science-related materials

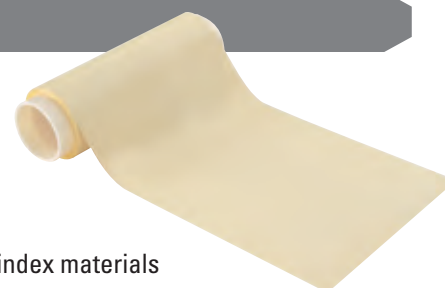
Commercialize photolithography-related technologies in the life sciences field

Collaboration/support

Drive new innovation through TOK’s core technologies and the outstanding technological capabilities of partner companies

Sagami Operation Center

Establish new technological seeds as core technologies



Financial Capital Strategy: Balance Sheet Management

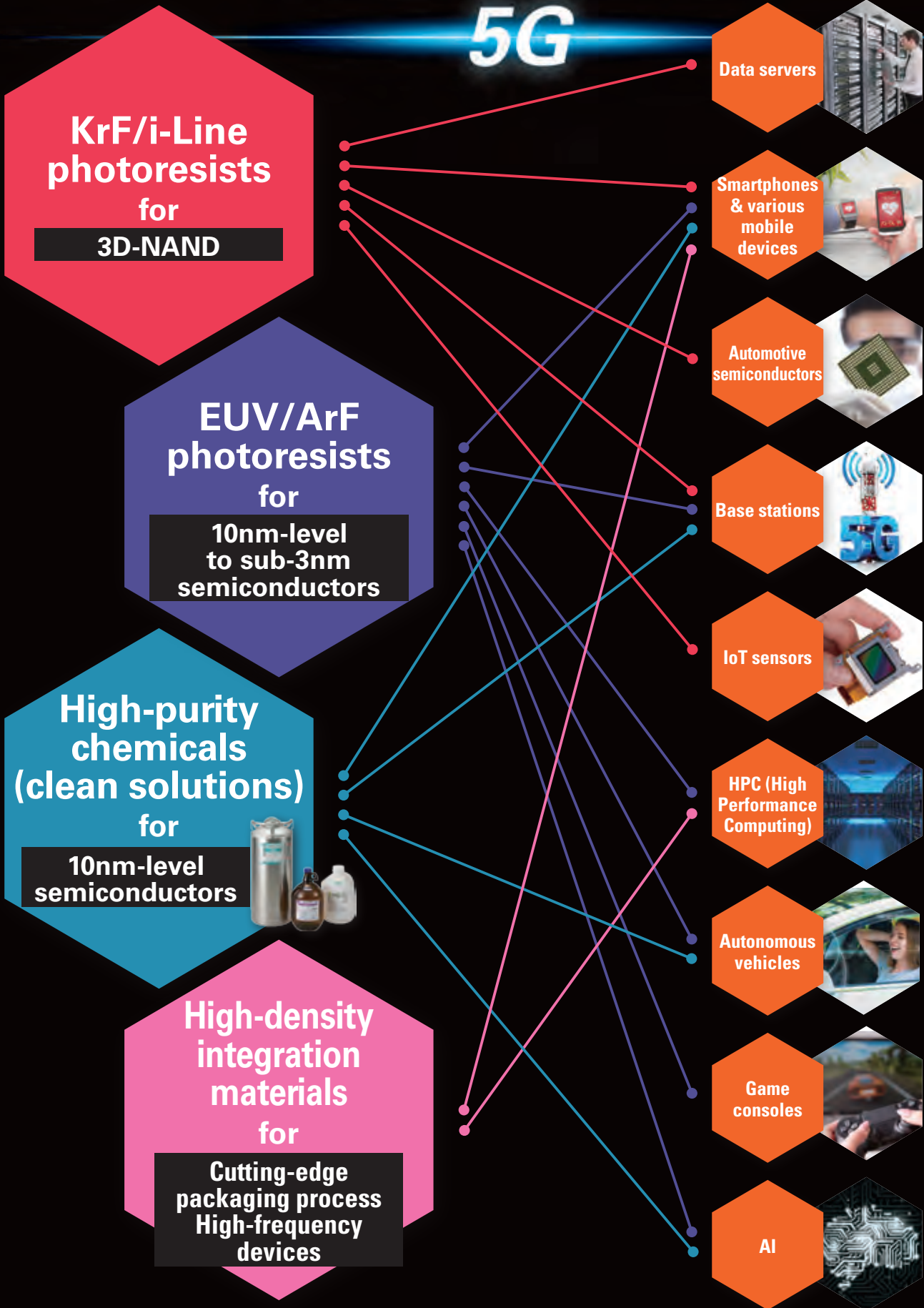
As a long-run R&D-driven company, TOK will pursue the optimal balance between investment, cash reserves, and shareholder returns.

(1) Pursuit of asset efficiency (2) Cash reserves (3) Shareholder return policy and dividend policy

5G and TOK's Products



5G



Our Value Creation

Our Focus

Our Foundation

Data Section

Message from the Director in Charge of Marketing

We are advancing our sales and marketing activities, motivated by the desire to meet the expectations of customers and society.



Keiichi Yamada

Director, Officer, Department Manager, Marketing Dept.

Megatrends

■ 5G Communications as New Social Infrastructure

The key traits of 5G communications, namely high-speed, high capacity, low latency, and multiple simultaneous connections, are likely to greatly benefit not only smartphones and other mobile devices, but also IoT that connects things to the internet. 5G's low latency, which is one-tenth that of 4G, and multiple simultaneous connections, which are 10 times that of 4G, will make it possible to solve a variety of social issues, such as remotely operating machinery to deal with labor shortages in medical, construction, and distribution settings, in addition to improving the safety of autonomous vehicles and remote medicine. Big data generated by countless sensors will lead to the realization of smart cities that efficiently consume energy and intelligent transport systems (ITS) with fewer traffic jams and accidents. 5G is expected to play a vital role as new social infrastructure.

One of our management principles is to "contribute to society." Having identified the "development and provision of high value-added products that will contribute to innovation" as a material issue, TOK will continue to refine its world-leading microprocessing technology and high purification technology with the aim of contributing to the development of 5G communications as social infrastructure along with its customers.

Risks and Opportunities

■ Steadily Tapping into Numerous Business Opportunities

We anticipate numerous business opportunities in the 5G semiconductor device market. First, the Company will provide high value-added materials for 5G base stations that have begun to be installed in communications infrastructure. Since 5G signals travel along more linear paths and have shorter wavelengths than 4G signals, a much larger number of base stations will need to be deployed for 5G services. As these base stations use many semiconductors, TOK expects steady growth in earnings from the provision of advanced photoresists for 3D-NAND and 10–5nm semiconductors, and clean solutions for 10–5nm semiconductors. In addition to KrF excimer laser photoresists and i-Line photoresists for ubiquitous sensors, TOK is keen to steadily tap into demand for other types of photoresists for high-performance computing (HPC) applications that will quickly process the massive volume of data generated by sensors.

■ Focusing on 5G-related Trends in the U.S. and China

Competition in 5G has heated up between the U.S. and China recently. Therefore, there is a risk that 5G-related supply chains will be divided along lines drawn by the U.S. and China in the global semiconductor industry, semiconductor materials industry, and semiconductor manufacturing equipment industry, resulting in a slower-than-expected proliferation of 5G and growth in related markets. In response to this potential risk, the TOK Group takes the approach of dispersing risk through business development in the five regions of Japan, the U.S., China, South Korea, and Taiwan. Moreover, the TOK Group intends to minimize the impact of risks if they materialize by accelerating the reform of its business portfolios that began under the "TOK Medium-Term Plan 2015."

Marketing Strategy in the 5G and IoT Markets

■ "Unknown Domains" Not Currently Visible Are Keys

Currently, there is decent visibility on growth in demand related to base stations and HPC. In reality, technological innovation that exceeds expectations will be necessary for a new world to emerge from the proliferation of 5G. We believe successful marketing in the 5G and IoT market will hinge on discovering business opportunities in the "unknown domains" of technological innovation. In line with company-wide strategy (2) "Strengthen marketing, increase understanding of the customers' value creation processes and translate these efforts into new value creation" in the "TOK Medium-Term Plan 2021," the Company is concentrating its efforts on strengthening sales and marketing in these "unknown domains" of the 5G and IoT markets.

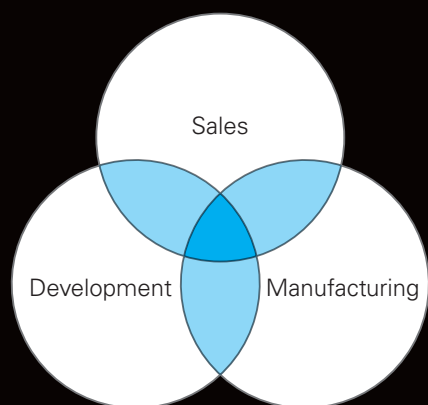
For example, one "unknown domain" of 5G communications is the faster speed of outgoing data transmissions, in addition to faster incoming data transmissions. This functionality is likely to be groundbreaking for sensor devices that transmit large volumes of data, and should present a major business opportunity in related materials. In April 2019, the Company merged together the Marketing Div., which was responsible for sales and marketing photoresists used to make IoT sensors, and the Panel Material Marketing Div., which oversaw the sales and marketing of materials for panel production, into the newly established Imaging Material Marketing Div. This brings together the Company's resources in the sensor and display fields, positioning it to


target growth in the sensor device market that is expected to expand strongly in the 5G and IoT era.

■ Marketing Strategy Based on “the Trinity” of Sales, Development, and Manufacturing

One more point to note in our initiative to strengthen sales and marketing is to evolve our strategy of building close relationships with customers that has been in motion since the “TOK Medium-Term Plan 2015.” This strategy of building close relationships with customers, which is based on “the trinity” of sales, manufacturing, and development, has gained momentum over the previous two medium-term plans, becoming an integral part of our front-line operations and a new aspect of our DNA, equivalent in stature to our aim to “create a frank and open-minded business culture.” Under the “TOK Medium-Term Plan 2021,” TOK will evolve this strategy of building close relationships with customers into a marketing strategy based on “the trinity” of sales, manufacturing, and development. Instead of having the marketing divisions do all of the marketing on their own, operations in sales, development, and manufacturing will monitor the latest trends in technologies and constantly propose methods that differ from before, while at the same time focusing on the creation of new niche top products by coalescing around new business models and measures to reduce costs.

Marketing strategy based on “the trinity” of sales, manufacturing, and development



 Driving force: Desire to meet the expectations of customers and society

Leveraging Strengths in Sales and Marketing

■ Driven by the Desire to Meet the Expectations of Customers and Society

Since its founding, TOK has created value by working closely with its customers. Our desire to meet and surpass the technological requirements of our customers while staying one step ahead of the times is embedded in our corporate culture, and it is also the driving force behind sales and marketing activities. For example, KrF excimer laser photoresists for 3D-NAND are products we have developed with the desire to meet customer requirements. We have increased

our market share in these photoresists lately, even though the market had almost matured and they had no longer played roles as cutting-edge materials in miniaturization, by tapping into new demands for thick-film formation, where the staircase structures unique to 3D-NAND are formed. Furthermore, our photoresists for IoT sensors, which have received high marks from our customers, are products we developed with the desire to meet customer requirements at a time when the growth potential of the markets was uncertain, allowing us to obtain a slice of the market.

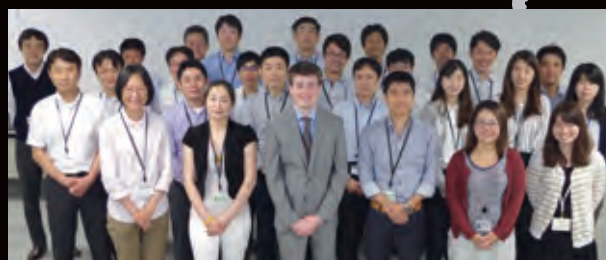
In non-photosensitive materials, our high-functional films have begun to be used as separators in lithium-ion batteries for special B-to-B applications. These high-functional films are high value-added products that are beneficial to society within the context of reducing the risk of lithium-ion batteries catching fire, a social problem that we proudly took action to solve from a desire to meet society’s expectations, even though this choice entailed many hardships because creating materials with strong heat resistance requires a very large number of processes.

TOK will continue to evolve its sales and marketing activities, driven by the desire to meet the expectations of its customers and society.

■ Sharing Our Desire to “Meet Expectations” with Local Personnel Overseas

Since TOK began establishing local subsidiaries overseas in the 1980s, the Company has been deeply involved with not only local customers, but also local personnel in charge of sales and marketing at each overseas site. We have focused on sales and marketing from the unique standpoint of being driven by the desire to meet the expectations of customers and society, operating businesses in tune with local cultures. As a result, local personnel have come to deeply appreciate and put into practice this principle, becoming a new force in the Group for creating value.

New strength: Ability to create value through local personnel overseas



We are improving development efficiency while strengthening marketing in R&D.



Harutoshi Sato *Director, Senior Executive Officer, Department Manager, Research and Development Dept.*

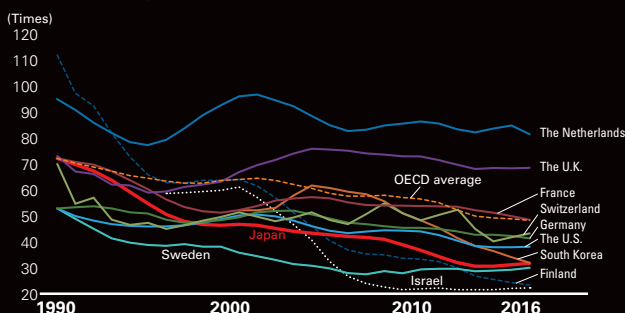
Megatrends

■ Rising Interest in R&D Efficiency

Around the world, interest in improving R&D efficiency has grown in various industries alongside advances in the globalization of the manufacturing industry, including the chemicals and electronics industries. According to research by the Organization for Economic Co-operation and Development (OECD), R&D efficiency at Japanese companies is lower compared with other advanced countries. Improving R&D efficiency has become a priority at TOK and other Japanese companies amid labor shortages caused by declining birthrates and an increasing elderly population, as well as greater demands for better capital efficiency.

TOK is strengthening marketing in the development divisions in addition to the marketing divisions, while continuing to focus on the development of higher value-added niche top products. At the same time, TOK is improving R&D efficiency by introducing elaborate methodologies for activities in each development project.

R&D efficiency in advanced countries



Source: Ministry of Economy, Trade and Industry, based on OECD Main Science and Technology Indicators (as of November 7, 2017)

* Corporate added value and R&D spending five years prior (purchase power parity conversion) is calculated using the ratios of trailing five-year moving averages.

Risks and Opportunities

■ Rapid Technological Innovation Presents Both Risks and Opportunities

In “unknown domains” not currently visible on the 5G and IoT markets, technological innovation is likely to proceed with a greater-than-imagined speed and disruptiveness.

Concentrating on the development of materials in cutting-edge semiconductor fields, TOK always engages in R&D amid competitive forces, and is well aware of the risk

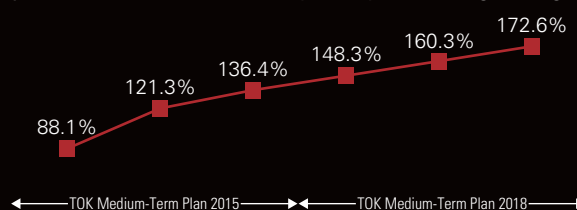
of losing customers to rivals in the competition to develop cutting-edge materials. When customers switch to new cutting-edge processes, we see this as a prime opportunity to propose and have new materials adopted by customers. The Company’s development divisions have been focusing on winning new business opportunities while working closely with the marketing divisions. Since its founding, TOK has developed business in niche markets, so sudden and volatile changes do not come as a surprise to the Company (change is normal). Change is viewed as an opportunity for the Company to leverage its strength in development capabilities.

R&D Strategy for 5G and IoT Markets

■ Capital Investment in R&D

TOK’s business model is based on the constant development of high value-added products for niche markets. As such, the Company spends roughly 8% of net sales on R&D, far higher than the averages of 2.7%*¹ for the chemical and petroleum industry and 4.0%*¹ for the electrical equipment and precision machinery industry. TOK will firmly maintain this policy in the future, and is keen to improve development efficiency to increase capital efficiency and corporate value with the outcomes of its development initiatives. The Company’s R&D efficiency*² has followed an uptrend over the previous two medium-term plans, the “TOK Medium-Term Plan 2015” (FY2014/3–FY2016/3) and the “TOK Medium-Term Plan 2018” (FY2017/3–FY2018/12), and we are turning our attention to the following initiatives to increase efficiency further under the “TOK Medium-Term Plan 2021.”

Uptrend in TOK’s R&D efficiency (five-year moving average)*²



2014/3 2015/3 2016/3 2017/3 2017/12 2018/12

*¹ Average of totals for FY2014/3 through FY2016/3. Source: Nikkei Smart Work Survey on April 20, 2018

*² R&D efficiency = Operating income in the most recent five years/R&D costs over the previous five years

■ Marketing Also Plays a Vital Role in R&D

Strengthening marketing is the highest priority in our aim to increase development efficiency. In the development divisions as well, the focus of our efforts is the company-wide strategy (2) “Strengthen marketing, increase understanding of the customers’ value creation processes and translate these efforts into new value creation” in the “TOK Medium-Term Plan 2021.”

More specifically, we will roll out development strategies with an eye on the future, scrutinizing target markets and communicating closely with the marketing divisions from the initial stage of project inquiries. After the start of each development project, due attention is paid to changes in customer requests and technological trends in the market, and functional definitions are refined for new high value-added products by both the marketing and manufacturing divisions.

■ Toward Long-Term Sustainable Growth with “Continuous Growth” and “Discontinuous Growth”

Marketing in the research and development divisions is approached from both “continuous growth” and “discontinuous growth” perspectives. We aim to maintain “continuous growth” by pulling ahead of the competition in the current market where development competition has already begun (i.e., red ocean strategy), while also attaining “discontinuous growth” by agilely addressing newly emerging needs (i.e., blue ocean strategy). We believe both strategies will lead the Company toward sustainable growth over the long term. On the 5G and IoT markets, TOK will firmly address recently emerging issues at customers and technological needs. In the “unknown domains” of IoT sensors, advanced packaging processes, and high-frequency devices, we will rapidly respond to emerging needs.

■ Combination of Agile Development*¹ and Waterfall Development*² Methodologies

We are focusing on agile development methods as a specific way of rapidly responding to needs. As a recent example, we used an agile development approach to develop EUV photoresists for the 7nm node for a Taiwanese customer. For the development of clean solutions for the 10nm node for a North American customer, we used a combination of agile and waterfall development methodologies to successfully realize high added value in this cutting-edge field. We will also apply these methodologies to “unknown domains” in the 5G and IoT fields.

*1 Agile development: Mainly used in short-term projects, this approach to development is a repeating process of immediately responding and adjusting to frequent changes in development requirements.

*2 Waterfall development: Mainly used in long-term projects, this approach to development defines final specifications at an early stage, and then follows carefully laid out plans.

■ Introducing AI to Enhance Efficiency of Discovering and Verifying New Materials

To further enhance development efficiency, we have been creating a structure for visualizing our knowledge and expertise accumulated over many years in semiconductor photoresists and high-purity chemicals, and then sharing

this data throughout the development divisions. Since April 2018, the Company has concentrated its efforts on Materials Informatics (MI), which uses AI and big data in material development to increase efficiency in the discovery and verification process for new materials, and has also been putting its legacy knowledge into databases. During the “TOK Medium-Term Plan 2021,” the Company aims to build databases in cutting-edge fields and produce results from the partial utilization of these databases.

Strengths in R&D

■ Human Resources with Deep Pools of Talent

TOK launched its photoresist business in 1968 as a pioneering manufacturer of photoresists in Japan. Since then, the Company has made numerous technological breakthroughs while painstakingly fulfilling customer needs in each generation of miniaturization, from novolac photoresists (g-Line and i-Line photoresists) to chemically amplified photoresists (KrF and ArF excimer laser photoresists, EUV photoresists), building strong relationships of trust with customers around the world. As a result, our human resources represent deep pools of talent earned from extensive experience and know-how accumulated over past generations of technology. By passing down and further honing this strength, we will lay a rock-solid foundation for sustainable value creation.

■ Measures to Develop Human Resources Specializing in Development

TOK has the Level-based Training Program and the TOK Global Practical Training for Selected Members as its education programs for all employees across the divisions. In the Research and Development Dept., we have our own unique human resource development curriculum, in addition to these other programs. In the “TOK Medium-Term Plan 2021,” the company-wide strategy (3) is to “Strengthen human resources who can perform research, make decisions, and take actions on their own initiative.” This has been the aim of the Research and Development Dept. before this new medium-term plan even began. In addition, we have identified the “10 qualities of successful development,” such as “Continue to take the initiative until successful without giving up.” From this perspective, we are committed to developing human resources who can continue to produce results on development projects in cutting-edge fields. We are currently working to further systemize and visualize these education systems, and tie them into employee evaluation systems.

Outline of Human Resource Development Measures in the Research and Development Dept.

“10 qualities of successful development”

1. Think, research, decide, and take action on your own initiative
2. Continue to take the initiative until successful without giving up (3. onward omitted)

[New employee training] Basic training program for 2 hours a week (includes tests)

[Section manager training] Training on how to guide and educate subordinates in development projects

[General manager training] Exclusively developed training based on MOT (Management of Technology)

Message from the Director in Charge of the Environment

TOK uses its world-leading high purification technology and diverse human resources in the pursuit of environmental value and occupational safety.



Nobuo Tokutake *Director, Officer, Department Manager, Manufacturing Dept.*

Megatrends

■ Globalization of Supply Chains and the Deepening Problem of Climate Change

As a fine chemicals manufacturer, TOK supplies high value-added products through the structure of close relationships with customers through its six plants in Japan and five plants overseas. TOK has identified the following megatrends in the external environment in both its upstream and downstream value chains.

First of all, upstream domains have seen greater risks that should be managed more closely amid the megatrend where supply chains are increasingly globalized. Overseas suppliers now account for a larger part of solvent and polymer suppliers, the main materials in photoresists, and these suppliers have a relatively higher risk of accidents than Japanese suppliers. Measures must be taken to address this risk, and also respond to environmental regulations in each country. In downstream domains, environmental and safety-related laws and regulations, as well as regulations concerning the management of chemical substances, have become tougher every year in the U.S., China, South Korea, and Taiwan, where the Company has its production sites, amid the megatrend of increasingly severe problems caused by climate change. The TOK Group will continue to rapidly address changes in the external environment and megatrends like this. At the same time, we are ready to advance measures under our Environmental Policy and Occupational Health and Safety Policy with an eye on changes in social issues and the further globalization of business activities.

Risks and Opportunities

■ Unique Environmental Risks in Fine Chemicals

In capital markets, shareholders, investors, and ESG research institutions tend to view and analyze TOK shoulder to shoulder with other major chemical manufacturers in the chemicals sector. However, TOK specializes in fine chemical products, so its product portfolio and the size of its plants are quite different from those of major chemicals companies that produce bulk chemicals. Approximately 90% of the ingredients in photoresists, our leading product, are safer solvents* and the remaining 10% are polymers and photosensitizing agents, which are detoxicated in closed loop systems at semiconductor manufacturers. Accordingly, the environmental risk associated with the fine chemicals produced by TOK are relatively lower than bulk chemicals that are mainly made from naphtha and the like. As environment-related laws and regulations are tightened

Tighter environmental and safety-related laws and regulations around the world

- Japan: Revisions to the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (Chemical Substances Control Law) (June 2017)
- The U.S.: Revision to the Toxic Substances Control Act (TSCA) (June 2016)
- South Korea: Revisions to the Chemicals Control Act (proposed revisions published in January 2019)/Revisions to the Occupational Safety and Health Act (January 2019)
- Taiwan: Revisions to the New and Existing Chemical Substances Registration Act (March 2019)/Revisions to the Toxic Chemical Substances Control Act (January 2019)

Environmental Policy

Contributing to society in our aim to become a corporate group that is trusted around the world, is one of the most important themes in our management plans. Accordingly, we will track our impact on the environment in all phases, from product development to procurement, production, sale, and disposal. Reducing environmental impact from our corporate activities by complying with laws and regulations, as well as our internal regulations and social norms, and balancing production with environmental conservation while preventing of pollution. We will take steps to accelerate the development of businesses in the environment and energy fields in order to contribute to the creation of energy on a global scale.

1. Enhance handling and management with consideration for chemical safety and the environment.
2. Promote efficient use, reuse, and recycling of resources.
3. Promote activities to conserve energy and mitigate global warming.
4. Prevention of pollution.



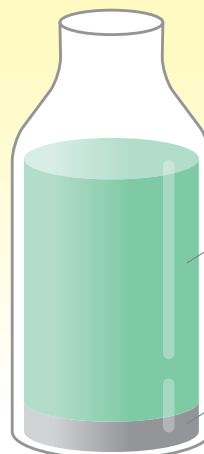
Occupational Health and Safety Policy

In consideration for the safety of the chemical agents to use as chemicals manufacturing industry, we carry out the reduction of the risk and exclusion and security work thoroughly and act for security of the security of an employee and the interested party and the prevention of the illness.

- ▶ Prevention of the work-related accident
- ▶ Continuous improvement of the system



Depiction of raw materials in TOK's photoresists



Approx. 90%
Safer solvent*

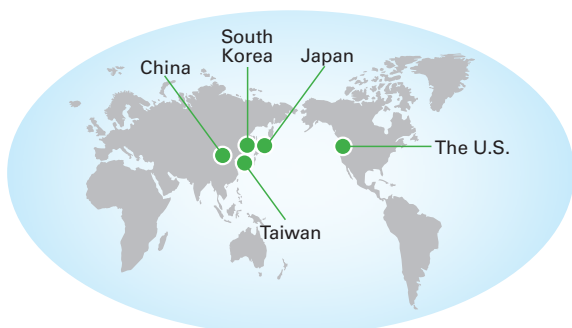
Approx. 10%
Polymers,
photosensitizing agents, etc.

* Safer solvent: Solvent that decomposes in vivo and is gentler on the human body, living organisms and the environment

around the world, however, TOK will continue to focus on creating and operating a robust chemical substance management system with the ultimate aim of creating shared value and sustaining improvement in its corporate value.

■ Environmental and Other Risks Dispersed with Five-region Production System

In line with its strategy since 2014 of building close relationships with customers, TOK has expanded production capacity in the U.S., China, South Korea, and Taiwan, putting into place a system able to disperse risks globally while enabling the rapid supply of cutting-edge products. Recently, TOK has been making capital investments to further expand production capacity at overseas sites. This measure also plays a role of fulfilling the TOK Group's responsibilities as a supplier by reducing environmental risks, as well as the risk of natural disasters and accidents.



■ World-leading High Purification Technology is an Opportunity to Create Environmental Value

Our world-leading high purification technology is one of our core competencies that has been honed since the Company's founding. This high purification technology contributes to the creation of environmental value, in addition to making semiconductors and electronic devices perform better, conserve electricity, and become smaller. For example, if materials delivered by a supplier unexpectedly contain prohibited substances or controlled/regulated substances, the Company's high purification technology can remove these impurities, thereby providing the best value to its customers while reducing environmental risks.

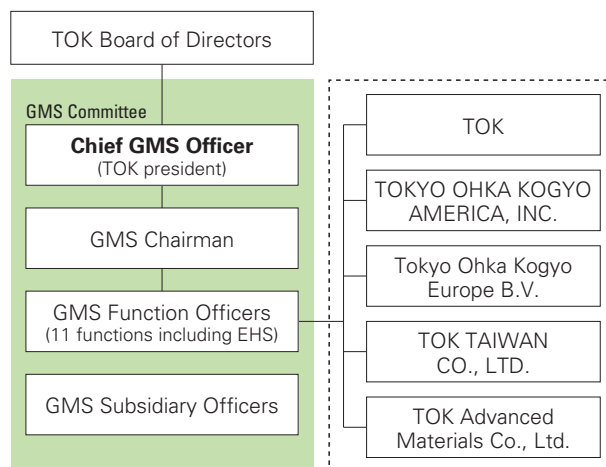
Key Measures in the TOK Medium-Term Plan 2021

■ Strengthening Environmental Risk Management Systems at Overseas Sites

Some of TOK's most important management issues are taking an integrated approach to managing chemical substances, reducing environmental impact, and ensuring the health and safety of employees. The Company engages in Responsible Care activities* and operates the Group Management System (GMS) to minimize the impact of potential risks inside and outside Japan and prevent them from materializing. In 2017, the Company created an EHS (environmental, health and safety) management policy with the aim of further enhancing the effectiveness of these systems. TOK has bolstered group-wide initiatives for the environment and safety through an integrated management structure based on GMS and the EHS Div. As a result, the reinforcement of structures at domestic sites has wound down, and under the "TOK Medium-Term Plan 2021," the Company aims to instill solid risk management at all sites, including overseas subsidiaries, from 2019, while improving chemical substance and environmental risk management at overseas sites through the strengthening of human resources and organizations.

* Activities in which companies handle chemical substances voluntarily take environmental, safety and health measures in every process from chemical substance development through manufacturing, logistics, use and final consumption to disposal and recycling, and announce the results of these activities while engaging in dialogue and communication with the public. (Defined by Japan Chemical Industry Association)

TOK Group's Responsible Care activity framework



Strengthening chemical substance and environmental risk management at overseas sites in 2019

Taking EHS (environmental, health and safety) into Account When Developing Materials for Cutting-edge Semiconductors



New chemical substances are often used when developing new materials for cutting-edge semiconductors. For this reason, the Company is enhancing collaboration between the EHS Div. and the Research and Development Dept. as a key measure in the first fiscal year of the "TOK Medium-Term Plan 2021." TOK is working to improve data coordination between the EHS Div. and the Research and Development Dept. with a better chemical substance database in order to have systems in place for properly managing chemical substances and rapidly providing products to customers. For chemical substance registration applications in foreign countries, we are creating a framework for timely registrations by having local subsidiaries coordinate with the EHS Div. to monitor progress.

Kimitoshi Kato *General Manager, EHS Div.*

Promoting EHS Activities with Capabilities of Diverse Human Resources

■ Rapid Response by Non-Japanese Employees

The EHS Div.'s human resources make it one of the most diverse organizations within the Group, and non-Japanese employees and senior employees in particular are a driving force behind advances in environmental and occupational health and safety activities. As the pace of revisions to local laws and regulations gains momentum overseas, especially in Asian countries, our Chinese and South Korean employees have been instrumental in keeping abreast with local laws and regulations, accelerating the process of registering and receiving approval for chemical substances from foreign government institutions.

■ Abundant "Know-Why" Among Senior Employees

Because cumulative past experience has proven to be very effective in environmental and occupational health and safety activities, roughly half of the employees in the EHS Div. are over the age of 50. Our senior human resources have insight into the advantages and disadvantages of newer and older production facilities, and are experts in environmental management and occupational safety thanks to their decades of experience working on the front lines of production at TOK. These senior employees have not only "know-how," but also "know-why" (knowledge that allows them to immediately know why something may have happened), a precious management resource that backs the Company's ability to sustain value creation.

Enhancing Engagement with Suppliers

■ "Creating Together" as TOK's Lifeline

Instead of working solely on its own, TOK's lifeline is "creating together," through working closely together with its suppliers from the raw material composition stage and sharing targeted quality standards, to further reduce the environmental impact of its products such as photoresists, while increasing added value. The Company periodically exchanges opinions with and performs audits at its main suppliers around the world, and shares throughout its supply chain the standards required by TOK and its customers. In this way, we provide authentic environmental value to our customers and society.

■ Creating Cutting-edge Environmental Value with Suppliers

Collaborating with our suppliers is a key factor in making further advances in the high purification technology that creates environmental value, as well as developing materials for next-generation power semiconductors. Not only TOK, but also its suppliers, must make investments and take risks in their pursuit of the highest levels of purity in the world and the development of cutting-edge materials. Key personnel from TOK and its suppliers are devoted to ensuring successful outcomes to their projects, and regularly convene Technical Review Meetings (TRM), Management Review Meetings (MRM), and Executive Review Meetings (ERM).

Pursuit of Best Practices through Participation in "Communities"

■ Activities in Responsible Care Committee at Japan Chemical Industry Association

TOK actively participates in "communities" of stakeholders within the industry that aim to minimize risks associated with hazardous chemical substances, air pollution, and workplace accidents. We aim to deepen knowledge about the latest innovations and best practices in environmental conservation and occupational health and safety. The Japan Chemical Industry Association, a group of companies in the chemicals sector, periodically hold meetings of the Responsible Care Committee, which provides opportunities to hear about the latest developments at the plants of each company, in the context of chemical substance management, environmental conservation, security and disaster prevention, and dialogue with local communities. These meetings also inform the Company's activities in environmental conservation and occupational health and safety.

■ Participation in chemSHERPA

In July 2017, TOK adopted the chemSHERPA information transfer schemes for chemical substances contained in products. Initially proposed by the Ministry of Economy, Trade and Industry, chemSHERPA was established with agreements of some electronics-related companies. The scheme aims to create a common format for accurately and efficiently conveying information about chemical substances contained in products from upstream to downstream operations. As the organization that manages chemSHERPA, JAMP*¹ counts 443 companies*² (including TOK) as members. Through this organization, TOK obtains the latest information about chemical substances and broader trends, which is used to further improve its management of chemical substances.

*1 Joint Article Management Promotion-consortium

*2 As of June 27, 2019

Formulating the Next Long-term Environmental Targets

■ To Advance the Creation of Environmental Value from a Long-term Standpoint

TOK has set various environmental targets for 2020 to guide the creation of environmental value from a long-term perspective, and these targets are fast approaching their final fiscal year. With the intention of advancing the TOK Group's environmental initiatives and creation of environmental value from a long-term standpoint, the Company's new investment plans incorporate environmental considerations and energy conservation as a part of its basic assumptions. The Company is preparing to incorporate the details of TCFD* and other guidelines into the formulation of its new long-term environmental targets for 2020 and beyond. TOK intends to heavily incorporate these guidelines while testing various arrangements and KPI settings that make the most sense for its operations, which entail the continued development of fine chemical products in high value-added fields that experience rapid technological change. We hope that our stakeholders are excited to see how the TOK Group will continue to create environmental value.

* Task Force on Climate-related Financial Disclosures

Creating New Environment Value through Business Activities

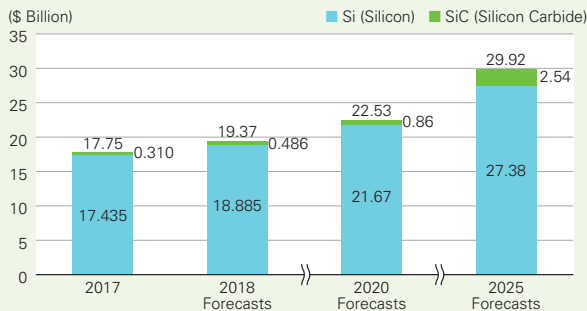
As introduced in the Special Feature (pages 30–31), TOK continues to contribute to solutions for the worsening problem of climate change through the stable supply of g-Line and i-Line photoresists for power semiconductors, for which it has the world's top share*¹. Recently, the Company has focused on the following R&D projects to provide new environmental value in the future.

*¹ Share of sales volume for 2017 (Source: Fuji Keizai's "Whole View of Photo-functional Material and Product Market 2018")

Development of High-heat-resistant Photoresists for Next-generation Power Semiconductors

The power semiconductor market is projected*² to grow at an average annual rate of 6.7% through 2025 and reach \$29.9 billion by 2025, a figure that is roughly 1.7 times higher than 2017. SiC (silicon carbide) power semiconductors, regarded as a leading next-generation power semiconductor, greatly improve the electric power efficiency of electric vehicles, solar power generation and power sources of industrial machinery, and are expected*² to see a compound annual growth rate of 30% and reach \$2.5 billion by 2025, or about 8.2 times larger than in 2017. SiC power semiconductors are currently produced using conventional i-Line photoresists with lithography, etching, and high-temperature treatment processes. In this field, TOK is developing high-heat-resistant photoresists that will reduce the number of production processes and increase pattern precision. By combining high-heat-resistant resins with conventional i-Line photoresist technologies, this product features both high heat resistance and high resolutions. With this product, TOK will be able to contribute more to solutions for climate change through next-generation power semiconductors.

*² Source: Yano Research Institute "Survey on Global Power Semiconductor Market (2018)," published on January 15, 2019



Note 1. Manufacturer shipment value basis
Note 2. Estimates shown for 2018, 2020 and 2025

Next-generation power semiconductors (SiC semiconductors) market:
CAGR 30% (2017 to 2025)
 TOK is developing high-heat-resistant photoresists.

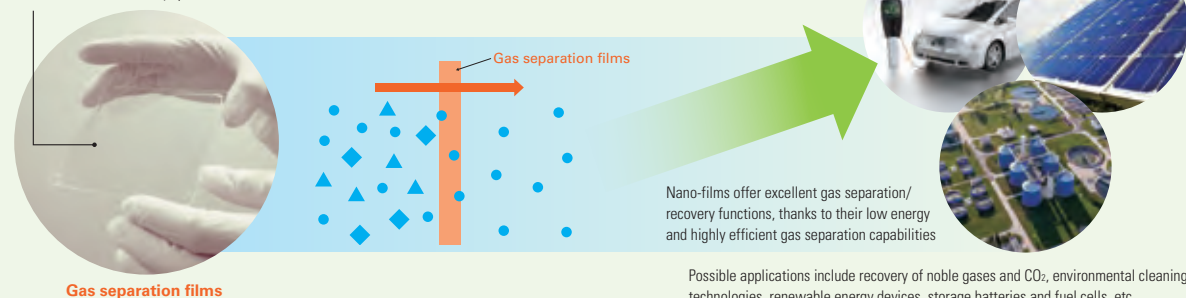
Conventional power semiconductors (Si semiconductors) market:
CAGR 5.8% (2017 to 2025)
 TOK stably supplies g-Line and i-Line photoresists. (The world's top share*¹)

Developing a Gas Separation Membrane for Separating and Capturing Rare Gases and CO₂

As a new business, TOK is developing a gas separation membrane for efficiently separating and recovering rare gases and CO₂ with low energy requirements based on the "nano membrane" developed in 2016 with help from NanoMembrane Technologies, Inc. (Headquarters: Higashi-ku, Fukuoka City/Representative: Toyoki Kunitake), which has been designated as a RIKEN Venture*³ by RIKEN. This gas separation membrane, which has a thickness roughly one-thousandth the thickness of a human hair, can potentially be used in applications for re-using helium, a rare gas needed in the semiconductor production process, as well as the environmental field, renewable energy devices, storage batteries and fuel cells. The Company is promoting open innovation with universities, companies, and research institutions to further advance its development.

*³ A company started up with core technologies from research projects at RIKEN, and was designated through satisfying certain conditions.

Thickness: less than 1/1,000th that of a strand of hair



Message from the Director in Charge of General Affairs and Human Resources

We will expand tough assignments to foster self-reliant human resources that boldly take risks.

