

Annual Report 2017 Year Ended March 31, 2017

# Challenge for the Future



tok TOKYO OHKA KOGYO CO., LTD.



#### **PHILOSOPHY**

# 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.

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

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#### Forward-looking statements

This annual 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.

## Readers' Guide

#### **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.

Pre-processes of semiconductor manufacturing

\* Magnified cross-section of a silicon wafer

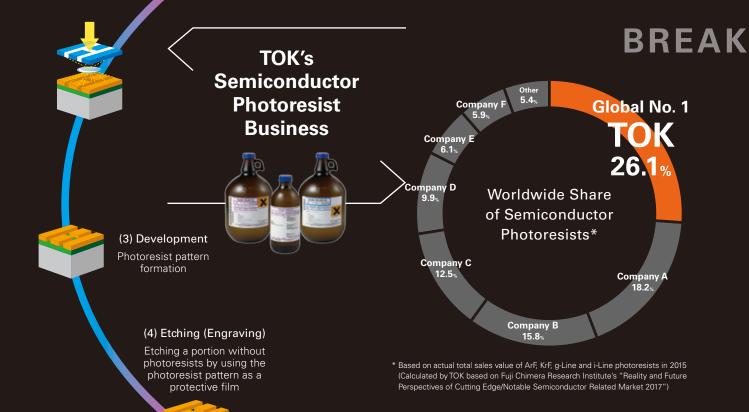
Process of making integrated circuits on a silicon circuit board and producing LSI chips. The process utilizes photoresists' resistance to etching.

(1) Coating of photoresists

Coat the photosensitive resin photoresists

(2) Exposure

Transfer of photomask (design blueprint) onto photoresists



### **Our Strength**

We have accumulated deep knowledge of all pre-processes of semiconductor manufacturing through our engagement not only in photoresists, but also in high-purity chemicals and process equipment.

→ Toward creating further high added value



#### (5) Removal of photoresists

Unnecessary photoresists removed



# (6) Formation of a semiconductor field

After coating the diffusing agent, it is baked at high temperature and the semiconductor field formed

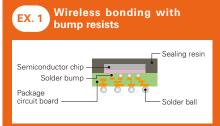
#### **Value for Society**

Mounted in various types of end products and social issues are resolved

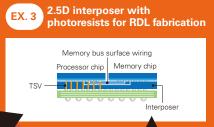
#### **Our Strength**

Providing photoresists that become growth drivers in both pre-process and post-process of semiconductor manufacturing

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



Fan-out wafer level packaging (FOWLP) with photoresists for **RDL** fabrication Redistribution laver -Sealing resin Semiconductor chip



Source (Examples 1 and 2): Nikkei Electronics, March 2016 issue

# DOWN

# Factors Adding Value to Semiconductor Photoresists

Sensitivity Resolution Roughness Etching resistance Substrate adhesiveness Processing applicability Substance safety

#### **Our Strength**

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



(11) IC chips completed After dicing, each wafer portion becomes an IC chip

(10) Dicing of wafers Wafer is diced into chip-sized components



#### (7) Formation of wiring

Fabrication of aluminum or copper distribution



#### (8) Formation of integrated circuits

ICs are built up by repeating steps (1) to (7)

# (9) Completion of

Multiple ICs are created on wafer surface using microprocessing technology

# Our History

### **Our History as a Pioneer**

The history of TOK is that of a company that has consistently taken on challenges in unchartered domains, and has created many products that are the first of their kind in Japan and the world in collaboration with domestic and overseas customers.

## Origin 1936

TOKYO OHKA RESEARCH LABORATORY, founded by Shigemasa Mukai, established a strong ideal of "challenge ourselves to develop products that entail any difficulties but are useful to society and are not offered by other companies" and built the foundation for TOK by boldly putting this philosophy into practice.



Shigemasa Mukai TOK founder

#### The Origins of TOK's Core Competencies

TOK started domestic production of potassium hydroxide in 1936, and acquired over 90% of the market share in Japan in a short period of time. In 1964, TOK succeeded in developing the world's highest purity potassium hydroxide and exported it overseas. These products became the source of our core competencies.



### Establishment of "Photoresists Specialist TOK" and Environmental Initiatives 1972

TOK launched the photoresist business on a full scale in 1968. Leveraging our high purification technologies and microprocessing technologies, in 1971, we developed an ecofriendly synthetic rubber photoresist, and in 1972, we developed the first domestically produced positive photoresist for semiconductors. We established a strong foothold in the market as "Photoresists Specialist TOK," essential for manufacturing semiconductors while giving consideration to the environment.



Eco-friendly synthetic rubber photoresist

#### Becoming a Global Niche Top Company

1997

TOK steadily developed the photoresist business, and in 1997, we developed positive, chemically amplified photoresists for use in KrF lithography. This became the global de facto standard, and was adopted by many semiconductor manufacturers. Since then, we have expanded our market share by strengthening our development and production systems, and have solidified our position as a leading manufacturer in the field of photoresists, which is a high value-added niche field.



Koriyama Plant—The manufacturing base for the global de facto standard product

### Acceleration of the Customer-oriented Strategy 201

TOK has added overseas sites one after another in the U.S., Asia, and Europe. In 2012, we established TOK Advanced Materials Co., Ltd. in South Korea, where the growth of the semiconductor industry has been remarkable. TOK Advanced Materials Co., Ltd. uses an integration of "the trinity" platform covering development, manufacturing, and sales. We have established similar systems in Taiwan and the U.S., and have built a strong development platform capable of responding quickly to customers' live needs and feedback in the cutting-edge field of semiconductors.



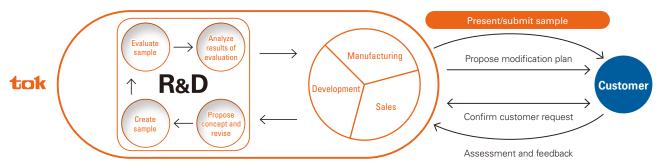
TOK Advanced Materials Co., Ltd

# **Business Model & Strategy**

# **Strategy of Building Close Relationships with Customers**

We seek to accurately identify and fulfill increasingly sophisticated and diverse customer needs. To this end, we are focused on implementing a strategy of building close relationships with customers that is designed to deliver speedy results by harnessing our collective capabilities spanning development, manufacturing and sales.

#### **Customer-oriented business model**



#### **Customer-oriented sites**

—Close ties to the region, with an integration of "the trinity" platform covering development, manufacturing, and sales—



### **Niche Top Products**

Having inherited the DNA that has existed in TOK since its founding, we are developing a business model to continue to develop and launch high-end, high value-added new products in global niche fields.

#### Main products with the world's top share



KrF excimer laser photoresists For cutting-edge semiconductors, etc.



g-Line and i-Line photoresists For power semiconductors and sensors, etc.

#### Newly developed products creating new markets



High-functional films For substrates, insulation film, etc.

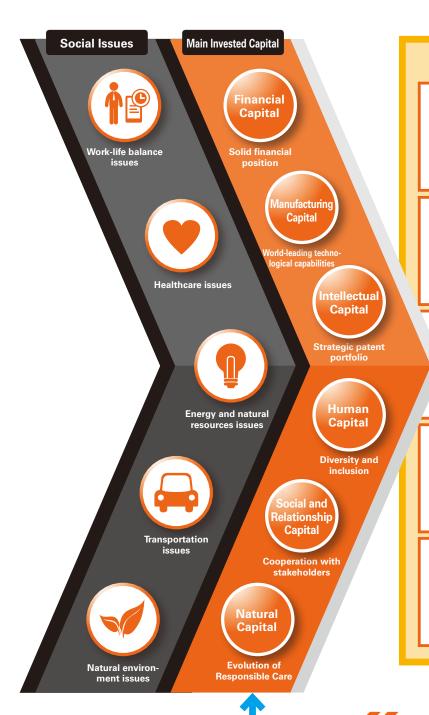


Nano-films For gas separation films, air filters, etc.

### Value Creation Process

#### **TOK's 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 the strategy of building close relationships with customers. In the semiconductor-related business, where technologies change at an extremely fast pace, our ability to create value is supported by our robust financial capital, the world's highest level of technological capabilities, and a strategic patent portfolio. Under the TOK Medium-Term Plan 2018, with the



Material Business Equipment Business

#### **Global Niche Top Company**

Aim to be the "Number One" or "Only One" for all products

# Strategy of Building Close Relationships with Customers

Integrated "the trinity" strategy of development capability, manufacturing capability, and sales capability

#### **TOK Medium-Term Plan 2018**

- 1. Reform business portfolios
- 2. Evolve strategy of building close relationships with customers
- 3. Develop global personnel
- 4. Strengthen management foundation

#### **Management Vision**

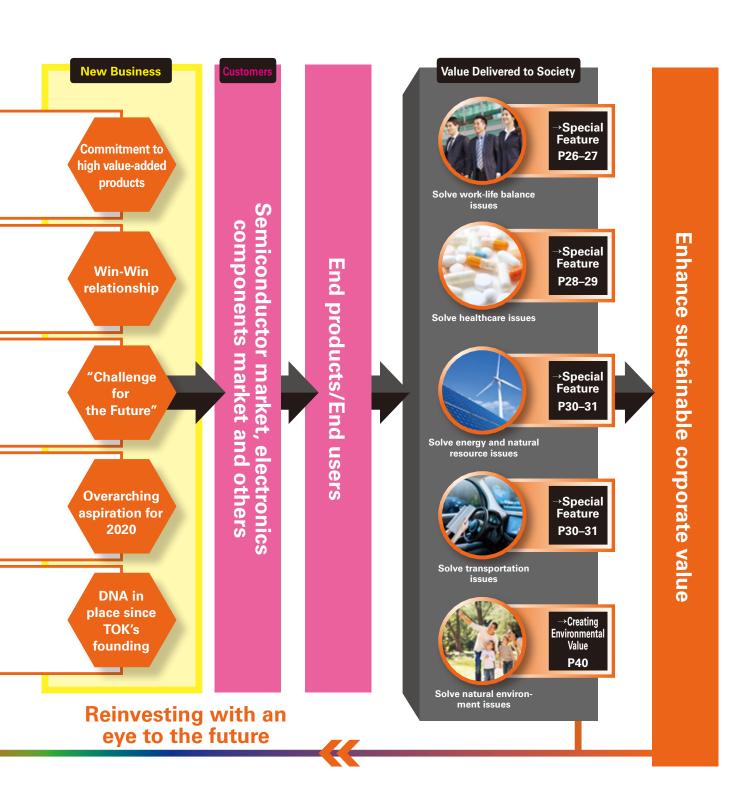
Aim to be a globally trusted corporate group by inspiring customers with high value-added products that have satisfying features, low cost and superior quality

#### **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



aim of realizing our "overarching aspiration" for 2020 by further strengthening and evolving these management resources, we will focus on promoting Diversity 2.0, open innovation, and Responsible Care in collaboration with our employees. In addition to providing the value created through these series of initiatives to society, TOK is striving to sustainably raise corporate value by reinvesting with an eye to the future.



# TOK at a Glance

### **Business Portfolio**

We are leveraging the Material Business, our current earnings driver, and realizing synergy with our Equipment Business, which is cultivating new business domains.

#### **Material Business**

#### **Equipment Business**

**Develops high value-added products** as an earnings driver

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

#### Electronic functional materials

#### **Photoresists**

Widely used materials indispensable for the microprocessing of devices including semicon-ductors, LCDs, and other electronic products



0.0

FY2017/3

billion yen

Equipment 2 Busines

#### 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



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



Consolidated net sales **59.8**%

Other

Material **Business: High-purity** 







#### High-purity chemicals

#### **High-purity chemicals**

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



#### **Inorganic and organic** chemicals

Chemicals used in a wide range of industries



#### **Process equipment for LCD panels**

Various types of process equipment including coating machines that can achieve high-precision performance, UV curing machines, and coating machines for R&D





#### —M&E (Materials & Equipment) Strategy —

**Material Business** 



Strengthen our competitive edge in both the 2D and 3D semiconductor markets



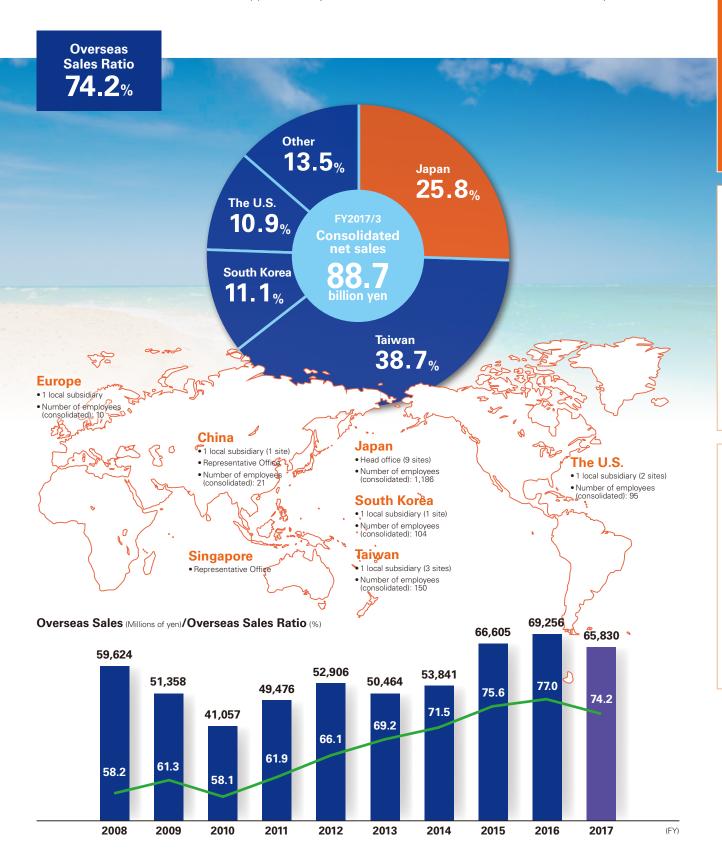
Equipment **Business** 

SWOT analysis and business performance by segment

→ Refer to pages 32–39

# **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.



#### **Product Portfolio**

We have niche areas in which we excel in both pre-processing and post-processing 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.