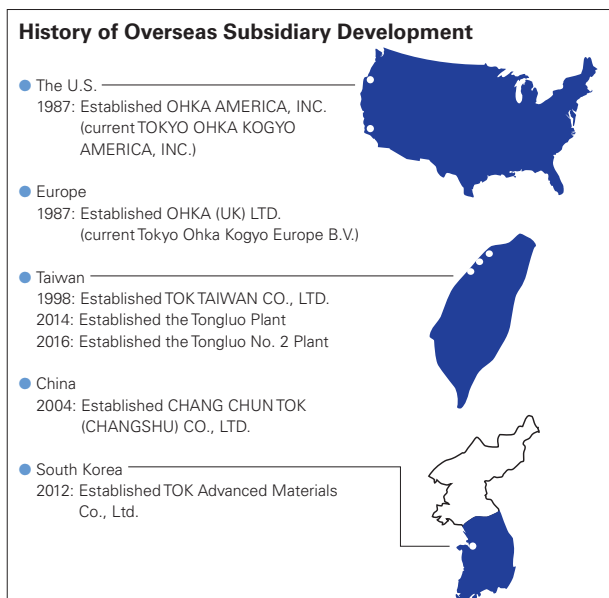


Kunio Mizuki *Director, Executive Officer, Department Manager, General Affairs Dept.*

Megatrends

■ Globalization of Electronics Industry/Growth in Asian Economies

Since the dawn of Japan's semiconductor industry, TOK has refined its technologies in lockstep with Japanese semiconductor manufacturers, its customers, especially during the period of rapid development in the 1980s. Our development and sales personnel also honed their strengths through a process of being trained and disciplined by customers. Thereafter, amid the megatrends of globalization in the electronics industry and expansion in Asian economies, our overseas customers in the U.S., South Korea, and Taiwan began to lead the global semiconductor industry, and we always stayed close to our customers to rapidly meet their stringent requirements for performance, quality, and service in semiconductor photoresists and high-purity chemicals. This allowed us to grow considerably alongside our customers. As 5G and IoT begin to take off in society, however, the pace of technological change is accelerating in the entire electronics industry, and development difficulty increases every year. Against this backdrop, TOK is reforming its business portfolio by strengthening marketing and striving to establish new earning pillars in order to become a "100-year company" in 2040. However, taking a passive approach, by growing alongside our customers, will not be enough to achieve these goals. More than ever before, we need to develop self-reliant human resources that are keen



Policy on Utilizing Human Resources

Since its founding, employees have been the greatest asset of the TOK Group. The Company's human resource policy is based on the following five principles, derived from its long-held philosophy that human resources are a company asset.

- ▶ Never forget that business always starts with "people."
- ▶ Any discrimination within the Company and among employees is strictly prohibited.
- ▶ Ensure full compliance with applicable laws and regulations, as well as fair and equal compensation.
- ▶ Educate personnel and promote creativity to become a company that develops innovative technologies.
- ▶ Ensure personnel systems are based upon performance, emphasizing and ensuring transparency.

to actively take on risks. Under the "TOK Medium-Term Plan 2021," "enhancing personnel measures" is one of our most important management issues.

Risks and Opportunities

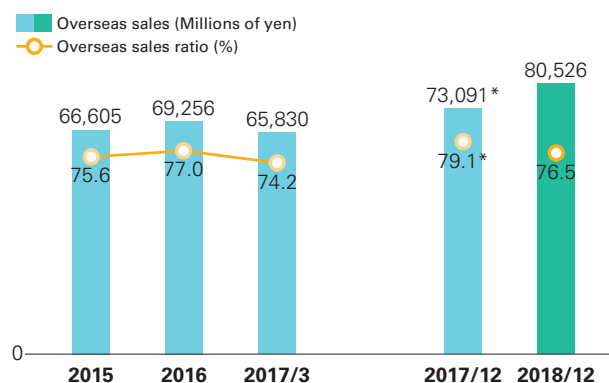
■ Expanding Tough Assignments for Domestic Human Resources an Issue

As overseas sales have expanded, overseas business has come to account for about 80% of consolidated net sales, with the remaining 20% from Japan, but the opposite is true for employees. Only 20% of consolidated employee numbers are overseas, and 80% are in Japan. We are well aware of the risk that opportunities for tough assignments for employees to hone their skills with domestic customers are on the decline in Japan.

■ Overseas Customer-oriented Sites Present Numerous Growth Opportunities for Human Resources

As sales have expanded overseas, R&D functions, production facilities, and human resources have also expanded at our customer-oriented sites in the U.S., South Korea, and Taiwan. These overseas customer-oriented sites have served well as venues and opportunities for tough assignments for employees dispatched from Japan to improve through close interactions with local customers, collaboration with non-Japanese employees and local suppliers, and learning more about environmental and safety laws and regulations at local governments. These tough overseas assignments have become a ladder for advancement to management positions at TOK. Additionally,

Overseas sales/overseas sales ratio



* Due to a change in fiscal year-end, the fiscal year ended December 31, 2017 was an irregular nine-month period in Japan, and 12 months overseas.

local non-Japanese employees have opportunities to grow and improve their knowledge of cutting-edge fields, by learning more about the Company's world-leading microprocessing technology and high purification technology.

Key Measures in the TOK Medium-Term Plan 2021

■ Expanding Detailed Measures for Inclusion of Employees from Diverse Backgrounds

In light of these risks and opportunities, under the "TOK Medium-Term Plan 2021," management has defined "strengthen human resources who can perform research, make decisions, and take actions on their own initiative" as one of its company-wide strategies. Through the Personnel System Reform Project launched in September 2018, TOK is promoting the hiring of diverse human resources and taking bold steps to reform the personnel system and expand its training systems. Through these and other measures, we have started to carry out initiatives to strengthen human resources so they can better pursue various business opportunities with customers and see them through to a successful conclusion.

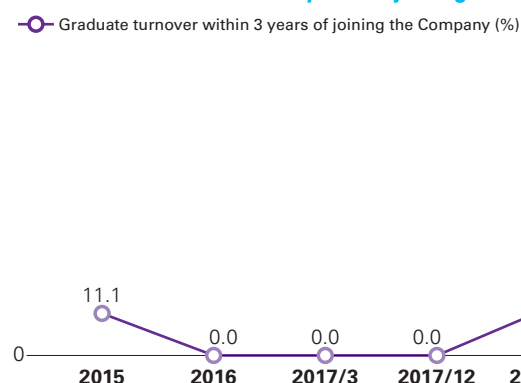
With regard to hiring diverse human resources, we adhere to a policy of "Diversity and Inclusion*" with the aim of strengthening competitiveness by proactively and continuously seeking to hire foreign nationals, mid-career professionals, and women. We are especially focused on measures to promote "Inclusion." Specifically, for female employees we are offering more choices for work styles depending on their life stage while enhancing support for childrearing. For non-Japanese employees, we strive to be a welcoming environment for different cultures and languages, and offer support in terms of their work and private lives through periodic face-to-face meetings. For non-Japanese employees who mainly work at our sites in Japan, we offer financial assistance for taking the Japanese-Language Proficiency Test. TOK is ready to implement concrete measures during the current medium-term plan for promoting inclusion among employees with due consideration paid to their individual attributes and unique situations.

* Inclusion: Acknowledging and taking advantage of the skills and opinions of diverse human resources

■ Reforming Personnel Systems and Expanding Training Programs

As shown on the next page, TOK is augmenting its level-based training program as a part of reforms to its personnel system, and expanding its training programs. The Company is also keen

Graduate turnover within 3 years of joining the Company



Number of non-Japanese employees

	2015	2016	2017/3	2017/12	2018/12
Number of non-Japanese employees (non-consolidated)	5	6	11	11	11
Number of non-Japanese employees (consolidated)	259	301	312	323	378
Ratio of non-Japanese employees (consolidated, %)	16.8	19.2	19.5	20.0	22.6

Indices related to female employee participation*¹

	2015	2016	2017/3	2017/12	2018/12
Ratio of women among new graduates (%)	45.0	40.0	45.8	29.2	43.3
Ratio of women among the overall employees (%)	10.2	10.6	11.4	11.7	12.3
Difference in average tenure figures for men and women (years)	7.7	8.0	8.7	8.9	9.2
Ratio of women in senior and middle management (%)	0.5	1.1	1.5	2.0	2.4
Ratio of women on the Board of Directors (%)	0.0	8.3	8.3	8.3	8.3 ²

*¹ Non-consolidated basis (employees exclude those seconded from TOK to other companies and contract workers, and include people seconded from other companies to TOK)

*² As of 2019

Number of users of childcare-related systems

	2015	2016	2017/3	2017/12	2018/12
Childcare leave system (number of users)	10	13	4	4	12
Shorter working hours (number of users)	10	4	2	2	6
Childcare time (number of users)	4	11	12	12	13

to reallocate personnel as a way of increasing opportunities afforded by tough assignments, based on the analysis that management training has been inadequate in the past, a recent issue in its personnel system. By implementing an allocation strategy across departments for the next generation of senior management candidates, division managers, and candidates for the next generation of department managers, TOK intends to improve their organizational management capability, ability to coordinate across organizations, ability to analyze problems, strategic capabilities for solving problems, and capacity for judgment. By giving employees tough assignments to gain first-hand experience, we aim to enhance their overall level of experience and responsiveness, and prepare employees for upper-level management positions. To raise awareness that training subordinates is one of the important missions of managers, we are also considering the introduction of a training regimen for mastering coaching skills.

Level-based Training Program

Program

■ New Employee Training Program

The objective of this year-long training program is to familiarize new employees with the Company's production and inspection processes for products, as well as teach them the basics about being a member of society and TOK's identity.

- Basic Education for Global Personnel
- New employee training, factory training, training after three months of joining, language instruction at home, language camps

■ Training Program for Senior Staff

Basic education is provided in order to facilitate work within each business site and with related departments, on topics such as logical thinking, logical communications, leadership, and accounting knowledge.

■ Training Program for Junior Managers

With the intention of training effective managers or executives, we provide instruction based on a repetitive learning process for consistent management and problem solving, on topics including communication methods for instructing and educating subordinates, understanding current conditions, clarifying and improving problems and issues, and devising measures and strategies to solve issues.

■ Training Program for Assistant Managers

With the objective of instilling the ability to solve problems, we provide settings for group learning, discussions with directors and report presentation events on topics including analyzing progress of the medium-term plan, identifying, defining and solving problems and issues, and creating strategies for solving problems. Assistant managers receive training on the fundamentals to become department managers and executives through learning the necessary management philosophy, as well as theory on problem analysis and solving strategies to lead organizations in perpetuity while staying one step ahead of the times.

■ TOK Global Practical Training for Selected Members and Training for Locally Hired Non-Japanese Employees

TOK continues to concentrate on TOK Global Practical Training for Selected Members, which was introduced in 2014 as a measure to train employees before reassignment or being given tough assignments. The Company needs human resources with attributes including flexibility, speed, toughness, communication skills, and foreign language ability. Related courses are shown below.

As a new measure, the Company is advancing the TOK Group Core Human Resource Training Program, which is also geared toward locally hired non-Japanese employees at overseas subsidiaries, for the purpose of training talented human resources who will become key leaders of the Group in the future to continue increasing the corporate value of the Group over the long run. This program furthers an understanding of TOK's history, principles, and strategies for overseas subsidiaries, and opens up discussions about the future leaders and other topics. By experiencing collaboration in overseas business simulations, employees in the program build the coherent perspectives and values of the TOK Group on their own.

Ensuring the Health and Safety of Human Resources

■ Health & Productivity Management

We recognize that employee health is essential for sustainable value creation, and it is also a prerequisite to raising the happiness of Group employees. Since 2015, TOK has implemented Data Health Plans in collaboration with the Tokyo Ohka Kogyo Health Insurance Society, which use a PDCA cycle for preventing and discovering diseases while encouraging employees to take better care of their health. In 2017, we focused efforts on preventing illnesses from becoming worse through the early detection and treatment of diseases, including offering to pay the full cost of influenza vaccinations for employees.

In 2018, the Company launched My Health WEB as a new portal for health-related information, and began offering convenient information for improving knowledge and awareness about health. We also made an effort to improve employee awareness of presymptomatic medicine (to lead healthier lives), such as by holding the walking festival via My Health WEB. As a result of these ongoing initiatives, in February 2019, TOK

TOK Global Practical Training for Selected Members Content

Theme	Content
Kick-Off Seminar	Participants learn the fundamentals of different cultures and English communication and methods for accurately expressing the points they wish to convey.
Win-Win Communication	Participants learn how to identify points of commonality and difference with a person having a different opinion, as well as how to negotiate and craft solutions.
Overseas Training	Participants directly experience a different culture and find ways to "break out of their own shells" to quickly solve problems under a given set of difficult circumstances.
Leadership	Participants define and imagine for themselves "ideal leadership" and create a plan of action to bridge the gap between the current reality and the ideal.
Mental Toughness	Participants become aware of their own level of growth through challenging exercises with people who are not Japanese. They come to understand their own abilities and strengths and to control motivation.

Increasing Employee Happiness Leads to Greater Satisfaction for All Stakeholders



At TOK, the graduate turnover rate within 3 years of joining the Company has been zero for a majority of years, and the percentage of annual paid leave taken is much higher than the average for the manufacturing industry. However, we are still not satisfied. U.S. companies have data that happier employees are more creative and efficient at work, while missing or quitting work less often. There is also research finding that corporate performance is proportional to employee happiness. With the idea of focusing on not only employee satisfaction, but also their happiness, we are committed to reforming our personnel systems to create a fair personnel evaluation system, while improving employee satisfaction with their work environments and benefits. Furthermore, we aim to increase the happiness of each and every employee so they can perform to the best of their abilities, which should lead to the sustainable enhancement of corporate value and greater satisfaction for all stakeholders.

Kazuhiko Nakayama *General Manager, Human Resources Div.*

was recognized for a second straight year in the 2019 Certified Health & Productivity Management Outstanding Organizations Recognition Program (White 500) by the Ministry of Economy, Trade and Industry and the Nippon Kenko Kaigi.

■ Labor Union Also Involved in Health Management and Empowering Female Employees

The Tokyo Ohka Kogyo Labor Union was formed in 1976 and has a union shop agreement with the Company. As of December 31, 2018, there were 1,021 labor union members affiliated with the Company, and 80.6% of all employees are members of the labor union. Since the labor union was first formed, labor and management have maintained good, cooperative relations. Once every two months, the central labor-management meeting takes place on the operating environment and other labor-management issues. As a part of this, we have concluded various labor agreements that include provisions on occupational safety and health for maintaining good labor and workplace conditions. When changes in working patterns are made for business purposes, they are always discussed in advance with the labor union.

Moreover, the labor union is involved in promoting health management and the empowerment of women in the workplace, while also planning and implementing recreational activities (sports, tourism, and theatergoing, etc.). The labor union also creates opportunities for female employees to receive training and network among themselves.

Respect for Human Rights

■ Basic Concept

The TOK Group has declared its respect for human rights and prohibits discrimination, and strives to understand and accept diverse values without regard to gender, age or nationality.

Based on this foundation, in line with one of our management principles, namely the creation of a frank and open-minded business culture, we are committed to developing a safe and sound working environment where each and every one of our employees can work in a motivated manner.

■ Respect for Human Rights

Respect for human rights is a fundamental basis for sustainable value creation through international business activities. The TOK Group respects the basic human rights of individuals, diverse values, personality and privacy based on the TOK Group Personnel Management Rules and TOK Group Compliance Standards of Conduct, and has pledged to never infringe on the human rights of officers and employees based on birth, nationality, race, ethnicity, belief or religion.

We conduct company-wide activities aimed at raising awareness of human rights, and have put in place systems such as collaboration with legal firms to respond to complaints and carry out improvements.

■ Prevention of Harassment

TOK has codified “Detailed rules concerning harassment” and set up contact points and clarified procedures for handling harassment incidents. To prevent or correct harassment, we also strive to raise awareness among all employees through harassment prevention training.

In recent years, the Company has taken more steps to prevent harassment by making rules for preventing maternity harassment and paternity harassment, as well as by clarifying contact points and procedures for handling harassment incidents.

Message from the CFO

By strengthening balance sheet management, TOK is fortifying its financial position to sustain value creation in a frank and open-minded culture, while focusing efforts on dialogue with stakeholders.



Yoichi Shibamura *Senior Executive Officer, Department Manager, Accounting and Finance Dept.*

Toward Enhancement of Corporate Value

■ Management Principles and Our Social Value

Since its establishment in 1940 as a fine chemicals manufacturer that develops and supplies high-purity chemicals, TOK has diversified into a broad range of fields, starting from functional materials for black and white TVs to high-performance printing materials, panel materials, and semiconductor microprocessing materials. TOK has seen great success from its long-running endeavor of contributing to society by developing quality products with outstanding technologies (not bulk chemicals) and encouraging thorough debate to this end among employees without regard to their rank or position.

For nearly 80 years, our four management principles have been passed down without changing, i.e., “Continue efforts to enhance our technology,” “Raise the quality levels of our products,” “Contribute to society,” and “Create a frank and open-minded business culture.” These management principles are evident in every aspect of development, manufacturing, and marketing. I believe TOK is a unique company among manufacturers above a certain size around the world, a “permanent venture company” with a culture of having a great time together developing technologies in a frank and open-minded environment in its DNA since its founding. Leveraging this DNA as much as possible, TOK is keen to further improve its social value by meeting expectations with chemicals to help solve climate change and issues in the era of 5G and IoT.

Management Principles

Continue efforts to enhance our technology

Raise the quality levels of our products

Contribute to society

Create a frank and open-minded business culture



Shigemasa Mukai
TOK founder

■ Focusing on Dialogue with Stakeholders while Ensuring a Financial Position that Facilitates Frank and Open-Minded Development

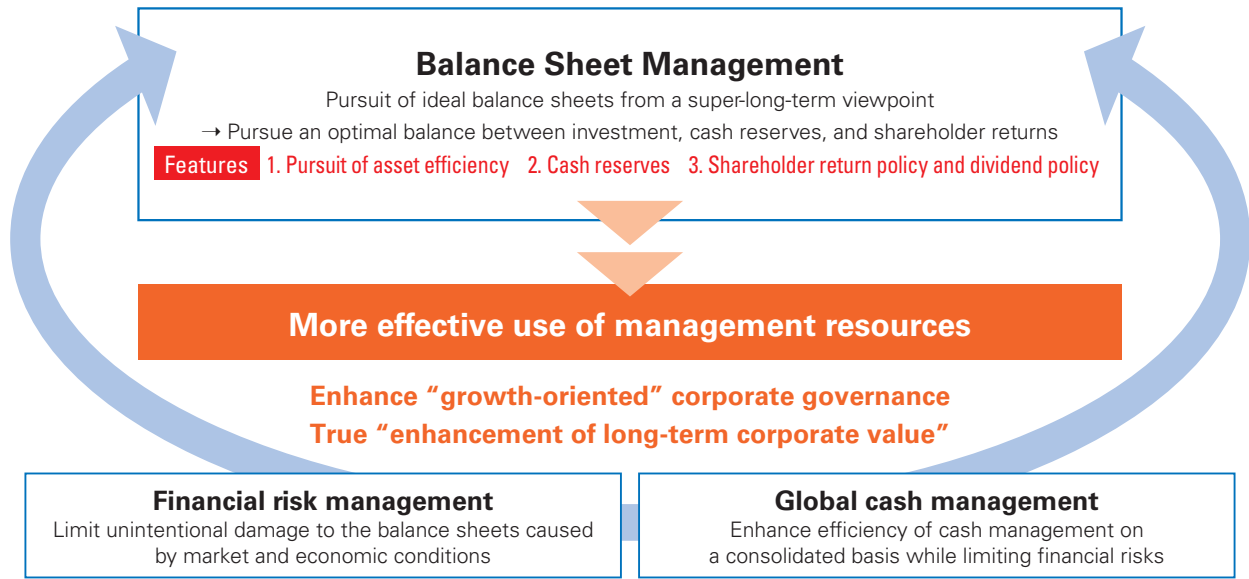
As the officer in charge of finance, I am concentrating my energies on ensuring the Company has a robust financial position that facilitates frank and open-minded development, while elevating our willingness to take on challenges and our venture spirit, with our DNA, as exemplified in our management principles, a driving force behind long-term sustainable growth and a source of social value. While taking the longer view instead of focusing on the short term, we are careful to base our analysis and decisions on an objective and cool-headed viewpoint when assessing investment returns and efficiency.

In my dialogue with shareholders, investors and other stakeholders, I make a concerted effort to convey TOK’s unique traits and strengths as a long-run R&D-driven company and as a company that always strives to be a global niche top company. As we embed various messages in our financial capital strategy, I intend to continue dialogue with stakeholders so they become long-run supporters.

■ Taking a “Growth-Oriented” Approach to Corporate Governance

I focus on “growth-oriented” corporate governance as the CFO in ESG initiatives for sustainable enhancement in corporate value. During the “TOK Medium-Term Plan 2021,” I believe my primary mission is to strengthen the balance sheet management that began during the previous medium-term plan, simultaneously managing financial risks on a worldwide basis while managing cash on a global basis. We are in position to bring about true “enhancement of long-term corporate value” with due consideration paid to our stakeholders, including shareholders, investors, customers, employees, and local communities.

“The trinity” of balance sheet management, financial risk management, and global cash management



Financial Capital Strategy in the Medium-Term Plan

■ Review of the “TOK Medium-Term Plan 2018”

TOK saw two major successes with its financial strategies during the “TOK Medium-Term Plan 2018.”

The first success was changing the end of the fiscal year to December, starting in fiscal 2017. Previously, the TOK Group ended its fiscal year in March, presenting in its consolidated results at the domestic companies including the parent company ending their fiscal years on March 31, and overseas subsidiaries ending their fiscal years on December 31 (with a three-month delay). However, with the overseas sales ratio up to nearly 80%, and in light of the globalization of business and international division of operations over the past few years, management decided to unify the end of the fiscal year to December for both domestic and overseas companies in 2017 to improve transparency in the disclosure of results. This has enhanced our accountability to investors, while also accelerating and fine-tuning consolidated management.

The second success was plotting a path forward for strengthening balance sheet management. Details about this measure were disclosed at the same time as the “TOK Medium-Term Plan 2021.” From the initial stages of the previous medium-term plan, however, TOK has been advancing measures with an eye on the balance sheets and a strong awareness of the capital cost. Specifically, the Company implemented a ¥10 billion share buyback in 2017. Then in the following year, the Company essentially swapped equity for debt as a result of long-term debt financing to raise ¥10 billion for capital investments, taking a major step forward in strengthening balance sheet management.

Over the three years of the previous medium-term plan, TOK stepped up efforts to return value to shareholders, which exceeded the total amount of free cash flow during this period when including share buybacks. Our financial capital strategy in the “TOK Medium-Term Plan 2021” serves as a clarification of management’s stance on strengthening shareholder returns while focusing more on the balance sheets.

■ Background to Major Shift in the Financial Capital Strategy

There are two factors behind our major shift in the financial capital strategy in the “TOK Medium-Term Plan 2021.”

The first factor entails a major turning point for the TOK Group approaching in the business environment. As various innovations are likely to emerge in the electronics industry, its main domain, from the advent of 5G and IoT, TOK is continuing to make swift and bold investments as a “permanent venture company” with the intention of sustaining growth toward its vision of a “100-year company” in 2040. Maintaining distinctive growth over the long run will hinge on our decision that a new financial capital strategy based on balance sheet management with a long-term viewpoint is necessary.

The second factor is major changes on Japan’s capital market, as demonstrated by the creation of two new codes*. Viewing these major trends as an opportunity to change itself, TOK reassessed how it will genuinely work for investors and other stakeholders with a strong awareness of the capital cost. Amid these major changes, management came to better understand the importance of having a new financial capital strategy based on balance sheet management from the standpoint of how to better serve its long-run investors that have been supporting and encouraging TOK, a long-run R&D-driven company.

* The two new codes are Japan’s Stewardship Code in 2014 and the Corporate Governance Code in 2015.

Policies on cash reserves

As a long-run R&D-driven company, TOK will calculate **cash reserves from the standpoint of securing the necessary funds.**

- Develop technologies in anticipation of a super-long time frame
- Continuously tackle challenges over a super-long time frame
- Respond rapidly when the unexpected happens (restoration, rebuilding, etc. from major disasters)

$$\text{Cash reserves} = \text{Working capital} + \text{Investment reserves} + \text{Risk reserves}$$

Financial Capital Strategy in the TOK Medium-Term Plan 2021

In 2019, TOK announced and started its new financial capital strategy, and its intention of pursuing an optimal balance between investments, cash reserves, and shareholder returns. Management is delighted that these new policies have been positively received by our shareholders and investors. We made a significant pivot in strategy with a target of 3.5% for DOE, and many of our shareholders and investors have agreed with this new policy.

However, the reason for this approach to balance sheet management stems from TOK's belief that business growth over the long run is its overriding imperative. Considering the competitive landscape and the Company's position within it lately, management believes a fair amount of cash reserves are necessary for the future. In this regard, I believe we must continue dialogue to clearly explain our policy on cash reserves to shareholders and investors.

As explained earlier, TOK's approach to cash reserves considers that all of our business rivals in cutting-edge fields are multifaceted divisions of large-scale companies. Although we are confident that our technological development capabilities and ability to collaborate closely with customers as a B-to-B

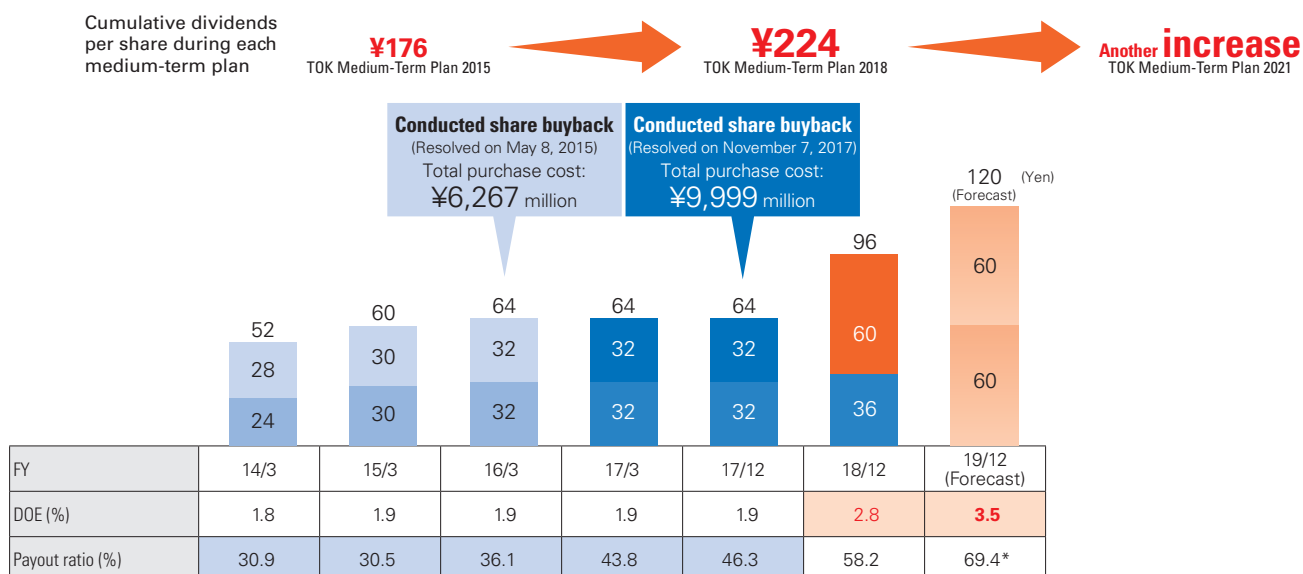
company are better than rivals, we must have a relatively large amount of cash reserves to ensure TOK has the capacity to invest on a par with rivals and keep pace with the competition in terms of development and investments. Management pays due consideration to investment and asset efficiency by gauging and pursuing asset efficiency with ROIC and IRR indicators, and by focusing more efforts on periodic reviews of reasons for cross shareholdings.

Improving ROE

The Company targets an ROE of 8% or higher by the fiscal year ending December 31, 2021 in the "TOK Medium-Term Plan 2021." To achieve this target, management aims to increase the net margin by generating high-quality profits through a reform of its business portfolio.

For now, the Company will carry on with structural reforms while expanding investment. The three years of the "TOK Medium-Term Plan 2021" are positioned as an interim period for reaping benefits from past initiatives to advance and add higher value to products in the photoresists for semiconductor front-end processes and high-purity chemicals field. TOK aims to increase the net margin to around 10% by the fiscal year

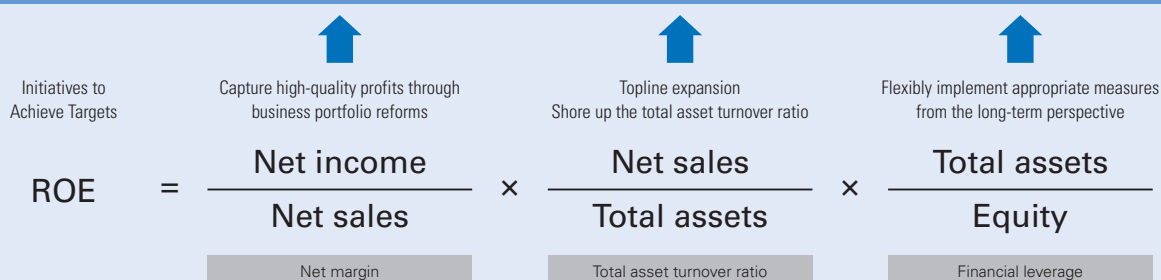
Shareholder returns and dividends per share



ROE Targets

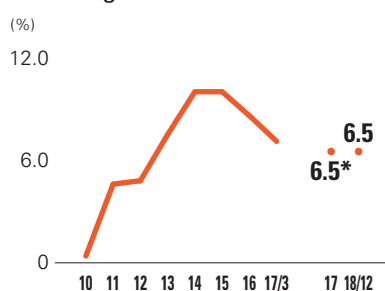
FY2018/12 result: 4.7%

8% or higher (FY2021/12)

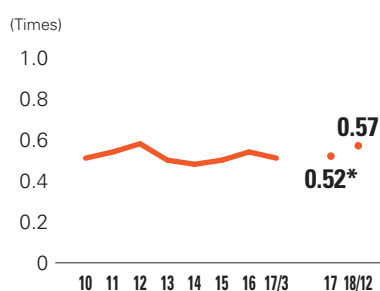


10-year trends of ROE-related indicators and ROE

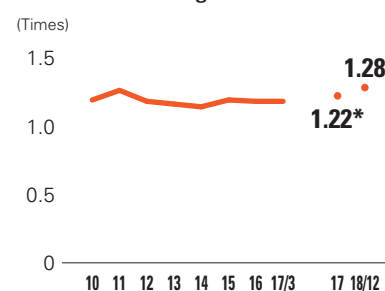
Net margin



Total asset turnover ratio



Financial leverage



* The fiscal year ended December 31, 2017 was an irregular nine-month period due to a change in fiscal year-end.

ending December 31, 2021 if earnings stay within its best-case scenario target range. The Company projects the total asset turnover ratio will improve to 0.7 times in its aim to strengthen and instill balance sheet management. As a result of swapping equity for debt during the previous medium-term plan, financial leverage was 1.28 times (equity ratio of 78.0%), and we believe this level can be maintained or increased to a certain degree. With this as a possible scenario, the Company aims to achieve an ROE of 8% or higher by responding in a proper and timely manner to changes in the business environment, investment conditions, and financial situation. Our policy of targeting a DOE of 3.5% is also a moderate measure for the denominator towards ROE growth, and we are also taking flexible measures toward share buybacks and from the standpoint of measure for the denominator.

■ Evolving Global Cash Management

As a part of balance sheet management, TOK is concentrating on evolving global cash management. Overseas operations have expanded thanks to deepening our strategy of building close relationships with customers, and the international division of operations has accelerated between Japan and overseas subsidiaries, and among overseas subsidiaries. Consequently, the flow of money within the Group has become more diverse and complicated on a worldwide basis, necessitating a more thorough approach to cash management to effectively deploy capital throughout the Group.

Of the surplus funds at overseas subsidiaries, the portion excluding cash reserves for investments and necessary working capital is in principle concentrated at the parent company, while a parent-subsidiary finance scheme is also being created

for unexpected situations. We are working to quickly create this scheme because it will also serve as a means of controlling financial risks related to fluctuations in foreign exchange rates and liquidity, in addition to being an effective way to strengthen balance sheet management on a consolidated basis.

■ Strengthening Tax Governance on a Worldwide Basis

In addition to focusing on global cash management, TOK is strengthening tax governance on a worldwide basis. We are creating an appropriate tax governance system with the parent company as a control tower that gathers know-how about taxation on a consolidated basis and for each entity, with the intention of addressing issues in international taxation including problems associated with transfer price taxation and strengthening base erosion and profit shifting (BEPS) measures in advanced countries. As its first step, the TOK Group is researching taxation and tax customs in all regions where it conducts business, while also assessing conditions in product markets, to formulate a transfer price policy. At the same time, TOK aims to improve collaboration among sites with the parent company as a control tower, and qualitatively improve its tax governance systems at domestic and overseas sites.

Review of Operations

Material Business

Manufacturing and sales of electronic functional materials and high-purity chemicals



Keiichi Yamada

Director, Officer, Department Manager,
Marketing Dept.



TOKTAIWAN CO., LTD.

TOK Advanced Materials Co., Ltd.



Quality policy

Aim to be a globally trusted corporate group by inspiring customers with high value-added products that have satisfying features, low cost and superior quality. Deepen and expand existing business domains and swiftly launch new business domains.

Each one of us clearly understand current situation and challenge ourselves with a sense of crisis.

1. Strengthen marketing ability, be motivated by a strong sense of crisis, prepare well, and take immediate action.
2. Promote human resource development for global operation.
3. System to capture customer's voice accurately and to respond them immediately.

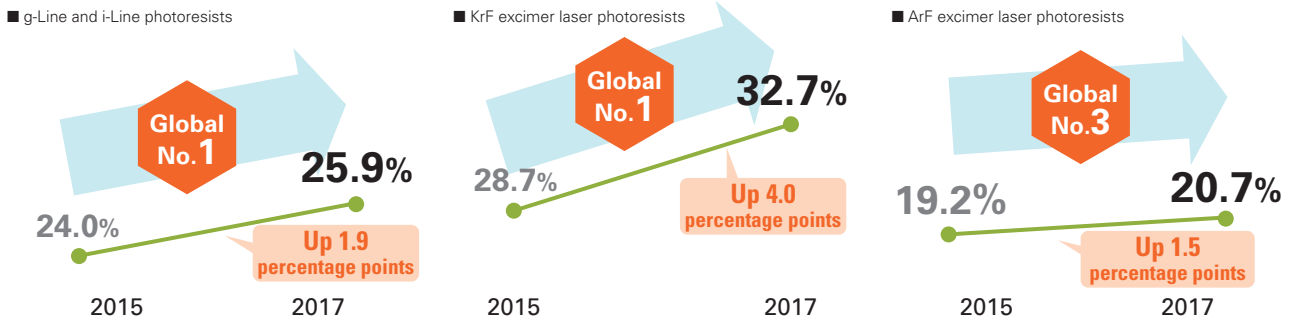
Material Business Performance

(Millions of yen)

	FY2017/3	YoY*	FY2017/12 Result*	FY2017/12 Calendar year adjustment*	FY2018/12 Result		
					Change	%	
Net sales	86,558	78,842	90,532	98,250	102,626	+4,376	+4.5
Electronic functional materials	53,074	47,318	51,230	56,947	58,793	+1,845	+3.2
High-purity chemicals	33,475	31,026	38,676	41,165	43,733	+2,567	+6.2
Other	9	496	623	134	95	(39)	(29.3%)
Segment income	14,470	12,448	12,816	14,868	15,075	+207	+1.4
Segment income margin	16.7%	15.8%	14.2%	15.1%	14.7%	—	—
Segment assets	97,542	—	106,220	—	104,903	—	—
Depreciation	5,831	—	5,833	—	6,769	—	—
R&D costs	7,513	—	6,371	—	7,856	—	—

* Due to the change in fiscal year-end, adjusted results for the fiscal years ended December 2016 and December 2017 are presented as adjusted figures for nine months' (April–December 2016) earnings of companies that ended their fiscal years in March 2017 (the Company and its domestic consolidated subsidiaries). Revised results for the fiscal year ended December 2017 are presented as adjusted figures for 12 months' (January–December 2017) earnings of companies that end their fiscal years in March (the Company and its domestic consolidated subsidiaries).

Global market share for semiconductor photoresists (sales volume basis in 2015 and 2017)



Source: Fuji Keizai's "Overview of Photo-Functional Material and Product Market 2016" and "Whole View of Photo-Functional Material and Product Market 2018"

Review of the "TOK Medium-Term Plan 2018" Short of targets for ArF excimer laser photoresists despite advantages in cutting-edge fields

During the "TOK Medium-Term Plan 2018" (fiscal year ended March 31, 2017 to fiscal year ended December 31, 2018), as the global semiconductor industry expanded strongly, TOK further deepened its strategy of building close relationships with customers that began in earnest under the "TOK Medium-Term Plan 2015," and moved on reforms to its business portfolio with a focus on creating high added value as an R&D-driven company.

More specifically, in ArF excimer laser photoresists, TOK tapped into demand for 10nm-level semiconductors and acquired its adoption on processes less than 10nm. In KrF excimer laser photoresists, the Company focused efforts on expanding adoption of thick-film photoresists for 3D-NAND. In high-density integration materials, the Company worked on the development of materials for cutting-edge package processes and MEMS, such as for fan-out wafer level packages. In high-purity chemicals, TOK endeavored to introduce new clean solutions. Furthermore, TOK concentrated on the development of applications for its products in IoT sensors, electronic components, and power devices.

As a result, sales of KrF excimer laser photoresists expanded for 3D-NAND, implants and IoT sensor applications. In high-density integration materials, thick-film photoresists also expanded strongly for fan-out wafer-level packages in high value-added smartphones. In high-purity chemicals, the Company won large contracts for supplying high value-added thinner and clean solutions for 10nm-level processes. Moreover, a major customer decided to use the EUV photoresists the Company has been developing as a new application for

7nm semiconductors. TOK scored major successes in the cutting-edge fields of miniaturization.

In ArF excimer laser photoresists, TOK concentrated on strengthening development and investing in facilities to regain market share, but fell short of targets due to insufficient customer adoption in Asia and delayed production plans at customers in North America and Asia.

Key Measures of the First Year of the "TOK Medium-Term Plan 2021"

Opportunities to work on new development themes in a retreating market

The semiconductor market grew to \$468.7 billion in 2018, the largest it has ever been, but signs of a slowdown have strengthened in 2019 due in part to weakness in memory. According to World Semiconductor Trade Statistics (WSTS) announced in June 2019, the semiconductor market is projected to shrink by 12.1% in 2019, compared with the previous year.

The "TOK Medium-Term Plan 2021" was started in a retreating market, but the semiconductor industry is forecast to continue growing over the medium to long term on demand related to 5G and IoT. When market growth slows, our customers tend to pivot toward the development of the next generation of devices. It is therefore an opportune time for TOK to strengthen marketing based on "the trinity" of sales, development, and manufacturing, and focus all its energies on new development themes with an eye on the medium to long term.

TOK's Human Resource



Hee-sung, Lim

Manufacturing Team,
TOK Advanced Materials Co., Ltd.