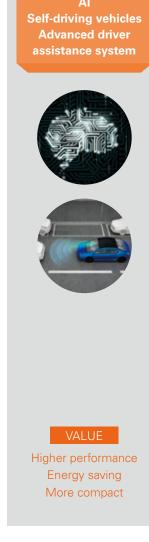
<sup>\*</sup> Based on total sales value in 2015 (Calculated by TOK based on Fuji Chimera Research Institute's "Reality and Future Perspectives of Cutting Edge/Notable Semiconductor Related Market 2017")

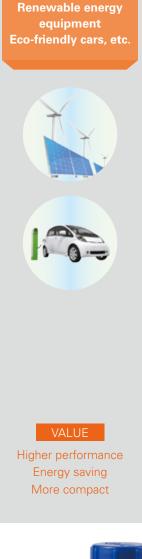
# Main Target Markets, Applications, End Products, etc.

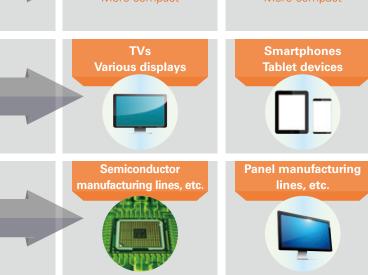
All of TOK's products are based on the B-to-B business, and people never see our products in their daily lives. However, these materials are essential for the evolution of end products, and they contribute to various innovations and to solving a range of social issues.







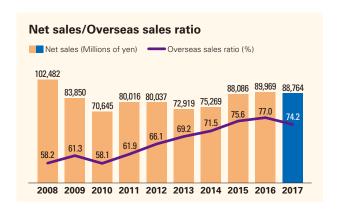


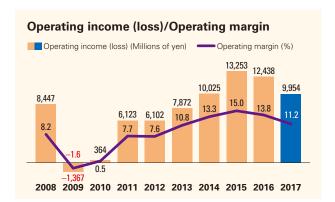


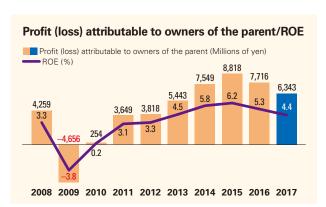


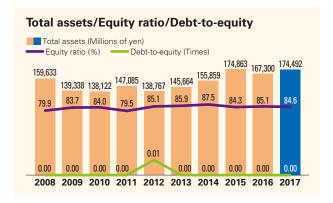
# 10-Year Financial and ESG Highlights

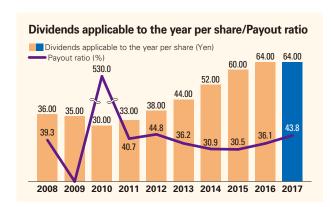
Fiscal years ended March 31

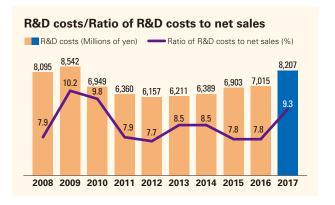


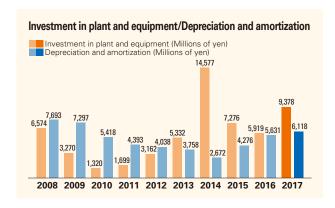


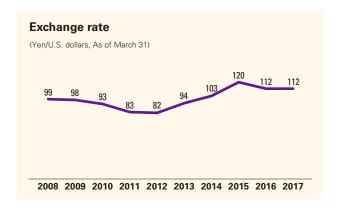


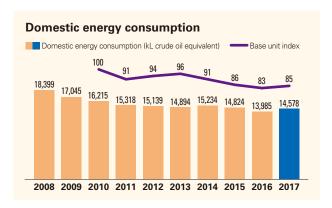






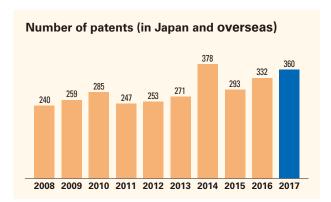








\* Total sum of general industrial waste and specially controlled industrial waste

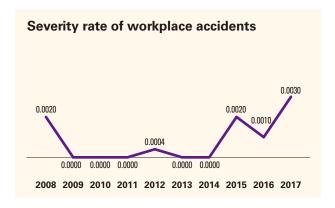


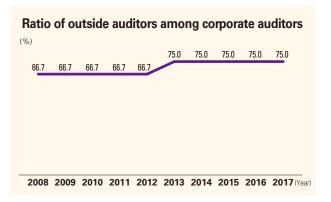




\* Non-consolidated basis (employees exclude those seconded from TOK to other companies and contract workers, and include people seconded from other companies to TOK)







## To Our Stakeholders



# Challenge for the Future

The evolution of semiconductor devices brings new value to the heart of various industries, and serves as a driving force for solving social issues. Centered on our core competencies of microprocessing technologies and high purification technologies, along with a strategy of building close relationships with our customers, TOK is committed to continuing to create value in cutting-edge semiconductor device fields, and thereby pursue sustained growth toward becoming a 100-year company.

#### Ikuo Akutsu

President & Chief Executive Officer

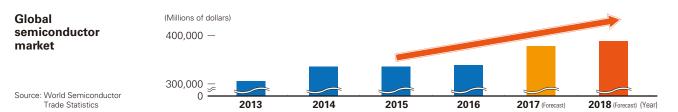




The semiconductor market is booming in 2017, and some people believe that it has shifted past the "silicon-cycle" to a "super-cycle." Roughly 80%\* of TOK's consolidated net sales come from the semiconductor-related business, so how are you dealing with this situation?

\* FY2017 (result)

# While firmly earning profits in our core business, we will continue to conduct R&D targeting future breakthroughs to further ensure sustained growth.



# Semiconductor-related Industries Are Heading toward Creating Unprecedented Value

The TOK Group has set business portfolio reforms as a priority in the medium-term plan, and we are working to develop new businesses with an eye toward business areas other than the semiconductor field, but as you know, the current earnings driver is the semiconductor-related business. We are certainly enjoying the boom in the semiconductor market with the explosive growth of cloud computing and SNS data. TOK, which has a competitive edge in materials development in cutting-edge semiconductor fields, such as for large-capacity data servers, is seizing on this trend to expand earnings in the current fiscal year.

In the future, markets related to AI, deep learning, autonomous vehicles, and IoT will launch in earnest, and the huge number of semiconductor devices with amazingly high performance will not only be used in electronic devices and automobiles, but they will also be used in every corner of society, including infrastructure and healthcare. In other words, in solving future social issues over the medium- to long-term horizon, the role of semiconductors will expand both in terms of quality and quantity, and the value that the semiconductor industry will bring will be greater than ever to society. The TOK Group will continue to play a part in this great value creation by providing high value-added products to customers in the semiconductor industry. Also, as a global company that handles chemical substances, we will continue to strive to thoroughly manage EHS (environmental, health and safety) and constantly evolve our corporate governance and CSR initiatives, thereby contributing to the sustained growth of the Group and the development of a sustainable society.

# Please Look Forward to Our Efforts Targeting Future Breakthroughs

While of course I hope that the semiconductor industry has entered a super-cycle as some have said it has, I cannot simply accept this as a truth. This is because on top of the fact that all industries have life cycles, there are aspects of the current semiconductor market in which the supply-demand balance is not completely understood.

One more thing I would like to tell all of our stakeholders is that our growth opportunities are not limited to market expansion phases like the current one. I hope you will look forward to our efforts targeting future breakthroughs, such as developing new applications in fields where the market has not yet materialized. For example, KrF excimer laser photoresists for 3D-NAND flash memory, sales of which are expanding and have been a current earnings driver, have been seeing a slowdown in growth in recent years, but demand has emerged for new applications. In response to this demand, we engaged in development from scratch, resulting in it changing into a growth product as a material for cutting-edge memory. Also, in MEMS materials, which are growing in such applications as mobile communications functions, we have been continuing our R&D efforts for more than a decade, starting when the market had yet to materialize, and it just recently emerged as a marketable product. In the semiconductorrelated market, only flashy developments tend to get much attention, but we have continued to carry out this kind of steady R&D in various fields. While we will continue to pursue solid earnings in our core business, TOK's "Challenge for the Future" is continuing to persistently develop new technologies in fields that have not yet seen the light of day, and doing so will better ensure sustained growth for TOK.



Some stock market participants view TOK as a company that is right in the center of cutting-edge semiconductor developments. Please talk in more detail about TOK's strengths.

### By continuing to turn change into opportunity, we will aim for all of our products to be the "number one" or the "only one."

#### **World-leading Microprocessing Technology**

As I have been saying all along, our core competencies are our world-leading microprocessing technologies. These are not technologies for us to process semiconductor devices ourselves, but rather technologies for developing and manufacturing materials for semiconductor manufacturers and other customers to manufacture and process state-of-the-art semiconductors. Our microprocessing technologies in photoresists include technology to develop and manufacture materials to make semiconductor circuit line widths ultra-fine, technology employed to develop and manufacture materials used to make high-density semiconductor packages, and technology to develop and manufacture materials for stacking semiconductor devices in three dimensions. We are proud that we are global leaders in these state-of-the-art technologies.

#### **High Purification Technologies**

Another core technology is our high purification technologies. In cutting-edge semiconductor fields, needs for high purification, one of our core technologies since our founding, have been growing at an increasingly fast pace, and the purity level of photoresists and high-purity chemicals (developing solutions, thinners, stripping solutions, etc.), greatly impacts semiconductor manufacturing yields. Development competition has been intensifying for circuit line widths in the 10nm level and single-digit nm level (7nm, 5nm), and in these domains the degree of technical difficulty has been rising exponentially, and further reduction of defects and the control and reduction of metal impurities are being demanded. We have accumulated world-leading high purification technologies by firmly addressing these needs that our customers have.

#### A Strategy of Building Close Relationships with **Customers**

In materials development for cutting-edge semiconductor fields, because speed is emphasized more than anything else, we are focusing on a strategy of building close relationships with customers. We have customeroriented sites in North America, Taiwan, and South Korea. Based on close communication with customers

leading the global semiconductor industry, we are quickly developing technologies in high value-added and cutting-edge domains while interacting daily with live feedback from customers.

However, I would like everyone to know that the expansion of our office network and the exchange of goods are only "tools," and that "passion" and "desire" speak volumes in these businesses. At TOK, not only people in the marketing divisions, but also people in the development and manufacturing divisions communicate directly with customers. Based on this approach, we work as one with customers to create cutting-edge products, and this collaboration is formed at our offices in Japan and overseas. In other words, in addition to having the world's highest level of microprocessing technologies and high purification technologies, a unique strength of TOK is that we are able to build close relationships with customers at the individual level. When I was in charge of quality assurance, manufacturing technology, and the development divisions, I continuously visited semiconductor manufacturers to talk with them, and I worked to satisfy their challenging demands. Also, from the time I joined TOK, my superiors instilled in me the idea that we must never, ever cause the customer's <u>production line to stop</u>. For example, one hot summer day, the logistics company we were using was not going to be able to deliver a product sample to a customer on time, so I went and delivered it myself. Also, when I was leading the Manufacturing Technology Division, I stringently checked the quality of raw materials received from suppliers, and also made great efforts with respect to environmental measures throughout the value chain.

At TOK, as a leading manufacturer of photoresists for semiconductors, in addition to all employees engaging in marketing, development, and manufacturing with an acute awareness of the need to fulfill our social responsibilities, we will continue to contribute to resolving social issues through the cutting-edge semiconductors created via collaboration between TOK and our customers. I believe that this is the true significance of our strategy of building close relationships with customers.

#### **Top Share**

Based on our strategy of building close relationships with customers, by employing the world's highest level of microprocessing technologies and high purification technologies to continue to deliver unique materials to individual customers, TOK has <u>earned the world's leading market share\* in cutting-edge fields for semiconductor photoresists.</u>

However, this result does not guarantee TOK's future success, as the result of R&D several years ago only shows up in operating performance for the completed fiscal year. For this reason, we are focusing on development of materials for advanced semiconductors with an eye toward market launches a few years down the road. Technology trends in the semiconductor industry change at a remarkable pace, and competition among materials manufacturers is just as intense as the competition among semiconductor manufacturers, who are our customers. With respect to photoresists, our competitors are major manufacturers that are several times, or even several dozen times larger than us. We will continue to refine our world-leading microprocessing technologies and high purification technologies, as well as our strategy of building close relationships with customers, and we will maintain our position as a global niche top company under the investment strategy discussed below.

#### **Continuing to Turn Change into Opportunity**

Because we are competing in a rapidly-changing industry, in some cases I will even review our strategy of building close relationships with customers, and take a very flexible view on things, such as even considering the possibility of working together with competitors, as I always strive to take an objective look at our business. However, I will never stray from my will to achieve sustained growth by continuing to turn change into opportunity. Based on this strong will, I want TOK to aim to be the "number one" or the "only one" in all products.

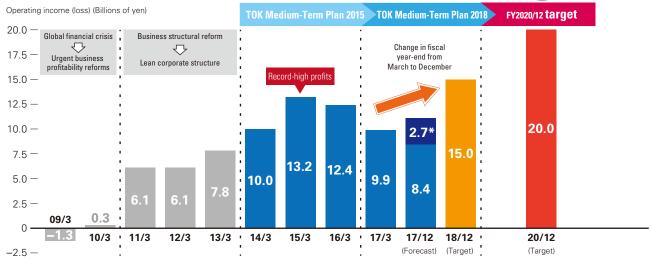
# Long-Term Management Vision, Aiming to Be a 100-year Company

TOK is working to make a reality of the management vision to "aim to be a globally trusted corporate group by inspiring customers with high value-added products," which is what the Company is aiming to be in 2020. Going forward, with our core competencies of microprocessing technologies and high purification technologies, TOK will continue to aim to become a globally trusted corporate group by offering new added value that inspires customers and end users. By putting this management vision into practice and maximizing corporate value, we will strive to build a business base as a foundation for sustained growth, and aim to become a "100-year company" in the fiscal year ending December 31, 2040.

# Growth track/medium- to long-term management objectives/growth vision







<sup>\*</sup> Due to the change in fiscal year-end, figures are shown for 12 months for both domestic and overseas companies (previous basis). FY2018/12 target is the target for the final fiscal year of TOK Medium-Term Plan 2018 (announced on May 10, 2016).

<sup>\*</sup> Based on actual total sales value of ArF, KrF photoresists in 2015 (Calculated by TOK based on Fuji Chimera Research Institute's "Reality and Future Perspectives of Cutting Edge / Notable Semiconductor Related Market 2017")



Under the "TOK Medium-Term Plan 2018," we are expanding our market share in cutting-edge fields based on our largest-ever strategic investment. Please give a summary of the first year of the Medium-Term Plan and discuss the measures for the second year.

# We will accelerate profit growth through earnings drivers to achieve record-high profits.

# Review of the First Year of "TOK Medium-Term Plan 2018"

As a numerical target for our long-term vision "Overarching Aspiration," we are aiming to achieve operating income of ¥20 billion in the fiscal year ending December 31, 2020. The three-year "TOK Medium-Term Plan 2018" that began in the fiscal year ended March 31, 2017 is an important plan that holds the key to achieving this goal. To evolve our world-leading microprocessing technologies and high purification technologies based on our strategy of building close relationships with customers, and solidify our competitive edge in cutting-edge semiconductor fields, we plan to carry out a record-high ¥34 billion in capital investment over the three-year period of the medium-term plan.

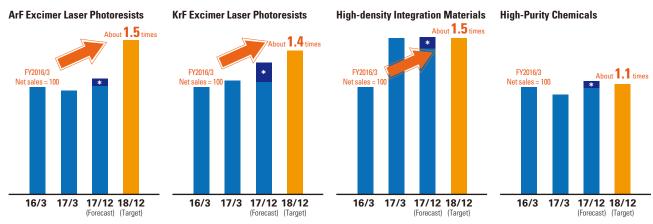
In addition, as a milestone for achieving operating income of ¥20 billion in the fiscal year ending December 31, 2020, we are aiming for a record-high profit (operating income of ¥15 billion) in the fiscal year ending December 31, 2018, the final year of the medium-term plan. In the fiscal year ended March 31, 2017, the first year of the plan, both sales and profit declined due to the impact of foreign exchange rates and other factors, but based on the fact that we steadily reformed the business portfolio through improvements to the product mix, in the fiscal year ending December 31, 2017, which will be the second year of the medium-term plan, we will accelerate profit growth by undertaking the key measures discussed as follows.

# Key Measures in the Second Year of "TOK Medium-Term Plan 2018" — Material Business —

First of all, we will accelerate efforts aimed at achieving a global market share of more than 30% for ArF excimer laser photoresists for cutting-edge semiconductors, an area where demand is growing for large-capacity servers and high-function smartphones. In the fiscal year ended March 31, 2017, sales declined compared with the previous fiscal year due to delays by customers in launching mass production processes as well as the impact of foreign exchange rates and other factors, but profits are growing for the fiscal year ending December 31, 2017. As a large investment, we have been able to build a development environment equal to our customers with a newly introduced high-resolution exposure device, and we are strengthening our efforts to have more customers use our ArF excimer laser photoresists.

As for KrF excimer laser photoresists for 3D-NAND and cutting-edge semiconductors, of which demand is growing on the back of large-capacity servers and high-function smartphones, we will further strengthen our strategy of building close relationships with customers to solidify our hold on the world's largest market share. In the fiscal year ended March 31, 2017, we achieved record-high sales of KrF excimer laser photoresists due to the expansion of mass-production of 3D-NAND by a major customer. Also, we have been increasing our supply to other manufacturers that have started to mass produce 3D-NAND, along with steady progress on development eyeing future increases in the number of chip layers. Through these efforts, we will further enhance our competitive edge.

#### Sales trends and targets for earnings drivers



<sup>\*</sup> Due to the change in fiscal year-end, figures are shown for 12 months for both domestic and overseas companies (previous basis) FY2018/12 target is the target for the final fiscal year of TOK Medium-Term Plan 2018 (announced on May 10, 2016).

Concerning high-density integration materials (semiconductor packaging photoresists and MEMS materials), in the fiscal year ended March 31, 2017, sales of materials for fan-out wafer level packaging (FOWLP) for high value-added smartphones increased more than we anticipated. As a result, we mostly achieved the medium-term plan's targets in the first year. Due to the decline in the amount of photoresist application volume in conjunction with the increase in customers' yields, we are currently seeing growth level off, but since the growth potential in this field remains unchanged, we will continue to respond to the growing needs for nextgeneration memory and the FOWLP market. As demand for MEMS materials for electronic components is growing, we will increase profits in North America, Asia, and other regions based on new mass production facilities to handle increased production.

Regarding g-Line and i-Line photoresists indispensable for the manufacture of power semiconductors supporting an environmentally friendly society, we have held the top market share for a long time, which has been supporting our overall earnings while contributing to the evolution of energy-saving controls of automobiles and energy-saving equipment. We will continue to contribute to the creation of a society that is environmentally friendly, safe, secure and convenient by working to ensure a stable supply of g-Line and i-Line photoresists.

Sales of high-purity chemicals declined due to the impact of manufacturing process changes at a major North American customer during the fiscal year ended March 31, 2017. However, thanks to the success of our strategy of building close relationships with customers in Asia, we have been able to get a customer to use products such as developing solutions, thinners, and stripping solutions for the 10nm level semiconductors for the latest models of high value-added smartphones. We are planning to achieve the numerical targets in the medium-term plan ahead of schedule by adding new production facilities at the Tongluo Plant in Taiwan. These are extremely high value-added products due to factors such as making progress on being metal-free, and local Taiwanese employees are very familiar with advanced technology and are working together with Japanese employees. Also, they are contributing to deepening the strategy of building close relationships with customers, including obtaining live, honest feedback from local customers. As of March 31, 2017, 19.6% of our employees on a consolidated basis were foreign nationals. The Group's diversity has steadily progressed in terms of our indicators, but I feel qualitative results on

the ground are what is leading to enhanced competitiveness.

# Key Measures of the Second Year of the "TOK Medium-Term Plan 2018" — Equipment Business —

In the fiscal year ended March 31, 2017, there was no expansion of the TSV market in the Equipment Business. In addition, there was an increase in R&D costs related to new challenges, including the application of TSV technology to the fan-out process and the development of next-generation flexible display manufacturing equipment and UV curing machines, and as a result we posted a segment loss for the second consecutive fiscal year. Investors and analysts have been critical, even asking if we should possibly integrate the segment into the Material Business segment or even exit the business.

However, the equipment business is the field in the world of semiconductors where technology trends materialize the fastest. By engaging in this business, we are able to quickly sense the latest needs related to materials, and TOK has the technical strength of being able to develop equipment together with customers from the initial stages of the semiconductor manufacturing process. Therefore, we are confident that our unique Materials & Equipment (M&E) strategy still has the potential for success.

Although we expect the situation to remain challenging with respect to earning profits in the second year of the medium-term plan, we have begun to see a new pathway for future growth, including inquiries for cutting-edge memory for AI, deep learning, and autonomous vehicles. We will work to achieve a breakthrough for this segment by ensuring that we turn these opportunities into successes.





As of March 31, 2017, the equity ratio was 84.6%, which is the highest level in the chemicals sector, and the debt-to-equity ratio was low, being less than 0.01. Please discuss the future investment strategy as well as your thinking about managing cash.

# By having appropriate cash reserves, we will put ourselves in a position to both go on the offensive as well as take a defensive stance, which is necessary for an R&D-driven company.

#### **Continuing to Ensure Appropriate Cash Reserves**

As we have communicated in the past, the main reason we have focused on maintaining a solid financial position is that we are an R&D-driven company whose primary markets are niche business fields shaped by extremely disruptive and rapid cycles of technological change. This means that our business model requires us to maintain our lead in global niche markets by continuously launching unique products. In addition, to be able to win out against competitors much larger than us and with different cash generation structures than us, the TOK Group must anticipate technical innovations in making R&D investments, and invest swiftly and flexibly regardless of our asset size; it is thus imperative that we hold an appropriate amount of cash reserves. We will ensure we are prepared to maintain both offensive and defensive positions by continuing to hold appropriate cash reserves, even as development grows more protracted and the time lag through investment recovery tends to lengthen.

In the fiscal year ended March 31, 2017, we newly launched a mass production line for high-purity chemicals for cutting-edge semiconductors in Taiwan, and started mass-production of high-functional films, which is a new business. To steadily carry out such short- and long-term strategic investments going forward, we are prepared to continue this policy for the foreseeable future.

# Establishment of a New R&D Building from a Super-Long-Term Perspective

As mentioned above, the TOK Group aims to achieve operating income of ¥20 billion in the fiscal year ending December 31, 2020, and eventually become a "100-year company" in the fiscal year ending December 31, 2040 by accelerating the reform of the business portfolio. To make this business portfolio reform a success from a long-term perspective, we must expand new businesses through our "open innovation" initiative based on an even higher level of collaboration with our customers, as well as with suppliers, business partners, external research institutions, and others. To this end, we recently decided to construct the new R&D Building at the Sagami Operation Center, the core of the TOK Group's R&D. Aiming to make the new R&D Building a platform to connect people and be attractive to external stakeholders, we will not only perform R&D on current cuttingedge fields, but we are also pushing through with designs from a super-long-term perspective so that this facility can continue to function as a cutting-edge R&D facility well into the future. We plan to invest a total of more than ¥5 billion, and expect the building to be complete in September 2019. We will incorporate various technical seeds, needs, ideas, and concepts from the outside, and expect this building to be the driver of the TOK Group's growth as we head towards becoming a "100-year company."



Mass production of high-purity chemicals for cutting edge semiconductors: Tongluo Plant (Taiwan)



A new product with completely new added value: Porous polyimide films



A base for open innovation from a super-long-term perspective: New R&D Building (Sagami Operation Center; to be completed in September 2019)



TOK has long taken a comprehensive view of environmental, social, and corporate governance aspects of its business, and always implements corporate activities that take into consideration corporate social responsibility. Please talk about the Company's ESG efforts going forward.

### Aiming to be a "100-year company," we will continue to enhance our unique ESG initiatives.

#### **Pursuing Corporate Governance Unique to TOK**

When Shigemasa Mukai founded TOK 77 years ago, his wish was to "challenge ourselves to develop products that may entail difficulties but are useful to society and are not offered by other companies." His wish is entrenched in the current DNA of our employees, and put into practice throughout the Group. Because this philosophy is deeply rooted in our culture, our customers recognize the added value unique to TOK in many products, starting with semiconductor photoresists, and this has allowed TOK to survive as a global niche top company.

We have actively undertaken efforts with respect to the series of corporate governance reforms in Japan that began with the establishment of the Stewardship Code in 2014 and the Corporate Governance Code in 2015. Among other moves, we have increased the number of independent officers, conducted evaluations of the Board of Directors, established and disclosed ROE targets, and increased the level of diversity for both the Board of Directors and employees. In addition, we have shared the opinions and lessons learned through dialogue with shareholders, investors and other stakeholders among all related parties including me, and have reflected them in various initiatives aimed at raising the Group's corporate value. In doing this, I have noticed two significant things.



First, with respect to the Corporate Governance Code, although we will fully comply with the Code going forward, TOK aims to be a global niche top company deeply rooted in our DNA since our founding and as such must make many arrangements unique to us and must pursue corporate governance unique to TOK. In particular, overseas sales currently account for about 75% of overall sales, so rather than looking at things from the perspective of "Japan" or "overseas," we are currently focusing on the Group Management System (GMS) Project based on the need to rebuild the governance system on a global level. Under this project, the chief aim of which is the globalization of back office divisions as well as front office divisions. We are minimizing the impact of materialized risks, as well as building a platform that facilitates acting flexibly and systematically to prevent latent risks. By sharing a global understanding of this philosophy based on the three perspectives of "control," "risk," and "compliance," we will accelerate our initiatives aimed at increasing corporate value and becoming a 100-year company.

#### Verify and Recognize What Is Natural, Aiming to **Further Strengthen Value Creation**

Secondly, while our management philosophy of "contributing to society" is instilled in our employees as our founder's DNA, we have not been able to create internal opportunities to verify how our business supports an environmentally friendly society, enriches the lives of end users, and ultimately contributes to resolving social issues. So, at this time, approximately two years since the reform of corporate governance began, we reaffirm our environmental efforts and societal efforts from both the offensive and defensive perspectives, and promote a proper understanding within the Company and accurately communicate to external stakeholders, thereby further strengthening our value creation, leading to the Company's sustainable growth and an increase in corporate value.



TOK will continue to pursue an optimal balance between investment, cash reserves, and shareholder returns, strengthening its balance sheet management to promote long-term growth as a global niche top company.

Please describe your current financial capital strategy and measures for increasing capital efficiency (ROE).