Creating Advantages by Combining the Two Cultures of South Korea and Japan

At TOK Advanced Materials, our customer-oriented site in South Korea, we have worked hard to earn the trust of our customers and provide them with high levels of satisfaction through high-quality TOK products. Robust communication among the Korean and Japanese employees is vital to achieve this. In South Korea, we have a culture based on speed and willingness to take on challenges, and our customers prefer quick feedback and proactive

responsiveness to their needs. The semiconductor market is expected to continue growing on heavy investments as advances are made in 5G and IoT. By blending the artisan spirit of Japanese employees and willingness to take on challenges of South Korean employees, we will further refine our photoresists and build advantages by creating a solid production system for EUV photoresists used in cutting-edge semiconductors.

SWOT Analysis — Material Business —

- Global structure of close relationships with customers (Japan, the U.S., South Korea, Taiwan)
- Earnings drivers in both the pre-process and post-process of semiconductor manufacturing
- Development capability in cutting-edge materials (miniaturization, high-density integration, 3D packaging)
- Proposal ability for semiconductor manufacturing processes (synergies with Equipment Business)

Strengths

S

Weaknesses

W

- Increasing needs for ultra-miniaturization (ArF and EUV photoresists)
- Growing needs for cutting-edge packaging technologies (2.5D, 3D semiconductor packaging)
- Volume of data growing due to AI and IoT
- New semiconductor needs from launch of 5G communications systems

Opportunities

O

T

Threats

- Fewer customers, with the same number of photoresist manufacturers
- Over-concentration of business domains in the electronics industry (delay in new business development)
- Resistance to price hikes based on industry business practices
- Rising cost of development due to increasing technological difficulties
- Deterioration in market environment with U.S.-China trade friction and tensions between Japan and South Korea
- Increased investment outlays for inspection and production equipment in connection with ultrahigh purification
- Higher costs of next-generation exposure equipment

In EUV photoresists, an end has come into sight for its development on the 7nm process, so we are shifting development resources to the 5nm and 3nm processes. TOK is working to have its ArF excimer laser photoresists adopted in newly emerging opportunities through miniaturization by 1nm. KrF excimer laser photoresists are almost finished for 96-layer 3D-NAND, so we are turning our attention to the development of these photoresists for 128-layer 3D-NAND. We are also advancing the development of high-heat-resistant photoresists for next-generation power semiconductors (see page 47) and chemically amplified i-Line photoresists for 5G applications.

Creation of new value using a super clean room

At our new R&D Building (Sagami Operation Center) being completed in September 2019, we will concentrate on open innovation in existing businesses, such as photoresists and high-purity chemicals for cutting-edge semiconductor processes, in addition to open innovation in new business development. This new R&D Building features the latest equipment for addressing various technological needs, seeds, ideas, and concepts, as well as security to protect confidential secrets between TOK and its development partners. The new building also functions as a value creation site where people form long-term relationships and external stakeholders can better understand the exciting technologies of the TOK Group.

The new R&D Building has a super clean room with world-leading levels of cleanliness to handle hazardous

substances. We expect this super clean room to contribute greatly to the development of materials for next-generation miniaturization products, such as EUV photoresists for 5nm and 3nm semiconductors. Having successfully developed materials for the 7nm process recently, we are seeing new benefits emerge, such as knock-on effects in the development of materials for the 5nm process. TOK will continue to concentrate resources on development in cutting-edge fields of miniaturization.

Addressing new customer needs for cleanliness

In the development of materials for cutting-edge semiconductor processes, needs for higher levels of cleanliness have begun to increase for eliminating contaminants* to extreme levels, in addition to higher levels of purity that reduce impurities as much as possible.

For example, introducing this concept of cleanliness is one reason why TOK was able to successfully develop clean solutions that were adopted by a major customer producing 10nm-level semiconductors. The super clean room in the new R&D Building will take these initiatives to the next level, advancing the creation of new value in clean materials with contaminants reduced to the lowest possible level.

* Contaminants are substances that are theoretically unnecessary in chemical reactions.



New C-1 Building (under construction) at the Sagami Operation Center will have a super clean room



New B-6 Building at the Sagami Operation Center for open innovation

Initiatives in light-controlling technologies

TOK and its customers in the semiconductor and electronic components industries are making every effort to advance semiconductors and various devices in terms of miniaturization, higher purity, higher density, and better yields. Recently, needs have begun to increase for new technologies to control light. Below, we introduce TOK's initiatives in light-controlling technologies.

Light-Controlling Technologies to Become a New Core Competency

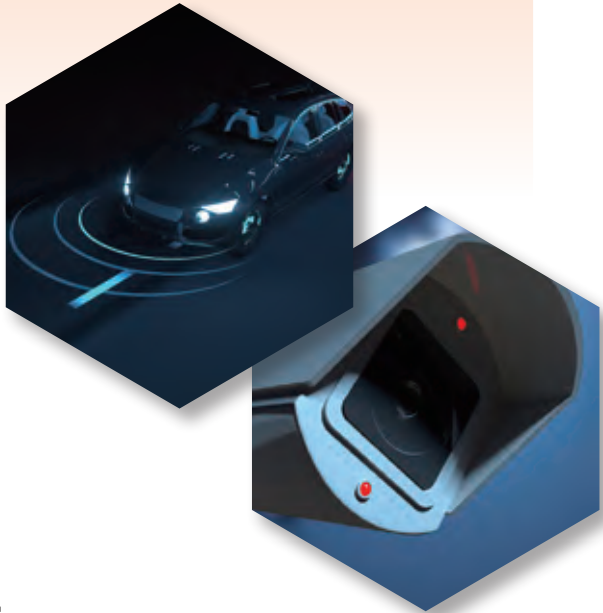
In the era of 5G and IoT, large volumes of optical sensors are likely to be incorporated into various devices, such as imaging devices for autonomous vehicles or security cameras. Current optical sensors convert light into electric signals at an efficiency that depends greatly on the strength of the incoming light. By controlling the refractive index of light, this conversion efficiency can be improved, creating new value.

In the era of 5G and IoT, needs are likely to increase for optical sensors effective in weak light situations, such as autonomous vehicles and security monitoring at night. TOK will contribute to the advancement of light-controlling technologies through the development of materials that can flexibly control the refractive index.

Inorganic Materials Key to Breakthroughs

Light-controlling technologies are very similar to the microprocessing technologies that TOK has accumulated over many years in the photolithography field, and the Company's accumulated know-how in high purity and yield improvement can be utilized in the process of turning these materials into products.

As materials that control the refractive index of light, TOK provides its customers with photoresists for IoT sensors and panel manufacturing. These photoresists are mainly composed of organic materials. Since organic materials alone are insufficient to attain exceptional features, in April 2018, TOK invested about ¥220 million



in Pixelligent Technologies, LLC in the U.S., a company that excels at developing inorganic materials with high refractive indexes. The two companies then commenced open innovation. TOK is assisting with R&D at Pixelligent Technologies, one of the world's leading manufacturers with the technology to mass produce zirconium oxide capped nanoparticles, a high refractive index inorganic material, with sub-10nm diameters. By combining the two companies' strengths, we aim to help solve various issues in a 5G and IoT society by scaling up production of inorganic materials with high refractive indexes and developing high refractive index material markets.

Outline of Pixelligent Technologies, LLC

- ◆ Location: Maryland, U.S.
- ◆ Representative: Craig Bades
- ◆ Business description: Development, manufacturing, and sales of optical materials
- ◆ Established: 1999
- ◆ URL: <http://www.pixelligent.com/>



Beneficial for Lower Power Consumption

One more reason why TOK is focusing on the development of materials for light-controlling technologies is because high refractive index materials improve light extraction efficiency, in addition to improving the performance of various optical devices. This also brings

benefits in the form of lower power consumption. The Company also aims to help solve the problem of climate change by adding to its lineup of environmentally friendly products, including i-Line photoresists for power semiconductors and power device manufacturing equipment.

Review of Operations

Equipment Business

Manufacturing, sales and maintenance of semiconductor manufacturing equipment and panel manufacturing equipment



Tsukasa Honkawa

Officer, Department Manager,
Process Equipment Manufacturing Dept.



Shonan Operation Center



Equipment Business Performance

(Millions of yen)

	FY2017/3	YoY*	FY2017/12 Result*	FY2017/12 Calendar year adjustment*	FY2018/12 Result		
					Change	%	
Net sales	2,252	1,943	1,921	2,237	2,697	+459	+20.5%
Segment income (loss)	(750)	(333)	(664)	(1,073)	(883)	+189	—
Segment income margin	—	—	—	—	—	—	—
Segment assets	3,296	—	3,026	—	4,245	—	—
Depreciation	45	—	24	—	63	—	—
R&D costs	546	—	423	—	497	—	—

* Due to the change in fiscal year-end, adjusted results for the fiscal years ended December 2016 and December 2017 are presented as adjusted figures for nine months' (April–December 2016) earnings of companies that ended their fiscal years in March 2017 (the Company and its domestic consolidated subsidiaries). Revised results for the fiscal year ended December 2017 are presented as adjusted figures for 12 months' (January–December 2017) earnings of companies that end their fiscal years in March (the Company and its domestic consolidated subsidiaries).

In the semiconductor manufacturing equipment and display manufacturing equipment fields, TOK's business specializes in niche domains

Zero Newton bonding machine

An integrated machine able to bond carrier plates and silicon wafers with high precision



TIPS series UV curing machine

Orders came in for a new model that provides excellent film qualities with a more efficient process



Review of the "TOK Medium-Term Plan 2018"

Foothold gained in new fields, but many issues remain

In the Equipment Business, under the "TOK Medium-Term Plan 2018" (fiscal year ended March 31, 2017 to fiscal year ended December 31, 2018), the Company has concentrated management resources on three fields: the through-silicon-via (TSV) equipment field, a multilayering technology that layers semiconductor wafers in 3D, using a through-silicon process to pass between the layers; the UV curing machine field for OLED display manufacturing; and the next-generation display manufacturing equipment field.

In the TSV equipment field, TOK has advanced the introduction of TSV technologies by approaching foundries and OSAT manufacturers, and working on the development of applications for fan-out wafer level packages (FOWLP) and fan-out panel level packages (FOPLP). In the UV curing machine field, the Company has worked on approaching new applications and new lines. In the next-generation display manufacturing equipment field, the Company approached prototype development lines for flexible displays. Furthermore, TOK focused efforts on increasing sales of components and materials, as well as after-sales services like repair and remodeling, in these three fields.

As a result, in the TSV equipment field, TOK made some progress toward getting OSAT manufacturers to adopt its products as its efforts to "maintain and create consistently competitive businesses (technologies)" had an impact. In FOPLP, TOK's coating machines have secured a position on the world's first mass production lines.

In the UV curing machine field, the Company won orders for a new model in the TIPS series that provides excellent film qualities with a more efficient process while balancing detachability with performance improvements in heat resistance and dry etching resistance.

In the next-generation display manufacturing equipment field, however, delays were encountered in the development of mass production versions of flexible display manufacturing equipment, leading to the restructuring of the development structure. In the other two fields as well, target markets did not expand to an extent where the Company's technological advantages could be fully applied.

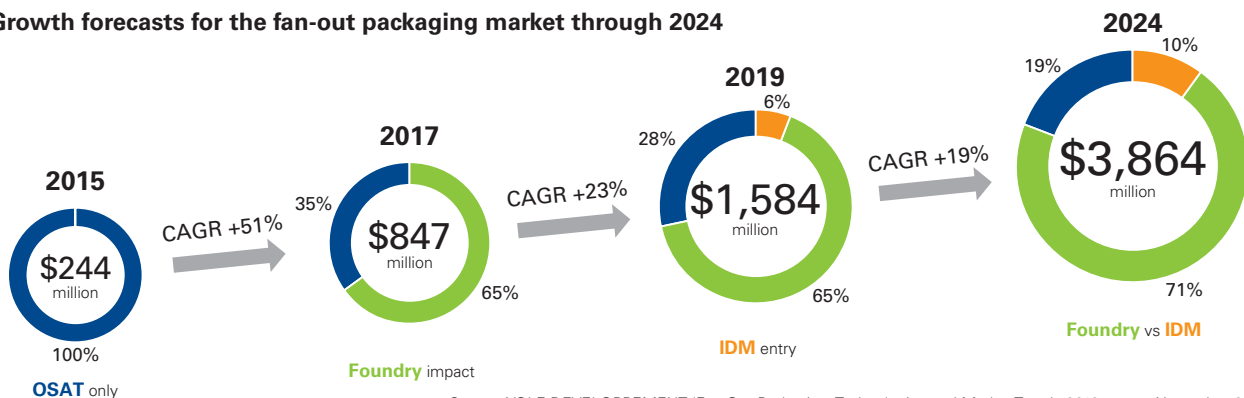
Issues that need to be addressed going forward include strengthening the supply chain to prepare for growth in sales, and slow progress establishing high-margin businesses, such as components.

Key Measures of the First Year of the "TOK Medium-Term Plan 2021"

Translate success in previous medium-term plan into steady order growth

As mentioned earlier, there are signs of slower-than-anticipated expansion in markets targeted by this segment, such as the semiconductor 3D packaging market, the FOPLP market, and the flexible display market. However, growth potential is strengthening in all of these markets. During the "TOK Medium-Term Plan 2021," the Company will develop business centered on its Materials & Equipment (M&E) strategy that entails proposing "processes" for equipment to draw out the unique characteristics of materials based on its deep understanding of materials.

Growth forecasts for the fan-out packaging market through 2024



Source: YOLE DEVELOPPEMENT 'Fan-Out Packaging: Technologies and Market Trends 2019 report, November 2018'

SWOT Analysis — Equipment Business —

- Track record in TSV equipment adoption, resulting advantage in technology and technological improvement
- Provides high-performance equipment for coating and stripping
- Knowledge of materials developed in the Material Business
- Lower break-even point using the fabless production method

Strengths

S

Weaknesses

W

- Still in the development phase, so business scale and profit contribution remain small (insufficient cash cycle)
- Large impact on profits from investments in development of prototypes, etc.

- Growth in 3D packaging market from diversification of high integration technology
- Expansion of next-generation display market
- Equal opportunities for products to be adopted in a new market

Opportunities

O

T

Threats

- Full-scale entry by major companies as competitors catch up
- Deterioration in market environment with U.S.-China trade friction and tensions between Japan and South Korea
- Introduction of high integration processes aside from 3D packaging

In the TSV equipment field, inquiries have increased from customers, especially in Asia, who are considering an entry into the back-end processing business of semiconductor manufacturing. With the number of requests to process samples including processing wafers using our equipment and to provide samples, on the rise, we are keen to lock in orders for our equipment.

In FOPLP equipment, TOK aims to solidify its position providing mass production equipment obtained through initiatives under the “TOK Medium-Term Plan 2018,” by concentrating efforts on further refining the completeness of equipment and preparing to ramp up production for when the market starts to expand. Under the M&E strategy, TOK aims for its photoresists to be used in panel level packaging, by leveraging its high market share in FOWLP packaging photoresists.

In flexible display production equipment, which had encountered development delays, TOK is rebuilding the development structure with a plan to commence sales in the first year of the “TOK Medium-Term Plan 2021.” This equipment is based on a single-wafer-type system (processes wafers one by one), not a batch-type system (processes multiple wafers collectively) that is currently the industry standard. Single-wafer-type systems make it easier to change process settings for each wafer, making it relatively simple to build processes for finishing coated layers at levels required by customers. In particular, the Company plans to finish this system with superior transparency in the films themselves, as needed by customers.

Taking steps to improve earnings

With the aim of improving earnings in this segment, we are taking the following steps to mitigate the high cost structure inherent in customizing each system as “one-of-a-kind” equipment.

First of all, the Company will redouble efforts to stabilize earnings through after-sales services, such as the provision of related materials, consumables and components, and equipment remodeling or overhauls. Although all of the equipment supplied by TOK are “one-of-a-kind” in principle, some fields of our equipment allow for economies of scale when multiple units are delivered in a single order. We are therefore focusing on expanding sales in such fields.

To accelerate development, TOK has reinforced development and design functions under the previous medium-term plan, and to increase development efficiency, the Company set up the Design Development Group as a new organization in 2018 to improve analysis and debugging in data simulations before prototypes are fabricated in a bid to reduce costs.

TOK's Human Resource



Hsiao-Wei Yeh

Bonding/Debonding Technology
Business Unit
TOK TAIWAN CO., LTD.

Aiming for Long-term Sustainable Growth with Excellent Solutions That Meet Customer Requirements

I sell equipment in Taiwan's semiconductor market, and the most important thing to me is providing excellent solutions that satisfy customer requirements. I believe this will lead to the sustainable growth of TOK over the long term. When a customer adopted Zero Newton for sensing devices, the Shonan Operation Center in Japan and TOK TAIWAN CO., LTD. worked closely together to solve any issues in

hardware and processes when customers launched plants. This has translated into good relationships of trust built over the long term between the customer and TOK. This has been an invaluable experience for me. In the future, I will aim for win-win outcomes by devoting myself to work with the intention of maintaining good cooperative relationship between the customer and the team at the Shonan Operation Center.

Increasing opportunities to create environmental value in the Equipment Business



TOK creates environmental value by providing materials including cutting-edge photoresists that help reduce power consumption in semiconductors through miniaturization. In the Equipment Business, the Company also develops and provides products that create environmental value, such as equipment that facilitates more compact, higher-density, and energy-saving semiconductors through multiple layering.

Zero Newton increases efficiency in power semiconductor production with wafer-thinning technology

The flagship product of the Equipment Business is the Zero Newton, a wafer handling system that thins semiconductor wafers and stacks them in 3D layers. As a 3D semiconductor packaging system, demand is likely to increase for the Zero Newton as the 3D semiconductor packaging market takes off.

In the development of cutting-edge power semiconductors, however, it is necessary to thin wafers to the extreme to fabricate higher-performance power semiconductors that are more efficient. For this reason, backed

by its strengths in these technologies, Zero Newton has been adopted by device manufacturers inside and outside Japan. Demand for this system has been robust in the power semiconductor field, and demand has also been growing strongly in the field of energy-saving devices mainly in emerging countries. The Company's customers are also seeing growth in their shipment volumes. While addressing customer requirements to the last detail, we will continue to create environmental value by improving and providing this system.

TOK's wafer handling systems, increasingly adopted for power semiconductors



Zero Newton bonding machine



Zero Newton debonding machine

Building long-term relationships of trust with customers in after-sales services: Plasma ashing systems

The Company's plasma ashing systems are another type of equipment that customers are increasingly adopting on their power semiconductor production lines. Plasma ashing is a technology that uses plasma reactions to decompose and remove (strip) photoresists that are no longer needed in the semiconductor production process. TOK's plasma ashing systems are highly efficient at removing photoresists, and have won the support of many customers that manufacture power semiconductors.

The Company's after-sales services for this system have been particularly highly regarded by its customers, with a commitment to supplying components that are no longer being produced after 10–20 years have passed since the delivery of the first model, in addition to frequent updates to equipment software and detailed maintenance services. Through these services, TOK has been building long-term relationships of trust with its customers.

While further improving our after-sales services, we aim for the system to sell for a long period of time as equipment that contributes to the power semiconductor industry.



Plasma ashing system



We've always got
someone there.

At the cutting-edge of
product development

We refine, repeating
the process until
we have met
our customers' needs.

Building relationships of trust is the most important aspect of product development.

To be the first place a customer turns to when they want a new product, we cooperate with the customer, communicate closely and keep on making proposals over again.

We get the energy to go through that process by being regarded as “a company that comes up with interesting proposals when you talk with them.”

TOK backs its cutting-edge product development with this belief.

TOK's Microprocessing Technology
that Creates Inspiration

tok TOKYO OHKA KOGYO CO., LTD.

Tokyo Ohka Kogyo Search 
<https://www.tok.co.jp/eng>



Our Foundation

Sustainable Foundation for Value Creation

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A Message from the Chairman

**TOK is advancing corporate governance
from the mindset of strengthening
global consolidated management and
pursuing happiness in personnel.**

◆ Governance Reforms to Strengthen Sustainable Growth Capacity

The TOK Group established the Nomination and Compensation Advisory Committee in December 2018, appointed a Chairman and Representative Director in January 2019, and issued the TOK Corporate Governance Guidelines in April 2019.

Following a series of reforms to governance, the TOK Group has transitioned to a new stage of corporate governance with the aim of strengthening its capacity for sustainable growth. Management did not make these changes just for the sake of change. The Company has improved transparency and fairness in management through the Nomination and Compensation Advisory Committee, which mainly consists of outside directors. The Chairman and Representative Director has management responsibilities set apart from business execution, and TOK continues to have a function of checks and balances through independent officers while preserving the autonomy of inside directors. With these functions in place, TOK is positioned to strengthen its capacity for sustainable growth and advance toward its vision as a “100-year company” in 2040.

◆ Strengthening Global Consolidated Management

The overseas sales ratio has recently risen above 75% of the consolidated net sales, and TOK now has five plants and four customer-oriented sites located overseas. I believe

strengthening global consolidated management is by far the most important point for strengthening our capacity for sustainable growth. Since 2016, the Company has built and operated the Group Management System (GMS) by which we share information about risks in the Company’s business activities inside and outside Japan from three viewpoints of control, risk, and compliance, and translate it into sustainable value creation. In 2017, TOK unified the fiscal year-end to December for all its subsidiaries inside and outside Japan in a move to reinforce global consolidated management in terms of internal controls, finance and accounting.

We are also seeing gradual progress in global consolidated management in the management ranks, with a local hire filling the top management position at TOK Advanced Materials Co., Ltd., and local personnel being promoted to key positions at subsidiaries in the U.S. and Taiwan as well. In the future, we are ready to accelerate global consolidated management in personnel by appointing talented personnel as executive officers and directors without regard to nationality.

◆ Concept of Pursuing Happiness in Personnel

The most important concept in our governance reforms to strengthen global consolidated management is the pursuit of happiness in personnel. This is more than increasing the average annual salary, improving work-life balance and making the workplace better for female employees. TOK has already made



Ikuo Akutsu
*Representative Director,
Chairman*

progress on these issues. I believe the core of happiness for our employees lies in how helpful they can be to our customers and society. Last year, a customer in North America decided to use our super-high-performance clean solutions in their cutting-edge semiconductor processes. The clean solutions are likely to be used across a broad segment of society, centered on next-generation semiconductors for 5G communications. Although the development team at the local customer-oriented site went through quite an unimaginable ordeal, I hear the team was happy beyond words that they were useful to this customer and society. I believe my mission is to provide opportunities not only for our employees overseas, but also our employees in Japan, who make up 80% of the consolidated total, to experience this level of happiness.

In the pursuit of happiness for managers, including directors and executive officers, we will change the remuneration system for directors and auditors. TOK has long had a performance-linked remuneration system for directors and auditors, but we are currently creating a new remuneration system that is better aligned with social issues and the Company's future direction. The Nomination and Compensation Advisory Committee is working on the specifics of formulas for calculating performance indicators with the aim of implementing the new system as early as the fiscal year ending December 31, 2020.

◆ **Monitoring Progress under the "TOK Medium-Term Plan 2021"**

Regarding the monitoring of progress under the "TOK Medium-Term Plan 2021" that began this year, I am prepared to give advice on changes in directions and trajectories from a broad viewpoint and my position as Chairman and Representative Director separate from business execution.

The pace of technological change in the electronics industry has been accelerating lately, while uncertainties have strengthened in the outlook for the business environment for TOK due to trade friction between the U.S. and China. Through the reforms to our business portfolios being advanced under the "TOK Medium-Term Plan 2021," we must not only accelerate the expansion of new business but also reshuffle product portfolios in existing businesses and the reengineering of our supply chain. I will focus my energies on monitoring business execution in this context.

As key measures in the "TOK Medium-Term Plan 2021," the Company will set KPIs for qualitative targets for enhancing personnel measures, strengthening the management foundation, improving corporate governance and promoting efforts to address material issues. I will promote the effective monitoring of these efforts.

We kindly request the ongoing support and understanding of all our stakeholders.

Messages from Independent Officers

We are continuing discussions for further governance reform.

Hiroshi Kurimoto

Outside Director, Chairman of the Nomination and Compensation Advisory Committee



◆ **New Management and Governance System from 2019**

Firstly, I would like to talk about the decision-making process for appointing President Noriaki Taneichi after the previous president, Ikuo Akutsu. Taneichi was selected under the old system before the establishment of the Nomination and Compensation Advisory Committee in December 2018. Like the process in the new system, former president Akutsu discussed his recommendations for the next president with myself and Outside Director Sekiguchi.

We heard many reasons for recommending Taneichi, the current president, for the position, such as “he has new ideas that go beyond existing businesses, extensive hands-on experience in both semiconductor-related businesses and new businesses, and the background in numerous businesses to support the Company’s future,” “he has an excellent personality, no prejudices, and views matters from an open and fair standpoint,” and “he has the ability to make judgments necessary for a business executive, thanks to his management experience at subsidiaries in the U.S.” I had many opportunities to talk with Director Taneichi when he was responsible for new business development. I approved Director Taneichi as a candidate for president because I was impressed with his fearless and aggressive approach to challenges, indicating he would be able to boldly guide the Company forward amid various changes. Moreover, I thought he is well-suited for the top position at TOK, a company with business primarily in cutting-edge fields, given his earnest and open personality, as well as his relatively young age. Akutsu, the previous president, also impressed upon me the strong decisiveness that he displayed in reinforcing the Company’s corporate governance, in addition to making the recommendation for the next president.

Approximately seven months have passed since the new governance system began with a Chairman of the Board of Directors separated from business execution. I believe TOK’s governance system has steadily taken its proper shape. As issues to address in the future, I think it will be important for

the Company to continue discussing new reforms, in addition to the current situation with directors also serving concurrently as officers, and the status of outside directors.

◆ **As the Chairman of the Nomination and Compensation Advisory Committee**

My responsibilities have increased substantially since being appointed the Chairman of the Nomination and Compensation Advisory Committee, and I keenly feel the weight of this responsibility. Soon after being appointed, Outside Director Sekiguchi and I began to hold interviews with officers to get to know the other directors and officers. In these discussions, I gave my opinions about the state of remuneration for directors and officers. Such remuneration should adequately reflect the degree of responsibility for each position, and I also thought there needs to be some variation in remuneration. Since the committee was established in December 2018, its main activity has been to discuss candidates for directors and auditors in the fiscal year ending December 31, 2019, and more recently to draft proposals for the new remuneration system for directors and auditors to be implemented from the fiscal year ending December 31, 2020.

◆ **Enhancing Corporate Value and Social Value over the Medium to Long Term**

It is often said that the top managers of companies decide their fate, and having experienced working as the representative director and president of a global niche top company with strengths in ESG products, I believe management must be oriented toward both corporate value and social value as a foundation, going beyond business operations and profit accumulation.

In this context, however, I do not have a clear and simple answer ready for the question of what qualifications are required for top management. As top management members are also people, this means there is a diverse range of qualifications. As the Chairman of the Nomination and Compensation Advisory Committee, I believe a part of my mission is to have a lively and thorough debate about the qualifications of future top managers.

Without reservation, I will give my opinions about advancing governance and diversity.

Noriko Sekiguchi

Outside Director, Member of the Nomination and Compensation Advisory Committee



◆ **As a Member of the Nomination and Compensation Advisory Committee**

As an outsider looking in, I am aware of my duty to supervise management from an independent standpoint to fulfill accountability to stakeholders, while enhancing the transparency and objectivity of the decision-making process for nominating and remunerating managers. More specifically, based on the standards and policies outlined in the TOK Corporate Governance Guidelines, I am prepared to give advice on designs and frameworks, by asking whether the nomination of candidates follows a logical process that takes into account the requirements and abilities of the candidates, as well as business plans and external environment, and if remuneration provides incentives for taking appropriate risks.

Regarding creation of a selection process for successors, I intend to operate the committee by getting more involved in supervision, such as having us outside directors have enough opportunities to talk more frequently with candidates, while ensuring more objectivity and fairness in procedures.

◆ **Advancing the Group Management System**

Through the Group Management System (GMS), the core system for managing risks at TOK, management aims to strengthen corporate governance by further instilling the Company's policies at group companies in line with certain rules. To continue responding appropriately to sudden changes in the business environment, the most effective way forward is to repeat the basic work of performing annual checks for any omissions or defects in management items and operational rules. To ensure these activities are meaningful, our monitoring will emphasize constant change in the direction of effectiveness, efficiency, and uniformity, while encouraging every employee of the Group to deeply understand the significance of GMS.

◆ **Aiming to Promote Female and Non-Japanese Personnel**

In recent years, the ratio of women among new hires has risen to around 40% at TOK. Personnel exchanges between overseas subsidiaries and the headquarters or plants in Japan have picked up in line with the Company's commitment to leveraging diversity in the organization, regardless of gender or nationality. To further promote diversity, it will be helpful for us to set up a special department for creating networks mainly to exchange information and hold events several times a year to spread awareness within the Group. I believe TOK would benefit from a stronger push on initiatives like this. The numbers of female and non-Japanese employees have steadily increased within the Group, and as this trend continues, I think their understanding as a Group will naturally deepen. Minorities such as female employees and non-Japanese employees are human "capital" for the Company because they bring perspective to diversity management, respecting and taking diversity into account based on their own experiences.

As an issue to address, the Company aims to increase the ratio of women in management positions (2.4% as of December 31, 2018) by creating an environment that supports women in management positions, such as by having superiors give female employees who would like to become managers more work responsibilities, while providing criticism and positive feedback when appropriate. Female managers in charge of numerous subordinates will stand out, and may have to fight a lonely battle while getting used to their new roles. With peers and mentors supporting their advancement, however, managers will be able to dive into their work, in my opinion. The saying where the job title makes the person is also true for women. I hope female employees will take on the challenge of management and view this as a once-in-a-lifetime opportunity in their careers.



Initiatives to Address Material Issues for Enhancing Corporate Value

Material Issues/2018 Results & 2019 Issues and Goals

Material issues	ESG fields	Key initiatives	Issues and goals of FY2018/12
Development and provision of high value-added products that will contribute to innovation	Social (S)	Further improvement of customer satisfaction	Promote a strategy of building close relationships with customers/Strengthen marketing
			Maintaining and improving quality management systems
		Contributions to innovations and resolution of social issues	Develop and manufacture cutting-edge materials that contribute to advancement of industry and technological innovation
			Development of new businesses
			Open innovation
		Enhancement of personnel measures	Social (S)
Promoting a good work-life balance			
Diversity and inclusion	Continue promotion of corporate activities that leverage diversity		
	Promotion of women in the workplace		
Respect for human rights and fair working conditions	Continue initiatives to maintain fair personnel and employment systems		
	Prevention of harassment		
Enhancement of corporate governance	Governance (G)	Strengthen effectiveness of corporate governance	Ensure management transparency and constantly enhance governance
			Continuously update internal control regulations on a global basis
		Compliance	Continue activities to instill compliance
			Respond to internal reporting incidents
		Risk management	Strengthen TOK Group's risk management system
			Strengthen crisis management
			Prepare for large-scale earthquakes
			Maintain, manage, and improve information management systems, confirm and review application of rules for information management

[Self-assessment of goal achievement]

- Took steps, achieved results
- △ Took steps, but need to do more
- × Did not take steps

Main achievements and progress in FY2018/12	Evaluation	Issues and goals of FY2019/12	Pages	Related SDGs
<ul style="list-style-type: none"> ■ Consolidated net sales: Increased by 4.8% year on year ■ Increased new development projects 	○	<ul style="list-style-type: none"> ■ Rapidly and steadily work to develop a support structure rigorously focused on customer satisfaction along with R&D ■ Through rigorous marketing, TOK will carefully identify solutions that lead to the creation of new value for customers as it makes intensive and proactive efforts to address those solutions 	P40–43 P56–63	 
<ul style="list-style-type: none"> ■ Improved detection sensitivity for metal impurities that comply with customer development roadmaps 	○	<ul style="list-style-type: none"> ■ Improve detection sensitivity for metal impurities that comply with customer development roadmaps 	P6 P58	
<ul style="list-style-type: none"> ■ Increased total net sales of cutting-edge photoresists (EUV, ArF and KrF) by 5% year on year 	△	<ul style="list-style-type: none"> ■ Ambitiously develop the technologies required by 5G, IoT and innovation 	P40–43	
<ul style="list-style-type: none"> ■ Promoted development and commercialization of high-functional films and biochip materials 	△	<ul style="list-style-type: none"> ■ Advance development and strengthen commercial viability of high-functional films, optical materials, and life sciences-related materials 	P25 P32–33	
<ul style="list-style-type: none"> ■ Built a new R&D Building ■ Increased number of collaborative projects with other companies and groups by 5% year on year 	○	<ul style="list-style-type: none"> ■ Smoothly commence operations of new R&D Building ■ Expand collaborative projects with other companies and groups 	P25 P58–59	
<ul style="list-style-type: none"> ■ Total number of participants in Level-based Training Program: 3,685 people ■ Total number of participants in TOK Global Practical Training for Selected Members: 49 people 	○	<ul style="list-style-type: none"> ■ Personnel measures for a “100-Year Company” ■ Bolster human resources that will pursue the possibilities of business with a variety of customers and continue to tackle challenges until they succeed 	P26 P48–51	
<ul style="list-style-type: none"> ■ Ratio of paid leave taken: 75.3% 	△	<ul style="list-style-type: none"> ■ Continue promoting a good work-life balance 	P48–51	
<ul style="list-style-type: none"> ■ Ratio of non-Japanese employees: 22.6% ■ Ratio of local hires in overseas management positions (consolidated basis): 61% 	△	<ul style="list-style-type: none"> ■ Continue promotion of corporate activities that leverage diversity 	P48–51 P69	
<ul style="list-style-type: none"> ■ Ratio of women in senior and middle management: 2.4% ■ Ratio of female new graduates hired: 43.3% ■ Increased childcare leave taken by both male and female employees 	△	<ul style="list-style-type: none"> ■ Continue to promote women in the workplace 	P48–51 P69	
<ul style="list-style-type: none"> ■ Promoted initiatives to introduce a new personnel system via the personnel system reform project and the Human Resources Div., while considering issues raised in personnel system examination meetings 	○	<ul style="list-style-type: none"> ■ Continue initiatives to introduce a new personnel system via the personnel system reform project and the Human Resources Div., with plans to roll out the new system in January 2021 	P48–51	
<ul style="list-style-type: none"> ■ Percentage of employees who have received harassment prevention training: 100% ■ Employees who have felt harassed raised their voices 	△	<ul style="list-style-type: none"> ■ Continue efforts to prevent harassment 	P51	
<ul style="list-style-type: none"> ■ Created position of Chairman and Representative Director (January 2019) ■ Established the Nomination and Compensation Advisory Committee 	△	<ul style="list-style-type: none"> ■ Settle in and smoothly operate Nomination and Compensation Advisory Committee (meet once a year) ■ Continue PDCA cycle for improving the effectiveness of the Board of Directors (assess its effectiveness once a year) ■ Review decision-making authority of the Board of Directors, etc. (already reviewed at TOK in April 2019, plan to do at subsidiaries in January 2020) 	P66–69 P76–78	
<ul style="list-style-type: none"> ■ Clarified and shared regulations that needed updating at subsidiaries ■ Updated regulations at European and Chinese subsidiaries ■ Created EHS (environment, health and safety) management regulations ■ Updated Group information management regulations and standards documentation with cross-references in documents at each company 	○	<ul style="list-style-type: none"> ■ Continuously update internal control regulations on a global basis ■ Continue PDCA cycle for internal controls (confirm progress and review policies twice a year) 	P82–85	
<ul style="list-style-type: none"> ■ Compliance Committee Secretariat conducted compliance training at all domestic sites, and additional compliance training tailored to situations at Group departments and sites 	○	<ul style="list-style-type: none"> ■ Continue activities to instill compliance ■ Minimize legal risks 	P82–85	
<ul style="list-style-type: none"> ■ Based on three reports received, moved to understand all the facts, and for those involved, gave instructions, took disciplinary actions, and other corrective measures from an objective viewpoint 	○	<ul style="list-style-type: none"> ■ Further enhance internal reporting system 	P83	
<ul style="list-style-type: none"> ■ Performed risk assessments, and took steps to reduce risks deemed likely to have an outsized impact. Achieved 20% of reduction goals 	×	<ul style="list-style-type: none"> ■ Work to reduce new risks identified in risk assessments and ongoing risks 	P83	
<ul style="list-style-type: none"> ■ Updated Business Continuity Plan (BCP) with review of alternative transportation options considering the damage caused by torrential rainfall in western Japan in July 2018. Finished a formulation of initial action guidelines applicable to all production sites of the Group, including overseas subsidiaries 	○	<ul style="list-style-type: none"> ■ Create a unified BCP for the Group that addresses various risks 	P83	
<ul style="list-style-type: none"> ■ Conducted drills to improve awareness of safety confirmation system during major natural disasters. 100% of planned drills held, response rate remained at a high level 	○	<ul style="list-style-type: none"> ■ Continue to hold drills to increase awareness, aim to keep response rate high 	P83	
<ul style="list-style-type: none"> ■ Conducted a regular review of the BCP to maintain an up-to-date BCP for earthquakes directly beneath the greater Tokyo area 	○	<ul style="list-style-type: none"> ■ Create unified BCP for the Group that addresses various risks 	P83	
<ul style="list-style-type: none"> ■ Maintained, managed, and improved information management systems, updated information management regulations ■ Rules governing email usage not applied in some cases 	△	<ul style="list-style-type: none"> ■ Maintain and entrench information management standards ■ Promote effective use of information, retrain employees on scope of confidential disclosures ■ Better understand and fix problems related to email usage 	P84–85	

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Material Issues/2018 Results & 2019 Issues and Goals