We are working to further strengthen the Company's foundation for long-term sustainable growth as a global niche top company by continuing to pursue the optimal balance between investment, cash reserves, and shareholder returns. In terms of capital efficiency (ROE), we are working to make increases through a comprehensive approach of capturing high-quality profits through business portfolio reforms, lifting the total asset turnover ratio, and revising the D/E ratio.

We have introduced "balance sheet management" as our management policy for achieving the optimal balance and solution for each of these challenges. We will advance our initiatives thoroughly from the following three perspectives.

# (1) Revise the composition and balance within assets (debits)

For investment assets, we will thoroughly strengthen management of present and future yield rates (IRR and ROIC). Furthermore, over the medium term we will pay attention to the balance of investments in non-current

assets, investments in inventory, and cash reserves for investment.

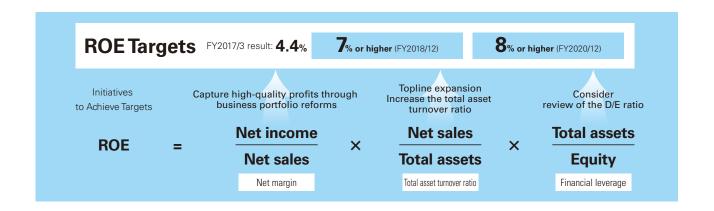
# (2) Revise the balance between assets (debits) and liabilities (credits)

We will focus on the current ratio, the fixed assets to fixed liability ratio, and the fixed ratio, and work to realize the optimal balance of debit and credit for the situation. We will also work to reduce latent foreign exchange risk and other financial risks in the balance sheet as part of efforts to achieve this balance.

# (3) Revise the composition and balance within liabilities (credits)

We will examine our immediate optimal asset composition (approximated by the optimal D/E ratio), considering factors such as (2) above, effective use of capital, and capital cost. We will also examine the composition and size of our interest-bearing debt from the perspective of asset and liability management, one of financial risk management methods.

Through these initiatives, we will boldly implement a management concept with a strong focus on building our balance sheet as the foundation for long-term growth as a going concern rather than simply pursuing



operating results on a year-by-year basis. In doing so, we will pursue the optimal balance of investments, cash reserves, and shareholder returns, as well as pursing the optimal solutions at each point in time for improving capital efficiency (ROE).

Our current basic stance in this approach to balance sheet management is that we will constantly make business investments aimed at maintaining our position as a global niche top company. We will also consider i) our status as a company that specializes in long-run R&D, ii) our current position in a technological transition period and investment expansion phase under our strategy of building close relationships with customers in the cutting-edge semiconductor field or new business domains, and iii) our distinctive competition field, where all of our business rivals are multifaceted divisions of large-scale companies. Having considered these factors, our approach is to continue the following initiatives.

- (1) Secure a relatively strong cash reserve
- (2) Increase capital efficiency (ROE) in stages, mainly by working to increase the numerator over the short term
- (3) Continue to emphasize financial stability by focusing on the equity ratio and other measures, while reviewing the D/E ratio and promoting a higher asset turnover ratio

These measures will be implemented with a view to the next medium-term plan, which will start in January 2019.

#### What is your current dividend policy?

We are targeting a consolidated dividend payout ratio of 40% or higher, which is a 10 percentage point increase over our target of 30% or higher under the TOK Medium-Term Plan 2018. Also, this fiscal year is a nine-month period as we are changing the fiscal year-end to December. The figures for Japan, including the Company itself, will be calculated based on an irregular nine-month period, but we plan to leave the amount of the dividend unchanged from the fiscal year ended March 31, 2017 at ¥64 per share, which effectively means a dividend increase, and we envisage a dividend payout ratio of 57%.

→ (Refer to page 25 "Shareholder Value" for details)

Under the TOK Medium-Term Plan 2018, TOK is executing ¥34.0 billion in strategic investments in three years. What kind of investment scale are you anticipating over the next 10 years, including the next medium-term plan?

It is difficult to make secure predictions for the next 10 years. However, pursuing the world's best technologies in cutting-edge fields will require inspection and manufacturing equipment, as well as M&A and so forth in promising fields. Also, it becomes increasingly difficult to develop technologies in advanced fields every year, and as such development runs over a longer term, it is possible that we may be making ongoing investments of around ¥10.0 billion a year, or making even larger investments at times.

However, from the medium-term perspective, I don't think that our average ratio of R&D costs to net sales will move far from the average for the past 10 years, which was around 8 to 10%. I say this because, as I mentioned, we are strengthening our management of present and future IRR and ROIC for our investments and thoroughly discussing investment efficiency based on the future outlook of sales and profit. Our development efficiency has also been increasing now that we are steadily expanding our open innovation initiatives through collaborations with external research organizations, customers, and universities, which are beginning to produce results.

With regard to exchange rate risk, the future trends seem to be growing harder to discern. For example, the relationship between the foreign exchange, stock, and securities markets appears to have weakened, particularly since the start of 2017. Given this situation, what is your policy for strengthening countermeasures for financial risks, including exchange rate risk?

As of the fiscal year ended March 31, 2017, the ratio of net sales overseas to total net sales was at a high level of 74.2%, and we expect the ratio to rise further going forward. As a result, the scale of business and assets at overseas subsidiaries is also expanding, and we will be deepening cash management as part of the balance sheet management that I mentioned before, since currency hedges alone are increasingly insufficient against foreign currency-denominated trade notes and accounts receivable and payable.

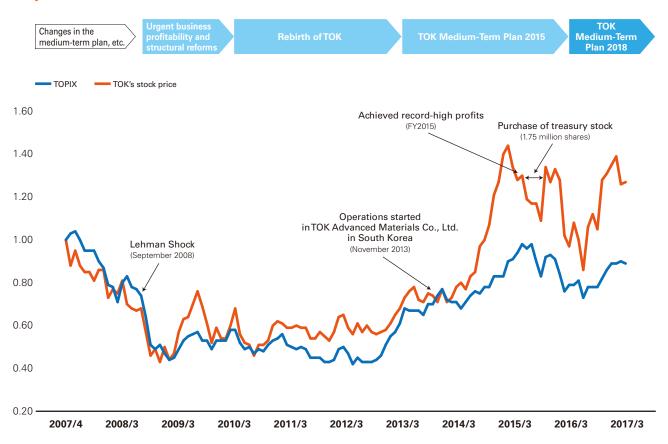
Specifically, measures to reduce risk have already been placed on the agenda of the Board of Directors. These measures are based on the results of stress tests, including foreign currency risk, liquidity risk and stock price risk on a consolidated basis, which are based on our financial risk management regulations. Currently, we are deepening global cash management, with an eye to correcting the balance of the cash position between our overseas sites. And in that process, we are working to further minimize various financial risks, including exchange rate risks.

What are the background factors and objectives of your transition to a December fiscal year-end, which is being conducted in the fiscal year ending December 31, 2017.

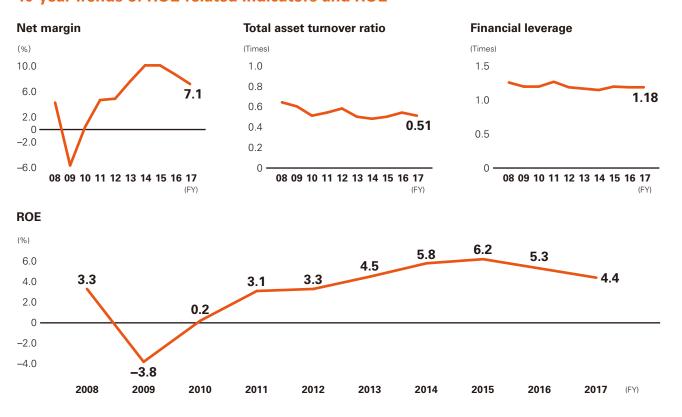
Our overriding goal is to strengthen the transparency of disclosure. As I said before, the weighting of the Group's businesses is shifting heavily towards overseas. Previously, we made financial reports with a time lag in consolidation when consolidating the April–March business results of our domestic companies with the January–December results of our overseas subsidiaries. We think that unifying the domestic companies' fiscal year-end to December in line with that of our overseas subsidiaries to achieve a synchronized consolidation period will be a major advance in fulfilling our duty of accountability to investors and ensuring transparency.

# Shareholder Value

#### 10-year Trends of TOK's Stock Price and TOPIX Relative comparison with April 2007 being 1 (monthly, closing price basis)



#### 10-year Trends of ROE-related Indicators and ROE



#### **Enhancing Shareholder Returns**

As upfront investments increase during the term of the TOK Medium-Term Plan 2018 with an unstable trend in foreign exchange rates, the rise of ROE is slightly slowing as shown on the previous page.

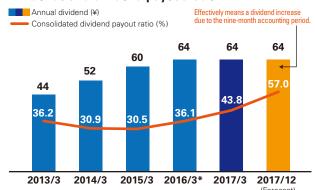
Nevertheless, in the hopes of clarifying our approach to enhancing shareholder returns in the profit growth momentum, TOK's basic policy is to raise our payout ratio guideline beginning in the fiscal year ended March 31, 2017, changing our basic policy to read "Considering the current level of dividends, continuously distribute dividends with a consolidated dividend payout ratio of over 40%."

If profit moves forward as planned in the TOK Medium-Term Plan 2018, we expect an annual dividend for the fiscal year ending December 31, 2018 of more than ¥90 per share, amounting to 1.4 times that of the fiscal year ended March 31, 2016. This represents a dividend growth rate equivalent to that of the previous medium-term plan (1.45 times over three years), which itself represented a record level of profits.

With regard to share buybacks, we will continue to consider a flexible approach as a supplementary step in enhancing

shareholder returns and improving ROE. In doing so, we will consider the balance between buybacks and other issues, including investment forecasts for the medium term and the level of cash reserves we wish to maintain, and will consider our course of action flexibly at all times.

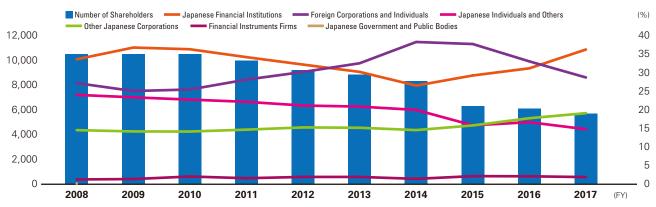
#### Dividends and dividend payout ratio



\* FY2016/3: Including a commemorative dividend of 4 yen for the 75th anniversary.

#### **Stock Information**

#### Changes in number and composition (shareholding ratio) of shareholders



(Note) Treasury stock is included in "Japanese Individuals and Others."

#### Major shareholders

(As of March 31, 2017)

Name	Number of shares held (Thousands)	Ratio of shareholding (%)	
Japan Trustee Services Bank, Ltd. (Trust Account)	2,946	6.75	
The Master Trust Bank of Japan, Ltd. (Trust Account)	2,710	6.21	
Meiji Yasuda Life Insurance Company	1,826	4.19	
MLPFS CUSTODY ACCOUNT	1,494	3.42	
The Bank of Tokyo-Mitsubishi UFJ, Ltd.	1,207	2.77	
Hitachi Chemical Company, Ltd.	1,069	2.45	
The Bank of Yokohama, Ltd.	1,026	2.35	
Tokyo Ohka Foundation for The Promotion of Science and Technology	984	2.26	
Mitsubishi UFJ Trust and Banking Corporation	953	2.19	
Mitsubishi UFJ Capital Co., Ltd.	860	1.97	

Notes: 1. The Company owns 1,462 thousand shares of treasury stock which are excluded from the above major shareholders.

The ratio of shareholding is calculated based on the number of shares
 (43,637,662 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 March 31, 2017)
Number of shares issued	45,100,000 shares (As of March 31, 2017)

\* The Company changed its fiscal year-end from March 31 to December 31

effective from fiscal 2017.

# Special Feature

TOK Helps Solve Social Issues

### -KrF Excimer Laser Photoresists -

TOK is a B-to-B company that solves social issues along with its customers through the application of the world's finest microprocessing technology, its core competence. In this special feature, we give examples of value creation at TOK.

# Coalescence of R&D Capabilities and Customer-oriented Strategy

Alongside advances in microprocessing technology in accordance with Moore's Law, exposure light sources switched from KrF to ArF, leading to a decline in the use of KrF excimer laser photoresists on cutting-edge processes from the early 2000s. With the physical limitations to miniaturization on the horizon, KrF excimer laser photoresists have attracted attention again for use in new applications for 3D semiconductor manufacturing, creating new demand. With superior processing speeds and data capacity compared with traditional semiconductors, 3D-NAND is the culmination of trial and error through close joint development with major semiconductor manufacturers and TOK.

#### KrF excimer laser photoresists



**Market forecast** 

**CAGR 5.3**%\*

2016-2020

\* Based on shipment volume (Calculated by TOK based on Fuji Chimera Research Institute's "Reality and Future Perspectives of Cutting Edge/ Notable Semiconductor Related Market 2017")

#### Development and manufacturing of KrF excimer laser photoresists

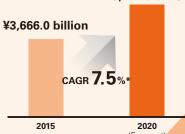


# **3D-NAND Keeps Pace with Exponential Growth in Data**

Shipments of 3D-NAND have continued to increase for the latest data servers and smartphones amid exponential growth in cloud computing and social network site data. To ensure a competitive edge in next-generation 64-layer and 96-layer 3D-NAND in addition to conventional 48-layer 3D-NAND, TOK has been engaged in R&D based on its strategy of building close relationships with its customers, the major semiconductor manufacturers.

#### NAND flash memory market forecast

¥5,274.0 billion



\* Calculated by TOK based on Fuji Chimera Research Institutes "Reality and Future Perspectives of Cutting Edge/Notable Semiconductor Related Market 2017" (including 2D semiconductors)

#### 3D-NAND manufacturing



Customer

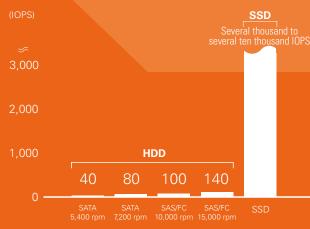
# **Smaller PCs and Faster Servers Facilitate Work Style Reforms in Society**

Solid state drives (SSDs) are an excellent example of an end product that uses 3D-NAND. SSDs are about three times faster and more compact than traditional hard disk drives (HDDs). They have supported work style reforms at companies by allowing for more compact high-performance PCs, shorter work hours, teleworking from home, and faster batch processing. We believe the value created by KrF excimer laser photoresists, our customer's 3D-NAND and SSDs will continue to expand along with growth in big data and the spread of AI.



Solving social issues

#### Speed\* comparison of SSD vs. HDD



\* IOPS for randomly accessing data

Source: ITpro, Nikkei Business Publications, Inc., "Incomparably Better Performed SSDs Supersede Hard Disks" SSDs help make PCs smaller and servers faster



**End products** 

# TOK aims to help solve social issues and bolster competitiveness while advancing its own work style reforms.

By supplying various photoresists including high-performance KrF excimer laser photoresists, TOK helps reduce working hours across society. Higher data processing speed and larger data capacity of PCs and servers, achieved by increasing performance of semiconductors, made information sharing via the Internet easier and are supporting

flexible work styles that allow people to work anytime and anywhere. We have also promoted work style reforms, encouraging employees to use all their paid vacation and work fewer hours. In the fiscal year ended March 31, 2017, our ratio of paid vacation usage was 77%, far higher than the average for the manufacturing industry, 55%\*. Over the past five years, including the fiscal year ended March 31, 2015 when record-high profits were posted, TOK has seen a steady decrease in the amount of overtime work. By addressing this social issue with a sense of ownership, our competitiveness is strengthened while motivating us to take on new challenges in solving issues faced by society.

 General Survey on Working Conditions 2016/ Ministry of Health, Labour and Welfare **Kazuhiko Nakayama** General Manager, Human Resources Div.



# Special Feature

TOK Helps Solve Social Issues

# ArF Excimer Laser Photoresists & High-Purity Chemicals

Semiconductors on the cutting edge of miniaturization are a part of the solution for increasingly complex and sophisticated social issues. We introduce the initiatives being undertaken by TOK on the cutting edge of advanced value creation.

# ArF Excimer Laser Photoresists Essential for Cutting-Edge Semiconductors

The market for ArF excimer laser photoresists, which have the most advanced miniaturization and are used in the manufacture of the most consumer-oriented semiconductors at the linewidth of 10nm to 20nm level, is expected to grow at an annual average of 8.9%\* by 2020, driven by growing demand primarily for semiconductors for next-generation computers and high value-added smartphones. As a priority measure under the TOK Medium-Term Plan 2018, we are focusing on further evolution and expanding the market share held by ArF excimer laser photoresists through a strategy of building close relationships with customers, the major semiconductor manufacturers.

#### ArF excimer laser photoresists

Consolidated net sales breakdown

14.5%

FY2017/3

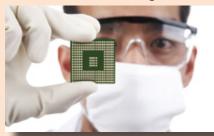
Market forecast

CAGR **8.9**%\*

2016-2020

\* Based on shipment volume (Calculated by TOK based on Fuji Chimera Research Institute's "Reality and Future Perspectives of Cutting Edge/Notable Semiconductor Related Market 2017")

# Cutting-edge semiconductor manufacturing



Customer

Development and manufacturing of ArF excimer laser photoresists & high-purity chemicals



TOK

# Creation of a Framework for Consistently Fulfilling Obligations to Our Customers

The quality of ArF excimer laser photoresists and high-purity chemicals has a direct impact on the quality and yields of cutting-edge semiconductors produced by our customers. TOK is therefore committed to constantly improving and perfecting its quality assurance system. The Company has made progress creating a work environment more conductive for women, and has steadily instilled a framework where we continue to fulfill obligations to our customers while promoting diversity and flexible work styles based on career formation plans.





#### Higher performance of supercomputers



#### **End products**

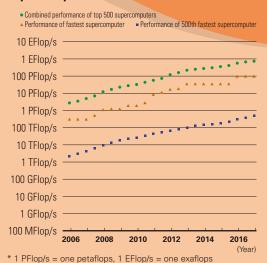
#### Supercomputers Increase Efficiency of **New Drug Development**

Supercomputers are one application of cutting-edge semiconductors made with ArF excimer laser photoresists and highpurity chemicals. Supercomputers are able to perform more than 10 quadrillion calculations per second, enabling the discovery of solutions for increasingly complex and advanced social issues. For example, the development of new drugs can be shortened using simulations of chemical compound bonding while enhancing prediction accuracy for side effects. The combination of further advances in semiconductors and Al technology is likely to lead to shorter development timeframes for new drugs and lower costs.



#### Solving social issues

#### Constantly improving performance of supercomputers



Source: TOP500.org® website

#### **Meeting Growing Needs for High-Purity Chemicals**

In the cutting-edge semiconductor domains, demand for the "high purity processing" that has always been a core technology of TOK is increasing at an accelerated pace. It becomes a major factor affecting the competitiveness of photoresists alongside high-purity chemicals such as developing solution, thinner, and stripping solution. The Company's focus on clear, identifiable reductions in impurities has realized a quality control system capable of detecting one drop of coffee (0.025 ml) in a 50-meter Olympic size swimming pool, contributing to customers' value creation through important added value.

#### Levels of metallic impurities in TOK's cutting-edge products

ArF excimer laser photoresists

Less than 1 ppb\*1

\*1: 1 ppb = 1 part per billion

**High-purity chemicals** (developing solutions, thinners, etc.)

Less than 10 ppt\*2

\*2: 1 ppt = 1 part per trillion

# Special Feature

TOK Helps Solve Social Issues

# -g-Line and i-Line Photoresists -

Needs have been growing for power semiconductors in renewable energy systems and eco-friendly vehicles. TOK contributes to the development of an environmentally friendly society as the world's No. 1 manufacturer of g-Line and i-Line photoresists, which are essential in the production of power semiconductors.

# Development and manufacturing of g-Line and i-Line photoresists



TOK

# Top Share of Global Market for g-Line and i-Line Photoresists Essential for the Production of Power Semiconductors

Power semiconductors are key energy conservation components in renewable energy systems, including wind and solar power generation, as well as electric vehicles, hybrid cars and fuel-saving gasoline vehicles. TOK has the largest market share 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 10% of consolidated net sales. g-Line and i-Line photoresists make up over 60% of the entire photoresist market on a volume (gallon) basis. TOK contributes to the creation of an environmentally friendly society as the manufacturer of the most widely used photoresists in the world.

#### **Power semiconductor manufacturing**



Customers

#### Fulfilling Our Responsibilities as a Supplier for a Safe and Secure Society

In g-Line and i-Line photoresists, TOK is uniquely able to stay in tune with the needs of semiconductor manufacturers based on its strategy of building close relationships with customers, and fulfill demand that varies considerably with each customer due to their use of photoresists in different volumes and thickness for coatings. In addition to power semiconductors, demand for our g-Line and i-Line photoresists is expected to grow in fields that prioritize safety and security, such as automotive sensors for autonomous vehicles and other sensors related to IoT. TOK ensures a reliable supply of high-quality photoresists by leveraging its expertise in stringent quality management for cuttingedge photoresists, such as ArF and KrF excimer laser photoresists.

# g-Line and i-Line photoresists



**Market forecast** 

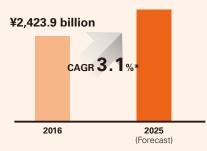
CAGR **5.7**%\*

2016-2020

\* Based on shipment volume (Calculated by TOK based on Fuji Chimera Research Institute's "Reality and Future Perspectives of Cutting Edge/Notable Semiconductor Related Market 2017")

## Overall power semiconductor market forecast

¥3,179.9 billion



\* Calculated by TOK based on Fuji Keizai's "Reality and Future Prospect of Next Generation Power Device and Power Electronics Related Apparatus Market 2017"

#### **Strong Growth Potential in Next-Generation Power Semiconductor Market**

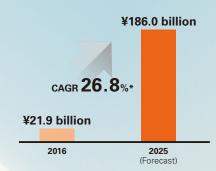
In the semiconductor industry, companies have been developing SiC (silicon carbide) and GaN (gallium nitride) power semiconductors for power conditioners used in next-generation solar power generation systems and for electric vehicles. The market for these next-generation power semiconductors is small, but is expected to expand strongly, by an average of 26.8%\* annually through 2025. Aiming to tap into this new source of demand, TOK has been researching and developing i-Line photoresists with the ultimate aim of sustaining long-term growth as a company that contributes to the creation of an environmentally friendly society.

#### Proliferation and evolution of renewable energy systems, eco-cars and energy-saving home appliances



**End products** 

#### Overall next-generation power semiconductor market forecast



\* Calculated by TOK based on Fuji Keizai's "Reality and Future Prospect of Next Generation Power Device and Power Electronics Related Apparatus Market 2017"

#### Creation of an environmentally friendly society



Solving social issues

#### Message from a Business Partner: Reducing Energy Use in Manufacturing

TOK plays a role in the creation of an environmentally friendly society by supplying products for power semiconductors. At its own manufacturing sites, TOK is working to reduce energy usage. My company specializes in the engineering and installation of heat and cold retention materials and soundproofing materials, and we helped TOK improve its heating solutions at all plants after having the opportunity to install heat insulation for boiler-related equipment at the Sagami Operation Center. After taking these measures to insulate heat, energy consumption was reduced by 867 t-CO<sub>2</sub>. By helping TOK with its own initiatives to conserve energy, my company supports the creation of value in its core businesses.

> Mr. Kozo Toda Tokyo Sales Office, YOKOTA INDUSTRIAL CO., LTD.



# 2017 Review of Operations

# **Material Business**

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



#### **Material Business Performance**

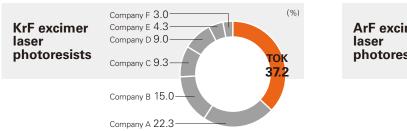
(Millions of yen)

				FY2017/3 Result			FY2016/12 Adjusted	FY2017/12 Forecast		
	FY2014/3	FY2015/3	FY2016/3		Change	%	Result*		Change	%
Net sales	72,866	84,611	87,280	86,558	(721)	(0.8%)	78,842	86,100	+7,257	+9.2%
Electronic functional materials	43,261	49,818	51,134	53,074	+1,940	+3.8%	47,318	49,600	+2,281	+4.8%
High-purity chemicals	29,194	34,844	35,931	33,475	(2,456)	(6.8%)	31,026	35,900	+4,873	+15.7%
Other	410	(52)	214	9	(204)	(95.6%)	496	600	+103	+20.8%
Segment income	14,086	16,355	16,203	14,470	(1,733)	(10.7%)	12,448	12,000	(448)	(3.6%)
Segment income margin	19.3%	19.3%	18.6%	16.7%	_	_	15.8%	13.9%	_	_
Segment assets	79,147	92,440	90,734	97,542	_	_	_	_	_	_
Depreciation	2,241	3,894	5,220	5,831	_	_		_	_	_

<sup>\*</sup> Due to the change in fiscal year-end, adjusted results for the fiscal year ended December 2016 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).

#### Earnings Drivers: Worldwide Share of Immersion KrF Excimer Laser Photoresists and ArF Excimer Laser Photoresists

(Based on sales amount in 2015)





Source: Fuji Chimera Research Institute, Inc. "Reality and Future Perspectives of Cutting Edge/Notable Semiconductor Related Market 2017"

#### ■ 2017 Market Conditions

# Cutting-edge semiconductor fields continue to grow while diversifying

In the semiconductor industry, short-term production activity is brisk for products used in next-generation smartphones and high-performance servers amid growth in cloud computing. Over the longer term, markets for cutting-edge domains related to Al, deep learning, autonomous vehicles and IoT are expected to expand. In the development of cutting-edge semiconductors, the miniaturization roadmap, which was shared among semiconductor manufacturers in the world, was updated for the final time in 2015. Major semiconductor manufacturers are now accelerating the development of technologies based on their unique ideas and strategies. Fierce competition is likely to continue for some time on the development of technologies that will become the next de facto standard.

TOK will adhere to its strategy of building close relationships with customers on all fronts in cutting-edge fields, taking advantage of its ability to supply advanced materials for both the pre-process and post-process of semiconductor manufacturing, and its ability to develop superior technologies in the areas of semiconductor miniaturization, higher density and 3D packaging.

#### Growth Strategy

#### Produce steady results with earnings drivers

TOK's ArF excimer laser photoresists are being increasingly adopted in 10nm level processes, as

yields improve on the 14nm node at cutting-edge semiconductor manufacturers. Amid the growth of devices using such semiconductors, we aim to increase our market share through the acquisition of new customers based on our track record of adoption.

In KrF excimer laser photoresists for 3D-NAND, for which mass production has been ramping up, we aim to increase earnings further through steady growth in customers and the number of layers, even though usage volume on a unit basis has been decreasing alongside better yields at customers. In high-density integration materials, especially fan-out wafer level packages, we are focusing on the further development and supply of packaging photoresists because continued expansion is expected in this market as production volume increases at major semiconductor manufacturers and OSAT manufacturers.

# Evolve strategy of building close relationships with customers

Our strategy of building close relationships with customers is at the core of our growth strategies. We are focusing on advancing our global network as customers develop business overseas at a faster pace. We are giving more operational discretion to local subsidiaries in South Korea, Taiwan and North America, while sharing globally their understanding of each country, field, and customer as well as technological trends. This will lead to better organizational tactics. We will present to our customers the best solutions for their needs.