Material issues	ESG fields	Key initiatives	Issues and goals of FY2018/12			
Environmental protection	Environment (E)	Promotion of environmental management	Develop and produce environmentally friendly products	<ul style="list-style-type: none"> Stably supply i-Line photoresists for power semiconductors Develop materials for next-generation power semiconductors 		
			Eradicate environmental accidents that affect external parties	<ul style="list-style-type: none"> Number of environmental accidents: Severe accidents: Zero 		
			Proactive response to new environmental regulations	<ul style="list-style-type: none"> Accurately respond to regulations in Japan and abroad, address new environmental regulations 		
			Proactive disclosure of environmental information	<ul style="list-style-type: none"> Proactively disclose information Publish the CSR Report and Annual Report, and disclose environmental information on the website 		
			Create an environmental ISO organization and systems	<ul style="list-style-type: none"> Build a stronger environmental system 		
		Address climate change issues	Improve energy-related CO ₂ emissions per base unit [Medium-term target] Reduce energy-related CO ₂ emissions (per base unit) by 10 points by 2019 compared with 2009 (reduction of 1 point annually)	<ul style="list-style-type: none"> Reduce CO₂ emissions (per base unit) by 9 points compared with 2009 Reduce energy-related CO₂ emissions (per base unit) by at least 1 point from the previous year 		
			Improve energy consumption per base unit [Medium-term target] Reduce energy consumption (per base unit) by 10 points by 2019 compared with 2009 (reduction of 1 point annually)	<ul style="list-style-type: none"> Reduce energy consumption (per base unit) by 9 points compared with 2009 Reduce energy consumption (per base unit) by at least 1 point compared with the previous year 		
			Improve energy consumption per base unit in distribution	<ul style="list-style-type: none"> Reduce energy consumption (per base unit) by at least 1 point compared with the previous year 		
			Measures to prevent global warming at overseas manufacturing sites	<ul style="list-style-type: none"> Develop production activities from standpoint of energy conservation 		
		Promote resource recycling	Initiatives to address water risk	<ul style="list-style-type: none"> Reduce water pollution risk by reassessing water drainage paths Examine ways to reduce water usage in regions with high water risk 		
			Reduce industrial waste [Medium-term target] Reduce industrial waste (per base unit) by 5 points by 2020 compared with 2015 (reduction of 1 point annually)	<ul style="list-style-type: none"> Reduce industrial waste (per base unit) by 3 points compared with 2015 and by 1 point compared with the previous fiscal year Reduce industrial waste disposed in landfills Maintain zero emissions (keep less than 1%) 		
		Preserve air, water and soil environments	Prevent air, water and soil pollution	<ul style="list-style-type: none"> Prevent air, water and soil pollution Keep under operational thresholds 		
			Countermeasures against ozone-depleting substances	<ul style="list-style-type: none"> Manage CFC leakage volume through proper management of equipment Promote switch to alternative CFC 		
			Comply with PRTR Law	<ul style="list-style-type: none"> Conduct survey for reducing PRTR-regulated substances 		
		Preserve biodiversity	Improve awareness of biodiversity based on TOK Biodiversity Protection Declaration and encourage participation in related activities	<ul style="list-style-type: none"> Promote understanding of the importance of preserving biodiversity 		
		Chemical substance management	Precisely address laws and regulations	Carry out appropriate and reliable management of chemical substances	<ul style="list-style-type: none"> Obtain information about revisions to laws and regulations, maintain deployment procedures Maintain upstream management system 	
				Properly comply with PCB Special Measures Act	<ul style="list-style-type: none"> Properly collect and store PCB-containing equipment, quickly dispose of PCB waste (low and high concentrations) 	
		Occupational health and safety/ Security and disaster prevention	Social (S)	Occupational health and safety/ Reduction of risks posed by chemical substances	Foster a safety culture	<ul style="list-style-type: none"> Implement preventive measures based on actual occupational accidents
					Safety education and training, disaster drills	<ul style="list-style-type: none"> Systematically implement emergency response training Periodically implement environmental awareness training Prevent environmental accidents and workplace accidents caused by third-party vendors
				Promote risk assessment in handling chemical substances	<ul style="list-style-type: none"> Strengthen initiatives for reducing risk in handling highly corrosive chemical substances 	
Zero workplace accidents	<ul style="list-style-type: none"> Maintain zero workplace accidents 					

[Self-assessment of goal achievement]

- Took steps, achieved results
- △ Took steps, but need to do more
- × Did not take steps

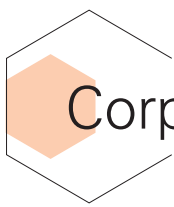
Main achievements and progress in FY2018/12	Evaluation	Issues and goals of FY2019/12	Pages	Related SDGs
■ Stably supplied i-Line photoresists for power semiconductors	○	■ Stably supply i-Line photoresists for power semiconductors	P30–31 P47	
■ Number of environmental accidents: Severe accidents: Zero	○	■ Number of environmental accidents: Severe accidents: Zero		
■ Unified the formats of legal and other required lists company-wide ■ Reviewed procedures for ascertaining compliance with laws and regulations	○	■ Introduce an electronic manifest	P44–46 P98–101	
■ Published the CSR Report 2018 and Annual Report 2017/12, and disclosed environmental information on the website	○	■ Proactively disclose information Publish the Integrated Report and disclose environmental information on the website		
■ Created the framework for a new structure to build a stronger environmental system	○	■ Launch and start operating the company-wide environmental committee		
■ Reduced CO ₂ emissions (per base unit) by 3 points compared with 2009	×	■ Reduce CO ₂ emissions (per base unit) by 10 points compared with 2009	P92–93	
■ Increased CO ₂ emissions (per base unit) by 3 points compared with the previous year	×	■ Reduce energy-related CO ₂ emissions (per base unit) by at least 1 point from the previous year	P92–93	
■ Reduced energy consumption (per base unit) by 15 points compared with 2009	○	■ Reduce energy consumption (per base unit) by 10 points compared with 2009	P92–93	
■ Energy consumption (per base unit) increased by 2 points compared with the previous year	×	■ Reduce energy consumption (per base unit) by at least 1 point compared with the previous year	P92–93	
■ Reduced energy consumption (per base unit) by 6 points compared with the previous year	○	■ Reduce energy consumption (per base unit) by at least 1 point compared with the previous year	P92–93	
■ Developed production activities from standpoint of energy conservation	○	■ Develop production activities from standpoint of energy conservation	P93	
■ Started a project to reduce water risks and examined plans to reduce water risks and water usage, including a reassessment of water drainage paths at all sites	○	■ Create measures to prevent water pollution	P94–95	
	△	■ Set targets and propose plans for initiatives		
■ Reduced industrial waste (per base unit) by 17 points compared with 2015 and by 2 points compared with the previous fiscal year	○	■ Reduce industrial waste (per base unit) by 4 points compared with 2015 and by 1 point compared with the previous fiscal year	P96–97	
■ Industrial waste disposed in landfills ⇒ less than 1% Achieved zero emissions	○	■ Industrial waste disposed in landfills ⇒ less than 1% Achieve zero emissions		
■ Incidents where operational thresholds were exceeded: None	○	■ Incidents where operational thresholds are exceeded: None	P98–99	
■ Estimated CFC leakage volume ⇒ 23t-CO ₂ Examined switch to equipment that uses alternative CFC	△	■ Manage CFC leakage volume through proper management of equipment ■ Promote switch to equipment that uses alternative CFC		
■ Reviewed production processes and improved sealing capability	○	■ Review factors for PRTR-regulated substance emissions and transportation volume		
■ Employee training: 208 people participated in total ■ Dispatched employees to participate in activities at the Kanagawa Trust Midori Foundation	○	■ Implement ongoing employee training ■ Continue activities to preserve forests	P99	
■ Updated information on whether they contain substances subject to assessment and product compositions ■ Created a system that included products under development	○	■ Maintain upstream management system ■ Continue to strengthen and operate chemical substance management system	P100–101 P103	 
■ Disposed 119kg (82%) of 146kg of PCB waste (high concentration) ■ Created lists and summaries for all sites	○	■ Finish disposal of all PCB waste (high concentration) in April 2019 Create a roadmap for disposing PCB waste (low concentration) by 2027 deadline, and properly implement the plan		
■ Created guidelines to prevent accidents based on past incidents, horizontally rolled out countermeasures	○	■ Prepare to acquire ISO45001	P102–103	 
■ Implemented emergency response training ■ Implemented environmental awareness training ■ Examined content of Third-party Vendor Management Guidelines as common company-wide rules governing matters to be confirmed before/after projects and matters to be transferred to third-party vendors, in order to prevent environmental accidents and workplace accidents during construction, caused by third-party vendors working at TOK sites	△	■ Systematically implement emergency response training ■ Periodically implement environmental awareness training ■ Create Third-party Vendor Management Guidelines and raise awareness at each site		
■ Strengthened safety measures for the handling of highly corrosive chemical substances	○	■ Improve risk assessments (take action to reduce high-severity risks at each site) ■ Enhance level of safety through collaboration with external organizations		
■ Injuries resulting in lost workdays: 2	×	■ Maintain zero workplace accidents		

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Corporate Governance

We will further strengthen corporate governance, looking to sustainably enhance our corporate value.

Message from Independent Officers

Risk management in a time of diversifying risks and huge losses

One of TOK's missions is to be a responsible supplier of products when needed and without delay. To fulfill this responsibility, TOK has made preparations for unforeseen events by repeatedly conducting evacuation drills and desktop drills, in addition to formulating detailed plans as a part of its Business Continuity Plan (BCP) for quickly restoring operations and securing alternative production capacity in the event of a natural disaster, which have been increasing in size and severity. Moreover, TOK must further increase the effectiveness of its BCP to prepare for an earthquake directly beneath the greater Tokyo area or an earthquake along the Nankai Trough, which is said to have a 70% likelihood of striking within the next 30 years. Additionally, it is becoming more important to manage new risks in an advanced information society, such as the risk of information leaks, hacking, data falsification, and other new risks related specifically to AI. Furthermore, geopolitical risks have become unprecedented in size, and could have a major impact on governments and economies around the world. In this time of diversifying risks, it is vital to have a corporate culture where all group employees think of risks themselves. Moreover, the Company must instill in its organization a strong culture to address risks and minimize the unexpected and opportunity losses. I will proactively advise on this matter as well.



Kazumasa Fukada
Outside Auditor

Systems that bring out the best abilities of everyone are the driving force

Most corporate scandals that emerged in the latter half of the Heisei era (1989–2019) have been recognized as an adverse outcome of “Japanese-style organizations” that were a driving force in the Showa era (1926–1989). The primary issue faced by corporations has changed from volume growth to strengthening responsiveness to change. In terms of organizational culture, team spirit is still a prerequisite, and high levels of employee autonomy are now needed instead of an organization-first approach. A system that brings out the best abilities of each employee will become a new driving force behind improvements in the value of R&D and increases in productivity. At the same time, such a system will enhance the sophistication of corporate governance and risk management by realizing genuine diversity management that can deal with changes in the external environment. One of the Company's strategies in the “TOK Medium-Term Plan 2021” is to strengthen human resources who can perform research, make decisions, and take actions on their own initiative. This represents a major step toward realizing such a system, and I will do my best to bring this strategy to a successful conclusion as an independent officer.



Koichiro Takahashi
Outside Auditor

Front lines are the key to solutions

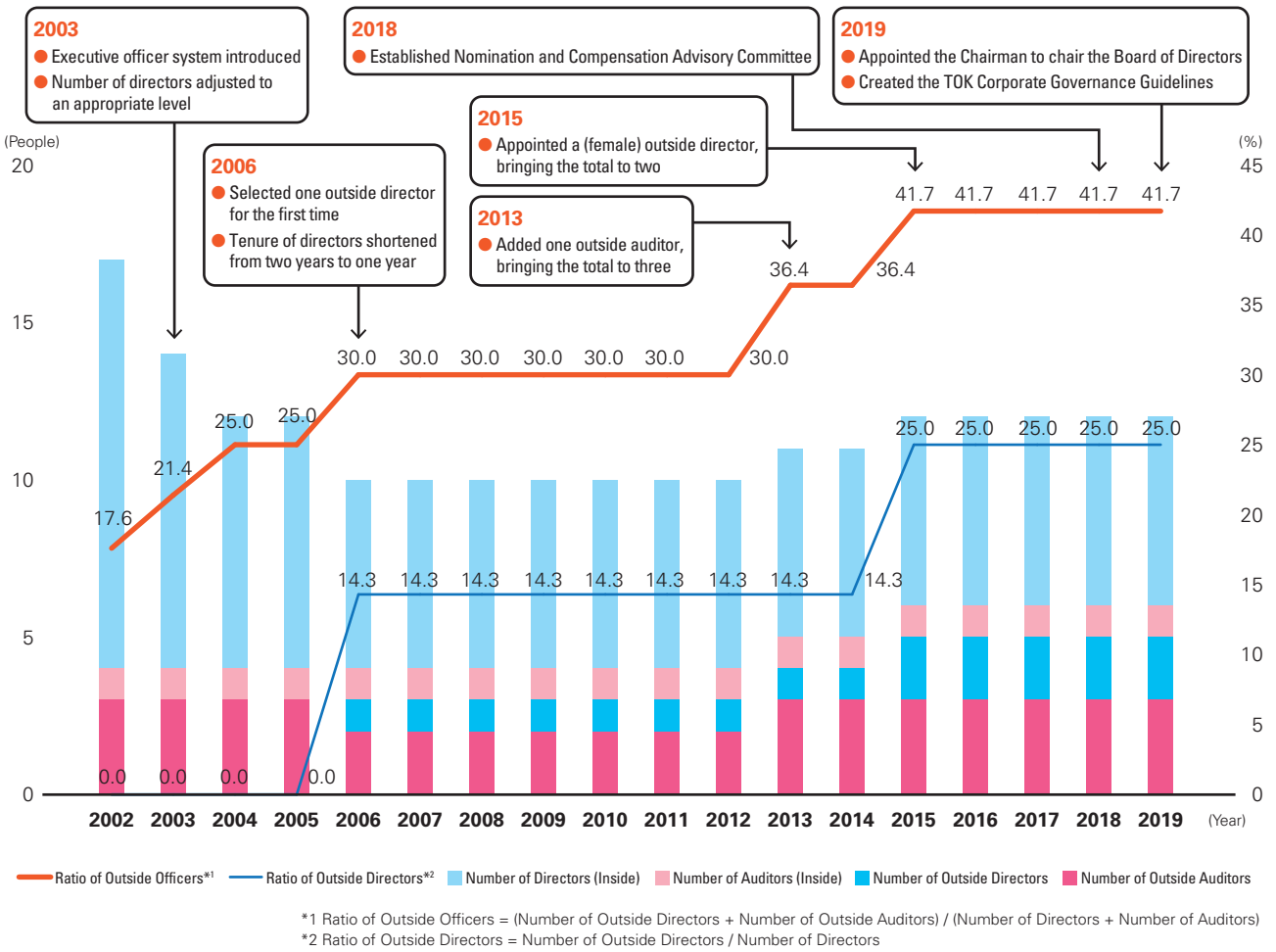
My name is Nobuyuki Takeuchi, and I was appointed an outside auditor in March 2019. I have served as an officer and director at a major trust bank in Japan, and also as the president and CEO of its group company. I currently hold the position of outside corporate auditor at a different company. Based on my experience, I aim to contribute, even if only in a small way, to the sustained value creation at TOK.

Currently, I am absorbing all the information and knowledge I can about TOK with an eye on how the Company addresses issues common to all corporations, regardless of their sector. With “front lines are the key to solutions” as a motto based on the business experience I have accumulated so far, I aim to provide audits and advice that supports the development of TOK while truly gaining an understanding of the Company's stakeholders, including its shareholders, investors, executives and employees, without letting any preconceptions lead me astray.



Nobuyuki Takeuchi
Outside Auditor

TOK's Path to Stronger Corporate Governance



Basic Concept

We have had a management vision of aiming to be a globally trusted corporate group by inspiring customers with high value-added products that have satisfying features, low cost and superior quality, under our management principles since our establishment. ("Continue efforts to enhance our technology;" "Raise the quality levels of our products;" "Contribute to society;" and "Create a frank and open-minded business culture.") We believe that realizing this will lead to benefits shared by shareholders and all other stakeholders and will improve corporate value.

Realizing the management vision is the means to maintain sound and transparent management and to enhance operational efficiency, with speeding up of the decision-making process as one of the most important management issues.

One of TOK's material issues and company-wide strategies in the "TOK Medium-Term Plan 2021" is improving corporate governance. The Company created and published the TOK Corporate Governance Guidelines in April 2019 as a compilation of its basic policies and approaches to continuously improve corporate governance.

→ "TOK Corporate Governance Guidelines"

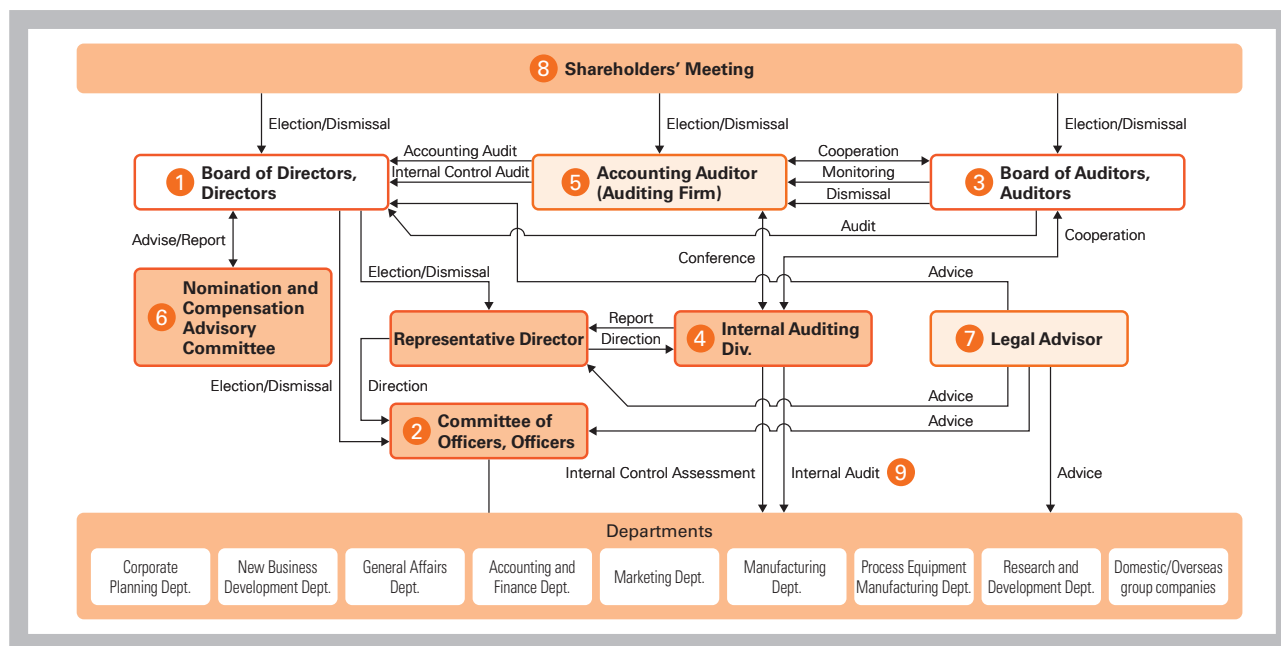
https://www.tok.co.jp/content/download/4719/77678/file/gov_guideline0403.pdf (in Japanese)



Type of System

As a company with corporate auditors, TOK employs the corporate auditor system. We are taking actions to strengthen audits performed by the corporate auditors with the greater authority endowed by the Companies Act of Japan. In addition, TOK is taking advantage of the benefits of reforms to its Board of Directors, establishment of the executive officer system, and the election of an independent outside director to fortify the management decision-making and supervisory function and the business execution function while clarifying responsibility for performing these functions. We are convinced that these measures are the most effective means to strengthen management and upgrade our corporate governance.

Diagram of Corporate Governance System (As of March 28, 2019)



Directors and Board of Directors Diagram 1

To quickly respond to changes in the operating environment and clarify accountability for the directors concerning operating results in each fiscal year, we have shortened the tenure of the directors from two years to one year since June 2006. With the aim of enhancing the transparency of the Board of Directors and strengthening the corporate governance system, the Company selected one independent outside director in June 2006 and another in June 2015. TOK currently has two independent outside directors.

In principle, the director system has a flat structure with two levels: representative director and directors. This creates a framework that allows the Board of Directors to fulfill its primary responsibilities by effectively reaching management decisions and supervising the Company's management.

As of March 28, 2019, we had eight directors, including two outside directors. In principle, the Board of Directors meets once a month on a regular basis and holds extraordinary meetings as required. The meetings are held to decide important matters of business execution, with the goal of supervising the business duties executed by the representative director and directors.

The number of directors on the Board of Directors is set to not exceed 10 directors in the Company's Articles of Incorporation. The articles also stipulate that resolutions for the election of directors must be approved by a non-cumulative majority vote at a General Meeting of Shareholders with a third or more of the shareholders in attendance.

Assessment of the Effectiveness of the Board of Directors

Our directors and auditors conduct an assessment and discuss at the Board of Directors using an anonymous self-evaluation questionnaire format of the composition of the Board of Directors; the effectiveness of the Board of Directors; information related to the Board of Directors; the decision-making process; and external communications. This offers an analysis and assessment of the effectiveness of the Board of Directors as a whole.

The following opinions were received during the fiscal year ended December 31, 2018, the fourth time the assessment has been conducted:

- having an impartial composition offering inside directors with thorough understanding of each field, and a good balance between experience and actual performance
- maintaining diversity by incorporating outside directors with differing backgrounds, knowledge and expertise
- the size of the Board of Directors, frequency of meetings, matters discussed, and time spent on discussions are all appropriate
- in an atmosphere of frank and open discussions, the outside directors and outside auditors continue to positively contribute to high levels of transparency and rapid decision-making
- generally good self-improvement and in-house check-and-balance functions

However, the following criticisms were also made:

- authority should be delegated to deepen discussions about business strategy
- the reporting system should be improved in terms of risk analysis and important matters

Considering this feedback, the Company will continue to focus on further improving the effectiveness of the Board of Directors.

Review of Decision-Making Authority of the Board of Directors

Within the context of strengthening the functions of the Board of Directors amid changes in the business environment, TOK has started a review of the decision-making authority of the Board of Directors, including authorities delegated to the Committee of Officers. The Company modified decision-making authorities in April 2019 and has started to examine changes to decision-making authorities at subsidiaries inside and outside Japan with the aim of implementing these changes in January 2020.

Establishment of Independent Officer Meetings

TOK has established meetings for its independent officers, currently two outside directors and three outside auditors. They are held with the same frequency as Board of Directors meetings. The standing statutory auditor also attends the meetings.

The meetings aim to strengthen the effectiveness and add vigor to deliberations at the Board of Directors through:

- additional explanations on topics from management meetings that were not on the agenda of the Committee of Officers
- exchange of opinions on themes to be taken up at the next Board of Directors meeting
- explanations of cutting-edge technology matters

Officers and Committee of Officers Diagram 2

While taking steps to strengthen the Board of Directors' functions in management decision making and supervision, TOK has the Committee of Officers made up of all officers to reinforce its business execution capabilities. The committee members include the chief executive officer, the chief operating officer, senior executive officers, executive officers and officers. Those officers' ranks derive from differences in business responsibilities and other considerations.

As of March 28, 2019, the Company had 14 officers, including five officers also serving as directors. In principle, the Committee of Officers meets once a month on a regular basis and holds extraordinary meetings as required. The meetings are held to share instructions and orders resolved by the Board of Directors and information among the officers, and with the goal of planning management strategies, deliberating and approving certain important decisions that are not subject to a Board of Directors resolution.

Auditors and Board of Auditors Diagram 3

As of March 28, 2019, we had four auditors, including three outside auditors. In principle, the Board of Auditors meets once a month on a regular basis and holds extraordinary meetings as required. The auditors attend the Board of Directors, the Committee of Officers, and other important meetings. Their duties are performed in accordance with auditing standards (Corporate Auditor Auditing Regulations), the auditing policy, the division of tasks, and other considerations. In addition, the auditors check the performance of directors by receiving reports from directors and other corporate staff, and requesting an explanation if necessary. For financial audits, the auditors receive reports from the accounting auditor and use other

means, including requesting an explanation if necessary, to verify the suitability of financial accounting methods and the results of these audits.

To improve the effectiveness of corporate audits, and to ensure smooth execution of audit duties, one person is also assigned to assist the auditors.

Internal Auditing Div. Diagram 4

The Internal Auditing Division is under the direct control of the president. In addition to internal audits, this division offers suggestions, proposals, and advice for continuous improvement through evaluations of the effectiveness of internal controls in financial reporting.

Accounting Auditor Diagram 5

The accounting auditor conducts accounting audits of the Company from an impartial and independent standpoint. There were two certified public accountants who conducted the accounting audit of the Company in the fiscal year ended December 31, 2018: Hiroki Kitagata and Masato Shoji, both of whom are designated limited liability partners and executive members of accounting auditor Deloitte Touche Tohmatsu LLC. Moreover, there were six other certified public accountants, two junior accountants, and 14 other people who assisted in conducting the Company's accounting audit. The details of the remuneration of the Company's certified public accountants (Deloitte Touche Tohmatsu LLC) for conducting the accounting audit during the fiscal year ended December 31, 2018 are as follows:

- Remuneration in relation to the services set forth in Article 2, Paragraph 1 of the Certified Public Accountants Act (Act No. 103 of 1948): ¥54 million



Nomination and Compensation Advisory Committee Diagram 6

In December 2018, TOK established the Nomination and Compensation Advisory Committee, chaired by an independent outside director with half of its members consisting of independent outside directors, to enhance corporate governance by strengthening the fairness, transparency, and objectivity of procedures related to the nomination, dismissal, and remuneration of directors.

Legal Adviser, etc. Diagram 7

The Company has concluded advisory contracts with a number of law firms, and receives appropriate advice from legal advisors in situations requiring legal assessment.

Efforts to Invigorate the Shareholders' Meeting and Facilitate Smooth Exercise of Voting Rights Diagram 8

To facilitate the exercise of voting rights by shareholders, we hold our General Meeting of Shareholders in March, when most other Japanese companies' shareholder meetings are not hosted at the same time, set a period for reviewing the resolutions for approval by the meeting that is longer than the number of days required by law, and publish the Notice of Convocation of the General Meeting of Shareholders on our website ahead of time, 28 days (four weeks) before the day of the meeting. It is also sent out early (21 days (three weeks) before the day of the meeting).

To enable the shareholders in attendance to better understand the proceedings of the General Meeting of Shareholders, we use narrated video footage to report the items up for resolution. In addition, we also upload the Notice of Convocation, Notice of Resolution, and Results of the Exercise of Voting Rights to the General Meeting of Shareholders for disclosure on the Company website.

Cooperation between the Auditors, Internal Auditing Division and Accounting Auditor

Internal Audit and Corporate Audit Diagram 9

Cooperation between the auditors and accounting auditor

The auditors receive reports on the result of accounting audits and other work from the accounting auditor (auditing firm) four times a year. They also receive an explanation of the auditing plan from the accounting auditor once a year. In addition, the auditors also accompany the accounting auditor to the factory audits the accounting auditor conducts if necessary, as well as examine the auditing method of the accounting auditor. Apart from this, the auditors also exchange information and opinions with the accounting auditor as required.



Relationship between internal audits, corporate audits, accounting audits and Internal Auditing Division and the internal control department

The TOK Group's internal control department comprises divisions in charge of compliance and risk management in addition to the Internal Auditing Division, which is in charge of evaluating the effectiveness of internal control as it pertains to internal audits and financial reporting.

The Internal Auditing Division, as a part of the internal control department, reports the results of internal audits to the president, auditors and the relevant divisions. In addition, it provides the relevant divisions with suggestions, proposals and advice as required.

As for corporate audits, the auditors report the results of their corporate audits of directors' execution of duties to the president and the accounting auditor (auditing firm). In conducting internal control audits, the auditors receive evaluation reports and other information from the internal control department as necessary.

The accounting auditor (auditing firm) reports the results of its accounting audits to the president and auditors. It also holds discussions with the internal control department to help them with internal control audits.

Election of Outside Directors and Outside Auditors

The Company has eight directors, of whom two are outside directors, as well as four auditors, of whom three are outside auditors.

The Company has established the following criteria and policies regarding independence in the election of outside directors and outside auditors.

Independence Standards for Outside Officers

Independent outside officers under this criteria are defined as those who fulfill the legal requirements of an outside officer, and to whom any one of the following does not apply.

- a. A person who executes the business of the Company or its consolidated subsidiaries (the "Group"), or who did so for a period of 10 years before being appointed.
- b. A person/entity for which the Group is a major client (Note 1), or who executes the business of such a person/entity.
- c. A major customer of the Group (Note 2) or a person who executes the business of such customer.
- d. A major lender of the Group (Note 3) or a person who executes the business of such lender.
- e. A person who, apart from receiving officer compensation from the Group, belongs to a consulting, accounting, or legal firm (corporate entity, cooperative, or other such group) receiving large amounts of cash or other assets (Note 4) from the Group.
- f. A person to whom the above b. through e. applied in the previous three years.
- g. A person who in the past three years has received donations from the Group averaging more than ¥3.0 million per year.
- h. Major shareholders of the Group (Note 5) or a person who executes the business of such shareholder.
- i. A person who executes the business of a company with a mutual relationship between outside officers. (Note 6)
- j. A person whose spouse or a relative within the second degree of kinship come under any one of above items a. through i.
- k. A person who has served a total of more than eight years as an outside officer.
- l. Regardless of the above provisions, a person for whom it is deemed likely that conflicts of interest will arise with the Company.

- Notes:
1. A person/entity for which the Group is a major client, means a supplier that provides the Group with products or services, the amount of which transactions averaged more than ¥10.0 million per year over the past three years and represented more than 2% of the supplier's consolidated annual revenue in the most recent fiscal year.
 2. A major customer of the Group means a customer to which the Group provides products and services, the amount of which transactions averaged more than ¥10.0 million per year over the past three years and represented more than 2% of the Group's consolidated annual revenue in the most recent fiscal year.
 3. A major lender of the Group means a financial institution which has lent an amount equivalent to more than 2% of the Group's consolidated total assets.
 4. A large sum of cash or other assets, means assets that averaged more than ¥10.0 million per year over the past three years, and which in the most recent fiscal year had an economic value in excess of 2% of said consultant or accounting or legal expert's consolidated annual revenue. (In the event the beneficiary of said assets is a corporation, association or other organization, then assets that averaged more than ¥10.0 million per year over the past three years, and which in the most recent fiscal year had an economic value in excess of 2% of said organization's consolidated annual revenue).
 5. Major shareholder, means a shareholder with a ratio of voting rights of more than 10%.
 6. A mutual relationship between outside officers means a relationship in which a person who executes the business of the Group is also an outside officer at another company, and in which a person who executes the business of said outside company is also an outside officer of the Company.

Reasons for the Election of Inside Directors

Name	Reasons for election
Ikuo Akutsu <i>Representative Director Chairman</i>	Akutsu has led the management of the TOK Group ("the Group") for many years as its top executive and contributed to the Group's further development through the measures in the Medium-Term Plan. Thus, Akutsu is qualified to continue strengthening corporate governance of the Company and to supervise the execution of business.
Noriaki Taneichi <i>Representative Director President and Chief Executive Officer</i> <i>Nomination and Compensation Advisory Committee Member</i>	Taneichi is well versed in not only the Company's existing business areas but also in new business areas. Since assuming the position of Representative Director, President and Chief Executive Officer with the launch of the "TOK Medium-Term Plan 2021," the three-year medium-term plan starting from fiscal year 2019, Taneichi has led the management of the Group and contributed to medium- to long-term improvement of the Group's corporate value and its sustainable growth through the measures in the Medium-Term Plan. Thus, Taneichi can be expected to continue contributing to the management of the Company.
Harutoshi Sato <i>Director</i>	Sato has held important positions in the Group, serving in such roles as representative at the U.S. subsidiary, person responsible for quality assurance, and person responsible for product development before assuming the position of Department Manager, Research and Development Dept. Owing to this experience, he is well acquainted with the Company's business characteristics and customers and consequently possesses necessary and sufficient knowledge of such matters as important decision-making by the Board of Directors and supervision of duties executed by other Directors. Thus, Sato can be expected to continue contributing to the management of the Company.
Kunio Mizuki <i>Director</i> <i>Nomination and Compensation Advisory Committee Member</i>	Assuming the position of Department Manager of the General Affairs Dept. after serving as General Manager of the General Affairs Div., Mizuki has been working to strengthen corporate governance, including development of the information management system, the contingency management system, and the compliance system as well as improvement of investor relations. Furthermore, through his experience with the business operations in his charge, he possesses necessary and sufficient knowledge of such matters as important decision-making by the Board of Directors and supervision of duties executed by other Directors. Thus, Mizuki can be expected to continue contributing to the management of the Company.
Nobuo Tokutake <i>Director</i>	Tokutake has held important positions in the Group, serving in such roles as product developer, representative at the U.S. subsidiary, and Chairman and President of the Taiwanese subsidiary before assuming the position of Department Manager, Manufacturing Department. Owing to this experience, he is well acquainted with the Company's business characteristics and customers and consequently possesses necessary and sufficient knowledge of such matters as important decision-making by the Board of Directors and supervision of duties executed by other Directors. Thus, Tokutake can be expected to continue contributing to the management of the Company.
Keiichi Yamada <i>Director</i>	Yamada has knowledge and rich experience in product development, sales and marketing, which he developed in previous positions. In addition, since joining the Company he has mainly been engaged in sales and marketing of mainstay products and is well acquainted with the electronic materials industry and characteristics and customers of the Company's business based on such roles as Department Manager of the Marketing Dept. Furthermore, he possesses necessary and sufficient knowledge of such matters as important decision-making by the Board of Directors and supervision of duties executed by other Directors. Thus, Yamada can be expected to continue contributing to the management of the Company.

Reasons for the Election of Outside Directors

Name	Reasons for election
Hiroshi Kurimoto <i>Nomination and Compensation Advisory Committee Chairman</i>	Kurimoto was elected on the expectation that he would continue supervising TOK's management from an objective and neutral point of view, based on his abundant experience and considerable insight as a business executive of a listed company, and contribute to strengthening corporate governance by advising the Company on management in general.
Noriko Sekiguchi <i>Nomination and Compensation Advisory Committee Member</i>	Sekiguchi was elected to contribute to corporate governance and TOK's management from an objective and neutral point of view continuously, based on her professional expertise in accounting and abundant hands-on business experience with several companies as a certified public accountant, and her thorough understanding of internal control, including from her experience as a member of external committees investigating fraudulent accounting at numerous listed companies, and advise the Company on management in general.

Reasons for the Election of Outside Auditors

Name	Reasons for election and independence
Kazumasa Fukada	Fukada was elected to contribute to auditing TOK's management from an objective and neutral point of view, based on his abundant experience and considerable insight as a business executive including at financial institutions. Fukada was once a business executive with Tokio Marine & Nichido Fire Insurance Co., Ltd., which owns stock in TOK and conducts insurance transactions with the Company under routine and standard business conditions. However, these capital and business relationships were deemed not to affect Fukada's independence as an outside auditor of TOK.
Koichiro Takahashi	Takahashi was elected to contribute to auditing TOK's management from an objective and neutral point of view, based on his abundant experience and considerable insight as a business executive including at financial institutions. Takahashi was once a business executive with Meiji Yasuda Life Insurance Company, which owns stock in TOK and conducts insurance transactions with the Company under routine and standard business conditions. However, these capital and business relationships were deemed not to affect Takahashi's independence as an outside auditor of TOK.
Nobuyuki Takeuchi	Takeuchi was elected to contribute to auditing TOK's management from an objective and neutral point of view, based on his experience as a corporate auditor of another company as well as his abundant experience and considerable insight as an executive of financial institutions. Takeuchi was once a business executive with Mitsubishi UFJ Trust and Banking Corporation, which owns stock in TOK and conducts cash deposit, stock administration agent and other transactions with the Company under routine and standard business conditions. However, these capital and business relationships were deemed not to affect Saito's independence as an outside auditor of TOK.

The Main Activities of Outside Directors and Outside Auditors

Name	Attendance record and activities at Board of Directors and Auditors meetings
Hiroshi Kurimoto <i>Outside Director</i>	Kurimoto attended all 15 of the 15 Board of Directors meetings (attendance rate 100%) held during the fiscal year ended December 2018. He voiced timely opinions as required when discussing resolutions, based on his broad experience and abundant expertise as a business executive.
Noriko Sekiguchi <i>Outside Director</i>	Sekiguchi attended all 15 of the 15 Board of Directors meetings (attendance rate 100%) held during the fiscal year ended December 2018. She voiced timely opinions as required when discussing resolutions, based on her professional expertise in accounting and abundant hands-on business experience with several companies as a certified public accountant.
Hiroshi Saito <i>Outside Auditor</i>	Saito attended all 15 of the 15 Board of Directors meetings (attendance rate 100%) and all 14 of the 14 Board of Auditors meetings (attendance rate 100%) held during the fiscal year ended December 2018. He voiced and raised timely opinions and questions as required at the meetings, based on his abundant experience and considerable insight as a business executive including at financial institutions.
Kazumasa Fukada <i>Outside Auditor</i>	Fukada attended all 15 of the 15 Board of Directors meetings (attendance rate 100%) and all 14 of the 14 Board of Auditors meetings (attendance rate 100%) held during the fiscal year ended December 2018. He voiced and raised timely opinions and questions as required at the meetings, based on his broad experience including at a financial institution, and his abundant expertise as a business executive.
Koichiro Takahashi <i>Outside Auditor</i>	Takahashi attended all 15 of the 15 Board of Directors meetings (attendance rate 100%) and all 14 of the 14 Board of Auditors meetings (attendance rate 100%) held during the fiscal year ended December 2018. He voiced and raised timely opinions and questions as required at the meetings, based on his abundant experience and considerable insight as a business executive including at financial institutions.

The Major Decisions and Agenda of Board of Director Meetings in the Fiscal Year Ended December 2018

- ◆ Enhanced manufacturing equipment for high-purity chemicals mainly used in the cutting-edge miniaturization process in semiconductor manufacturing (TOKYO OHKA KOGYO AMERICA/TOK TAIWAN)
- ◆ Confirmed progress on plans for new R&D Building (to be completed in 2019 at the Sagami Operation Center)
- ◆ Updated aging facilities (Sagami Operation Center)
- ◆ Devised the vision, company-wide strategies and key measures for the “TOK Medium-Term Plan 2021”
- ◆ Updated the shareholder return/dividend policy, balance sheet management policy, etc.
- ◆ Confirmed progress on Group Management System (GMS)
- ◆ Reviewed measures for EHS (environmental, health and safety) and reinforced measures at domestic and overseas business sites
- ◆ Debated matters related to new personnel measures and employee training programs

Remuneration of Directors and Auditors

TOK’s guidelines for remunerating its directors, senior management and auditors are as follows. The guidelines focus mainly on complying with laws and regulations and maintaining sound management, while also seeking to set remuneration at a level that satisfies the expectations of shareholders and other stakeholders by increasing earnings and corporate value.

Directors’ Remuneration

Directors’ remuneration consists of a fixed salary as base remuneration, a bonus linked to financial performance in the fiscal year, and stock options linked to results, enhancement of corporate value and stock price performance as an incentive to enhance drive and motivation to increase the stock price.

The fixed salary, bonus and stock compensation-type stock options are decided based on the Policy and Procedures for Deciding the Remuneration of Directors and Senior Management (“the policy and procedures for remuneration”), within a remuneration framework (up to ¥420 million per year) approved by the General Meeting of Shareholders.

Outside directors do not receive stock compensation-type stock options (subscription warrants) in consideration of their roles.

Remuneration for Senior Management

Remuneration for senior management consists of a fixed salary as base remuneration, a bonus linked to financial performance in the fiscal year, and stock compensation-type stock options linked to medium- to long-term performance.

The fixed salary, bonus and stock compensation-type stock options are decided based on the policy and procedures for remuneration.

Policy and Procedures for Deciding the Remuneration of Directors and Senior Management

The Nomination and Compensation Advisory Committee chaired by an independent outside director drafts proposals for deciding the remuneration (fixed salary and bonuses) of directors and senior management. The committee takes care to set appropriate percentages of cash remuneration and stock remuneration, as well as the ratio of remuneration linked to medium- to long-term performance, while paying due consideration to the degree of contributions to the medium-term plans and budgets in the previous fiscal year of the directors and senior managers, as well as the self-evaluations of the Board of Directors, in addition to the TOK Group's financial performance.

The committee also drafts proposals for deciding the weighting of stock compensation-type stock options as medium- to long-term performance-linked remuneration for directors (excluding outside directors) and senior managers. Based on these proposals, the Board of Directors makes the final decision.