#### Market for Materials Used in Fan-Out Wafer Level Packages (FOWLP), an Area with Strong Growth Potential



Source: YOLE DEVELOPPEMENT "Equipment & Materials for Fan-Out Packaging 2017 report, March 2017"

### SWOT Analysis — Material Business —

- Global structure of close relationships with customers (South Korea, Taiwan, North America, Japan)
- 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)
- 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 Al and IoT
- New semiconductor needs from launch of 5G communications systems

- Fewer customers, with the same number of photoresist manufacturers
- Over-concentration of business domains in the electronics industry (delay in commercialization of growth sectors such as life sciences)
- Resistance to price hikes based on industry business practices



Rising cost of development due to increasing technological difficulties

- Fewer customers due to industry consolidation
  - Increased investment outlays for inspection and production equipment in connection with ultrahigh purification
  - Higher costs of next-generation exposure equipment

# High-purity chemicals for 10nm level semiconductors — TOKTAIWAN —

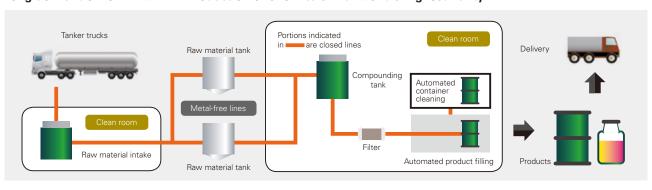
Based on our strategy of building close relationships with customers, our Tongluo Plant of TOK TAIWAN supplies high-purity chemicals including cleaning, stripping, developing solutions and thinners for 10nm level semiconductors for the latest high value-added smartphone models. TOK has created new value through the development and supply of high-performance chemicals by adding new elements to their conventional functions. We also employ methods to ensure the highest levels of performance in the world to prevent contamination, the one factor that has the largest impact on the quality of cutting-edge semiconductors.

More specifically, TOK uses clean rooms for receiving raw materials from suppliers, compounding chemicals, and the automated cleaning of containers. Our metal-free lines use parts and materials that do not elute metallic substances in pipes, tanks, and other wetted parts. This

forms the basis of the TOK Group's production process for high-purity chemicals, i.e., the "preparation and use of good raw materials and good facilities under good conditions in good environments." This approach is strictly implemented in cutting-edge fields. When delivering highend products, the risk of quality deteriorating increases the further the product travels. TOK's Tongluo Plant is physically close to the semiconductor manufacturing plants of its customers. This geographic advantage, in line with our strategy of building close relationships with customers, is leveraged to the fullest so that 100% of the added value in our products reaches the customer.

With a product supply structure like this in place, TOK TAIWAN receives high ratings for a certain corporate customer's quality ranking of major suppliers, thanks to "the trinity" of sales, development, and manufacturing, which handles inquiries from customers in the process of using its products, facilitating speedy customer service.

#### Tongluo Plant of TOK TAIWAN - Production of Chemicals with World's Highest Purity-





#### — Aiming to harmonize with the natural environment / Tongluo Plant of TOK TAIWAN —

In Taiwan, currently, there is a pressing need to build a recycling-based society addressing issues associated with preserving biodiversity, strengthening chemical management, and insufficient water resources. In response, the Tongluo Plant introduced an environmental management system when it first started operations for continual improvement with the participation of all employees. The company conducts environmental impact assessments on all processes and implements measures to avoid or reduce environmental impact in connection with items whose impact is significant. Through these ongoing activities, the company is reducing its impact on the surrounding environment to the maximum extent possible and establishing itself as a plant capable of harmonizing with the natural environment. In addition, TOK TAIWAN will formulate and execute plans for actively considering the environment, recycling water resources, reusing waste, and reducing energy consumption.

Zhang Weng Deputy Manager, Plant Management Division, Plant Management Dept., Tongluo Plant, TOK TAIWAN

# Cutting-edge miniaturization and EUV lithography

# EUV lithography likely to be commercialized for semiconductor production in 2018

The cutting edge in semiconductor miniaturization for mainstream production is around the 14nm node with ArF excimer laser photoresists. In a few years, the semiconductor market is expected to move to the 10nm level with double patterning using ArF excimer laser photoresists. Major semiconductor manufacturers are leading the development of extreme ultraviolet (EUV) lithography for the 7nm to 5nm level, the next stage of miniaturization. EUV lithography looks increasingly likely to be commercialized in 2018.

If it is commercialized, and a next-generation supercomputer model is built with 7nm semiconductors, its processing power would probably be approx.100 times better than current models. Next-generation supercomputers will play a major role in helping to solve social issues, by facilitating more efficient development of new drugs and more precise forecasts of climate change.

## Classifications of Semiconductor Photoresists by Light Source

	g-Line/i-Line photoresists	KrF excimer laser photoresists	ArF excimer laser photoresists	EUV photoresists
Added value of photoresists				High
Light source for lithography	g-Line/i-Line	KrF (krypton fluoride) excimer laser	ArF (argon fluoride) excimer laser	Extreme ultraviolet
Wavelength of	436nm (g-Line)/365nm (i-Line)	248nm	193nm	13.5nm
light source	Long			Short
Line width of	350nm>~≧250nm	250nm>~≧130nm	130nm>~≧10nm	10nm>~
semiconductors*	Wide			Narrow
Main applications and end products, etc.	Automotive power semiconductors Sensors LEDs, etc.	Mass-market smartphones High-performance servers Game consoles, etc.	Cutting-edge smartphones Wearable devices High-performance servers, etc.	Next-generation supercomputers, etc.

<sup>\*</sup> Only the round figures of primary ranges are shown

# **TOK initiatives in EUV photoresists**

From an early stage, TOK has been working on the development of EUV photoresists. The Company has been increasing the frequency of sample evaluations at customers by proactively leveraging overseas sites, and accelerating development through collaboration with IMEC (Interuniversity Microelectronics Centre), a research institution in Europe. EUV photoresists currently under development are primarily chemically amplified photoresist, the same kind as KrF excimer laser photoresists and ArF excimer laser photoresists. The performance threshold of this photoresist is thought to be around the 5nm node, so attention is also focusing on non-chemically amplified EUV photoresists, such as small-molecule photoresists and metal-oxide photoresists.

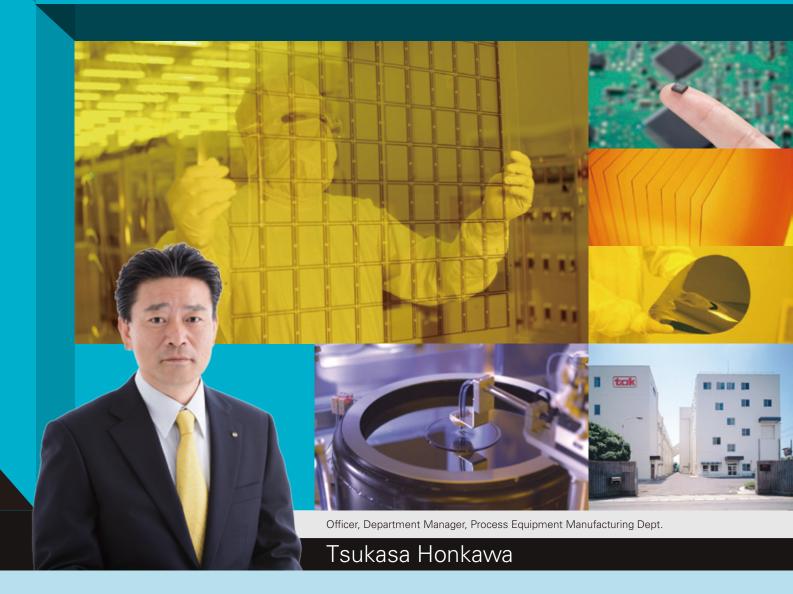
In 2016, TOK acquired a stake in Inpria Corporation for about ¥180 million to gain access to its excellent technologies in metal-oxide EUV photoresists, for the purpose of laying a foundation for the development of EUV photoresists beyond the 3nm node. TOK is currently accelerating efforts to commercialize Inpria's technologies, including scaling up production of its photoresists and examining the supply of associated materials.



# 2017 Review of Operations

# **Equipment Business**

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



# **Equipment Business Performance**

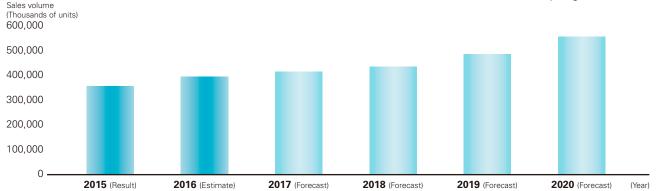
(Millions of yen)

				FY	FY2017/3 Result			FY20	)17/12 Fored	ast*
	FY2014/3	FY2015/3	FY2016/3		Change	%	Adjusted Result*		Change	%
Net sales	2,484	3,581	2,748	2,252	(496)	(18.1%)	1,918	2,700	+781	+40.7%
Segment income (loss)	(889)	20	(423)	(750)	(327)	_	(333)	(600)	(266)	_
Segment income margin	_	0.6%	_	_	_	_	_	_	_	_
Segment assets	4,168	3,694	3,738	3,296	_	_	_	_	_	_
Depreciation	204	167	169	45	_	_	_	_	_	_

<sup>\*</sup> Due to the change in fiscal year-end, adjusted results for the fiscal year ended December 2016 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). Net sales for FY2016/12 Adjusted Result and FY2017/12 Forecast are the figures after elimination of inter-segment sales.

## Outlook for the Market of the Through-Silicon-Via (TSV) Process for 3D Semiconductor Packaging, etc.

(Number of packages)



Source: Fuji Chimera Research Institute, Inc. "Reality and Future Perspectives of Cutting Edge / Notable Semiconductor Related Market 2017"

# 2017 Market Conditions

# 3D semiconductor packaging with TSV emerging as an increasingly promising market

Through-silicon-via (TSV) is a multilayering technology that layers thinned semiconductor wafers in 3D, using a through-silicon process to pass between the layers. It provides a number of benefits, including more compact, higher-density semiconductors with reduced power consumption, as well as higher signal transmission and processing speeds, and is one of the most highly anticipated areas of multilayering technology. In addition to their applications in image sensors, cloud servers, and high-end computer graphics, semiconductors using 3D packaging through TSV are also expected to find use in smartphones and tablet devices, where demands for reduction in size and weight are stringent. TOK deals in TSV equipment as a core product in the Equipment Business, and has supplied a decent amount of equipment to semiconductor manufacturers. In the fiscal year ended March 31, 2017, earnings in the Equipment Business remained in an adjustment phase, owing to a lack of brisk activity in the market due to the technology's high costs, as well as increases in R&D costs for versatile applications.

Currently, TSV technology is beginning to show promise in applications for next-generation servers, Al, and GPUs, which are growing as semiconductor devices for autonomous vehicles, as well as various semiconductor

devices for fifth-generation communications systems (5G). TOK is seeking business opportunities in these promising new markets by developing new technologies and reducing costs based on its strategy of building close relationships with its customers.

# Growth Strategy

# Focusing on TSV equipment and development of versatility with an eye on the future

In TSV equipment, we will focus on expanding sales of our Zero Newton wafer handling system, which offers significant streamlining of the bonding/debonding process of carrier circuit boards supporting ground semiconductor wafers and high cost performance, to semiconductor manufacturers in Asia, Japan, and the U.S., along with related process materials.



Zero Newton bonding machines TWM series



Zero Newton debonding machines TWR series

# **TOK Value Creation Flow in TSV Equipment**

TOK

Develop and offer TSV equipment



# Customer

Image sensors and 2.5D, 3D semiconductors



\* IC chip photo is an image







Annual Report 2017

# SWOT Analysis — Equipment Business —

- Track record in TSV equipment adoption, resulting advantage in technology and technological improvement
- Provides high-performance equipment for bonding and debonding
- Knowledge of materials developed in the Material Business
- Lower break-even point using the fabless production method
- Strengths Wes
- 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
- S W
- $\mathcal{N}$

prototypes, etc.

- ОТ
- Full-scale entry by major companies as competitors catch up
   Introduction of high integration processes aside from 3D

- 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

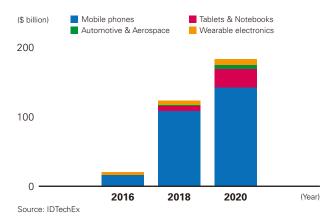
Moreover, the Equipment Business is now focused on the development of next-generation flexible display manufacturing equipment. TOK has advanced technologies, insight and know-how for displays, as demonstrated by its process equipment for LCD panels playing a central role in setting record-high net sales in the fiscal year ended March 31, 2007. Companies are working hard to commercialize advanced technologies, such as wearable displays that can be worn like wristwatches and eyeglasses, or flexible displays just a few microns thick for attaching to curved surfaces. TOK is stepping up efforts to develop manufacturing processes and commercialize new materials for these budding advanced technologies, while making investments in specific facilities.

TOK has built up a strength in accumulated knowhow in high-precision coating (film forming) technologies for a variety of chemicals used in the semiconductor manufacturing process as a result of R&D in photoresists and other materials. Accordingly, the Company is also focusing on the development of related equipment.

A leading example of this is its UV\* curing machines, which can form high-resolution TFT (Thin-Film Transistor) arrays without heat. Therefore, the needs for UV curing machines are growing in the production of high-resolution displays for smartphones and tablet devices. TOK is currently updating its TIPS series of UV curing machines, which combine improved heat resistance and dry etch resistance while maintaining detachability. A new method has resulted in superior film quality using more efficient processes, so evaluations of prototypes are underway with an eye on commercialization.