Auditors' Remuneration

Auditors are responsible for supervising and auditing business duties executed by the directors, in a position that is independent of the Board of Directors. They receive only a basic remuneration in the form of a basic salary, which is decided on and paid out following discussions among the auditors, within a remuneration framework (of within ¥72 million per year) approved by the General Meeting of Shareholders.

Remuneration Totals Paid to Directors and Auditors (Fiscal Year Ended December 31, 2018)

Position	Total remuneration (Millions of yen)	Total of various types of remuneration (Millions of yen)			Number of eligible personnel
		Basic remuneration	Stock options	Bonuses	
Directors (Excluding outside directors)	170	136	21	13	6
Auditors (Excluding outside auditors)	22	22	—	—	1
Outside directors and auditors	47	46	—	1	5

Note: The amounts for total remuneration and total of various types of remuneration for directors (excluding outside director) do not include the portion paid as salary for employee activities undertaken in parallel with director activities.

Internal Control System

TOK endeavors to augment the Group's internal control systems by strengthening management at overseas subsidiaries that have a growing presence and maintaining its compliance system. Below is a summary of our compliance system, risk management system, business execution reporting and other group internal control systems, as well as systems for the retention and management of information, and information management structure.

→ For further details on internal control, please see the Corporate Governance Report at https://www.tok.co.jp/content/download/4591/76284/file/gov_report190627.pdf (in Japanese)



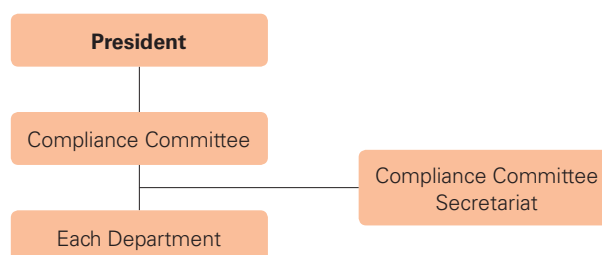
Compliance

The TOK Group makes concerted efforts to enhance its compliance system from the basic understanding that maintaining relationships of trust with all its stakeholders is a prerequisite for sustainable development as a corporation that coexists with society. We strive to improve awareness of compliance among all officers and employees to ensure strict compliance with laws and regulations, Company rules and social norms.

Compliance Promotion System and Standards of Conduct

Guided by the Compliance Committee, all employees at Group companies take action to promote compliance by participating in thorough training and related activities. We aim to improve awareness of compliance among all officers and employees. We have created the TOK Group Compliance Standards of Conduct to clarify shared values and standards of conduct, including for subsidiaries in Japan and overseas. We have created handbooks for the Compliance Standards of Conduct in the languages used by Group companies and distributed them to all officers and employees of Group companies.

Compliance Promotion System



Ongoing activities to instill compliance

To prevent compliance-related risks from emerging, it is essential that all officers and employees practice and adhere to compliance. The Company conducts its own unique compliance training that considers conditions at each department and site within the Group, and goes through a PDCA cycle to prevent risks from materializing. With the completion of the compliance training overseas in the fiscal year ended December 31, 2017, staff from the Compliance Committee Secretariat visited all domestic sites during the fiscal year ended December 31, 2018, providing compliance training to employees, including reminders about the internal reporting system.

Internal reporting system

TOK has an internal reporting system set up to facilitate the early discovery, remediation and prevention of compliance risks in business activities. When internal reports are made, we allow the internal reporter to choose who the report is made to, and we have a clearly stated policy of not dismissing or unfairly treating internal reporters, unless the report has been made for deceitful purposes.

In the fiscal year ended December 31, 2018, the TOK Group received three reports concerning labor conditions and the work environment, and private matters. After gaining a detailed understanding of the situation and those involved, based on an objective judgment of the situation, the Company provided guidance, took disciplinary action, and implemented training about proper behavior for those involved. The Company intends to enhance the internal reporting system to make it more accessible for employees.

Risk Management

The Company's perpetual development depends on being able to precisely deal with various risks that have major impacts on business. Through communications with stakeholders, we strive to identify and prevent a variety of potential risks. If a risk emerges, we will take the necessary measures to minimize the negative impacts from the risk. In these and other ways, TOK maintains and improves its global risk management system.

Risk Management System

The Risk Management Committee plays a central role in reviewing the risk management system and formulating risk management policy. The Company has risk management regulations and a risk management manual for precisely dealing with various risks. Guided by this manual, we ensure that preventive measures are normally in place by managing business risk, public risk, and disaster and accident risk, and identifying and analyzing significant risks, as well as determining, executing, and reviewing countermeasures for these risks.

Risk Management System



*1 The Risk Management Committee is made up of the president, department managers.

*2 The Risk Management Conference is made up of responsible persons for risk management from each department, and representatives of persons in charge of risk management.

Initiatives to strengthen risk management system

Reaffirming the importance of contingency management after the Great East Japan Earthquake, the Group has taken steps to address various risks, including disasters and other accidents and environmental risks, since creating the Contingency Management Committee (current Risk Management Committee). In 2016, the TOK Group Risk Management Committee was established to deal with a broader range of risks in accordance with the Company's global expansion.

In the fiscal year ended December 31, 2018, TOK took action to reduce risks deemed high based on risk assessments at all sites, including group subsidiaries. As a result, the Company achieved 20% of its risk reduction goals. TOK will continue with activities to reduce new risks identified in the risk assessment and existing issues.

Strengthened crisis management

The Group believes business continuity planning begins with the safety of our employees. In Japan, TOK operates a safety confirmation system for confirming whether Group employees are safe in the event of natural disasters, including major earthquakes. Safety confirmation drills are conducted every year to ensure the smooth operation of this system and to raise awareness among employees. In the fiscal year ended December 31, 2018, 100% of the planned number of drills were held, and the response rate remained at a high level.

Large-scale natural disaster preparedness

Based on lessons learned from the Great East Japan Earthquake and the Kumamoto Earthquake, TOK has put in place a BCP that envisions damage simultaneously striking the Headquarters and multiple sites from earthquakes directly beneath the greater Tokyo area. TOK regularly reviews its BCP so it is grounded in reality by running desktop drills that simulate real-world damages that interrupt order taking and placement, product shipment, and cut off lifelines. In the fiscal year ended December 31, 2018, the Company reviewed alternative transportation options considering the damage caused by torrential rainfall in western Japan in July 2018, and finished a formulation of initial action guidelines applicable to all production sites of the Group, including overseas subsidiaries.

Improving Information Management

The environment surrounding information management is drastically changing. Leaks of information assets could greatly damage the competitive advantages of the TOK Group and threaten its existence as an ongoing concern. For this reason, reinforcing the information management system is a priority issue in terms of preserving corporate value and fulfilling our social responsibility. From this standpoint, we are redoubling our efforts in ensuring information security by establishing a PDCA cycle.

Information Management Policies

The TOK Group (comprising TOKYO OHKA KOGYO CO., LTD. and its subsidiaries, hereinafter collectively the "TOK Group") is implementing measures in line with the following policies, having positioned risk management related to information assets as a priority management issue to fulfill its corporate social responsibility.

Definition, protection, and effective utilization of information assets

1. With respect to all information assets held by the TOK Group, including managerial, client, marketing, personal, and technical information, the Group will comply with laws and regulations related to information security, other social norms, in-house rules and other guidelines, and protect the information appropriately. The Group shall only use the information to efficiently execute the operations of the Group, within the stipulated scope of authority, and for the prescribed purpose.

Update and maintain tools and security platforms

2. The TOK Group updates and maintains reasonable communications tools and security platforms to effectively utilize its information assets.

Organizational structure and organized activities

3. The TOK Group has established an Information Management Committee and will continue to build, maintain, and promote an information asset management structure properly governed for the overall Group.

Completeness, confidentiality, and availability

4. The TOK Group will identify and assess risks and continue to implement countermeasures and improvements as well as appropriately reduce information management risks through a range of human, physical, organizational, and IT-based measures to prevent leakage, falsification, theft, destruction, and other damage to the information assets held by the TOK Group.

Education

5. The TOK Group will implement in-house education regularly and continuously and work to raise awareness and keep everyone well informed of the in-house rules and other regulations.

Incident response

6. In the case that accidents and other incidents related to information security occur, the TOK Group will endeavor to minimize the damage from such incidents and implement measures to prevent their recurrence.

Audits and continuous improvements

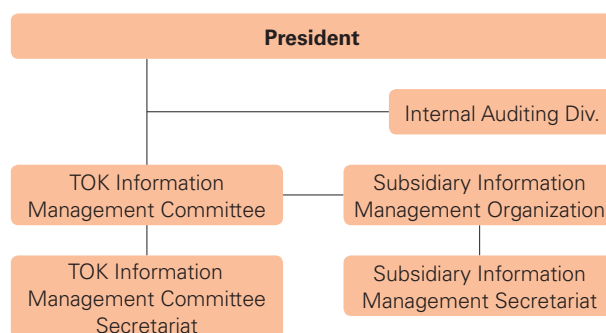
7. The TOK Group will implement regular audits and make continuous improvements as a part of its management of information assets.

Maintain, Manage, and Improve Information Management Systems

The Company has created the TOK Information Management Committee, headed by the Manager of the General Affairs Department and staffed by department managers of the TOK Group, including overseas affiliates and subsidiaries. The Committee decides on policies and measures related to information security and personal information protection. Key subsidiaries have established their own information management organizations, which collaborate under the guidance of the TOK Information Management Committee to strengthen information management systems across the TOK Group. In the fiscal year ended December 31, 2018, TOK updated its management regulations.

The Internal Auditing Division, which is independent of the TOK Information Management Committee, regularly audits compliance with rules and other matters, and reports the results to the president. If there are problems, improvement orders are issued to the audited divisions and the Information Management Committee. In this way the division works to improve our information management systems.

TOK Group Information Management Structure



Strengthen information management through working groups

The TOK Information Management Committee has identified key topics based on information management policy, and put working groups (WG) in charge of addressing each key topic in a bid to strengthen information management.

Working Groups for Information Management PDCA Cycle

Trade Secrets WG/Training and Rules WG/Human Resources Related WG/IT Development WG/Physical Security WG/Supplier WG

Group Management System (GMS)

The TOK Group's value creation has continued expanding within and outside of Japan. Since 2015, we have focused on the Group Management System as a way to tie this to steady enhancement of sustainable corporate value. After the two years of the project phase, since 2018, we have shifted to the fixing phase where the project results will become established aspects of the TOK Group's overall global structures and frameworks.

Initiatives in FY2018/12

Through a self-evaluation of development and operation of GMS in six fields and two subsidiaries, more than 30 matters in need of correction were identified and corrective actions were taken.

The progress rate of resolutions was 98%, thanks to the ongoing collection and resolution of key issues for the Group.

TOK also added to and revised its rules and processes, creating and modifying more than 70 documents.

We updated documentation pertaining to regulations and standards for basic information management in the Group, and cross-referenced Group documents to documentation at each company.

• March

Added Supply Chain Management (SCM) as a GMS field

• September

Modified information management rules in GMS documentation

• October

Created information management regulations to replace confidentiality regulations and basic regulations for information management at the Headquarters and four domestic subsidiaries

Updated Human/IT/Physical (HIP) standards

• December

Added R&D as a GMS field

Updated information management regulations and Human/IT/Physical (HIP) standards at four overseas subsidiaries

We also took the following steps to improve company regulations at overseas subsidiaries.

- Clarified company regulations in need of updating at subsidiaries
- Reassessed the company regulations at Tokyo Ohka Kogyo Europe B.V. and decided on an approach
- Decided on an approach for company regulations in need of updating at CHANG CHUN TOK (CHANGSHU) CO., LTD. in China
- Decided on an approach for company regulations for EHS, added basic policy for internal control systems
- Updated information management regulations and standards documentation with cross-references in documents at each company

IR Activities/SR Activities

Dialogue with shareholders and investors

The Director, Executive Officer, Department Manager of General Affairs Dept. is responsible for managing and controlling investor relations (IR), and through meetings on business results, meetings with institutional investors, company orientations for individual investors and a variety of other efforts, works to be proactive in achieving a constructive dialogue.

The Public Relations Division serves as the department responsible for TOK's IR with regard to dialogue with shareholders and investors, and is primarily responsible for facilitating that dialogue, exchanging information with our accounting, sales, legal and other departments as needed and maintaining a coordinated collaboration. The department in charge of IR also works to provide the top management and relevant officers with records of meetings with analysts, shareholders and investors, and to share information.

Main IR activities in FY2018/12

Business results meetings for institutional investors/analysts	2
Individual meetings with institutional investors/analysts	177
Financial results briefings for individual investors	9

IR activities

TOK conducts proactive IR activities, centered primarily on the Public Relations Division, in an effort to enhance our dialogue with shareholders and investors. Specifically, we hold events including biannual meetings on business results, company orientations for individual investors, as well as tours of our facilities. Our CSR reports, annual reports, business reports to shareholders, and Notice of The Convocation of The Ordinary General Meeting of Shareholders are all published on our website, part of our proactive effort to provide shareholders and investors with the information they need.

Records of opinions and requests from shareholders and investors that reach us through this dialogue are collected and regularly reported to the chairman, president and all directors, and we work to ensure that information is understood and shared.

In accordance with our Disclosure Policy, TOK also makes an effort to provide its shareholders and investors with consistent information, and to offer fair and timely disclosure. We have also established internal regulations regarding management of insider information, and strive to ensure those regulations are closely followed.

Complying with the Corporate Governance Code

TOK implements all of the principles set forth in the Corporate Governance Code established by the Tokyo Stock Exchange.

Complying with Various Principles of the Corporate Governance Code

[Principle 1.4] Cross-shareholdings

(1) Policies regarding cross-shareholdings

To sustain business development as a business pioneer and R&D-driven company, TOK may hold cross-shareholdings to maintain and expand business synergies in the context of product development, sales promotion, raw material procurement, and manufacturing technology.

Once a year, the Board of Directors examines each stock in terms of synergistic effects with businesses now and in the future, with due consideration paid to the Company's cost of capital and other benchmarks. Shareholdings deemed of low necessity or importance are reduced in principle.

(2) Criteria for exercising voting rights

When exercising voting rights on cross-shareholdings, TOK makes decisions based on a comprehensive analysis of whether the matter proposed aligns with the medium- to long-term enhancement of corporate value and sustainable growth of TOK and the investee.

When special attention is required when exercising voting rights, due to long-term weakness in earnings, organizational restructuring or a major compliance violation at the investee, TOK makes decisions after gathering adequate information.

[Principle 1.7] Related Party Transactions

When engaging in transactions with its officers, major shareholders and others (i.e., related party transactions), TOK considers the rationality of pricing and other transaction terms as it would in third party transactions, to ensure that such transactions do not harm the common interests of the Company and its shareholders. At the same time, in compliance with legal provisions and our own internal regulations, particularly important transactions are presented to the Board of Directors for their approval.

[Principle 2.6] Roles of Corporate Pension Funds as Asset Owners

TOK has adopted a fund-type corporate pension plan. Funds in the corporate pension are managed with the objective of having a positive impact on the financial health of the Company and its employees through stable asset formation. TOK selects and appoints personnel, such as senior managers in finance, who have enough knowledge and experience to undertake management of the corporate pension fund, with the objective of increasing management sophistication, including stewardship activities, and adequately function as the asset owner.

TOK has established the Pension Committee as a company-wide organization to manage and supervise the operation of the retirement pension system, with the aim of fostering specialized personnel while strengthening governance of the pension fund.

Through the proper operation of the Pension Committee, TOK appropriately manages any conflicts of interest with the beneficiaries of corporate pensions.

[Principle 3.1] Full Disclosure

(1) Company objectives (e.g. business principles), business strategies and business plans

→ See the first page "Management Principles"; pages 20–27 "A Message from the President" and pages 36–38 "Overview of the TOK Medium-Term Plan 2021"

(2) Basic views and guidelines on corporate governance

→ See page 75 "Basic Concept"

(3) Board policies and procedures in determining the remuneration of the senior management and directors

→ See pages 81–82 "Remuneration of Directors and Auditors"

(4) Board policies and procedures in the appointment/dismissal of senior management the nomination of director and auditor candidates

a. Policies and procedures in the appointment of senior management and the nomination of director candidates

The Nomination and Compensation Advisory Committee, which is chaired by an independent outside director, in the capacity of its advisory function to the Board of Directors, creates drafts to facilitate decisions on the nomination of senior managers and directors based on a comprehensive evaluation of the character, insight, and work experience of the candidates against the requirements of a management supervisory position. The Board of Directors then decides on a resolution to the General Meeting of Shareholders based on said draft.

b. Policies and procedures in the nomination of auditor candidates

The Nomination and Compensation Advisory Committee, in the capacity of its advisory function to the Board of Directors, creates drafts for the Board of Directors to evaluate candidates for auditor that comprehensively considers their knowledge, experience, and capabilities gained through their career at the Company. Additionally, candidates for outside auditor are comprehensively evaluated based on their knowledge, experience, and capabilities gained through their work outside the Company, in addition to their independence and objectivity. Upon the consent of the Board of Auditors, the Board of Directors then decides on a resolution to the General Meeting of Shareholders based on said draft.

c. Policies and procedures for dismissal of senior managers
In the event of a relationship with anti-social forces, a serious violation of laws and regulations, violation of internal rules, or other reasons that inhibit the proper execution of other duties is discovered, the Board of Directors shall reach decisions with a report from the Nomination and Compensation Advisory Committee, and if necessary, submit a proposal to the General Meeting of Shareholders.

(5) Explanations with respect to the individual appointment/dismissal of senior management and nominations of director and auditor candidates based on (4)

→ Refer to page 80 “Reasons for the Election of Directors and Auditors” for information on the reasons for election directors and auditors.

[Supplementary Principle 4.1.1]

Based on the Board of Directors regulations, the Company's Board of Directors decides on matters prescribed by laws and regulations, the Articles of Incorporation, and other matters concerning the execution of important business. Decision-making involving execution of business other than matters to be decided by the Board of Directors is delegated, as appropriate, to the Committee of Officers, the representative director, the directors and the officers, and those matters are clearly set forth in the Committee of Officers regulations and the Specific Authority by Position.

[Principle 4.9] Independence Standards and Qualification for Independent Directors

→ See page 79 “Independence Standards for Outside Officers”

[Supplementary Principle 4.11.1]

(1) Policies for appointment of director candidates and approach to composition of the Board of Directors

The appointment of director candidates is decided following consultation with the Nomination and Compensation Advisory Committee. Internal director candidates are chosen from among officers and others responsible for overall management, based on a comprehensive consideration of numerous factors, including diverse, advanced skills, knowledge and actual performance. Outside director candidates are also evaluated for similar factors, with appointments focusing on those with extensive experience at listed companies and wide-ranging knowledge in management, or from among experts with a thorough understanding of legal affairs, finances, accounting, internal control systems and other areas. We also select

those who can devote sufficient time and effort as required by their duties, and who meet the standards for independence prescribed by TOK and the Tokyo Stock Exchange. Regarding the diversity and size of the Board of Directors, we strive for a balanced composition of internal directors selected for their thorough understanding of areas including sales, development, and manufacturing, with due consideration given to their length of service, experience and actual performance. We also strive to ensure diversity by bringing in multiple outside directors of differing backgrounds, knowledge, and expertise, in addition to diversity in the composition of the Board of Directors in terms of gender and internationalism. Our policy is to maintain a Board of Directors in an appropriate size that will facilitate quick, bold decision-making in a manner commensurate with our business.

(2) Procedures for appointing director candidates

Based on the above policy, the Nomination and Compensation Advisory Committee prepares a draft appointment of director candidates. The draft is then voted on by the Board of Directors and presented as a resolution to the General Meeting of Shareholders.

[Supplementary Principle 4.11.2]

Directors serving in other important positions

→ See pages 88–89 “Board of Directors/Corporate Auditors and Officers”

[Supplementary Principle 4.11.3]

Board of Directors evaluation

→ See page 76 “Assessment of the Effectiveness of the Board of Directors”

[Supplementary Principle 4.14.2]

TOK offers its outside officers opportunities to gain knowledge of the TOK Group's business, structure, management strategy and financial condition, as well as opportunities to deepen their understanding of the TOK Group through participation in internal meetings and visits to our plants and so forth. Upon appointment, inside officers are offered opportunities to learn their legal obligations and responsibilities as fiduciaries, as well as to recognize the attitudes and roles expected of them as officers, and to acquire the knowledge they need to appropriately execute those obligations and roles.

[Principle 5.1] Policy for Constructive Dialogue with Shareholders

→ See page 85 “IR Activities/SR Activities”

Anti-takeover Measures

TOK has adopted anti-takeover measures. Please refer to our website for more information.

→ <https://www.tok.co.jp/content/download/4193/59903/file/180223.pdf> (in Japanese)



Board of Directors/Corporate Auditors and Officers

Nobuo Tokutake



Noriko Sekiguchi



Hiroshi Kurimoto



Keiichi Yamada



Harutoshi Sato



Ikuo Akutsu



Noriaki Taneichi



Kunio Mizuki



Directors

Ikuo Akutsu

Representative Director, Chairman

1982 Joined the Company
2003 General Manager, Manufacturing Technology Div.
2003 General Manager, Advanced Material Development Div. 2
2007 Chairman and President of TOK TAIWAN CO., LTD.
2009 Officer, Dept. Manager, Corporate Planning Dept.
2010 Director, Executive Officer, Dept. Manager, Corporate Planning Dept.
2011 Representative Director, President and Chief Executive
2019 Representative Director, Chairman (to the present)

Kunio Mizuki

Director, Executive Officer
Dept. Manager, General Affairs Dept.
Nomination and Compensation Advisory Committee Member

1985 Joined the Company
2005 General Manager, General Affairs Div.
2009 Officer, Deputy Dept. Manager, Administration Dept. and General Manager, General Affairs Div.
2012 Officer, Dept. Manager, General Affairs Dept.
2013 Director, Officer, Dept. Manager, General Affairs Dept.
2017 Director, Executive Officer, Dept. Manager, General Affairs Dept. (to the present)

Hiroshi Kurimoto

Outside Director
Nomination and Compensation Advisory Committee Chairman

1970 Joined OILES CORPORATION ("OILES")
1999 Director of OILES
2003 Director, Managing Operating Officer of OILES
2006 Representative Director, President and Chief Operating Officer of OILES
2011 Representative Director and Chairman of OILES
2014 Director (Outside Director) of the Company (to the present) Director and Senior Advisor of OILES
2015 Senior Advisor of OILES
2016 Executive Advisor of OILES

Noriaki Taneichi

Representative Director, President and Chief Executive Officer
Nomination and Compensation Advisory Committee Member

1986 Joined the Company
2009 Dept. Manager, Marketing Development Business Development Div.
2011 Dept. Manager, New Business Development Dept.
2015 Officer, Deputy Dept. Manager, New Business Development Dept.
2017 Director, Officer, Dept. Manager, New Business Development Dept.
2019 Representative Director, President and Chief Executive Officer (to the present)

Nobuo Tokutake

Director, Officer
Dept. Manager, Manufacturing Dept.

1984 Joined the Company
2003 Chairman and President of TOK TAIWAN CO., LTD.
2007 General Manager, Quality Assurance Div.
2009 Senior General Manager, Production Control Div. and General Manager, Quality Assurance Div.
2013 Officer, Deputy Dept. Manager, Manufacturing Dept.
2015 Director, Officer, Dept. Manager, Manufacturing Dept. (to the present)

Noriko Sekiguchi

Outside Director
(Representative of Sekiguchi CPA Office)
Nomination and Compensation Advisory Committee Member

1986 Joined Manufacturers Hanover Bank (present JPMorgan Chase Bank, N.A.)
1991 Joined Asahi-Shinwa Kaikeisha audit corporation (present KPMG AZSA LLC)
1994 Registered as certified public accountant
1998 Joined Japan Broadcasting Corporation
2001 Joined Triumph International (Japan) Ltd.
2002 Reregistered as certified public accountant
2004 Joined Ernst & Young ShinNihon (present Ernst & Young ShinNihon LLC)
2010 Representative of Sekiguchi CPA Office (to the present)
2011 Contract Monitoring Committee Member of Japan International Cooperation Agency ("JICA") (to the present)
2011 External Assessment Committee Member of JICA (to the present)
2012 Registered as certified tax accountant
2015 Director (Outside Director) of the Company (to the present)
2019 Executive Officer of Chifure Holdings (to the present)

Harutoshi Sato

Director, Senior Executive Officer
Dept. Manager, Research and Development Dept.

1984 Joined the Company
2004 General Manager, Quality Assurance Div.
2007 General Manager, Advanced Material Development Div. 2
2008 General Manager, Advanced Material Development Div. 1
2009 Officer, Deputy Dept. Manager, Research and Development Dept. and General Manager, Advanced Material Development Div. 3
2011 Officer, Deputy Dept. Manager, Research and Development Dept. and General Manager, Advanced Material Development Div. 1
2012 Director, Officer, Dept. Manager, Research and Development Dept.
2017 Director, Executive Officer, Dept. Manager, Research and Development Dept.
2019 Director, Senior Executive Officer, Dept. Manager, Research and Development Dept. (to the present)

Keiichi Yamada

Director, Officer
Dept. Manager, Marketing Dept.

1983 Joined Japan Synthetic Rubber Co., Ltd. (present JSR Corporation)
2001 General Manager, Kyushu Office of JSR Corporation
2002 Business Director of Shipley Far East Ltd. (present Rohm and Haas Electronic Materials K.K.)
2004 General Manager Japan of Rohm and Haas Electronic Materials K.K.
2008 Senior Deputy General Manager, Electronic Material Marketing Control Div. of the Company
2012 Deputy Dept. Manager, Marketing Dept. of the Company
2013 Officer, Deputy Dept. Manager, Marketing Dept. of the Company
2016 Director, Officer, Dept. Manager, Marketing Dept. (to the present)

Koichiro Takahashi

Nobuyuki Takeuchi

Hajime Fujishita

Kazumasa Fukada



Auditors

Hajime Fujishita

Standing Statutory Auditor

1983 Joined the Company
 2003 General Manager, Utsunomiya Plant
 2004 General Manager, Aso Plant
 2005 General Manager, Manufacturing Technology Div.
 2009 Officer (Chairman and President of TOK TAIWAN CO., LTD.)
 2012 Officer, Dept. Manager, Process Equipment Manufacturing Dept.
 2016 Standing Statutory Auditor (to the present)

Koichiro Takahashi

Outside Auditor

1978 Joined Meiji Life Insurance Company ("MLI") (present Meiji Yasuda Life Insurance Company)
 2000 General Manager, Marketing Development Dept. of MLI
 2001 General Manager, Marketing Planning & Research Dept. of MLI
 2003 General Manager of Niigata Branch of MLI
 2005 Executive Officer, General Manager of Human Resources Dept. of Meiji Yasuda Life Insurance Company ("MYLI")
 2006 Corporate Executive Officer, General Manager of Human Resources Dept. of MYLI
 2008 Managing Executive Officer, Chief General Manager of Nagoya Headquarters of MYLI
 2009 Managing Executive Officer, Chief General Manager of Retail Sales Dept. of MYLI
 2012 Senior Managing Executive Officer, Chief General Manager of Retail Sales Dept. of MYLI
 2014 President and CEO of MYJ Co., Ltd.
 2016 Chairman of the Board of Meiji Yasuda System Technology Company Limited
 2017 Auditor of the Company (Outside Auditor) (to the present)
 2018 Auditor of Meiji Yasuda Institute of Life and Wellness, Inc. (to the present)

Kazumasa Fukada

Outside Auditor

1977 Joined Tokio Marine and Fire Insurance Company, Limited ("TMFI") (present Tokio Marine & Nichido Fire Insurance Co., Ltd.)
 2002 Branch Manager of Nagano Branch, Chubu and Hokuriku Headquarters of TMFI
 2005 General Manager of Tokyo Automotive Sales Div. 4 of Tokio Marine & Nichido Fire Insurance Co., Ltd. ("TMNF")
 2007 Associate Director, General Manager of Tokyo Automotive Sales Div. 4 of TMNF
 2008 Executive Officer, General Manager of Head Office Sales Dept. 2 of TMNF
 2010 Managing Director of TMNF
 2011 Managing Director, General Manager of Tokyo Automotive Sales Div. 1 of TMNF
 2011 Managing Director of TMNF
 2013 Managing Director of the General Insurance Association of Japan
 2017 Auditor of the Company (Outside Auditor) (to the present)
 2017 Advisor of Tokio Marine & Nichido Fire Insurance Co., Ltd.

Nobuyuki Takeuchi

Outside Auditor

1981 Joined Mitsubishi Trust and Banking Corporation ("MTB," present Mitsubishi UFJ Trust and Banking Corporation)
 2005 Manager, Real Estate Planning Division of MTB
 2005 Manager, Sales Division 9 of Mitsubishi UFJ Trust and Banking Corporation ("MUTB")
 2007 Manager, Sales Division 3 of MUTB
 2009 Officer, Manager of Kyoto Branch and Central Kyoto Branch of MUTB
 2011 Managing Executive Officer of MUTB
 2013 Senior Managing Director of MUTB
 2015 President and CEO of Mitsubishi UFJ Real Estate Services Co., Ltd.
 2016 Corporate Auditor (Outside Corporate Auditor) of Maruzen Showa Unyu Co., Ltd. (to the present)
 2019 Auditor of the Company (Outside Auditor) (to the present)



Officers

Yoichi Shibamura
 Senior Executive Officer
 Dept. Manager,
 Accounting and Finance Dept.

Yoshio Hagiwara
 Senior Executive Officer
 Dept. Manager,
 Corporate Planning Dept.

Koichi Irino
 Executive Officer
 Chairman and President of
 TOK TAIWAN CO., LTD.

Jun Jang
 Officer
 President,
 TOK Advanced Materials Co., Ltd.

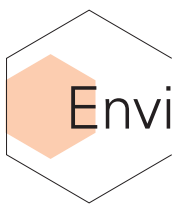
Kazufumi Sato
 Officer
 Deputy Dept. Manager,
 Research and Development Dept.

Yuichi Murakami
 Officer
 Deputy Dept. Manager,
 Manufacturing Dept.

Kousuke Doi
 Officer
 Dept. Manager, New Business
 Development Dept.

Tsukasa Honkawa
 Officer
 Dept. Manager, Process
 Equipment Manufacturing Dept.

Naoki Watanabe
 Officer
 Deputy Dept. Manager,
 Marketing Dept.

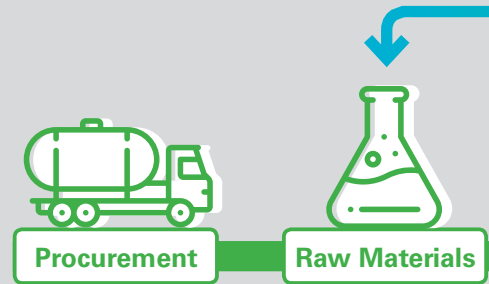


Reduction in Environmental Impact from our Corporate Activities

Environmental Performance*

TOK conducts daily quantitative and qualitative evaluation of the effects that its corporate activities have on the environment, and takes various initiatives to minimize their impact.

* Environmental performance: Environmental performance evaluation is a method of evaluating, in qualitative and quantitative terms, environmental activities and results achieved by an organization in accordance with its environmental policy, objectives and goals.



INPUT		OUTPUT	
Total energy consumed	14,527kL crude oil equivalent	CO ₂	29,000t-CO ₂
Electric power	40,220,000kWh (10,135kL crude oil equivalent)	SO _x * ¹	1.3t
Petroleum (heavy oil)	945kL (953kL crude oil equivalent)	BOD* ²	0.4t
Gas	2,880,000m ³ (3,340kL crude oil equivalent)	General administrative waste	34t (Recycling rate: 42%)
Used water	366,000m ³	General industrial waste	1,830t (Recycling rate: 34%)
Chemical substances (Class 1 Designated Chemical Substances under the PRTR Law)	1,300t	Industrial waste	Specialty controlled industrial waste 2,150t (Recycling rate: 82%)

* January 2018 to December 2018 (Chemical substances: April 2018 to March 2019)

* January 2018 to December 2018

*1 Sulfur oxides (SO_x): Produced from the combustion of fossil fuels containing sulfur. These are considered to be the causative substances of acid rain.

*2 Biochemical oxygen demand (BOD): BOD refers to the volume of oxygen required when pollutants in the water (organic substances) are turned into inorganic substances or gases through the action of microorganisms. BOD is a major indicator used when evaluating the degree of contamination of rivers and other water bodies. A higher value for BOD means that the water involved is more contaminated.

Please follow the URL below for more detailed data on environmental impact by site.

Data on environmental impact by site https://www.tok.co.jp/eng/csr/env-activity/load_data.html



Emissions of Greenhouse Gases

As climate change has become more serious in recent years, companies are expected to measure their greenhouse gas emissions from not only their own properties, but also across their entire value chain. The TOK Group measures and calculates its greenhouse gas emissions based on the Ministry of the Environment's Basic Guidelines on Accounting for Greenhouse

Gas Emissions throughout the Supply Chain within the context of emissions from business activities (Scope 1, Scope 2) and indirect emissions from non-business activities (Scope 3).

TOK will advance initiatives toward the realization of a sustainable society, identifying issues throughout its value chain where its corporate activities can have an impact.

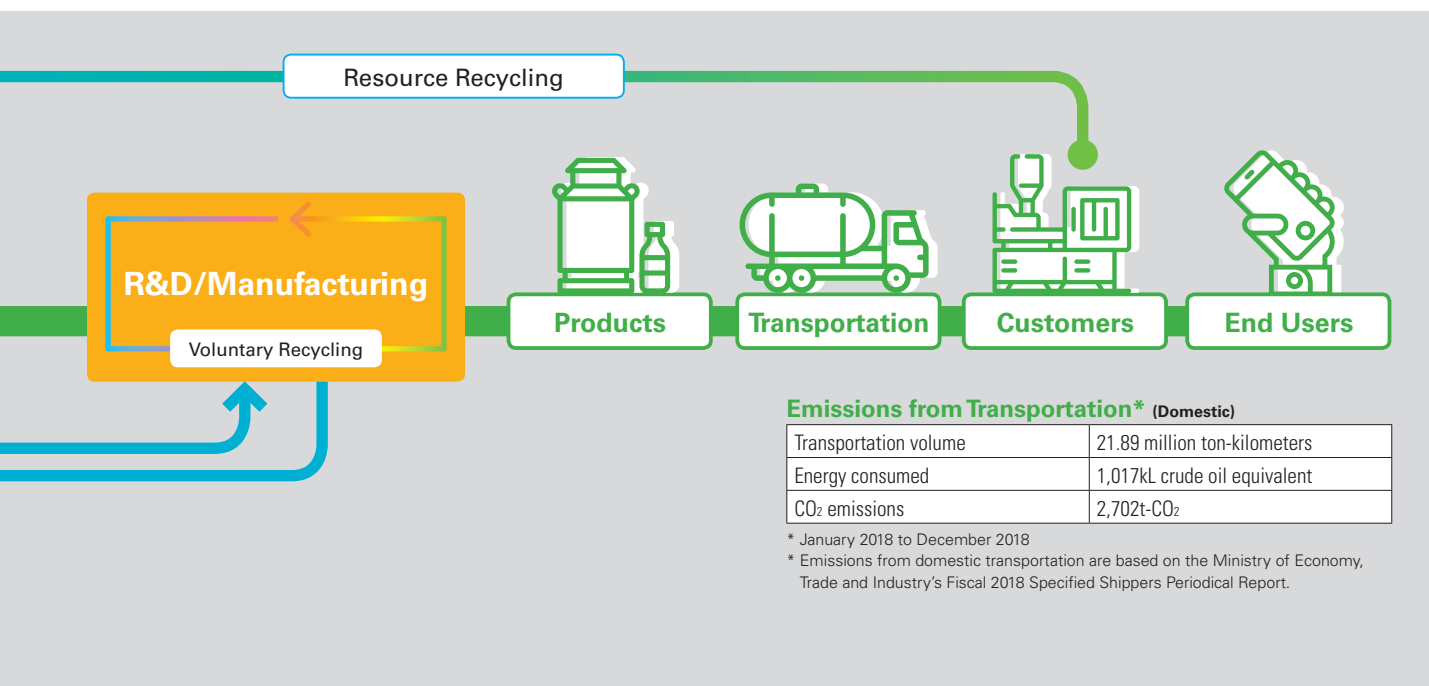
Scope 1	9,285t-CO ₂	Scope 2	20,091t-CO ₂
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Scope 3 Emissions by Category

Purchased goods and services	30,206t-CO ₂	Upstream leased assets	—
Capital goods	Not applicable	Downstream transportation and distribution	Domestic: 2,702t-CO ₂ Overseas: 3,308t-CO ₂
Fuel-and energy-related activities not included in Scope 1 or 2	—	Processing of sold products	Not applicable
Upstream transportation and distribution	Not applicable	Use of sold products	Not applicable
Waste generated in operations	6,588t-CO ₂	End-of-life treatment of sold products	Not applicable
Business travel	843t-CO ₂	Downstream leased assets	Not applicable
Employee commuting	572t-CO ₂	Franchises	Not applicable
		Investments	Not applicable

* January 2018 to December 2018 (Waste generated in operations: April 2018 to March 2019)

* Excludes people seconded to other companies.



Emissions from Transportation* (Domestic)

Transportation volume	21.89 million ton-kilometers
Energy consumed	1,017kL crude oil equivalent
CO ₂ emissions	2,702t-CO ₂

* January 2018 to December 2018

* Emissions from domestic transportation are based on the Ministry of Economy, Trade and Industry's Fiscal 2018 Specified Shippers Periodical Report.

Our Value Creation

Our Focus

Our Foundation

Data Section

Environmental Accounting*

TOK has been using environmental accounting since 2000. This allows the Company to conduct environmental management while monitoring the expenses and effects of environmental

programs. In 2018, environmental conservation expenses totaled ¥565 million, mainly for the prevention of pollution and recycling of resources.

* Environmental accounting: A system for understanding environmental conservation related investments made by, and expenses incurred by, businesses and other organizations, as well as the effects of such investments, in quantitative terms (currency or physical quantity) and communicating such information to stakeholders.

(Millions of yen)

Category		Key Initiatives	Investment	Cost
Business area cost	Pollution prevention cost	Air, water and other pollution prevention equipment and its renewal, operation, maintenance and management	0	97
	Global environmental conservation cost	Energy conservation activities	73	15
	Resource circulation cost	Melting, waste processing	0	177
Upstream/Downstream cost		Green purchasing, collection of used products	0	8
Administration cost		Approach to environmental management system	0	75
R&D cost		Research and development related to environmental conservation (costs for chemical substances screening)	0	84
Social activity cost		Cleanup activities around the production plants	0	1
Environmental remediation cost		Processing of polluted soil from new building construction	0	35
Total			73	492

* January 2018 to December 2018

Environmental Conservation Cost

Investments refer to the accounting for equipment associated with environmental conservation and improvement. Expenses are the sum of depreciation, personnel and other operating expenses associated with environmental conservation. Personnel expenses are computed based on a basic unit cost.

Economic Benefits Associated with Environmental Conservation Measures

Figures are calculated based on internally realized benefits from the sale of materials having value and from the reduction of costs.

(Millions of yen)

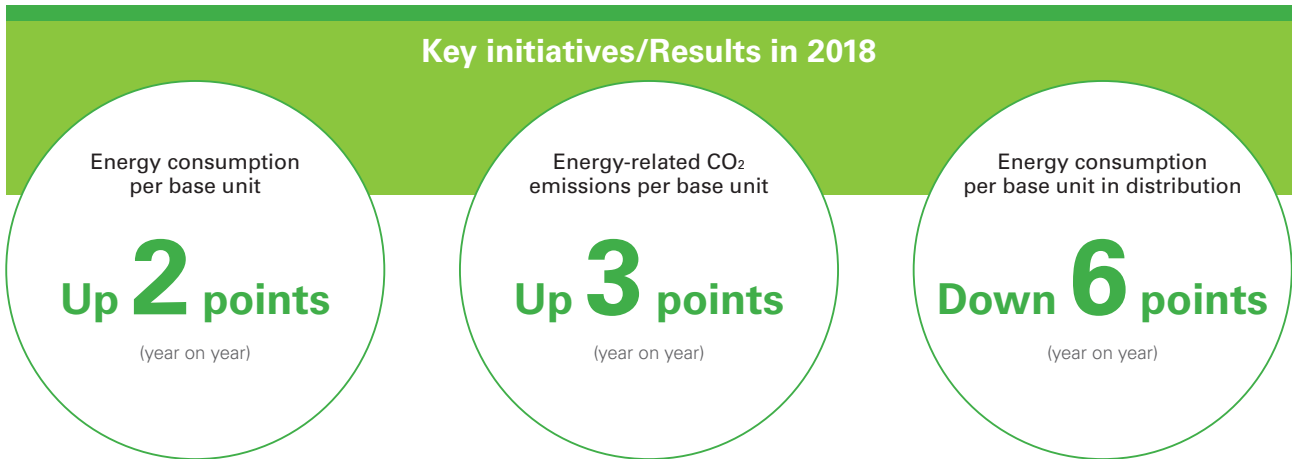
Effects		Amount
Revenue	Gains on the sale of recycled products	19
Cost savings	Reduction in disposal costs through reduction in the volume of waste	86
Total		105

* January 2018 to December 2018

*1 Scope of environmental accounting covers production facilities in Japan and distribution centers, excluding the headquarters and marketing offices. Reference used is the Environmental Accounting Guidelines 2005, published by the Ministry of the Environment.

*2 Amounts of less than one million yen have been rounded down.

Address Climate Change Issues



Basic Concept

The TOK Group quantitatively measures the environmental impact of its value chain, and works to reduce environmental burden with a full understanding of the impact our production activities have on the environment. We aim to achieve sustainable development alongside society through the development of products that help conserve resources and energy.

Improve Energy Consumption per Base Unit and CO₂ Emissions

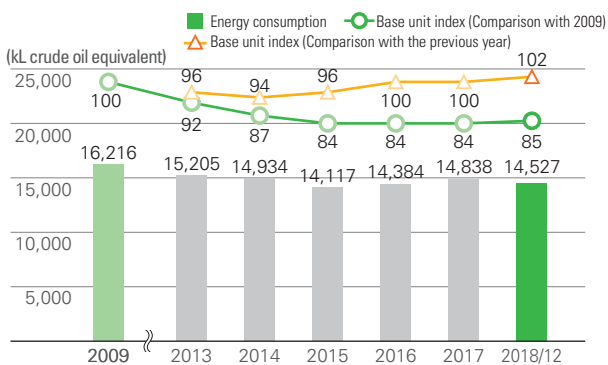
TOK strives to reduce its environmental impact by improving product manufacturing processes, work efficiency, and facility operations, upgrading to high-efficiency equipment, and enhancing and maintaining heat insulation around steam pipes.

In 2018, the amount of energy used, such as electricity and city gas, decreased 2% year on year to 14,527kL crude oil equivalent, as a result of the installation of more efficient equipment and efforts to improve work efficiency, despite factors that increase energy usage, including an increase in operating hours alongside greater production volume at our sites, the installation of new inspection equipment and the completion of a new building.

Energy consumption per base unit increased 2 points compared with the previous year, falling short of the target for the year, owing to a temporary decline in energy efficiency due to reconstruction at the Sagami Operation Center. However, we achieved our medium-term target of reducing energy consumption per base unit by 10 points by 2019 compared with the 2009 level, achieving a reduction of 15 points.

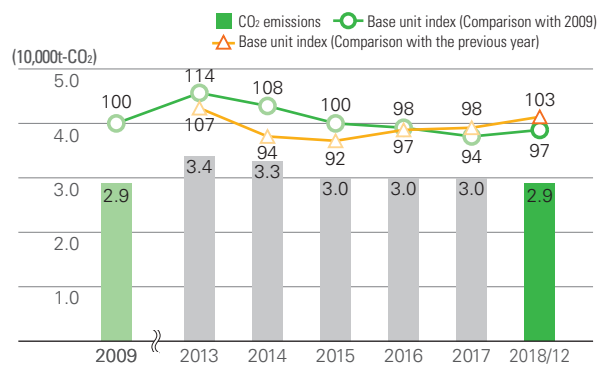
Energy-related CO₂ emissions per base unit increased by 3 points year on year, missing the target for the year, owing to an increase in operating hours for heavy oil power generators alongside expansion in production volume. Moreover, we did not reach our medium-term target for a 9-point reduction compared with the 2009 level, having only achieved a 3-point reduction.

Energy Consumption



* Changed to the total for January to December to reflect a change in the fiscal year-end (applied to data from 2009).
 * Errors have been corrected in data for 2016 and 2017.

CO₂ Emissions (Converted from Energy Consumption)



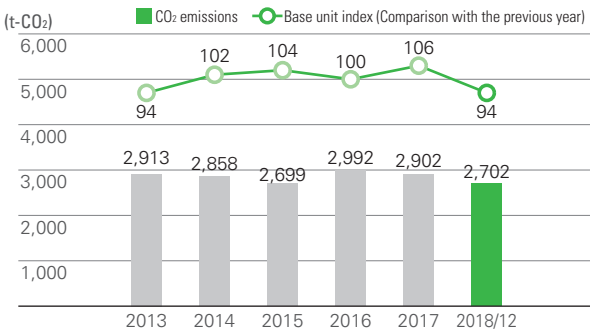
* Changed to the total for January to December to reflect a change in the fiscal year-end (applied to data from 2009).

Improve Energy Consumption per Base Unit in Distribution

In the distribution department and distribution functions at each plant, TOK is taking steps to reduce energy consumption in distribution by examining the use of lighter product containers and packaging materials, mixed loading of raw materials, intermediates and finished products on transportation trucks to reduce the overall number of trucks, and to improve loading efficiency.

In 2018, transportation ton-kilometers increased 5%, reflecting higher product shipments to overseas locations and greater movement of intermediate materials to overseas subsidiaries. However, fuel consumption declined 6% due to improvements in loading efficiency. In terms of base units, transportation ton-kilometers decreased 6 points year on year, owing to a greater percentage of trucks with high loading efficiency.

CO₂ Emissions in Distribution

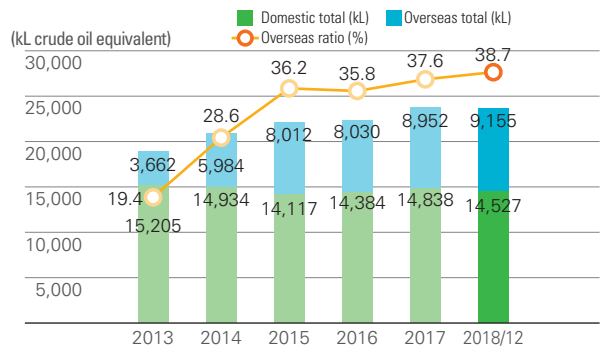


* January 2018 to December 2018

Measures to Prevent Global Warming at Overseas Manufacturing Sites

The overseas ratio of energy consumption increased again in 2018, owing to expansion in production facilities and growth in items produced at overseas sites. For this reason, TOK will engage in production activities with a focus on energy conservation through a PDCA cycle for environmental management systems.

Energy Consumption Ratio of Overseas Sites (%)



Year	Domestic total (kL)	Overseas total (kL)	Overseas ratio (%)
2014	14,934	5,984	28.6
2015	14,117	8,012	36.2
2016	14,384	8,030	35.8
2017	14,838	8,952	37.6
2018	14,527	9,155	38.7

*1 January 2018 to December 2018

*2 Errors in CSR Report 2018 regarding data for 2016 and 2017 have been corrected.

Future Issues and Initiatives

Climate change has become an urgent issue that threatens the safety and well-being of people all over the world, in both industrialized or developing countries. The TOK Group is tackling this issue by aggressively working to reduce greenhouse gases through the efficient use of energy, aiming to increase the ratio of renewable energy and use low-carbon energy sources by converting fuel from coal and heavy oil to natural gas.

TOK's Human Resource



Hideaki Hayashi

Assistant Manager,
General Affairs Office,
Gotemba Plant

Reducing Not Only CO₂ Emissions but Also Risk and Costs by Switching to Natural Gas Boilers

The Gotemba Plant switched from heavy oil boilers to natural gas boilers in August 2018 as a part of activities to reduce energy-related CO₂ emissions of the Company. The modernization of large-scale air conditioning systems in May 2017 resulted in a 7% year-on-year reduction in CO₂ emissions corresponding to the reduction in electricity used,

contributing to the overall decrease in CO₂ emissions. Underground storage tanks were removed as a result of switching to natural gas boilers and reduced the risk of leaks and management costs. We aim to increase the operational efficiency of our equipment and contribute further to reducing our environmental impact.

Promotion of Resource Recycling: Initiatives to Address Water Risk

Key initiatives/Results in 2018

Water usage
(all domestic plants)

366,000 m³

Reassessing water
drainage paths

Implemented at all domestic sites

Basic
Concept

The Group must use pure water in its products and manufacturing processes, and therefore makes a concerted effort to minimize the amount of water consumed by production activities and to maintain and improve the quality of wastewater. We aim to contribute more in this regard through business activities that consider the issue of virtual water*.

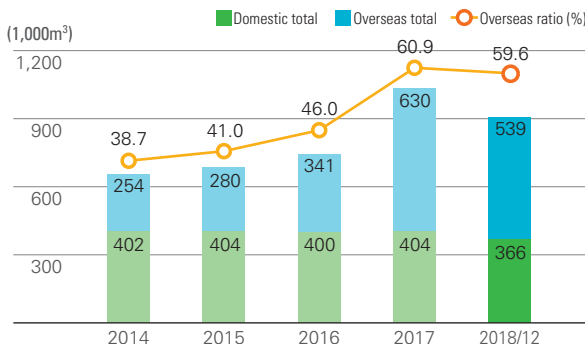
* Virtual water is an estimated amount of water consumed in the production and distribution of agricultural and industrial products, as well as the water resources necessary if imported products were instead produced in the importing country.

Water Usage Volume

Water usage volume changes when manufacturing processes and output change. TOK works to reduce usage by constantly monitoring the state of industrial water and city water usage, and reviewing related equipment.

In 2018, water usage volume in Japan decreased by 39,000m³ year on year to 366,000m³, despite an increase in production volume, thanks to efforts at recycling water in the manufacturing process for pure water that is used to manufacture other products. Overseas, even though production volume expanded, water usage declined by 91,000m³ year on year to 539,000m³, reflecting the switch to more efficient operating methods at Chinese site.

Water Usage Volume at Domestic and Overseas Sites



* Changed to the total for January to December to reflect a change in the fiscal year-end (applied to data from 2014).

Water Risk Management

Water risk is widely recognized as a serious worldwide risk, ranking among the three largest risks since 2012 in the Global Risks Report published by the World Economic Forum. To better understand water usage volume at all of its sites around the world, the TOK Group has clarified risks at each stage of water supply, raw materials supply, manufacturing processes, and wastewater emissions from plants.

Reduce Water Pollution Risks by Reassessing Water Drainage Paths

In 2018, TOK surveyed the state of water usage at all domestic sites. The Company reviewed operational methods at each stage of water usage, and attached covers for the purpose of preventing leaks, with the objective of mitigating risks at sites identified as having pollution risks in their wastewater. We will continue carrying on efforts to reduce risks.



Cover for preventing leaks

Worldwide Water Risk (0–100%) Projections for 2030

In a business-as-usual (BAU) scenario, the map shows water usage as a percentage of water supply in each region, assuming both economic growth and higher CO₂ emissions.

The higher the percentage, the more severe the competition for water as more people fight over fewer water resources.

- Low risk (under 10%)
- Low to medium risk (10–20%)
- Medium to high risk (20–40%)
- High risk (40–80%)
- Extremely high risk (over 80%)
- Water shortage

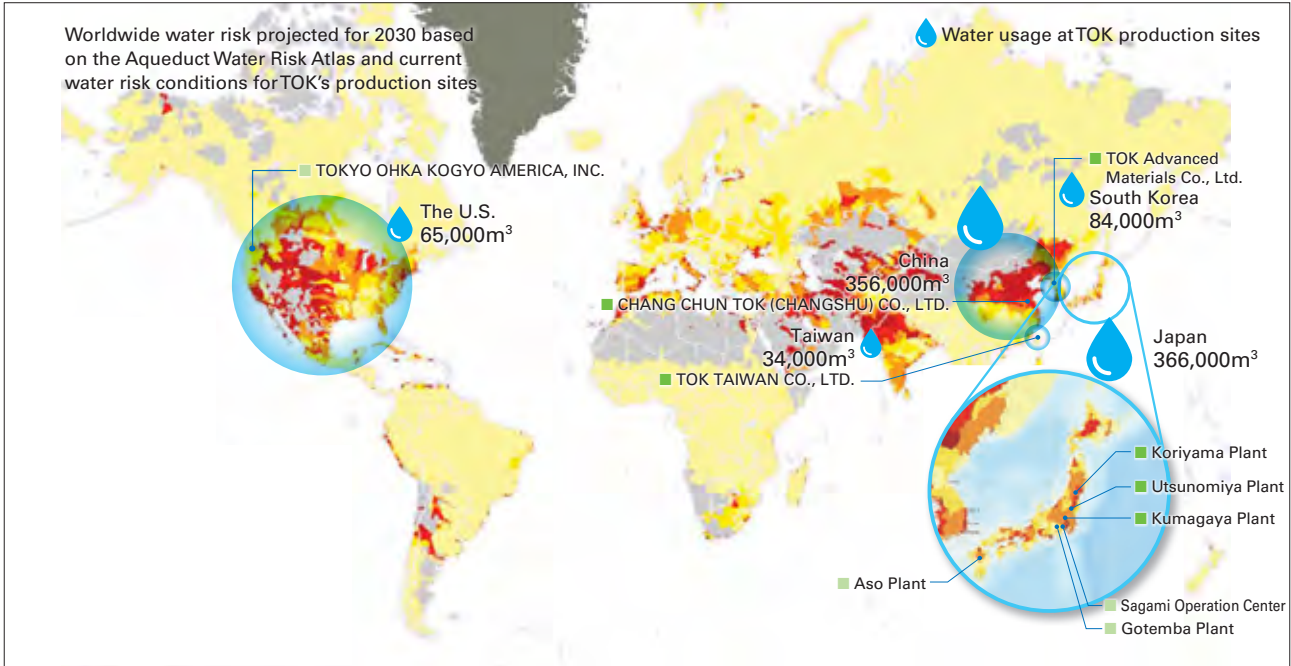
Overall Water Risk

The current degree of exposure to water risk at TOK's production sites, based on a comprehensive evaluation of Physical Risk Quantity, Physical Risk Quality, and Regulatory & Reputational Risk

- Low risk (0–1)
- Low to medium risk (1–2)
- Medium to high risk (2–3)
- High risk (3–4)
- Extremely high risk (4–5)

Business-as-Usual (BAU) scenario (RCP8.5)

The BAU scenario is one of four scenarios for representative concentration pathways outlined in the Intergovernmental Panel on Climate Change's Fifth Assessment Report. This scenario assumes no further efforts are made to suppress emissions after already introduced or currently planned measures to reduce emissions. This scenario assumes maximum emission volume among projected greenhouse gas emissions as of 2100.



Aqueduct Water Risk Atlas

Aqueduct is an interactive website tool for mapping water risk provided for free by the World Resources Institute (WRI), a thinktank in the U.S. that researches water and other natural resource problems.

Aqueduct provides data on water risk at the production sites of companies. The website also offers detailed information about natural resource problems in various regions of the world.

Future Issues and Initiatives

An assessment of the risk level of the TOK Group's manufacturing sites resulted in a "medium" risk level being identified. TOK is focusing efforts on reducing water risk while considering the balance with water usage, by examining in more detail its water usage (transfer to products, transfer to the atmosphere via evaporation, transfer to wastewater and effluents, and transfer as household wastewater).

TOK's Human Resource



Toshiya Takagi (left)
Section Manager, EHS Office, EHS Div.

Taiji Shigematsu (right)
Section Manager, Facilities Office,
Manufacturing Dept.

Advancing Initiatives to Reduce Water Usage Volume

The Company's initiatives to address water risk have in the past mainly focused on managing water usage volume while reducing the risks related to wastewater and leakages. In 2018, the Company confirmed a 30% year-on-year reduction in water usage in the pure water production equipment thanks to the introduction of a prototype recycling system, in addition to ascertaining the water balance at each domestic plant.

We intend to gather more data about water budgets and refocus on activities to reduce water usage, while setting a future target for company-wide reduction. Since equipment performance is a major determining factor in the ability to reduce water usage volume, we will work with facilities departments in charge of energy conservation activities to strike the right balance in overall water usage.

Promotion of Resource Recycling: Reducing Industrial Waste Emissions and Landfill Disposal

Key initiatives/Results in 2018

Volume of industrial waste

Down 2 points

(year on year)

Zero emissions

Achieved for five consecutive years

Basic Concept

We conduct 3R activities (reduce, reuse, recycle) for effective use of limited natural resources. By restricting the volume of waste generated, thoroughly sorting the waste by type and increasing the volume that's recycled, we are working to make more effective use of resources. We strive to maintain zero emissions* by working to reduce landfill disposal volume by processing waste products through combustion or crushing, called intermediate treatment, and through stabilization and volume reduction initiatives.

* Zero emissions: Landfill disposal volume (direct or after intermediate treatment) of less than 1% of industrial waste discharged by business activities

Reduce Industrial Waste Emissions

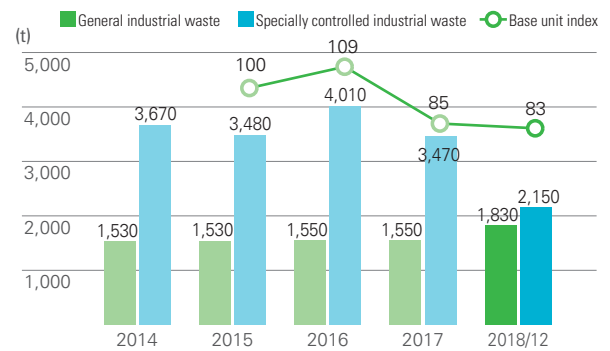
In 2016, TOK set a new medium-term target for reducing industrial waste (per base unit) by 5 points by 2020 compared with 2015 (reduction of 1 point annually). With this target in mind, TOK has been advancing activities to reduce various industrial waste, such as by refining and reusing process effluents, internal effluent processing, internal recovery, and converting waste into items of value.

In 2018, the Company proactively refined and reused process effluents, and converted into items of value, resulting in a 17-point reduction compared with 2015 and a 2-point reduction compared with the previous year.

Maintain Zero Emissions

In 2018, industrial waste subject to landfill disposal after intermediate treatment stood at less than 1% of total waste, so we have achieved zero emissions for five consecutive years.

Volume of Industrial Waste*1, *2



* Changed to the total for January to December to reflect a change in the fiscal year-end.

*1 The base unit index is calculated after adding general industrial waste and specially controlled industrial waste.

*2 We are committed to reducing the amount of industrial waste generated, and our goal is to reduce this amount by 5 points (1 point per year) by 2020, taking the index for 2015 as the base unit.

TOK's Human Resource



Takahiro Sasaki
Assistant Manager,
General Affairs Office, Aso Plant

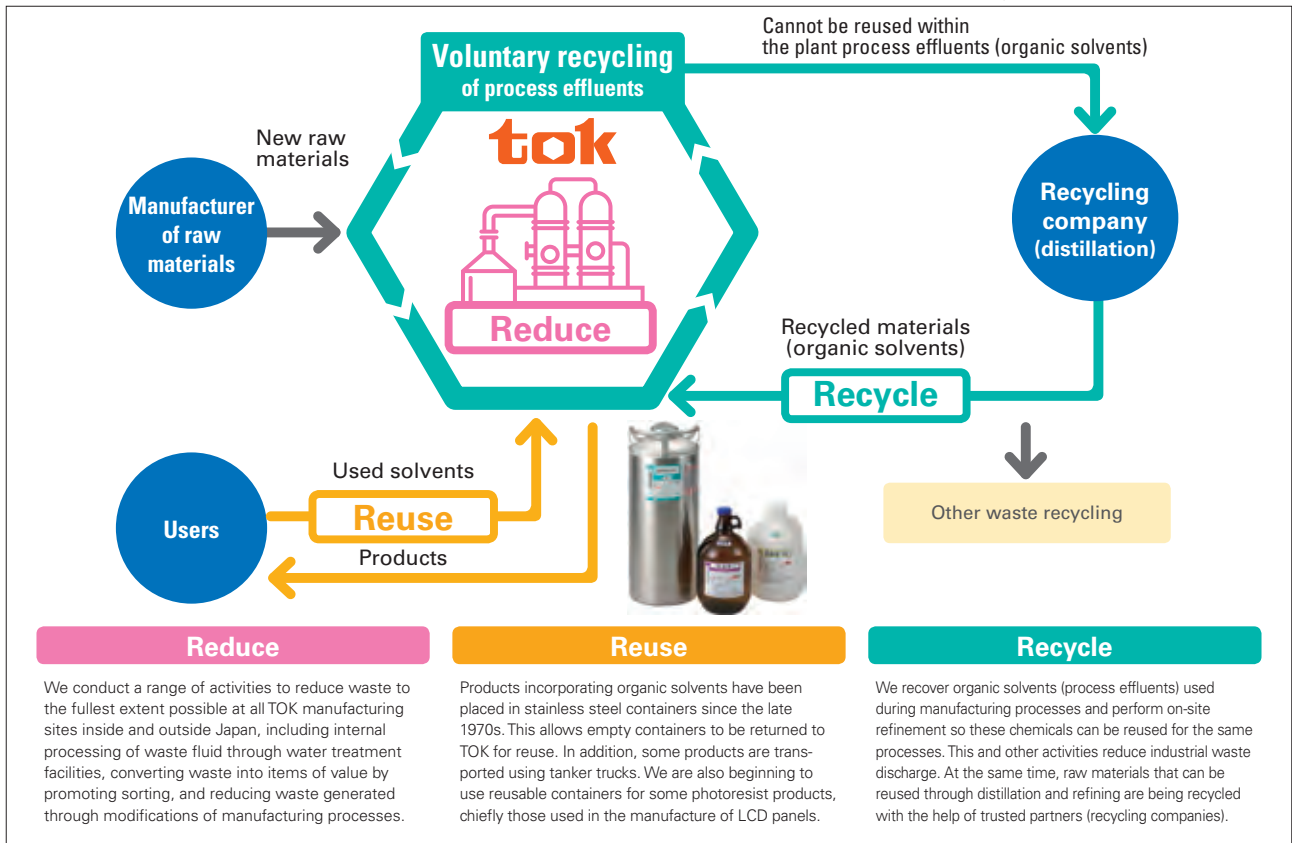
Effectively Utilizing the Earth's Resources by Repeating Basic Techniques

At the Aso Plant, we have committed to the 3Rs as the never-ending slogan for a production plant. Our efforts are focused on reducing and reusing effluents emitted from production processes and effectively utilizing them as a source of energy, for example. By precisely sorting effluents by solvent type, it is possible to recover raw materials through superfractionation. Effluents can also be processed into fuel

after making adjustments in the plant for the processor companies. In these and other ways, we have improved our recycling rate. Plastic waste is a global concern that has an impact on ecosystems, and we are stepping up efforts to sort plastic waste and turn it into a raw material again. We will continue to improve our processes and raise awareness about the environment among employees in a bid to further reduce waste.

Flow of the Organic Solvent Waste Fluid Recycling

Recycle Reduce Reuse



Reduce: This refers to reducing the volume of waste material generated. Reduction involves minimizing the volume of materials in products in order to minimize the volume of materials that is eventually discarded.
Reuse: This refers to the use of manufactured goods, containers and other products repeatedly in order to reduce the volume of waste materials generated and conserve resources.
Recycle: Recycling is the use of waste materials as a resource rather than burning these materials or sending them to a landfill. Recycling thus conserves resources and prevents pollution.

Techniques for Recycling Organic Solvent Effluents

TOK makes concerted efforts to effectively use waste emitted from its own plants. Waste oil is sorted by each type of recyclable solvent, a rating for impurities is assigned, and is analyzed whenever it is emitted. By strengthening management in this way, we are able to reuse waste oil that was previously treated as industrial waste and disposed. Waste oil with a mixture of organic solvents is blended with other waste oil of differing calories and water content to create combustion improvers. TOK will continue efforts to reduce emissions of industrial waste by effectively utilizing resources.

Developing an In-house Recycling Ecosystem

As a new initiative to reduce its environmental impact, TOK is cooperating with research institutions (companies/universities/public entities, etc.) to proactively develop new technologies. One of these initiatives is an in-house recycling ecosystem that uses new technology to process in-house waste and extract energy from this waste. This recycling ecosystem has proven itself to be cleaner than a regular combustion system in terms of gas emissions. The recycling ecosystem is still in the testing stages, and we are working hard so it can help solve the issue of climate change.

TOK's Stakeholders



Mr. Shoichiro Abe (right)
 Director, General Manager
 Kyusyu Yozai Co., Ltd.

Mr. Takashi Shoji (left)
 Manager, General Affairs Department
 Kyusyu Yozai Co., Ltd.

Starting Communication about Further Evolving Activities

Our main business is to supply recycled materials to raw material manufacturers like TOK. We receive effluents and used solvents from companies in the electronics industry and refine them for reuse through a distillation process. These efforts contribute to the development of a recycling-based society by reducing emissions of industrial waste.

In recent years, the electronics industry has started to demand the reduction of impurities in products as measured in the ppt level*1. To meet these stricter customer requirements, we are focusing our energies on working with TOK to regularly exchange

information and cross-check quality. Recently, we have started a conversation about further evolving these activities, such as examining measures to reduce waste volume through the distillation and refining of effluents.

As an associated company*2, we aim to contribute to maintaining zero emissions, reducing environmental impact, and the recycling of resources for the TOK Group, while receiving guidance from TOK and sharing knowledge between the two companies.

*1 1ppt = 1 part per trillion

*2 An associated company not accounted for by the equity method

Air, Water and Soil/Biodiversity



Basic Concept

The Group takes steps to lighten its environmental impact through reductions in greenhouse gases* and chemical substance emissions by upgrading equipment, switching fuels, and reviewing manufacturing processes to preserve the air, water, and soil environments upon which our livelihoods depend. Also, we formulated the TOK Biodiversity Protection Declaration and are working to raise employee awareness of the issue.

* Greenhouse gas: Gas in the atmosphere that allows sunlight to pass through but absorbs infrared rays emitted from the ground and sea. These gases are believed to cause global warming.

Prevent Air, Water and Soil Pollution

• Reducing emissions of air-polluting substances

TOK has been converting its boilers to use natural gas to reduce emissions of sulfur oxide (SOx) and nitrogen oxide (NOx) that are major contributors to air pollution. In 2018, boilers at the Gotemba Plant were converted to natural gas boilers. This marks the completion of the conversion of boilers to city gas boilers at all of our plants, with the exception of two plants without access to city gas supplies.

In 2018, SOx emissions related to business activities were reduced by 0.1 tons year on year to 1.3 tons, thanks to the conversion to natural gas boilers at the Gotemba Plant. NOx emissions increased by 2.3 tons year on year to 10.1 tons, reflecting longer operating hours of electric power generators.

• Monitoring soil pollution

The TOK Group manages the risk of soil and underground water pollution with the recognition of concerns that such pollution could threaten the safety and health of local residents and employees. In the event that surveys discover soil or underground water pollution, the Company will rapidly disclose information and take remedial actions to ensure the health and safety of local residents. The Company will also report to relevant government agencies the status of pollution and measures being taken to prevent the pollution from spreading. To prevent soil and underground water pollution from spreading to nearby areas, we will continue activities to avoid pollution risk by properly conducting soil surveys in accordance with laws and regulations.

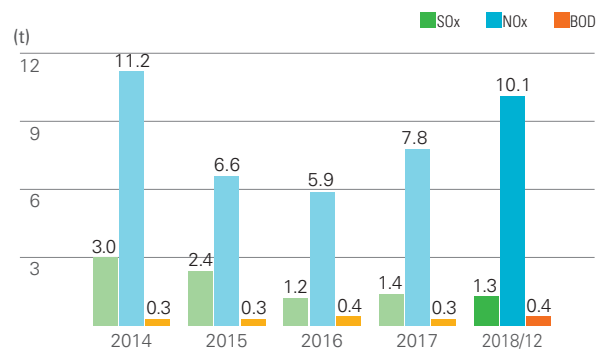
• Reducing emissions of water-polluting substances

TOK has set its own management standards for treating wastewater from its sites that are stricter than regulations in laws and local ordinances for purifying wastewater, such as activated sludge processing, at its process wastewater treatment facilities. Only water that satisfies standards for cleanliness is released into the public water system.

The Company also periodically evaluates water quality for compliance with its own standards as well as laws and regulations. In 2018, there were zero incidents where water quality did not meet its own standards or required values set by laws and regulations. TOK will continue its efforts to reduce emissions by maintaining and managing its process wastewater treatment facilities so water can be released after satisfying applicable standards.

BOD emissions in the water discharged into public waters in 2018 were approximately 0.4 tons. This was the same level as in the previous year.

SOx/NOx/BOD Emissions



* Changed to the total for January to December to reflect a change in the fiscal year-end.

Countermeasures against Ozone-depleting Substances

The TOK Group uses ozone-depleting chlorofluorocarbons, such as CFC-11 and CFC-12, as coolants for refrigerators and freezers. The entire Group is working diligently to reduce CFC volume and switch to alternative coolants. The revised Act on Rational Use and Proper Management of Fluorocarbons mandates regular inspections and reporting leakage volume, and TOK is updating its environmental system for the proper management, filling and disposal of CFCs. As a result of taking appropriate measures, TOK's estimated leakage of CFCs in 2018 was approximately 23t-CO₂ based on the Act.

TOK will continue to conduct group-wide inspections such as periodically replacing fire extinguishing equipment that uses ozone-depleting substances with the aim of further strengthening management to prevent any noncompliance with laws and regulations.

* Data collection period: April 2018 to March 2019

Comply with PRTR Law

Under the Japanese Pollutant Release and Transfer Register (PRTR) Law, companies are obligated to manage and report to the government the production, release and transfer of designated chemical substances. To accurately calculate and report these figures, TOK relies on its chemicals and PRTR management system.

Of the Class I Designated Chemical Substances, a list of 462 substances defined by the PRTR Law, TOK handled 41 substances (a total of 1,300 tons) in 2018, and the Company estimates 2 tons were released into the atmosphere and public water systems. TOK works to measure emissions of VOCs and harmful air-polluting substances through PRTR surveys with the Japan Chemical Industry Association, of which it is a member.

* Data collection period: April 2018 to March 2019

Preserve Biodiversity

The TOK Biodiversity Protection Declaration guides the TOK Group's activities to preserve biodiversity. A total of 208 employees have participated in biodiversity training so far. In 2018, six employees were dispatched to help with afforestation projects alongside local residents through the Kanagawa Trust Midori Foundation. We will continue to conduct these basic activities to preserve biodiversity with the intention of starting a ripple effect inside and outside the Company, spreading them throughout society.

Preserve biodiversity

TOK Biodiversity Protection Declaration

1. We will position biodiversity protection as one of management's highest priorities and strengthen protection activities for the global environment.
2. We will work to continually reduce our environmental impact through our production activities, our development and provision of products and services, and in coordination with the supply chain, thereby working to protect biodiversity.
3. We will strive to enhance activities by educating employees on a regular basis and facilitating recognition and a correct understanding of the importance of biodiversity protection.
4. We will continually conduct social contribution activities for environmental protection to earn the esteem and trust of society.
5. We will announce the results of initiatives and promote communication with the general public.

Examples of Activities

- ▷ Develop green processes and green products
- ▷ Improve energy efficiency and promote resource recycling and 3R activities
- ▷ Assess environmental impact in new plant construction or extension plans and take measures
- ▷ Reduce environmental impact through activities to reduce waste
- ▷ Control diffusion into the environment of substances that readily accumulate and do not easily biodegrade through appropriate management of chemical substances

Future Issues and Initiatives

TOK has engaged in a variety of activities to reduce emissions of air-polluting substances, cut emissions of water-polluting substances, and mitigate ozone-depleting substances. A common refrain in all of these categories is that unless we operate the equipment correctly on a constant basis, the installation of high-performance equipment is meaningless. With the belief that properly maintaining and managing the facilities and equipment is just as important, we will carry on with activities to preserve air, water and soil environments.

TOK's Human Resource



Tadao Sato

Assistant Manager,
General Affairs Office, Aso Plant

Unique Initiatives to Preserve the Magnificence of the Natural Environment

The Aso Plant is located inside the Aso-Kuju National Park in Kumamoto Prefecture, which extols the benefits of living next to abundant water resources. Its production activities take place in a magnificent natural environment. To preserve such bounty in the natural environment, we have prioritized activities to reduce the risk of environmental accidents as much as possible, such as by installing shutoff valves in water drainage paths and other unique initiatives, with the

objective of preventing damage from spreading when a leak of harmful substances occurs. When discharging wastewater from oil retaining walls and catch basins with pits for piping, we only release water after analyzing the water for hazardous substances and confirming zero problems will occur. In these and other ways, we make our utmost effort to reduce the risk of environmental pollution, and will continue carrying on activities to protect the environment.



Strengthening Activities Related to Product Responsibility and Product Stewardship

Key initiatives/Results in 2018

Accurately evaluated chemical substance risks in a timely fashion and properly managed these risks

Advanced disposal of PCB waste at three sites

Improved supplier engagement

Basic Concept

One of the international trends in the management of chemical substances over the past few years, managing chemical substances on a risk basis has become the norm following the agreement on 2020 targets* at the 2002 World Summit on Sustainable Development in Johannesburg, South Africa. As one of its management principles, TOK has identified its responsibilities to local communities and communities around the world within the context of working to reduce its impact on the environment, including combating global warming, managing chemical substances, effectively utilizing resources, and reducing waste. In other words, TOK is strengthening activities related to product stewardship.

* WSSD 2020 Target: Aim to achieve by 2020 the use and production of chemical substances based on methods to minimize significant adverse effects on human health and the environment, using transparent science-based risk assessment procedures, taking into account the precautionary approach.

Carry Out Appropriate and Reliable Management of Chemical Substances

TOK is working to establish a system for properly conveying data about chemical substances throughout the supply chain as part of its product stewardship activities, a key pillar in Responsible Care. Timeliness and accuracy of information are vital when conveying data about chemical substances. "Upstream management" is very important for the timely and accurate receipt of information about chemical substances from upstream suppliers. In addition to the information about chemical substances received from these suppliers, TOK must obtain and manage the latest information about chemical substance regulations in each country and display information on product safety data sheets (SDS) and labels to present its customers with accurate relevant information about chemical substances in a timely manner.

With a focus on strengthening its upstream management system in 2018, as its first initiative, TOK endeavored to improve the management of raw materials. In the past, we used email to communicate with suppliers to confirm whether materials contain substances subject to assessment when related laws and regulations and treaties are revised. However, email was not very efficient and became a cumbersome administrative burden. We decided to use a supplier survey system to gather responses to our questions, and the responses are automatically reflected in data on product composition, allowing us to provide our customers with relevant information more

efficiently and rapidly. As another initiative, we worked to improve product composition management. We markedly improved the speed for assessing products under development by including these items in a database that previously only included the compositions of mass-produced products. TOK will continue striving to ensure accurate information about chemical substances is rapidly provided to stakeholders.

Properly Comply with PCB Special Measures Act

In 2018, TOK properly stored and managed waste containing PCBs* in accordance with prescribed storage standards at three sites comprising the Sagami Operation Center, Shonan Operation Center, and Gotemba Plant, while also filing reports with the government authorities. The Company has disposed 82% of the high-concentration PCB stored at the Sagami Operation Center. Looking ahead, TOK must dispose of all electrical substation facilities and related waste used and stored at all of its sites by the legally mandated deadline of 2027. The Company intends to dispose of this waste in stages by drawing up plans to update equipment in a way that does not interfere with business activities.

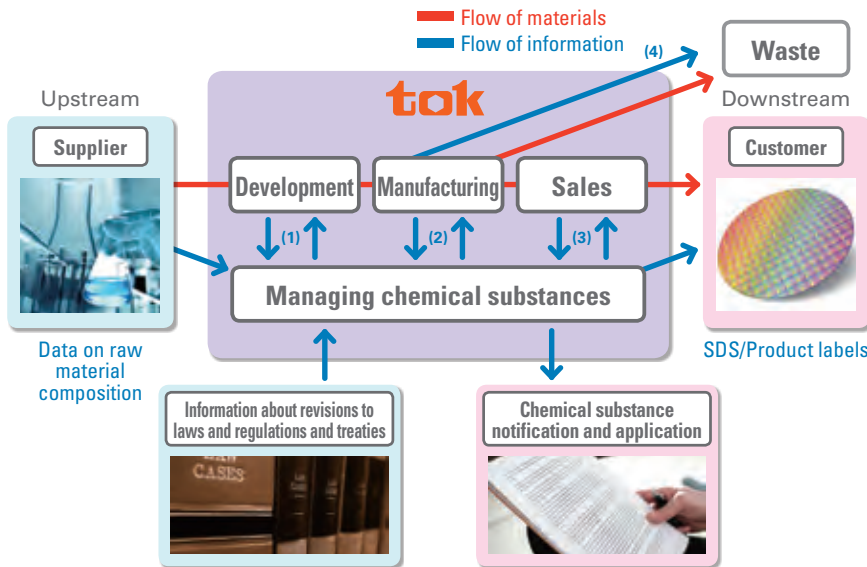
* Polychlorinated biphenyl (PCB): A kind of organic compound, PCB was formerly used for thermal media, insulating oils, paints and other applications because it excels in terms of heat resistance and electrical insulation. However, due to its poor degradability and high toxicity, PCB production was discontinued in 1972. Nevertheless, little progress has been made with regard to its disposal, and managers responsible for its storage are required to place it under strictly controlled conditions.

Chemical Substance Risk Management in the Supply Chain

To properly manage chemical substance risk in the supply chain, it is necessary to provide information in accordance

with the flow of materials. For each stage of development, manufacturing, sales, and disposal, TOK has created procedures for complying with laws and regulations and managing risks.

Flow of Chemical Substance Risk Management in the Supply Chain



(1) Development stage

For raw materials used in newly developed products, the Company has put in place a system for complying with legal requirements and ascertaining the existence of regulated substances under laws and regulations and treaties including chemical substance management laws and regulations in each country, the REACH regulation^{*1} or other laws governing conflict minerals^{*2}, etc. Moreover, the Company has created the TOK Group Standards on Chemical Substances Management, which define the chemical substances that are prohibited or should be managed, and works to reduce their use if standard thresholds are exceeded by proposing alternative plans.