\* Ultraviolet

#### Plastic and Flexible AMOLED





UV curing machines



# Global Recruit Training Program that can be used on the sales front lines

I promote to customers the latest technologies responding to market needs as well as being involved in sales of equipment for flat panel display (FPD) production. In the Global Recruit Training Program I took part in last year, we identified issues ourselves and gave a presentation to the executives in English on how to resolve these issues. The training enabled me to learn about things like making effective presentations, summarizing selling points and having the courage to speak unreservedly in front of people, and I am now putting all those skills to use while talking with customers during business discussions. Looking ahead, I want to speak out about the competitive edge provided by TOK's products, and engage in sales activities to expand market share for our equipment.

Jiao Peiye Marketing Section 2, Equipment Marketing Dept.

# **2017 TOPICS**

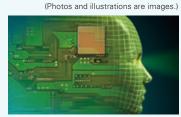
# Front line of semiconductors for AI and deep learning

On the cutting edge of semiconductors, major semiconductor manufacturers have been competing for advantages in the development of new products for the growing deep learning and Al markets. At this stage, there are three main trends: GPUs, FPGAs, and co-processors.\*

\*Source: Mynavi News "Which semiconductor leads the progress of Al and big data — GPU or FPGA or CPU?" Yukio Kobayashi

# **GPU (Graphics Processing Unit)**

GPUs are semiconductor devices used in conjunction with high-speed memory for the parallel processing of large volumes of data. GPUs have traditionally been used for computer graphics and image processing for game consoles. By arranging GPUs in parallel, however, they can be used effectively for deep learning, and development is focusing on their application in AI, autonomous vehicles and next-generation cloud servers.



# FPGA (Field-Programmable Gate Array)

FPGAs are semiconductor devices that enable on-site reprogramming of their own circuits. Since they can be reprogrammed after a product ships, they are used in a wide variety of products, including communications base stations, largescale routers, and displays. As FPGAs can be used to build neural networks that mimic thought patterns in the human brain, they are being developed for deep learning applications.



Autonomous vehicles

# Co-processor

Co-processors are semiconductor devices connected directly to a CPU as a supplementary processor to accelerate the CPU. They enable large-scale parallel processing by optimizing control software and using the same methods as parallel processing for conventional CPUs, and their development is moving ahead together with that for the supporting hardware for Al and deep learning.



Next-generation servers

# **TOK Initiatives**

Semiconductor manufacturers may sound the same but they have various business models. The most common business models are shown below. Many semiconductor manufacturers are involved in semiconductors for Al and deep learning. Regardless of technological trends or business models, TOK takes the best approach with photoresists in its Material Business and TSV equipment in its Equipment Business. Refining its strengths in both under the strategy of building close relationships with customers, TOK aims to maximize synergies generated through our Materials & Equipment (M&E) strategy.

# Types of Business Models at Global Semiconductor Manufacturers

Business Model	Features
IDM (Integrated Device Manufacturer)	Vertically integrated model where everything is done in-house, from circuit design to production and sales
Fabless	Specializes in R&D, design, and marketing, without owning plants
Foundries	Only consigned production for semiconductor manufacturers and fabless firms
OSAT (Outsource Assembly and Test)	Among foundries, but only involved in post-processing of semiconductor manufacturing

# TOK Creates Value for the Environment through Business Activities



TOK creates environmental value through business activities via its core competence in microprocessing technology, in addition to providing g-Line and i-Line photoresists for power semiconductors, which were introduced in the Special Feature (pages 30–31).

In new business fields, TOK develops new products that contribute to the realization of an environmentally friendly society through its high value-added technological expertise accumulated in the semi-conductor-related businesses.

# Our Photoresists Contribute to the Miniaturization of Semiconductors, Which Create Value in an Environmentally Friendly Society

By reducing the line width of semiconductors by half through advances in photolithography technologies using photoresists, power consumption can be reduced by 75% on semiconductor chips.\* TOK's track record in miniaturization over a span of more than 40 years has helped reduce the line width to 1/1,000,

thereby cutting power consumption to  $1/1,000^2$  of what it used to be.

Although the pace of miniaturization semiconductors has slowed, TOK will continue to develop and provide cutting-edge photoresists that contribute to the creation of an environmentally friendly society.

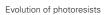


Line width of semiconductors

Power consumption of semiconductor chips

For 1/X2\*

Through various devices and finished products, contributing to creation of an environmentally friendly society



\* A rough estimate for two-dimensional semiconductors based on scaling laws







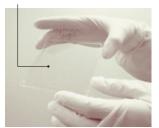
# Launch of New Business of CO<sub>2</sub> Recovery Films

Under the TOK Medium-Term Plan 2018, which strategically prioritizes reforms of the business portfolio, TOK has been accelerating the development of new businesses in addition to focusing on high value-added products in existing businesses. For example, we have begun providing samples of nano-films, which are the thinnest films imaginable (less than 100nm) with large surface areas. We developed them in 2016 with help from NanoMembrane Technologies, Inc. (Headquarters: Higashi-ku, Fukuoka City/Representative: Toyoki Kunitake), which has been designated as a RIKEN Venture\* by RIKEN.

Made with organic, inorganic and composite materials, these nano-films are less than approx. 1/1,000th the thickness of a human hair. In addition to the semiconductor field, these nano-films hold promise for applications in environmental cleaning technologies, renewable energy devices, storage batteries and fuel cells. Of these possible applications, nano-films enable low energy and highly efficient gas refining, which is necessary to realize a next-generation energy society. Right now, we are focusing on their development as CO<sub>2</sub> and scarce gas recovery films.

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

Less than 100nm thick (less than 1/1,000th that of a strand of hair)



Conventional products Nano-films

Nano-films offer excellent  $CO_2$  recovery functions, thanks to their low energy and highly efficient gas separation capabilities





Possible applications include environmental cleaning technologies, renewable energy devices, storage batteries and fuel cells

# E S G Information

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# **External Evaluation**

TOK has been selected as a constituent stock in the MSCI Japan Empowering Women Index for 2017 by U.S.-based MSCI.

In 2017, TOK has also been selected as a constituent stock in the SNAM Sustainability Index, which was independently created by Sompo Japan Nipponkoa Asset Management Co., Ltd. (SNAM).



# 2017 Constituent MSCI Japan Empowering Women Index (WIN)



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.

# Sustainable Development Goals (SDGs)

TOK agrees with the guiding principles behind the United Nations' Sustainable Development Goals (SDGs), and aims to contribute to their achievement through business activities and ESG initiatives.









































#### \_\_\_\_



What kind of environmental measures are needed for TOK to stay a global niche top company?

Akutsu I think there are two vectors on the environmental front. Our customers use photoresists we create to make semiconductor devices, so they end up being reflected in final products via manufacturers. As semiconductors evolve each year, they continue to bring greater energy-saving effects to final products, such as energy-efficient equipment and power generation systems. Since this progress is also dependent on advances in photoresists, TOK considers this to be "growth-oriented" environmental management. The other vector pertains to TOK's use of an array of chemicals. This requires proper disposal and reuse, as well as removal of highly hazardous substances from the scope of use and thorough knowledge of relevant regulations in each country overseas. This lies at the core of risk management, and

constitutes so-called "defensive" environmental management. TOK is smaller in scale than its competitors and has a very different business model. We must therefore make sure at least that there are no holes in our "defense" to remain a global niche top company moving ahead. On top of that, the strength of our "growth-oriented" added

value on the environmental front is important. Creating products that are useful to society is deeply ingrained in TOK's DNA on the front lines. I think taking stock of that once more and reexamining it will be key to creating even more value.



**Kurimoto** From my view as an outsider, I feel the same about that point. If photoresists and semiconductors advance, the effects are multiplied through the leverage effect through their use in products and CO<sub>2</sub> reduction and resource-saving benefits emerge. But from the standpoint of TOK employees, work is an everyday activity and topics like energy conservation and the environment are probably not always foremost in mind. In the future, an even more tremendous number of semiconductors will be used in the world. I would therefore like TOK employees to be more conscious that the products they are now making are contributing in various ways to society including energy saving and the environment.

Akutsu ESG investors make similar points, though their approach is different. Going forward, we will also tell external stakeholders more about our "growthoriented" environmental management through TOK's products. Regarding "defensive" environmental management, we will continue supervision as a regular item on the agenda of the Board of Directors. Additionally, we look to expand our "growth-oriented" aspects within the "defense" side of environmental measures in the future, including by outperforming the legal requirements of environmental regulations.

# **Social Initiatives**



What is your view on future employee policy, given that TOK's consolidated overseas sales ratio is just under 80% and remains on an uptrend?

Akutsu At TOK, we are pursuing a strategy of building close relationships with customers and interactions with customers play the biggest role in developing our people. In other words, allowing customers to shape our HR development has made TOK strong. There used to be many semiconductor manufacturers in Japan. But now there are few customers in Japan, so the environment for developing young domestic talent is becoming smaller. Conversely, such opportunities abound overseas, including in Asia. Conditions for personnel development at overseas business sites are relatively favorable. The root of our problem is that even though we generate roughly 80% of consolidated sales overseas and 20% in Japan, our consolidated employee numbers break down as 20% overseas and 80% domestic. That mismatch is a big issue to be addressed.

Kurimoto Our head office, mother plant, and central R&D division are located in Japan. In many cases, we



also export from domestic plants to overseas. I therefore think immediately shifting to an 80% overseas, 20% domestic workforce breakdown would be unrealistic. But with development and production

now steadily expanding at overseas sites, increasing the number of overseas employees is definitely a move in the direction of maintaining our position as a global niche top company in the future.

Akutsu While gradually shifting in that direction, we will strengthen the TOK Global Practical Training for Selected Members we have been working on over the past few years as the second-best strategy for now. In the cutting-edge field of semiconductors, building close relationships akin to friendships with customers is important. We are also considering being more proactive about overseas assignments, but it takes time to build close relationships and balancing that with job rotation is difficult. Since that is not something we can solve with TOK Global Practical Training for Selected Members, I want to establish new personnel measures.

Kurimoto A strategy of building close relationships with customers is an effective means of satisfying customers in the semiconductor industry, where the business climate changes with lightning speed, but employees also need to stay in their best condition. And at development sites, it is important to create an environment and systems conducive to generating ideas. I therefore think EHS management requires constant strengthening.



In the market, Diversity 2.0 is under the spotlight as an approach to diversity that produces genuine operational advantages. How is progress on diversity at TOK?

Akutsu At TOK, we started discussions by asking why diversity is necessary, rather than making it a goal. TOK is an R&D-driven company looking to achieve

sustainable growth through collaboration with a variety of stakeholders moving forward, including through open innovation. To that end, TOK needs to create things that

are entirely new while aggressively infusing the organization with people who have a different take on things and engaging in the exchange of diverse opinions. During the past few years, we have therefore been reinforcing our policy of hiring and promoting based on actual ability without regard to gender, nationality, and so forth. As a result, the ratios of female and non-Japanese employees have risen. As a result of promoting initiatives with a priority on boosting competitiveness, we have seen a natural increase in diversity that is in line with the intent of Diversity 2.0. I was pleased to see that we were selected for inclusion in the MSCI Japan Empowering Women Index (WIN) during the course of these developments.

**Kurimoto** In particular, if you observe the Sagami Operation Center's New Business Development Dept., you can see that it has become a hub of diversity.

Women, non-Japanese, and employees hired mid-career from other industries are working on developing TOK's core technologies while meeting with customers. If that department succeeds, TOK's ability to create value is bound to get stronger. Also, TOK now has one female outside director and I think it is steadily creating a corporate culture where women within the Company will also emerge as directors. At the Board of Directors meetings, we discuss these issues as well as matters regarding employee incentives, various training

programs, and EHS management and future policy. Even though we have some issues mentioned above, I am confident that TOK is making solid progress on diversity and employee policy.



# Governance Initiatives



Regional-based sales, development, and manufacturing via local subsidiaries in South Korea, Taiwan, and North America are steadily paying off. Please tell us about overseas business risk management.

Akutsu In addition to the previously noted chemical substance management, we are constantly working to strengthen our information management system. Development in the cutting-edge semiconductor field entails the exchange of all sorts of technological information. By working in close proximity to customers, TOK protects information in each regional area. That gives us a huge advantage, but we have not become complacent. Under the Group information management system directly overseen by the President, we are endlessly aiming higher. This includes monitoring by the

Board of Directors and constant revisions to information management systems, including at local subsidiaries.

Kurimoto Regarding financial management, I think further evolution of global cash management is important now that local subsidiaries earnings have grown to this level. With the ongoing Group Management System (GMS) Project, we are getting overseas local subsidiaries involved and the Board of Directors is leading the rebuilding of risk management and cash management structures.



The Equipment Business has posted segment losses for two consecutive fiscal years. What kind of deliberations about the future of the business are taking place at the Board of Directors?

Akutsu The Board of Directors reexamined the potential of TOK's Materials & Equipment (M&E) strategy, which capitalizes on the Company's engagement in both equipment and material businesses, and arrived



at the shared view that the M&E strategy has strong potential to leverage significant strengths depending on semiconductor market trends. We must quickly cut our losses when there is no potential for them to pay off in the future; however, our

current losses do have future potential and we are not at the stage for debate about whether to exit the business.

Kurimoto That said, it is vital that we turn the business to profit. So we are working to create a roadmap to profit, working with auditors who have experience at financial institutions to carefully consider matters such as dead stock and investment projects. The Equipment Business has deep roots tracing back to 1971. It is also a key business for TOK remaining a global niche top company down the road. We will keep working to bring good news to shareholders and investors as soon as possible.

# Endeavoring to Reduce Environmental Impact and Ensure the Global Environmental Preservation for Sustainable Value Creation

We contribute to improving the global environment through our Group Management System and Responsible Care\* activities.