(2) Production stage

All raw materials used to manufacture products are subject to occupational health and safety risk assessments. The Company identifies hazardous factors in the production environment, clarifies the hazard level, implements measures to mitigate and eliminate the hazardous factors based on their risk level, and then takes action to lower the risk. In this way, TOK maintains a proper work environment for its employees.

(3) Sales stage

TOK has connected its ERP system, which manages product shipment volumes, and its chemicals and PRTR management system, which manages chemical substance composition, to create a framework for automatically calculating the volume of chemical substances transferred. With this framework, TOK is able to appropriately report chemical substance volumes and apply for their usage in accordance with the Chemical Substances Control Law^{*3} and the PRTR Law^{*4} in Japan, as well as the laws and regulations of the countries that import its products.

(4) Disposal stage

Waste from each site is thoroughly sorted by type and recycled, and properly disposed when necessary. For waste disposal companies contracted to dispose the waste, TOK provides information about the type of waste handling precautions through Waste Data Sheet (WDS). The Company periodically visits the waste disposal companies to perform on-site audits and ensure waste is being disposed properly in accordance with contractual agreements.

*1 REACH regulation: Registration, Evaluation, Authorization and Restriction of Chemicals. This is an EU regulation that manages the registration, evaluation, and accreditation of chemical substances through an integrated system, with the aim of ensuring complete fulfillment of responsibility on the producers' part, as well as thorough compliance with preventive principles.

*2 Conflict minerals: Refer to four types of minerals including tin, tantalum, tungsten, and gold mined in the Democratic Republic of the Congo and adjoining countries experiencing armed conflicts. These minerals are regulated under the U.S. Dodd-Frank Act (financial regulatory reform act).

*3 Chemical Substances Control Law: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

*4 PRTR Law: Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

TOK Group Standards on Chemical Substances Management

To promote initiatives related to reducing environmental impact, we are focusing on managing chemical substances during the raw material procurement stage. In January 2005, we formulated the TOK Standards on Chemical Substances Management, which specifies chemical substances to be prohibited or managed. Since then, we have revised the Standards multiple times to comply with the most recent laws, ordinances, and regulations, including the EU REACH regulation and conflict minerals regulated under and the U.S. Dodd-Frank Act (financial regulatory reform act).

In the seventh edition the Company issued in May 2017, we renamed it the TOK Group Standards on Chemical Substances Management, and clarified regulations for chemical substances at Group sites and customer requirements for the environmental management of substances, as well as completely reviewed the chemical substances subject to management. The TOK Group Standards on Chemical Substances Management are used as a tool for obtaining data on chemical substances from suppliers, and by sharing information through the supply chain, we will continue to properly manage chemical substances within the context of risk management.

Future Issues and Initiatives

In countries that have registration systems for new chemical substances, companies are often required to file information about the application of these substances and the importer/exporter. Customers for the Company's products have shifted overseas, making it more complex and complicated to keep track of distribution channels for chemical substances, and this has turned into a burdensome workload. By automating work that had been done manually, we aim to lighten workloads while examining ways to improve accuracy and speed at the same time. TOK plans to develop and start testing this system in 2019 with the aim of deploying it in 2020.

TOK's Human Resource



Toru Miyano

Section Manager, Chemical Substance Management Office, EHS Div.

Building Stronger Relationships with Overseas Subsidiaries, Endeavoring to Reliably Supply Products

The Chemical Substance Management Office must constantly stay abreast of the latest requirements in laws and regulations to fulfill its mission of rapidly and accurately conveying information about chemical substances to stakeholders. Around the world, chemical substance management is being strengthened. In South Korea and Taiwan, laws and regulations are scheduled for revision by 2020. To avoid

any interference with product deliveries after these laws are revised, TOK is making preparations in advance, and obtaining the latest information through its subsidiaries in both countries. This is also one outcome of the Group Management System (GMS) that has been promoted since 2016. We are endeavoring to stably supply products by continuing to build even stronger relationships with overseas subsidiaries.



Occupational Health and Safety/ Reducing Risks Posed by Chemical Substances

Key initiatives/Results in 2018

Implemented environmental safety training, including preventive measures and sensory training

Reduced risk in handling chemical substances

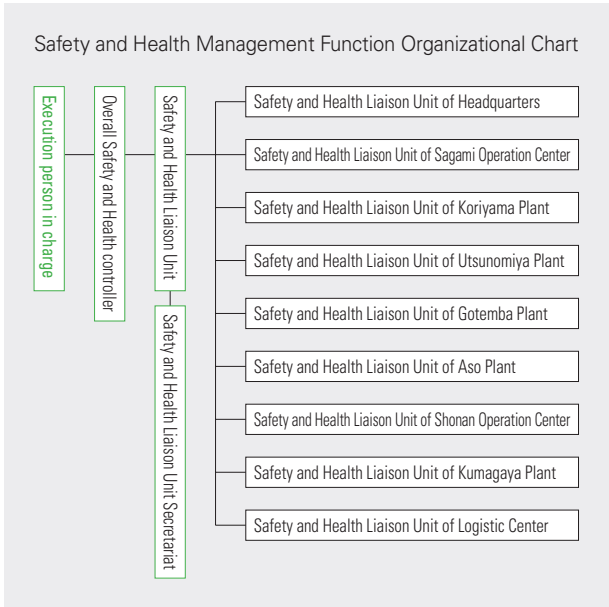
Basic Concept

In its initiatives for occupational health and safety, TOK conducts various activities to prevent accidents based on the annual action plan of the Safety and Health Committee. For company-wide issues that a single site cannot address on their own, the Safety and Health Liaison Unit, with the Human Resources Div. at the Headquarters as a secretariat, is in charge of finding solutions. The Safety and Health Liaison Unit shares information about the state of occupational health and safety measures that must be horizontally developed across all sites. Based on this organizational structure, the Company advances activities to prevent injuries and fire accidents caused by chemical substances, as well as severe injuries caused by machinery or heavy objects. In the event of a workplace accident, TOK takes thorough countermeasures to improve safety and rolls them out horizontally across the organization.

Implement Preventive Measures Based on Actual Occupational Accidents

TOK has established Safety and Health Committees at each site in accordance with the Industrial Safety and Health Act, and has created the Safety and Health Liaison Unit to oversee company-wide activities. The Department Manager of the General Affairs Dept. is the execution person in charge of the Safety and Health Liaison Unit, which shares information across sites and promotes company-wide occupational health and safety initiatives. We are focusing efforts on further reinforcing the occupational health and safety system to obtain ISO 45001 certification, which was published in March 2018, with the aim of reducing business continuity risk due to workplace accidents, while seeking to improve the level of occupational health and safety.

In 2018, TOK selected a leader to promote safety at each plant, and conducted safety inspections of all plants as a part of corrective measures following workplace accidents that occurred that year. Through these inspections, TOK identified company-wide problems and reconciled them with required levels of safety measures. The Company defined common safety standards for the entire Group, in addition to improving equipment and revising work procedures based on safety standards at each site.



Implement Emergency Response Training/ Environmental Awareness Training/ Guideline Training for Accident Prevention

TOK operates environmental management system at each site, and periodically conducts drills for responding to emergencies and natural disasters, such as earthquakes, based on potential scenarios it has clarified for emergency situations. At each of the Company's sites, many workers from third-party vendors are often engaged in construction or maintenance of machinery. In 2018, TOK began to draw up its Third-party Vendor Management Guidelines as a common set of rules for the entire Company to prevent environmental accidents and workplace injuries when people from third-party vendors perform work. In 2019, TOK will officially release these guidelines, and create detailed rules for each site to prevent accidents and injuries.



Training in Koriyama Plant

Initiatives for Reducing Risk in Handling Highly Corrosive Chemical Substances

TOK uses chemical substances with corrosive properties in the manufacture of semiconductor-related products. In 2018, the Company reassessed its production lines and work procedures based on lessons learned from accidents caused by such chemical substances. TOK also made concerted efforts to improve the level of safety, sharing information about safety measures among sites that use the same chemical substances. In 2019, the Company plans to ascertain the suitability of the safety measures it has implemented on its own and identify any potential sources of danger with the objective of further improving the level of occupational health and safety. To this end, TOK plans to have a third-party institution conduct a health and safety audit.

Prevention of Workplace Accidents

Safety and Health Committees at each site are in charge of activities to prevent workplace accidents at their sites, and periodically hold training sessions and drills for employees. The Safety and Health Liaison Unit prepares manuals for emergency safety measures in the event of workplace accidents, completing an appropriate response system.

In 2018, there were two accidents resulting in lost working days. We will continue to make concerted, company-wide efforts to prevent workplace accidents, to achieve our goals of "zero accidents" as well as "zero accident risks."

Future Issues and Initiatives

TOK has already obtained ISO 9001 and ISO 14001 certifications, and is examining the acquisition of ISO 45001 certification for occupational health and safety management systems, a third type of management system. ISO 45001 was issued in March 2018, and JISQ 45001 was published in September 2018. Across the industry, more companies are likely to seek out these certifications. If a workplace injury or accident occurs during production activities, TOK could incur significant costs to clean up the aftermath and take corrective actions, which could severely impede production activities. By introducing an occupational health and safety management system, TOK will reinforce the creation of workplaces where employees can work in safety and good health, while preventing workplace accidents before they occur.

TOK's Human Resource



Takashi Aoki

Engineer, EHS Office, EHS Div.

Aiming for Zero Environmental Accidents and Zero Workplace Accidents by Improving the Level of Safety

TOK handles a large volume of chemical substances in the manufacture of semiconductor-related products such as photoresists. Some of these chemical substances are hazardous or poisonous, requiring adequate attention when handling them. At its plants, the Company is vigorously improving safety measures by reviewing manufacturing equipment and work procedures based on lessons learned from past accidents. The occupational health and safety

management system (ISO 45001) the Company plans to introduce in the future could be integrated with its existing environmental management system (ISO 14001). We believe this would create a more efficient system while improving the level of environmental preservation and occupational health and safety, aligning with our aim for zero environmental accidents and zero workplace accidents.



Stakeholder Communication

As a member of society, the TOK Group will continue to create value and help address social issues while engaging in dialogue with stakeholders to gain insight into their expectations for the Group.

Dialogue about the Environment and Safety

Number of participating employees

531

(As of December 31, 2018, total)



TOK strives to heighten consciousness of the environment and safety among employees and interact more with local residents through conducting activities such as cleaning up the surrounding areas and raising awareness of transportation safety in their communities at each domestic manufacturing site.

In the fiscal year ended December 31, 2018, employees participated in activities including cleaning areas around their sites, donating blood, and improving awareness of traffic safety among local residents around the Gotemba Plant. Employees also help afforestation activities with Kanagawa Prefecture residents through the Kanagawa Trust Midori Foundation, which works to preserve water resources and the environment in Kanagawa Prefecture where our Headquarters is located.

Dialogue for the Development of Science

Grant programs

77 grants
¥31.84 million

(Grants provided in 2018 through the Tokyo Ohka Foundation for The Promotion of Science and Technology)



TOK contributes to the advancement and development of science and technologies through the Tokyo Ohka Foundation for The Promotion of Science and Technology. Established by our founder Shigemasa Mukai, the Foundation was founded on his philosophy that the development of Japan, a nation with few natural resources, depends on the development of innovative technologies from advances in fundamental research, and the application of these technologies in industry will lead to peace and prosperity for humanity. With the aim of contributing to the invigoration and advancement of science and technology around the world, the Foundation provides four grant programs and bestows one award.

Dialogue with Local Communities

Number of visitors

Approx. 1,500

(FY2018/12)



In creating shared value with society, TOK focuses on cooperating and collaborating with local communities, as well as building relationships based on trust. The Company proactively engages in social contribution activities around its business sites. During the fiscal year ended December 31, 2018, TOK held its 32nd Noryosai (summer festival) at the Company's housing complex and dormitory adjacent to the Shonan Operation Center as a venue to communicate with local residents and business partners. At the Gotemba Plant, we invited local children and their families to a Living Nature Observation Tour at the Dragonfly Pond, the plant's biotope. At the Koriyama Plant, many employees participated in the 21st Nikokai* Noryosai (summer festival). Through these initiatives, TOK will continue to encourage communications with local communities.

* An abbreviation for the Koriyama Seibu No. 2 Industrial Park Industry Association to which the Koriyama Plant belongs



Data Section

Data Section

- 106** Trends of Key Data and Analysis
- 116** Consolidated Financial Statements
- 121** Shareholder Value
- 122** Global Network
- 124** Third-Party Verification Report
- 125** Corporate Information/External Evaluation

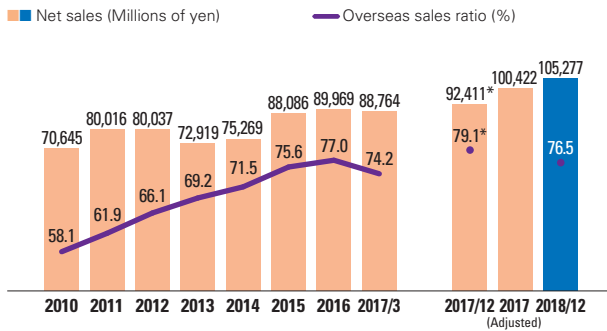


Trends of Key Data and Analysis

10-Year Financial Highlights

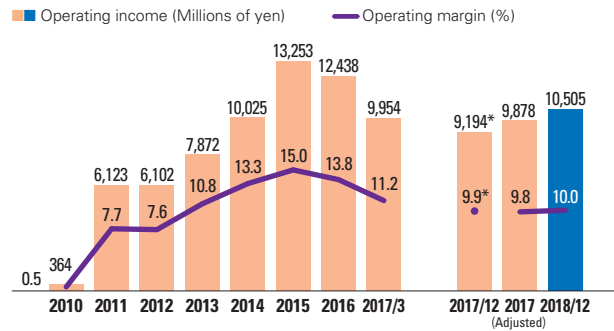
Net sales/Overseas sales ratio*

¥105,277 million **76.5%**



Operating income*/Operating margin

¥10,505 million **10.0%**

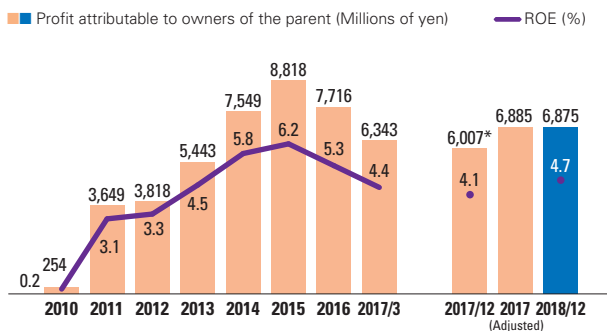


As a result of sales growth in core products for overseas customers in the U.S., South Korea, and Taiwan, the overseas sales ratio held steady at around 75%. Although TOK recorded its first operating loss since going public in the fiscal year ended March 31, 2009, soon after the collapse of Lehman Brothers, the Company has maintained a certain level of profits since the fiscal year ended March 31, 2011. In the fiscal year ended March 31, 2015, TOK achieved record-high operating income as a result of making large-scale strategic investments, concentrating on growth in cutting-edge materials for semiconductors, strengthening its strategy of building close relationships with customers overseas, and reshaping its business portfolio under the “TOK Medium-Term Plan 2015” that started in the fiscal year ended March 31, 2013. Under the “TOK Medium-Term Plan 2018” that started in the fiscal year ended March 31, 2017, net sales expanded in tandem with growth in the semiconductor market, but profit growth stalled due in part to an increase in depreciation and amortization that reflected heavy investments. Under the “TOK Medium-Term Plan 2021” that started in the fiscal year ending December 31, 2019, TOK is keen to record a new record high in profits by concentrating on strengthening business portfolio reforms and returning to a growth trajectory.

* Due to a change in fiscal year-end, the fiscal year ended December 31, 2017 was an irregular nine-month period in Japan, and 12 months overseas.

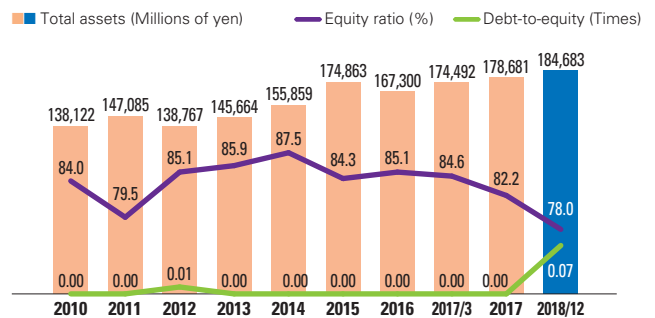
Profit attributable to owners of the parent*/ROE

¥6,875 million **4.7%**



Total assets/Equity ratio/Debt-to-equity

¥184,683 million **78.0%** **0.07 times**



Under the “TOK Medium-Term Plan 2018,” we have set a numerical target for ROE and are working to increase it by capturing high-quality profits through business portfolio reforms, attaining top-line expansion and a higher total asset turnover ratio, as well as considering review of the D/E ratio. As a result, ROE has stayed on an uptrend. Under the “TOK Medium-Term Plan 2021,” the Company targets ROE of 8% or higher with profit growth continuing to be a driver, while enhancing its responsiveness to changes in the increasingly challenging business, investment, and financial environments.

As a long-run R&D-driven company that continues to target niche top markets, TOK’s basic policy is to maintain sufficient cash reserves to compete in development with larger rivals and facilitate agile investments. The equity ratio has stayed at around 85%, but should gradually start to decline as a consequence of long-term debt financing, better shareholder returns, and one of the largest share buybacks the Company has undertaken, under balance sheet management that began during the “TOK Medium-Term Plan 2018.”

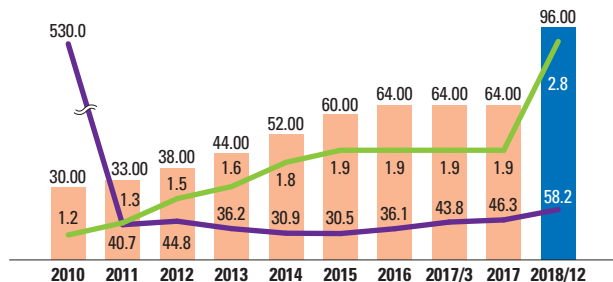
* Due to a change in fiscal year-end, the fiscal year ended December 31, 2017 was an irregular nine-month period in Japan, and 12 months overseas.

Dividends applicable to the year per share/Payout ratio/DOE

¥96.00

58.2%

■ Dividends applicable to the year per share (Yen) — Payout ratio (%) — DOE (%)



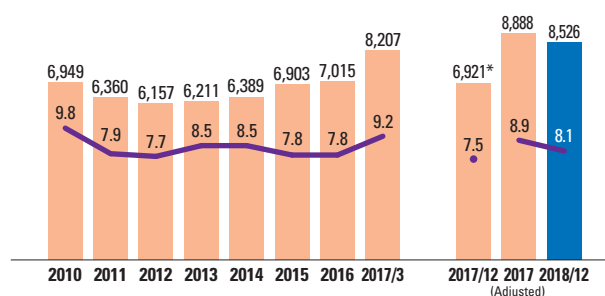
Until the fiscal year ended March 31, 2016, our basic policy targeted a consolidated dividend payout ratio of at least 30%. In the fiscal year ended March 31, 2017, we changed to a policy that targets a sustained dividend at a consolidated payout ratio of at least 40% while taking current levels into account. TOK has introduced a new dividend policy that targets DOE of 3.5%, beginning with year-end dividends in the fiscal year ended December 31, 2018 (see pages 52–55 “Message from the CFO”).

R&D costs*1/Ratio of R&D costs to net sales

¥8,526 million

8.1%

■ R&D costs (Millions of yen) — Ratio of R&D costs to net sales (%)



TOK’s spending on R&D is equivalent to roughly 8% of net sales, much higher than the averages of 2.7%*2 for the chemical and petroleum industry and 4.0%*2 for the electrical equipment and precision machinery industry. The Company intends to increase development efficiency, even while R&D costs are on the rise for the development of high value-added materials and production technologies, and increase in the supply of samples for cutting-edge semiconductor fields (see pages 42–43 “Message from the Director in Charge of Research and Development”).

*1 Due to a change in fiscal year-end, the fiscal year ended December 31, 2017 was an irregular nine-month period in Japan, and 12 months overseas.

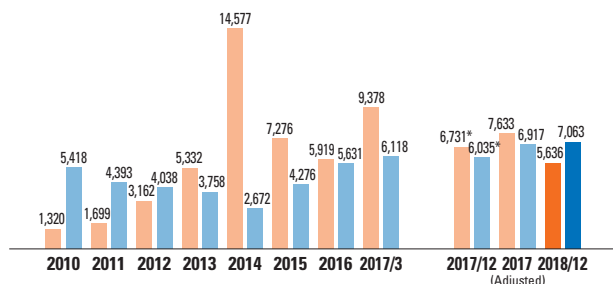
*2 Average of totals for FY2014/3 through FY2016/3. Source: Nikkei Smart Work Survey on April 20, 2018

Investment in plant and equipment/Depreciation and amortization

¥5,636 million

¥7,063 million

■ Investment in plant and equipment (Millions of yen) ■ Depreciation and amortization (Millions of yen)



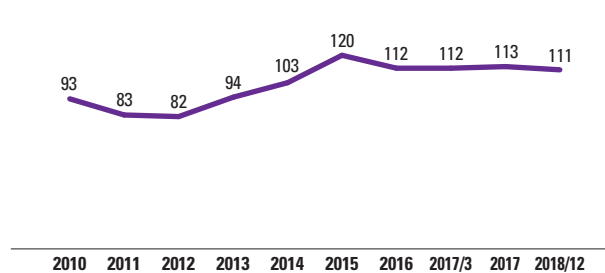
Depreciation and amortization increased as a result of large-scale investments during the “TOK Medium-Term Plan 2015” and the “TOK Medium-Term Plan 2018,” but under the “TOK Medium-Term Plan 2021,” the Company plans to invest in production equipment with long depreciation periods, so depreciation and amortization should increase at a more moderate pace.

* Due to a change in fiscal year-end, the fiscal year ended December 31, 2017 was an irregular nine-month period in Japan, and 12 months overseas.

Exchange rate

¥111

(Yen/U.S. dollars, As of March 31)

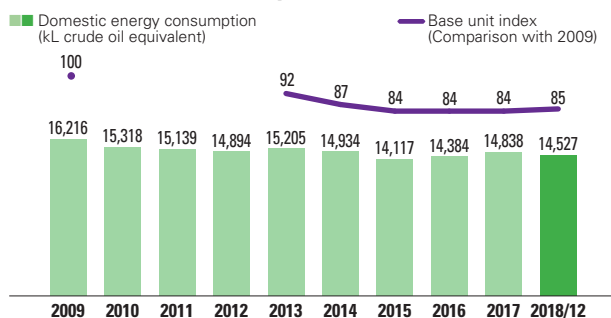


As the global economy enters a major turning point, the Company intends to advance global cash management, including adjusting the balance of cash positions among overseas sites, as a part of balance sheet management. We are thus enhancing financial risk controls for fluctuations in exchange rates and market liquidity.

10-Year Non-Financial Highlights

Domestic energy consumption*

14,527kL crude oil equivalent **85** Base unit index



By 2019, TOK targets a reduction of 10 points in energy consumption compared with the base unit indexed to 2009. Thanks to smooth progress on various fronts, the Company achieved a reduction of 15 points in 2018, compared with the base unit indexed to 2009. The Company will carry on with efforts to reduce its environmental impact by improving production processes, increasing work efficiency, and reviewing equipment and their operational methods.

* Due to a change in fiscal year-end, totals for 2009, the reference year for medium-term targets, and 2013 onward are from January to December. Totals for 2010 to 2012 are from April to March.

Volume of industrial waste*1

3,980t **83** Base unit index



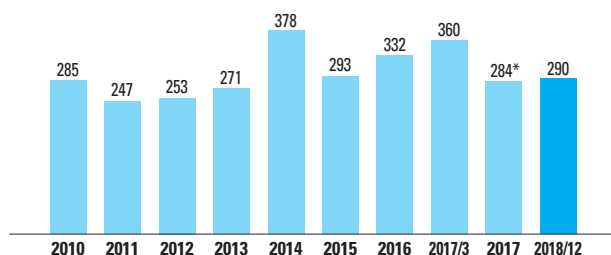
TOK has achieved zero emissions**2 for five consecutive years, as the volume of its industrial waste headed to landfill disposal via intermediate treatment has remained below 1% of the total. TOK targets a reduction of 5 points in total industrial waste by 2020 compared with the base unit indexed to 2015. The Company continues various activities to refine and reuse process effluents, as well as internally process and recover effluents while turning them into items of value.

*1 Total sum of general industrial waste and specially controlled industrial waste. Due to a change in fiscal year-end, totals for 2013 onward are from January through December.

**2 Definition of zero emissions: Landfill disposal volume (direct or after intermediate treatment) of less than 1% of industrial waste discharged by business activities.

Number of patents

290

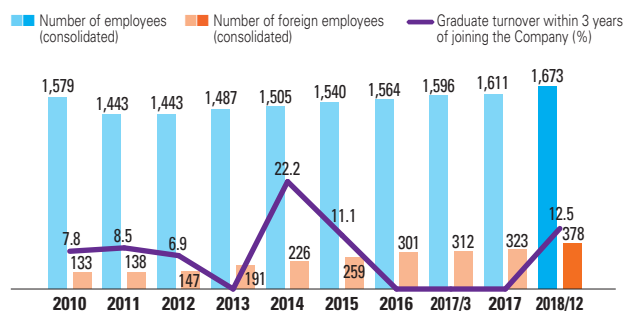


Our number of patent registrations in the cutting-edge semiconductor fields has been increasing at a slower rate alongside greater complexity in development, but patent registrations have been rising steadily for new businesses and new materials. Going forward, we will design our strategic patent portfolio for new and promising technologies to enable the stable pursuit of business development as well as to build barriers to entry.

* Due to a change in fiscal year-end, results for the fiscal year ended December 31, 2017 are for nine months only.

Number of employees/Number of foreign employees/Graduate turnover within 3 years of joining the Company

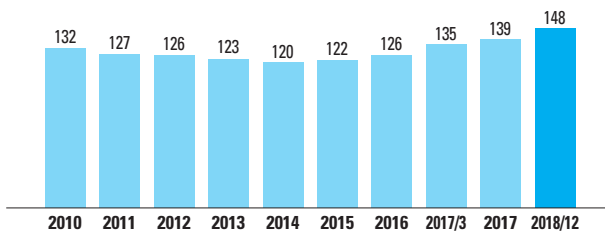
1,673 **378** **12.5%**



At TOK, the number of foreign employees has been increasing as a result of an increase in the number of overseas development/production sites and emphasis on merit-based hiring of new graduates regardless of their nationality. Based on the spirit of a frank and open-minded business culture, one of our management principles, and the basic philosophy that human resources are a company asset, we have expanded our personnel systems and training programs. As a result, the ratio of new graduate hires who quit within three years of joining the Company has stayed at zero percent for a majority of years. In February 2019, TOK was recognized in the Certified Health & Productivity Management Outstanding Organizations Recognition Program (White 500) for a second consecutive year.

Number of female employees*

148



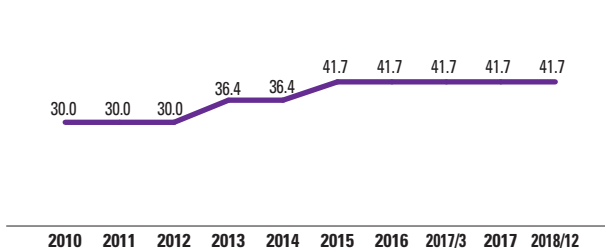
The ratio of female new graduate hires has held steady at about 40%, and the number of female employees has been increasing as a result of better supportive measures to retain and promote women. In recognition of our initiatives, such as offering flexible work styles and support with career formation plans, TOK was again selected as a constituent stock in 2019 for the MSCI Japan Empowering Women Index. Going forward, TOK will concentrate on initiatives to increase the ratio of women in management positions.

* Non-consolidated basis (employees exclude those seconded from TOK to other companies and contract workers, and include people seconded from other companies to TOK)

Ratio of outside officers in the Board of Directors

41.7%

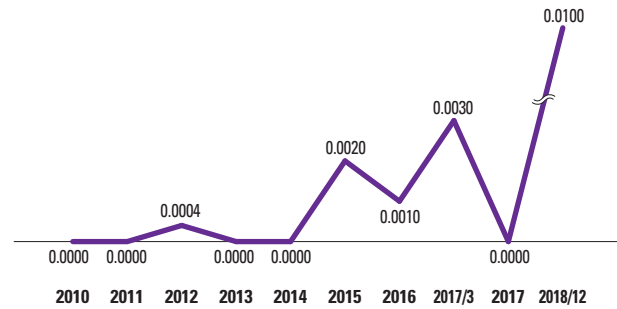
(%)



TOK increased the number of outside auditors by one to three in 2013, and increased the number of outside directors by one to two in 2015. The ratio of outside officers on the Board of Directors is now 41.7%.

Severity rate of workplace accidents

0.01

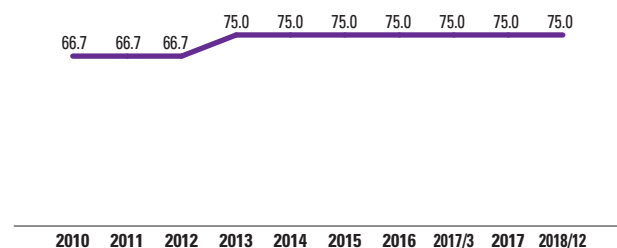


In the fiscal year ended December 31, 2018, the severity rate of workplace accidents increased due to two injuries resulting in lost workdays. We will continue to make concerted, company-wide efforts to prevent workplace accidents and achieve our goals of “zero accidents” as well as “zero accident risks,” through ongoing training and drills for our employees via the Safety and Health Committee, the establishment of Safety and Health Liaison Unit, and updates to manuals for how to respond during emergencies.

Ratio of outside auditors among corporate auditors

75.0%

(%)



The ratio of outside auditors on the Board of Auditors has been 75.0% ever since the number of outside auditors was increased by one to three in 2013.

Changes in Medium-term Plans and 10-Year Key Data

Urgent business profitability and structural reforms

Measures to cope with new business environment:

- Cost reduction
- Establishment of low-cost structure

Rebirth of TOK

Direction:

- Enhance marketing capabilities on a global basis
- Further speed up technology development
- Launch new business promptly
- Accelerate global strategy and expand worldwide market share

Fiscal years ended March 31 and fiscal years ended December 31	2010/3	2011/3	2012/3	2013/3
Results of operation:				
Net sales.....	70,645	80,016	80,037	72,919
Material Business	65,091	71,482	66,645	67,697
Equipment Business	5,632	8,622	13,500	5,302
Operating income	364	6,123	6,102	7,872
Income before income taxes	114	6,427	6,577	8,031
Profit attributable to owners of the parent	254	3,649	3,818	5,443
Free cash flow	6,504	12,435	(6,641)	12,363
Investment in plant and equipment	1,320	1,699	3,162	5,332
Depreciation and amortization	5,418	4,393	4,038	3,758
R&D costs.....	6,949	6,360	6,157	6,211
Per share data (Yen/U.S. dollars):				
Basic profit.....	5.66	81.08	84.86	121.69
Cash dividends applicable to the year.....	30.00	33.00	38.00	44.00
Net assets.....	2,578.30	2,597.72	2,641.28	2,796.37
At the year-end:				
Total assets.....	138,122	147,085	138,767	145,664
Total long-term liabilities	2,350	2,105	2,613	2,811
Interest-bearing debt	57	0	610	488
Net assets.....	117,658	118,567	119,590	127,838
Key performance indicators (%):				
Operating margin	0.5	7.7	7.6	10.8
ROE	0.2	3.1	3.3	4.5
Ratio of R&D costs to net sales.....	9.8	7.9	7.7	8.5
Equity ratio.....	84.0	79.5	85.1	85.9
Debt-to-equity (Times)	0.00	0.00	0.01	0.00
Payout ratio.....	530.0	40.7	44.8	36.2
DOE	1.2	1.3	1.5	1.6
Industry trend				
Worldwide semiconductor market (Millions of U.S. dollars)* ¹ , (Year).....	298,315	299,521	291,562	305,584
Worldwide photoresists sales (Thousands of U.S. dollars)* ²	1,129,893	1,220,078	1,279,706	1,152,306
Exchange rate (¥/\$)* ⁴	93	83	82	94

*1 Source: World Semiconductor Trade Statistics *2 Source: SEMI (Total sales of ArF and KrF excimer laser and g- and i-Line photoresists)

*3 Forecast-based amount for 2019 *4 As of the end of each fiscal year

TOK Medium-Term Plan 2015

Objectives:

- Surpass record-high earnings
- Enhance business foundations that support sustainable growth

Strategies:

- Build close relationships with regional users
- Reform business portfolios
- Develop global personnel

Shifted our focus to new business growth
→ Achieved record-high operating income
in the fiscal year ended March 31, 2015

Material Business:
Segment net sales achieved
a record high

TOK Medium-Term Plan 2018

Long-term management vision for fiscal 2020:

Aim to be a globally trusted corporate group by inspiring customers with high value-added products

Strategies:

- Reform business portfolios
- Evolve strategy of building close relationships with customers
- Develop global personnel
- Strengthen management foundation

							Millions of yen	Thousands of U.S. dollars
		2014/3	2015/3	2016/3	2017/3	2017/12	2018/12	2018/12
	Operating income	75,269	88,086	89,969	88,764	92,411	105,277	948,443
	Operating profit	72,866	84,611	87,280	86,558	90,532	102,626	924,566
	Income tax expense	2,484	3,581	2,748	2,252	1,921	2,697	24,298
	Income tax benefit	10,025	13,253	12,438	9,954	9,194	10,505	94,645
	Other income	11,666	14,301	11,777	9,220	9,492	9,814	88,414
	Other expense	7,549	8,818	7,716	6,343	6,007	6,875	61,945
	Minority interest	(2,610)	3,380	7,517	(926)	4,169	6,298	56,739
	Net income	14,577	7,276	5,919	9,378	6,731	5,636	50,775
	Net income attributable to shareholders	2,672	4,276	5,631	6,118	6,035	7,063	63,638
	Net income attributable to noncontrolling interests	6,389	6,903	7,015	8,207	6,921	8,526	76,814
	Operating assets	168.54	196.61	177.30	146.18	138.31	164.92	1.48
	Operating liabilities	52.00	60.00	64.00	64.00	64.00	96.00	0.86
	Operating assets less operating liabilities	3,044.24	3,285.81	3,298.00	3,384.14	3,490.97	3,459.37	31.17
	Equity	155,859	174,863	167,300	174,492	178,681	184,683	1,663,812
	Minority interest	1,518	3,569	2,899	2,024	3,421	12,250	110,366
	Equity less minority interest	366	814	534	135	—	10,000	90,090
	Equity ratio	139,962	151,999	147,270	152,931	153,517	150,857	1,359,078
	Equity ratio	13.3	15.0	13.8	11.2	9.9	10.0	
	Equity ratio	5.8	6.2	5.3	4.4	4.1	4.7	
	Equity ratio	8.5	7.8	7.8	9.2	7.5	8.1	
	Equity ratio	87.5	84.3	85.1	84.6	82.2	78.0	
	Equity ratio	0.00	0.00	0.00	0.00	0.00	0.07	
	Equity ratio	30.9	30.5	36.1	43.8	46.3	58.2	
	Equity ratio	1.8	1.9	1.9	1.9	1.9	2.8	
	Operating assets less operating liabilities	335,843	335,168	338,931	412,221	468,778	412,086*3	
	Operating assets less operating liabilities	1,288,713	1,230,022	1,358,009	1,504,224	1,631,851		
	Operating assets less operating liabilities	103	120	112	112	113	111	

Equity ratio:
The equity ratio has stayed at around 85% for a long time, but the Company is continuing to pursue the optimal balance, which may be decreasing as a result of stronger balance sheet management. (See pages 52–55 "Message from the CFO.")

FY2018/12 Market Trends, Results of Operations, Financial Position, and FY2019/12 Performance Outlook

Change in Fiscal Year-End

TOK changed its fiscal year-end from March 31 to December 31. The fiscal year-end was also changed to December for its subsidiaries with a fiscal year-end in March. To facilitate year-on-year comparisons, the results of the previous fiscal year have been adjusted to align with the current fiscal year.

Business Environment

In the fiscal year ended December 31, 2018, the global economy continued to improve, but the outlook has grown increasingly uncertain due to the rise of protectionist economic policies accompanied by trade friction. The Japanese economy maintained a moderate recovery trend overall, with a turnaround in consumer spending amid ongoing improvement in employment and income conditions backed by strong corporate earnings.

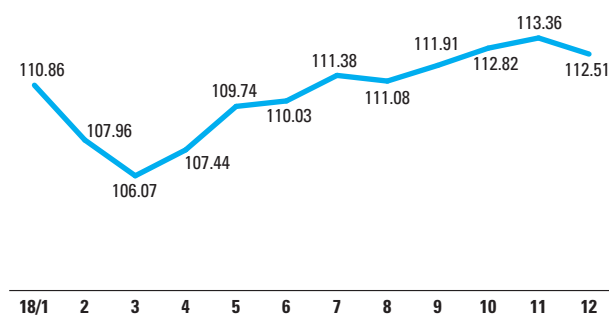
On foreign exchange markets, the yen continued to appreciate from January through March, owing in part to rougher trade friction between the U.S. and China, but then the yen depreciated from April as the dollar strengthened on hikes in the U.S. policy interest rate. On average for the year, the yen was about ¥2 stronger compared with the same period in the previous year.

Net Sales and Operating Income

In the fiscal year ended December 31, 2018, consolidated net sales increased ¥4,854 million, or 4.8%, from the same period in the previous year to ¥105,277 million. Net sales in the first half increased ¥2,684 million, or 5.6%, to ¥50,748 million. Net sales in the second half increased ¥2,170 million, or 4.1%, to ¥54,529 million.

In the electronics industry, the main source of demand for the Company's products, demand decreased for PCs and tablet devices, but sales of smartphones remained at a high level,

Exchange Rate in 2018 (Yen/U.S. dollars, Monthly average)



Source: Mitsubishi UFJ Research and Consulting Co., Ltd.

and growth of the data server market drove expansion in the semiconductor market for favorable conditions overall.

Cost of sales increased ¥5,217 million, or 7.8%, from the same period in the previous year to ¥71,896 million, reflecting increases in depreciation and amortization and costs for consumables. The cost of sales ratio climbed 1.9 percentage points to 68.3%. As a result, gross profit decreased ¥362 million, or 1.1%, to ¥33,380 million.

Selling, general and administrative (SG&A) expenses decreased ¥989 million, or 4.1%, from the same period in the previous year to ¥22,875 million, mainly due to decreases in provision of allowance for doubtful accounts, depreciation and amortization and patent royalties.

Operating income increased by ¥627 million, or 6.4%, from the same period in the previous year to ¥10,505 million, mainly due to a decrease in SG&A expenses.

Performance by Segment*

Material Business Segment

Sales in the Material Business increased by ¥4,376 million, or 4.5%, from the same period in the previous year to ¥102,626 million. Operating income increased ¥207 million, or 1.4%, to ¥15,075 million, reflecting growth in sales of high value-added products, despite rising raw material prices including higher crude oil prices.

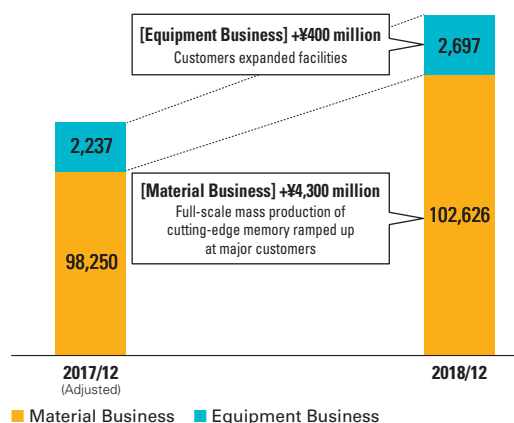
Electronic Functional Materials Division

In the electronic functional materials division, sales increased ¥1,845 million, or 3.2%, from the same period in the previous year to ¥58,793 million.

Sales of semiconductor photoresists expanded with brisk sales of excimer laser photoresists as major customers ramped up mass production of cutting-edge memory, in addition to sustained growth in the 3D memory market. Furthermore, in high-density integration materials, sales of photoresists

* Intersegment sales or transfers have not been eliminated.

Net Sales by Segment Year-on-Year Comparison (Millions of yen)



for semiconductor packaging grew on the back of higher production volumes at major customers thanks to the robust semiconductor market. Photoresists for displays, however, saw sales decline as domestic demand shrank on deterioration in conditions in the small- and medium-sized display market.

■ High-Purity Chemicals Division

Sales in the high-purity chemicals division increased ¥2,567 million, or 6.2%, to ¥43,733 million.

Sales increased for photoresists-related chemicals used to manufacture semiconductors, with new products being adopted for next-generation semiconductor manufacturing processes in North America, in addition to robust sales of products used in cutting-edge semiconductor manufacturing processes in Asia. However, sales of photoresists-related chemicals used to manufacture displays decreased as sales weakened in contracting markets for small- and medium-sized displays in Japan and Asia.

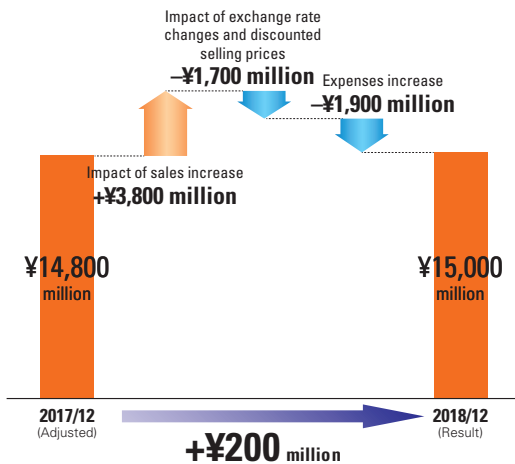
Equipment Business Segment

■ Process Equipment Division

Zero Newton is our wafer handling system used in the through-silicon-via process, which is vital for creating high-functional, high-performance semiconductors. Zero Newton struggled to grow because customers continued to refrain from increasing investments in production capacity amid weak growth momentum in the 3D packaging market, even though the system has steadily built up a track record in the market. Meanwhile, sales and orders both increased for semiconductor manufacturing equipment, benefitting from expansion of facilities at customers.

As a result, sales in the Equipment Business increased ¥459 million, or 20.5%, from the same period in the previous year to ¥2,697 million. Operating loss decreased by ¥189 million from the same period in the previous year to a loss of ¥883 million.

■ Breakdown of Change in Material Business Segment Operating Income



Orders in the period under review reached ¥3,507 million. Of this, orders in the first half totaled ¥1,976 million and in the second half ¥1,530 million. The year-end order backlog was ¥2,472 million.

Financial Condition

Total assets as of December 31, 2018 increased by ¥6,001 million from the previous fiscal year-end to ¥184,683 million.

Total current assets increased ¥13,870 million from the previous fiscal year-end to ¥101,589 million. This mainly reflects increases of ¥1,351 million in inventories and ¥11,911 million in cash and deposits partly offset by a decrease of ¥15 million in trade notes and accounts.

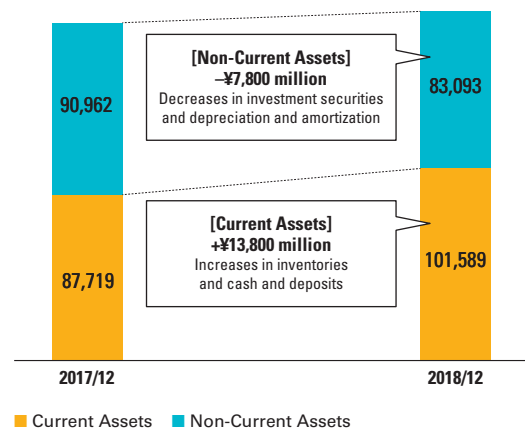
Non-current assets decreased ¥7,868 million from the previous fiscal year-end to ¥83,093 million. This mainly reflects a decrease of ¥3,345 million in property, plant and equipment as a result of depreciation, and decreases of ¥4,733 million in investment securities and ¥286 million in net defined benefit asset under investments and other assets.

Total liabilities as of December 31, 2018 increased ¥8,661 million from the previous fiscal year-end to ¥33,825 million. This primarily reflects an increase of ¥10,000 million in long-term loans payable, despite decreases of ¥1,037 million in deferred tax liabilities and ¥1,187 million in other payable.

Total equity as of December 31, 2018 decreased ¥2,659 million from the previous fiscal year-end to ¥150,857 million. The decrease mainly reflects cash dividends paid of ¥2,846 million, purchase of treasury stock of ¥2,194 million and a decrease in accumulated other comprehensive income of ¥4,662 million, despite recording profit attributable to owners of the parent of ¥6,875 million.

As a result, the equity ratio stood at 78.0% at the end of the fiscal year.

■ Total Assets Year-on-Year Comparison (Millions of yen)



Cash Flows

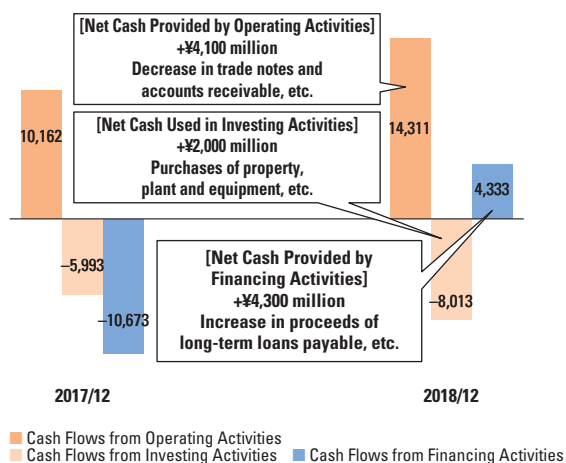
Net cash provided by operating activities during the fiscal year under review came to ¥14,311 million, an increase of ¥4,149 million from the end of the previous fiscal year. The increase reflected a decrease in trade notes and accounts receivable of ¥1,866 million, and an increase in depreciation and amortization of ¥1,028 million.

Net cash used in investing activities was ¥8,013 million, an increase of ¥2,020 million from the previous fiscal year. The increase reflected increases of ¥1,764 million in deposit for time deposits—net and ¥607 million in purchases of property, plant and equipment.

Net cash provided by financing activities was ¥4,333 million. This mainly reflected an increase of ¥10,000 million in proceeds of long-term loans payable compared with the previous fiscal year, and a decrease of ¥5,610 million in purchases of treasury stock.

As a result, cash and cash equivalents on December 31, 2018 increased ¥9,889 million to ¥39,851 million from ¥29,961 million at the previous fiscal year-end.

■ Cash Flows Comparison (Millions of yen)



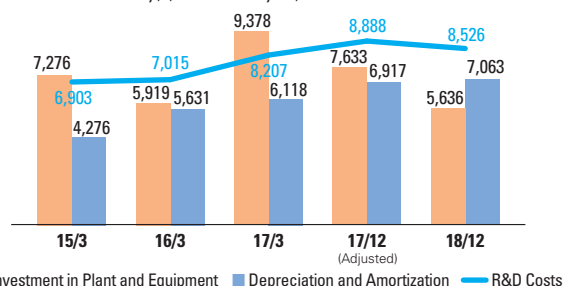
FY2019/12 Performance Outlook*

Net sales in the fiscal year ending December 31, 2019 are forecast to increase 6.0% year on year to ¥111,600 million on the expectation that growth in the Material Business will resume in the second half after hitting bottom in the first half.

Although net sales growth is expected, operating income is forecast to decrease 0.1% to ¥10,500 million, owing to higher costs in the Material Business, while assuming a ¥105/\$ exchange rate. TOK forecasts profit attributable to owners of the parent to expand 4.7% to ¥7,200 million, as there will no longer be the impact of the special factor related to tax effect accounting.

* Figures announced on February 14, 2019.

■ Investment in Plant and Equipment/ Depreciation and Amortization/R&D Costs (Five-Year Summary) (Millions of yen)



■ Earnings Forecasts*

	FY2018/12	FY2019/12 Forecast	
		Change	%
Net sales	105,277	111,600	+6.322 +6.0
Operating income	10,505	10,500	-5 -0.1
Profit attributable to owners of the parent	6,875	7,200	+324 +4.7

* Figures announced on February 14, 2019.

Risk Information

The TOK Group conducts business activities in every region of the world in a diverse range of fields. When carrying out these business activities, it encounters a variety of risk factors that may have a detrimental impact on its financial conditions and management performance. The risks described below are solely those that the Group judged to be most significant as of December 31, 2018 and do not constitute all of its risk factors.

1. Industrial and economic change-related risk

The Group conducts its business within the electronics industry and a characteristic of this industry's market is its major cyclical changes in demand. In particular, materials and devices for semiconductors and displays are extremely affected by such

demand trends. Also, due to the rapid speed of technological innovation in this industry and the complexity and diversity of user needs, market conditions often change, as do prices in response to these changes. These factors may have an impact on the Group's business results.

2. Exchange rate fluctuation-related risk

The Group is focusing its energies into developing its businesses in the markets of North America, Europe, and Asia, which are expected to expand in the future, and has production and sales bases in these regions. Some of the Group's overseas transactions are yen-denominated, while for others it carries out risk hedging through forward exchange contracts. However, if exchange rate fluctuations are greater than forecast, this may have an impact on the Group's business results.

3. Research and development-related risk

In order for the Group to maintain its competitiveness in the electronics industry, where technological innovation occurs at a rapid pace, it carries out R&D to provide products that precisely reflect user needs. However, realizing technological innovation and anticipating changes to user needs are not easy tasks and regardless of how much management resources it invests into R&D, due to unforeseeable reasons it may not produce the hoped-for results. This may have an impact on the Group's business results.

4. Intellectual property-related risk

In carrying out its business activities, the Group has acquired a diverse portfolio of intellectual property, to which it grants licenses to third parties. Also, when it deems it necessary or useful to do so, it acquires licenses from third parties in order to use their intellectual property. If the Group is unable to safeguard and maintain its own intellectual property rights or acquire third party rights as anticipated, it may become a party in a dispute or lawsuit relating to these rights. The costs incurred due to these events may have an impact on the Group's business results.

5. Raw material procurement-related risk

The Group uses various raw materials in its production activities and it aims to stably procure these materials by maintaining a network of multiple suppliers. However, its production activities may be affected by a delay or suspension in the supply of raw materials due to problems at the manufacturers of these materials. This may have an impact on the Group's business results. In addition, an increase in the price of raw materials may have an impact on its business results.

6. Product liability-related risk

Within the process in which the Group supplies its products to customers who then use them, problems may occur that originate in a product defect. The Group has insurance to cover product liability compensation payments, but insurance may not be able to cover the entire amount that has to be paid. Therefore, if such a problem occurs it may have an impact on the Group's business results.

7. Natural disaster and accident-related risk

The Group has established manufacturing plants both within Japan and overseas. In the event of a natural disaster, such as an earthquake, or an unforeseen accident, such as a fire or an

explosion, it may have to suspend its production activities and delay product shipments. The Group may also have to pay repair or replacement costs at the damaged plant. These events may have an impact on the Group's business results.

8. Environment-related risk

The Group uses various types of chemical substance within its production activities and has strict rules to ensure they are handled safely. However, in the event of an accident involving the leakage of chemical substances, the Group's reputation within society may be affected, it may have to pay costs as compensation or in order to carry out counter measures, and it may have to suspend production activities. These factors may have an impact on the Group's business results.

In addition, the Group always observes the various environment-related laws and regulations in each country where it conducts its business activities. However, in the future these laws and regulations may be made stricter, the Group may be forced to pay additional costs or limit its business activities. These factors may have an impact on the Group's business results.

9. Legal risk

When conducting its business activities throughout the world, the Group must acquire approval for business and investment activities and observe each government's regulations relating to restrictions on imports and exports. In addition, it must observe laws and regulations relating to trade, monopolies, international taxation, the environment, and recycling. If there are major revisions to any of these laws and regulations, or if the Group fails to precisely understand their requirements, or if for any reason it is unable to observe them, then this may have an impact on the Group's business results.

10. Overseas business activity-related risk

The Group carries out production and sales activities in North America and Asia and sales activities in Europe. However, in its overseas business activities it constantly faces the following types of risk; unexpected revisions to laws and regulations; a weakening of the industrial base; difficulties in securing the required personnel; and the possibility of terrorist attacks, conflicts, and natural disasters. If any of these risks occur, it may obstruct the Group's overseas business activities and have an impact on its business results.

11. Information leakage risk

The Group possesses confidential business information and also information relating to various other companies and individuals. It implements thorough measures to ensure the security of all the information it handles, but if due to some unforeseeable event information leaks outside of the Group, this may damage its reputation within society and it may have to pay liability payments for the damage caused to a company or individual whose information was leaked. These factors may have an impact on the Group's business results.



Consolidated Financial Statements

Consolidated Balance Sheets

TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries
December 31, 2018 and 2017

ASSETS	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
CURRENT ASSETS:			
Cash and deposits.....	¥ 37,851	¥ 27,961	\$ 341,006
Time deposits	18,241	16,219	164,341
Receivables:			
Trade notes and accounts.....	22,539	22,554	203,060
Securities.....	2,000	2,000	18,018
Other	493	422	4,449
Allowance for doubtful accounts	(48)	(157)	(438)
Inventories	17,245	15,893	155,364
Deferred tax assets.....	1,687	1,574	15,204
Prepaid expenses and other current assets.....	1,577	1,249	14,213
Total current assets.....	101,589	87,719	915,219
PROPERTY, PLANT AND EQUIPMENT:			
Land	8,996	9,120	81,052
Buildings and structures.....	63,330	62,902	570,545
Machinery and equipment	57,203	56,406	515,344
Furniture and fixtures	20,712	20,684	186,602
Construction in progress.....	3,393	4,077	30,568
Total	153,636	153,192	1,384,114
Accumulated depreciation.....	(105,277)	(101,488)	(948,449)
Net property, plant and equipment.....	48,358	51,703	435,665
INVESTMENTS AND OTHER ASSETS:			
Investment securities.....	12,910	16,486	116,312
Investments in and advanced to an unconsolidated subsidiary and associated companies.....	7	1,164	67
Investment in capital.....	220	—	1,981
Net defined benefit asset	2,065	2,352	18,611
Long-term time deposits.....	18,000	18,000	162,162
Deferred tax assets.....	438	145	3,954
Other assets	1,091	1,108	9,837
Total investments and other assets	34,734	39,258	312,927
TOTAL	¥ 184,683	¥ 178,681	\$1,663,812

LIABILITIES AND EQUITY	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
CURRENT LIABILITIES:			
Payables:			
Trade notes and accounts.....	¥ 11,381	¥ 10,444	\$ 102,538
Construction and other.....	3,834	4,966	34,541
Income taxes payable.....	1,130	962	10,184
Accrued expenses.....	3,983	3,652	35,888
Advances from customers.....	88	236	796
Deferred tax liabilities.....	198	329	1,791
Other current liabilities.....	957	1,151	8,626
Total current liabilities.....	21,574	21,742	194,367
LONG-TERM LIABILITIES:			
Long-term loans payable.....	10,000	—	90,090
Deferred tax liabilities.....	1,625	2,533	14,646
Net defined benefit liability.....	306	262	2,757
Other long-term liabilities.....	318	625	2,872
Total long-term liabilities.....	12,250	3,421	110,366
EQUITY:			
Common stock—authorized, 197,000,000 shares in 2018 authorized, 197,000,000 shares in 2017 issued, 45,100,000 shares in 2018 issued, 45,100,000 shares in 2017.....	14,640	14,640	131,895
Capital surplus.....	15,207	15,207	137,008
Retained earnings.....	120,885	116,904	1,089,054
Treasury stock—at cost, 3,436,262 shares in 2018 and 3,021,037 shares in 2017.....	(13,816)	(11,732)	(124,470)
Accumulated other comprehensive income:			
Unrealized gain on available-for-sale securities.....	4,315	6,893	38,875
Foreign currency translation adjustments.....	3,137	4,646	28,268
Remeasurements of defined benefit plans.....	(239)	335	(2,159)
Total.....	144,130	146,896	1,298,471
Stock acquisition rights.....	310	247	2,797
Non-controlling interests.....	6,416	6,373	57,808
Total equity.....	150,857	153,517	1,359,078
TOTAL	¥184,683	¥178,681	\$1,663,812

Consolidated Statements of Income

TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries
Years Ended December 31, 2018 and 2017

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
NET SALES	¥105,277	¥92,411	\$948,443
COST OF SALES	71,896	63,805	647,714
Gross profit	33,380	28,606	300,729
SELLING, GENERAL AND ADMINISTRATIVE EXPENSES	22,875	19,411	206,083
Operating income	10,505	9,194	94,645
OTHER INCOME (EXPENSES):			
Interest and dividend income	392	309	3,531
Foreign exchange (loss) gain—net	(580)	726	(5,226)
Gain (loss) on valuation of derivatives	306	(789)	2,757
Loss on impairment of long-lived assets	(860)	(242)	(7,750)
Other—net	50	294	457
Other (expenses) income—net	(691)	298	(6,230)
INCOME BEFORE INCOME TAXES AND NON-CONTROLLING INTERESTS	9,814	9,492	88,414
INCOME TAXES:			
Current	2,141	2,140	19,291
Deferred	(187)	348	(1,692)
Total income taxes	1,953	2,489	17,598
NET INCOME BEFORE NON-CONTROLLING INTERESTS	7,860	7,003	70,815
NON-CONTROLLING INTERESTS IN NET INCOME	984	996	8,870
PROFIT ATTRIBUTABLE TO OWNERS OF THE PARENT	¥ 6,875	¥ 6,007	\$ 61,945

PER SHARE OF COMMON STOCK:	Yen		U.S. dollars
	2018	2017	2018
Basic profit	¥164.92	¥138.31	\$1.48
Diluted profit	164.44	137.91	1.48
Cash dividends applicable to the year	96.00	64.00	0.86

Consolidated Statements of Comprehensive Income

TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries
Years Ended December 31, 2018 and 2017

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
NET INCOME BEFORE NON-CONTROLLING INTERESTS	¥ 7,860	¥ 7,003	\$ 70,815
OTHER COMPREHENSIVE INCOME:			
Unrealized (loss) gain on available-for-sale securities	(2,578)	2,199	(23,229)
Foreign currency translation adjustments	(1,751)	1,457	(15,781)
Remeasurements of defined benefit plans	(575)	475	(5,184)
Share of other comprehensive income in an associate	(113)	(19)	(1,018)
Total other comprehensive income	(5,018)	4,112	(45,214)
COMPREHENSIVE INCOME	¥ 2,841	¥11,115	\$ 25,601
TOTAL COMPREHENSIVE INCOME ATTRIBUTABLE TO:			
Owners of the parent	¥ 2,213	¥ 9,794	\$ 19,939
Non-controlling interests	628	1,321	5,661

Consolidated Statements of Changes in Equity

TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries
Years Ended December 31, 2018 and 2017

	Thousands		Millions of yen										
	Number of shares of common stock outstanding	Common stock	Capital surplus	Retained earnings	Treasury stock	Accumulated other comprehensive income (loss)				Total	Subscription rights to shares	Non-controlling interests	Total equity
						Unrealized (loss) gain on available-for-sale securities	Foreign currency translation adjustments	Remeasurements of defined benefit plans					
BALANCE, APRIL 1, 2017	43,603	¥14,640	¥15,207	¥113,708	¥ (4,086)	¥ 4,694	¥ 3,533	¥(139)	¥147,559	¥221	¥5,150	¥152,931	
Profit attributable to owners of the parent	—	—	—	6,007	—	—	—	—	6,007	—	—	6,007	
Cash dividends paid:													
Final for prior year, ¥32.0 per share	—	—	—	(1,396)	—	—	—	—	(1,396)	—	—	(1,396)	
Interim for current year, ¥32.0 per share	—	—	—	(1,397)	—	—	—	—	(1,397)	—	—	(1,397)	
Purchase of treasury stock	(1,593)	—	—	—	(7,809)	—	—	—	(7,809)	—	—	(7,809)	
Disposal of treasury stock	69	—	—	(18)	163	—	—	—	144	(26)	—	118	
Net change in the year	—	—	—	—	—	2,199	1,112	475	3,787	52	1,222	5,062	
BALANCE, DECEMBER 31, 2017	42,078	14,640	15,207	116,904	(11,732)	6,893	4,646	335	146,896	247	6,373	153,517	
Profit attributable to owners of the parent	—	—	—	6,875	—	—	—	—	6,875	—	—	6,875	
Cash dividends paid:													
Final for prior year, ¥32.0 per share	—	—	—	(1,346)	—	—	—	—	(1,346)	—	—	(1,346)	
Interim for current year, ¥36.0 per share	—	—	—	(1,499)	—	—	—	—	(1,499)	—	—	(1,499)	
Purchase of treasury stock	(442)	—	—	—	(2,194)	—	—	—	(2,194)	—	—	(2,194)	
Disposal of treasury stock	27	—	—	(49)	110	—	—	—	61	(17)	—	43	
Net change in the year	—	—	—	—	—	(2,578)	(1,508)	(575)	(4,662)	80	43	(4,538)	
BALANCE, DECEMBER 31, 2018	41,663	¥14,640	¥15,207	¥120,885	¥(13,816)	¥ 4,315	¥ 3,137	¥(239)	¥144,130	¥310	¥6,416	¥150,857	

	Thousands of U.S. dollars											
	Common stock	Capital surplus	Retained earnings	Treasury stock	Accumulated other comprehensive income (loss)				Total	Subscription rights to shares	Non-controlling interests	Total equity
					Unrealized (loss) gain on available-for-sale securities	Foreign currency translation adjustments	Remeasurements of defined benefit plans					
BALANCE, DECEMBER 31, 2017	\$131,895	\$137,008	\$1,053,192	\$(105,694)	\$ 62,105	\$ 41,859	\$ 3,025	\$1,323,391	\$2,231	\$57,415	\$1,383,038	
Profit attributable to owners of the parent	—	—	61,945	—	—	—	—	61,945	—	—	61,945	
Cash dividends paid:												
Final for prior year, \$0.28 per share	—	—	(12,130)	—	—	—	—	(12,130)	—	—	(12,130)	
Interim for current year, \$0.32 per share	—	—	(13,510)	—	—	—	—	(13,510)	—	—	(13,510)	
Purchase of treasury stock	—	—	—	(19,772)	—	—	—	(19,772)	—	—	(19,772)	
Disposal of treasury stock	—	—	(441)	996	—	—	—	554	(158)	—	396	
Net change in the year	—	—	—	—	(23,229)	(13,591)	(5,184)	(42,006)	725	392	(40,888)	
BALANCE, DECEMBER 31, 2018	\$131,895	\$137,008	\$1,089,054	\$(124,470)	\$ 38,875	\$ 28,268	\$(2,159)	\$1,298,471	\$2,797	\$57,808	\$1,359,078	

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Consolidated Statements of Cash Flows

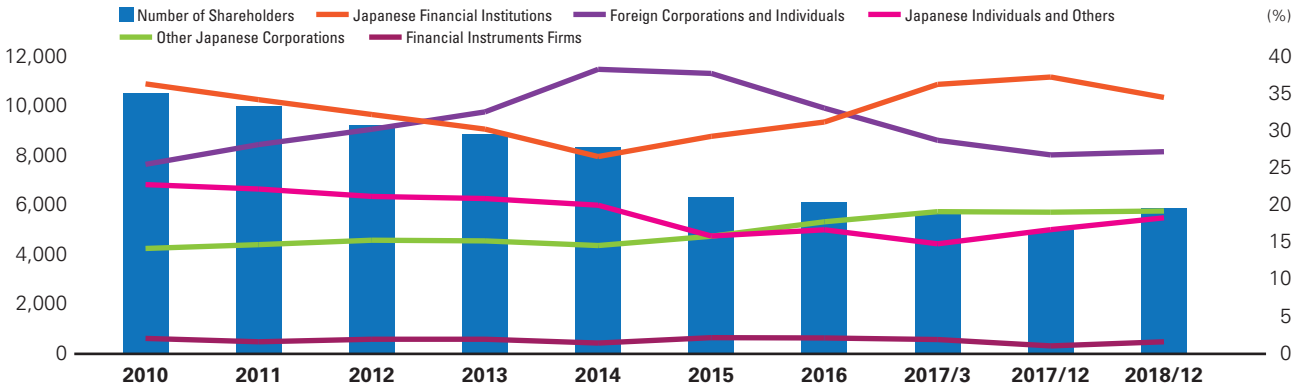
TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries
Years Ended December 31, 2018 and 2017

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
OPERATING ACTIVITIES:			
Income before income taxes and non-controlling interests	¥ 9,814	¥ 9,492	\$ 88,414
Adjustments for:			
Income taxes paid	(2,221)	(2,286)	(20,013)
Depreciation and amortization	7,063	6,035	63,638
Provision for doubtful accounts	(244)	(130)	(2,201)
Foreign exchange loss (gain)—net	983	(1,131)	8,856
Loss on impairment of long-lived assets	860	242	7,750
(Gain) loss on valuation of derivatives	(306)	789	(2,757)
Increase in net defined benefit asset	(455)	(151)	(4,100)
Decrease in net defined benefit liability	(37)	(18)	(342)
Increase in trade notes and accounts receivable	(420)	(2,286)	(3,788)
Increase in inventories	(1,770)	(1,929)	(15,953)
Increase in trade notes and accounts payable	1,092	755	9,844
(Increase) decrease in consumption taxes refund receivable	(268)	295	(2,419)
Other—net	223	485	2,009
Net cash provided by operating activities	14,311	10,162	128,936
INVESTING ACTIVITIES:			
Deposit for time deposits—net	(2,150)	(386)	(19,372)
Purchases of property, plant and equipment	(6,491)	(5,884)	(58,485)
Purchases of intangible assets	(234)	(155)	(2,111)
Payments into long-term time deposits	(14,000)	(3,000)	(126,126)
Withdrawal of long-term time deposits	14,000	3,000	126,126
Purchases of investment securities	(210)	—	(1,893)
Proceeds from sales of investment securities	1,081	0	9,739
Other—net	(8)	432	(74)
Net cash used in investing activities	(8,013)	(5,993)	(72,197)
FINANCING ACTIVITIES:			
Proceeds of long-term loans payable	10,000	—	90,090
Repayments of long-term loans payable	—	(138)	—
Dividends paid	(2,841)	(2,785)	(25,602)
Dividends paid for non-controlling interests	(584)	(98)	(5,269)
Purchases of treasury stock	(2,212)	(7,823)	(19,934)
Other—net	(27)	173	(246)
Net cash provided by (used in) financing activities	4,333	(10,673)	39,036
FOREIGN CURRENCY TRANSLATION ADJUSTMENTS ON CASH AND CASH EQUIVALENTS			
	(741)	557	(6,677)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	9,889	(5,945)	89,098
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	29,961	35,907	269,925
CASH AND CASH EQUIVALENTS, END OF YEAR	¥ 39,851	¥ 29,961	\$ 359,024

Shareholder Value

10-year Trends of Shareholder Composition

Changes in number and composition (shareholding ratio) of shareholders



(Note) Treasury stock is included in "Japanese Individuals and Others."

Major Shareholders

(As of December 31, 2018)

Name	Number of shares held (Thousands)	Ratio of shareholding (%)
Japan Trustee Services Bank, Ltd. (Trust Account)	3,101	7.44
The MasterTrust Bank of Japan, Ltd. (Trust Account)	2,759	6.62
Meiji Yasuda Life Insurance Company	1,826	4.38
MLPFS CUSTODY ACCOUNT	1,469	3.53
MUFG Bank, Ltd.	1,207	2.90
Hitachi Chemical Company, Ltd.	1,069	2.57
The Bank of Yokohama, Ltd.	1,026	2.46
Tokyo Ohka Foundation for The Promotion of Science and Technology	984	2.36
Mitsubishi UFJ Trust and Banking Corporation	953	2.29
Mitsubishi UFJ Capital Co., Ltd.	860	2.06

Notes: 1. The Company owns 3,436 thousand shares of treasury stock which are excluded from the above major shareholders.
2. The ratio of shareholding is calculated based on the number of shares (41,663,738 shares) obtained by subtracting the number of shares of treasury stock from the total number of shares issued.

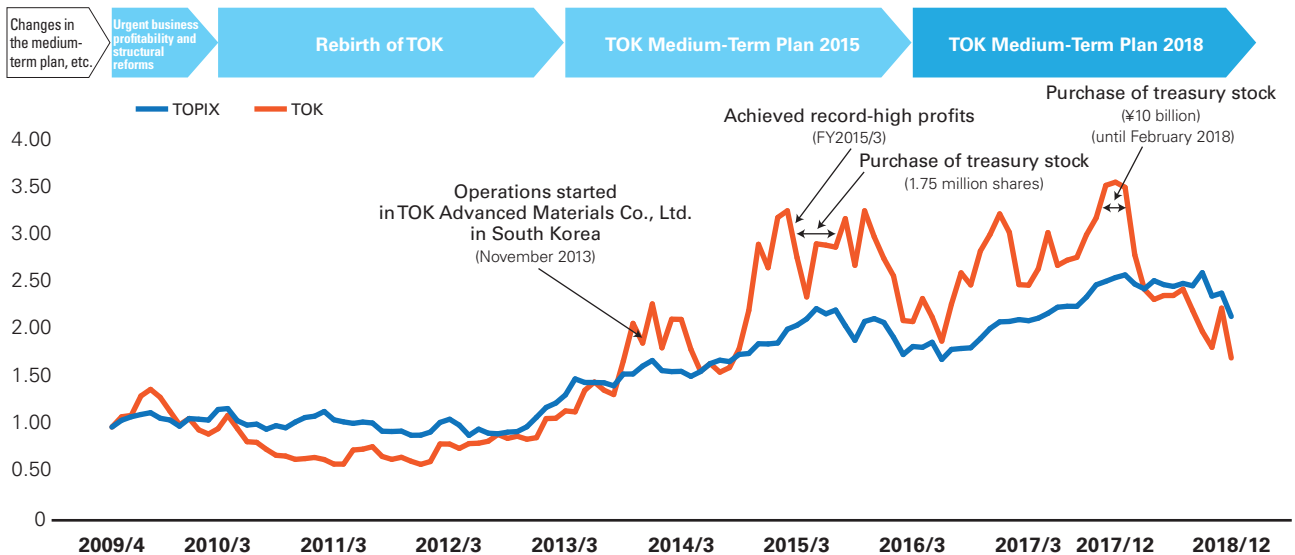
Stock Information

Stock listing	First Section of Tokyo Stock Exchange, Inc.
Category of industry	Chemicals
Securities code	4186
Share unit number	100
Accounting period	January 1 to December 31*
Dividend record date (Year-end)	December 31
Dividend record date (Interim)	June 30
Total number of shares authorized	197,000,000 shares (As of December 31, 2018)
Number of shares issued	45,100,000 shares (As of December 31, 2018)

*The Company changed its fiscal year-end from March 31 to December 31 effective from fiscal 2017.

10-year Trends of TOK's TSR

Relative comparison with April 2009 being 1 (monthly, closing price basis)





Global Network

TOKYO OHKA KOGYO CO., LTD.

- 1 Headquarters
- 2 Shanghai Representative Office
- 3 Singapore Office

TOKYO OHKA KOGYO AMERICA, INC.

Established: April 1989

Business: Manufacture and sales of photoresists, and development, manufacture and sales of photoresists-related chemicals

- 4 Headquarters/Oregon Plant
- 5 Sales Office (California)

TOK TAIWAN CO., LTD.

Established: January 1998

Business: Manufacture and sales of photoresists, and development, manufacture and sales of photoresists-related chemicals

- 6 Headquarters (Hsinchu City)
Miaoli Plant (Miaoli City)
Tongluo Plant (Miaoli County)

CHANG CHUN TOK (CHANGSHU) CO., LTD.

Established: October 2004

Business: Manufacture and sales of photoresists-related chemicals

- 7 Headquarters/Changshu Plant (China)

Tokyo Ohka Kogyo Europe B.V.

Established: December 2005

Business: Sales of photoresists and related chemicals

- 8 Headquarters (The Netherlands)

TOK Advanced Materials Co., Ltd.

Established: August 2012

Business: Development, manufacture, and sales of photoresists and related chemicals

- 9 Headquarters/Incheon Plant (South Korea)





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Third-Party Verification Report



Integrated Report 2018 Third-Party Verification Report

July 18, 2019

To: Noriaki Taneichi
President & Chief Executive Officer
TOKYO OHKA KOGYO CO., LTD.

■ Purpose of Verification

The purpose of this verification is to express the opinions of chemical industry experts with respect to the following matters, covering "Integrated Report 2018" prepared by "TOKYO OHKA KOGYO CO., LTD." (hereinafter the "Report" and the "Company" respectively). The scope of verification excludes financial information.

- 1) Rationality of the methods for calculating and compiling performance indicators (numerical figures) and the accuracy of these numerical figures
- 2) Accuracy of non-numerical information in the Report
- 3) Responsible Care® and CSR activities
- 4) Distinctive characteristics of the Report

■ Verification Procedure

- At the Sagami Operation Center (hereinafter the "Sagami"), we inspected the rationality of the methods used for compiling the numerical data reported from each site (office, plant) and checked the accuracy of non-numerical information. The inspection at the Sagami was performed by asking questions about the Report to people responsible for relevant operations and people responsible for preparing the Report, as well as receiving materials and explanations
- At the Aso Plant (hereinafter the "Aso"), we inspected the rationality of the methods used to calculate the figures reported to the Sagami, as well as the accuracy of non-numerical information. The inspection at the Aso was performed by asking questions to people responsible for relevant operations and people responsible for preparing the Report, receiving materials and explanations, and cross-checking them against evidences.
- We applied the sampling method for investigating numerical figures and stated information.

■ Opinions

- 1) Rationality of the methods for calculating and compiling performance indicators (numerical figures) and the accuracy of these numerical figures
 - Both the Sagami and the Aso use improved, reasonable methods to calculate and compile numerical figures, and for the scope of our investigation the performance figures were checked by multiple people and were calculated and tabulated correctly.
 - We expect progress in the automation of some of the data transcription that still remains.
- 2) Accuracy of non-numerical information in the Report
 - We confirmed that the data included in the Report are accurate. We pointed out a few issues regarding appropriateness of expressions and readability in the draft stage, but all of these issues are edited in the current Report.
- 3) Responsible Care and CSR activities
 - We commend initiatives for material issues as a guideline for continuing contribution to society.
 - We commend that results have been achieved in the reduction of industrial waste, preservation of air, water and soil environment and preservation of biodiversity while appropriately addressing laws and regulations.
 - Risk assessments are conducted at all sites, including Group subsidiaries. We commend that a list of company-wide risk items and the risk status of each plant and affiliate is kept and that the list is timely updated and revised.
 - We commend recycling of organic solvent waste created during the manufacturing process at the Aso, strengthening of plastic trash separation and its effective use as a resource in raw materials and the strengthening of risk assessments of highly corrosive chemical substances.
- 4) Distinctive characteristics of the Report
 - This Report combines financial and non-financial information, which had previously been disclosed separately, to make a single disclosure that is easier for readers to read and understand.
 - The message from the president states concisely that the Company will continue to create value and provide solutions to the issues faced by customers and society while new innovations are being developed throughout the world.

Shigeaki Nagamatsu
Chief Director, Responsible Care Verification Center
Japan Chemical Industry Association

Corporate Information/External Evaluation

Corporate Information (As of December 31, 2018)

Corporate Name	TOKYO OHKA KOGYO CO., LTD.
Established	October 25, 1940
Headquarters	150 Nakamaruko, Nakahara-ku, Kawasaki-shi, Kanagawa 211-0012, JAPAN
Number of Employees	1,673 (Consolidated)
Paid-In Capital	¥14,640,448,000
Website	https://www.tok.co.jp/eng
Stock Listing	Tokyo
Investor Relations Contact	Public Relations Division 150 Nakamaruko, Nakahara-ku, Kawasaki-shi, Kanagawa 211-0012, JAPAN TEL. +81-44-435-3000 FAX. +81-44-435-3020



Headquarters

External Evaluation

Selected or recognized for ESG-related indices, etc.

- SNAM Sustainability Index (A constituent stock in 2019)



- 2018 Certified Health & Productivity Management Outstanding Organizations Recognition Program (White 500) (2019, 2018)



- MSCI Japan Empowering Women Index (2019, 2017)



- MSCI Japan ESG Select Leaders Index (2019)



(Note) THE INCLUSION OF TOKYO OHKA KOGYO CO., LTD. IN ANY MSCI INDEX, AND THE USE OF MSCI LOGOS, TRADEMARKS, SERVICE MARKS OR INDEX NAMES HEREIN, DO NOT CONSTITUTE A SPONSORSHIP, ENDORSEMENT OR PROMOTION OF TOKYO OHKA KOGYO CO., LTD. BY MSCI OR ANY OF ITS AFFILIATES. THE MSCI INDEXES ARE THE EXCLUSIVE PROPERTY OF MSCI. MSCI AND THE MSCI INDEX NAMES AND LOGOS ARE TRADEMARKS OR SERVICE MARKS OF MSCI OR ITS AFFILIATES.

- S&P/JPX Carbon Efficient Index (As of March 18, 2019)

Evaluations and commendations for various activities

- Intel Corporation Preferred Quality Supplier (PQS) Award (2018, 2016)



- Texas Instruments Inc. Supplier Excellence Award (2018)



- Taiwan Semiconductor Manufacturing Company Limited 2017 Excellent Performance in Lithography Material (2017) IMQR Award (2016)

- Nikkei Annual Report Awards Award for Excellence (2018, 2016)



- Nikkei Science Advertising Awards Grand Prize (2016) First Prize (2015)



- Global Niche Top Companies Selection 100 (Ministry of Economy, Trade and Industry) (2014)



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tok TOKYO OHKA KOGYO CO., LTD.

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Kanagawa 211-0012, JAPAN

<https://www.tok.co.jp/eng>