The TOK Group helps solve various environmental issues through business activities, while focusing efforts on reducing environmental impact in manufacturing processes and its supply chain as a manufacturer that handles chemical substances.

The TOK Group's strategy of building close relationships with customers in cutting-edge semiconductor fields has led to a higher ratio of overseas sales and production. At the same time, laws and regulations regarding the management of chemical substances are tightening in foreign countries, and customer requirements are becoming more sophisticated.

The TOK Group created the Group Management System (GMS) to strengthen its responsiveness from the standpoint of complying with laws and regulations and furthering its strategy of building close relationships with its customers (→see page 63), while also stepping up efforts in ongoing Responsible Care activities.

Specifically, the Company is strengthening its chemical substance management systems, including at overseas sites, and focusing efforts on conserving energy, reducing environmental risk, reducing the risk of occupational accidents, and cutting down on industrial waste.

Through these initiatives, the TOK Group intends to leave a healthier global environment for the next generation of people and realize sustainable value creation and long-term growth.



\* Activities in which companies that 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 the Japan Chemical Industry Association)

# Nobuo Tokutake

Director, Officer, Department Manager, Manufacturing Dept. General Manager for Environmental Management



# **■** Responsible Care Activities

## Steady implementation of the Responsible Care Code

Under the TOK Medium-Term Plan 2018, we are working to steadily reduce our environmental impact through the seven principles of the Responsible Care Code, namely management system, environmental protection, security and disaster prevention, occupational safety and health, logistics safety, chemicals and product safety, and dialogue with society. TOK is also concentrating efforts on 3R activities (reduce, reuse, recycle) by investing effectively in energy-saving measures and reviewing methods for disposing of industrial waste.

# Aim to reduce environmental impact more than required by law

One of the guiding principles of Responsible Care ethics is to set targets in excess of legal requirements, and we intend to do so. TOK has already set targets for reducing industrial waste and is working toward them, as well as targets for reducing greenhouse gases through energy conservation activities, achieving reductions in excess of requirements in the Act on the Rational Use of Energy. Based on the policies set out below, we are gearing up to increase our efforts in these areas.

- (1) TOK shall use impact on energy conservation and the environment as a key evaluation criteria for business investment decisions.
- (2) TOK shall measure emissions of greenhouse gases for not only its customers, but across the entire supply chain.
- (3) TOK shall leverage its technology development capabilities to develop CO<sub>2</sub> recovery films that can be installed on various production facilities (a fusion of "growth-oriented" and "defensive" environmental management).
- (→ See CO<sub>2</sub> recovery films on page 40)

# **Responsible Care ethics**

Compiled by the Japan Chemical Industry Association

- ◆ Voluntarily set targets in excess of legal requirements
- ◆ Act ethically and disclose information
- ♦ Manage safety throughout the life cycle of products
- ◆ Proactively address any public concerns
- ◆ Take a precautionary approach to managing risks
- Respect the rights of citizens to know about risks
- **♦** Be proactively involved in government policy decisions
- Peer assessments (verifications) for mutual assistance and improvement
- Seek opinions of environmental activists
- ◆ All of the above are decision criteria

# **■ Environmental Policy**

# Environmental Policy evolves to match changing social issues and business activities

TOK has formulated an Environmental Policy to build a sustainable society in harmony with the environment, and is focused on initiatives in line with that policy. For the TOK Group, in which the manufacture of chemical products is a mainstay of business activities, the main factors that can have an impact on the environment are the disposal of organic solvents generated while the raw materials are in the procurement to production process, and following product use, or the evaporation of organic solvents during the production process. As a result, we are aware of the consistent management of chemical substances and the reduction of environmental impact as important management issues.

TOK has always dealt with these matters appropriately, but in 1998, we clarified our Environmental Policy in writing, revising this in 2010 to create a new Environmental Policy taking into account corporate social responsibilities and existing environmental preservation activities. Moreover, by considering the environmental risk inherent in the life cycles of all products, we can advance our corporate activities while comprehensively taking into consideration the environmental, social, and economic aspects. Looking forward, we will appropriately evolve the Environmental Policy in anticipation of changes in social issues and further globalization of business activities.

# **The TOK 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.

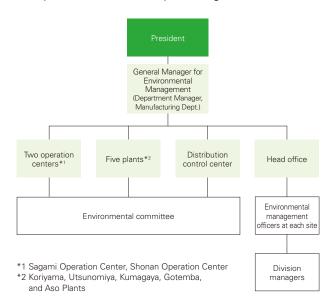
- [1] Enhance handling and management with consideration for chemical safety and the environment.
- [2] Promote efficient use, reuse, and recycling of resources.
- [3] Promote activities to conserve energy and mitigate global warming.
- [4] Prevention of pollution.

# **■ Environmental Management System**

# Building a structure for reliably implementing environmental initiatives is a management issue of the highest priority

To properly implement our environmental management system (EMS), we have put the General Manager for Environmental Management (Department Manager, Manufacturing Dept.) under the supervision of the

President & Chief Executive Officer of TOK, putting in place a structure for managing and operating environmental conservation activities at all our sites. Sites with a particularly large environmental impact have their own environmental committees that submit monthly reports to the General Manager for Environmental Management and department managers. At sites with no environmental committee, division managers are responsible for managing environmental systems and reaching targets. Reports on these activities are sent periodically to the General Manager for Environmental Management and department managers and section heads, then environmental management officers issue the directives required. Through these and other measures, we promote environmental conservation at all our work sites. Under this structure, TOK is able to flexibly and steadily address future changes in social issues while continuing to implement measures for preserving the environment.



# Responsibilities of General Manager for Environmental Management

- Operate and maintain the environmental management system
- Report activities to the President

# **Responsibilities of Department Managers**

- Set environmental objectives and quality targets
- Review activities conducted by each department

## **Outline of Environmental Committee**

- Chairman: Environmental management officer at each site
- Members: Section heads and environmental officers
- Frequency of meetings: Once a month (convened at the chairman's discretion)
- Major activities: Discuss methods for operating and maintaining the environmental management system at each site as well as the status of its operation and promote information exchange within each site and with other sites

# ■ Initiatives to Reduce Environmental Impact Improving energy efficiency

The TOK Group constantly seeks to improve its manufacturing processes, work efficiency and facility operations

with the objective of continuously improving energy efficiency. For facilities, we upgrade to more energy-efficient equipment, enhance heat insulation around steam pipes, take measures to prevent steam leaks, aggregate compressors, and switch to LED lighting as a part of efforts to reduce our environmental impact. We have been working to achieve our energy conservation target of reducing energy usage (crude oil equivalent) by 10 points by December 2019 compared with the base unit indexed to the fiscal year ended March 31, 2010 (a rate of one point each year).

# Reduction of emissions of greenhouse gases

For CO<sub>2</sub>, SOx and other greenhouse gases, TOK is updating production processes and properly managing production facilities with the aim of reducing emissions. TOK now uses city gas instead of heavy oil for fuel in its boilers at the Sagami Operation Center, Shonan Operation Center, Utsunomiya Plant, and Koriyama Plant. TOK has upgraded to more efficient equipment at its manufacturing sites and reviewed operational methods to achieve further reductions in emissions. TOK aims to reduce emissions further through business investments emphasizing energy conservation and environmental preservation, and extending these initiatives throughout the supply chain.

# Promoting the proper management of chlorofluorocarbons

TOK has been switching from specific chlorofluorocarbons (CFC), used as coolants in air conditioners, refrigerators and freezers, to alternatives that do not destroy ozone in the atmosphere. The revised Act on Rational Use and Proper Management of Fluorocarbons mandates that companies must file a report when emissions of alternative CFCs and specific CFCs exceed a predetermined level (1,000 t-CO<sub>2</sub>). When the revised Act on Rational Use and Proper Management of Fluorocarbons was enacted in April 2015, TOK introduced a management system for chlorofluorocarbons and updated its environmental systems to enable a unified approach to properly managing, filling, and disposing of chlorofluorocarbons. In the fiscal year ended March 31, 2017, TOK's estimated CFC leakage volume was 82 t-CO<sub>2</sub>, below the level that mandates reporting.

# Key environmental indicators

(FY)	2013	2014	2015	2016	2017
Domestic energy consumption (kL crude oil equivalent)	14,894	15,234	14,824	13,985	14,578
CO <sub>2</sub> emissions* (10,000 t-CO <sub>2</sub> )	3.0	3.4	3.3	3.0	3.0
SOx emissions (t)	3.3	3.0	3.0	1.8	1.2
Used water consumption (1,000 m³)	401	429	400	401	404
BOD emissions (t)	0.4	0.4	0.3	0.3	0.4
CO <sub>2</sub> emissions in distribution (t-CO <sub>2</sub> )	3,085	2,913	2,858	2,699	2,992

<sup>\*</sup> Energy consumption conversion

# ■ Toward the Creation of a Recycling-Based Society Zero emissions\* achieved for three consecutive years

The TOK Group strives to more effectively utilize natural resources by reducing the volume of waste, thoroughly sorting waste by type, and increasing the volume of recycled waste. We have maintained zero emissions of industrial waste subject to landfill disposal for 12 consecutive fiscal years, since the fiscal year ended March 31, 2005. Since the fiscal year ended March 31, 2015, we have kept industrial waste subject to landfill after intermediate treatment below 1%. As a result, we have achieved zero emissions for three straight years through the fiscal year ended March 31, 2017.

\* Landfill disposal volume (direct or after intermediate treatment) of less than 1% of industrial waste discharged by business activities.

#### Focusing on 3R activities to reduce industrial waste further

While striving to maintain zero emissions, the TOK Group aims to reduce industrial waste by 5 points (reduce by 1 point each year) by the fiscal year ending December 2020 compared with the base unit indexed to the fiscal year ended March 31, 2016. Under the TOK Medium-Term Plan 2018, we are concentrating on 3R activities (reduce, reuse, recycle) to achieve these objectives. [Reduce]

We conduct a range of activities to reduce waste to the fullest extent possible at all manufacturing sites inside and outside Japan, including internal processing of waste fluid through water treatment facilities, converting waste into items of value by promoting sorting, and reducing waste generated through modifications of manufacturing processes.

#### [Reuse]

TOK has collected empty containers from customers and reused them since the late 1970s, when it began to use stainless steel containers for high-purity chemical products. In addition, some products are transported using tanker trucks which do not require containers. We are also beginning to use reusable containers for some photoresist products, chiefly those used in the manufacture of LCD panels. [Recycle]

We recover organic solvents (process effluents) used during manufacturing processes and perform on-site refinement so these chemicals can be reused for the same processes. This and other activities reduce waste discharge. Raw materials that can be reused through distillation and refining are being recycled with the help of trusted partners (recycling companies).

# Volume of industrial waste

(FY)	2013	2014	2015	2016	2017
General industrial waste (t)	2,052	1,484	1,490	1,419	1,526
Specially controlled industrial waste (t)	3,894	3,289	3,838	3,374	4,032

# ■ Proper Management of Chemical Substances Enhancing collaboration with suppliers

The TOK Group has managed chemical substances from the raw material procurement stage from the beginning. We have created the TOK Standards on Chemical Substances Management, which specifies chemical substances to be prohibited or managed. These standards have been revised multiple times to stay in compliance with the most recent laws, ordinances, and regulations in Japan and around the world. In May 2017, TOK issued the seventh edition of these standards, clarifying regulations for chemical substances at Group sites and customer requirements for the environmental management of substances. Following a complete review of the chemical substances subject to management, TOK changed the name of its standards to the TOK Group Standards on Chemical Substances Management. All suppliers of the TOK Group that handle chemical substances have agreed to use these new standards, as we work to collaborate more closely on the proper management of chemical substances. Specific measures are as follows.

- (1) TOK is enhancing the sharing of information about chemical substances by asking its suppliers to submit a "guarantee related to prohibited substances" proving that the raw materials do not contain any prohibited substances of prescribed environmental management substances, as well as a table of the substances that the materials contain, which details what other environmental management substances are in the raw materials.
- (2) TOK has established reduction targets for specific environmental management substances according to the degree of impact on the environment, and has revised our product designs and manufacturing processes in order to lower our environmental impact.

Through these initiatives, the TOK Group aims to create a common global chemical substance management system that encompasses all of its operations. At the same time, TOK is endeavoring to preserve the environment of local communities, strictly comply with legal and customer requirements for its products, and ensure the safety of all its stakeholders.

# Screening for hazardous substances for a newly developed product

The TOK Group has production sites in Japan, South Korea, Taiwan, and North America to keep up with the increasingly global operations of its customers. TOK constantly monitors for changes in the chemical substance regulations in each country, and screens and evaluates the chemical substances it uses to ensure compliance. In the design and development stages for new products, we evaluate raw materials based on the TOK Group Standards on Chemical Substances Management, and develop products that do not contain regulated substances or substances prohibited by ourselves or our customers.

# Conceptual chart of the screening process for hazardous chemicals



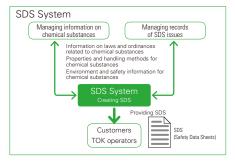
# Reducing emissions of PRTR regulated substances

For the management of substances regulated by the Japan Pollutant Release and Transfer Register (PRTR)

Law, TOK has put in place chemicals and PRTR management systems for calculating and reporting the emission and transportation of specified chemical substances. In the fiscal year ended March 31, 2017, TOK handled 38 types of these substances (1,450 tons), of which we estimate 3 tons were emissions. For some of the substances regulated by the PRTR Law, TOK intends to introduce alternative effluents and take other steps to reduce their emissions.

# Providing customers and employees with information about the environment and safety

We have introduced a system that collects and manages specialized environmental and safety information on chemical substances, prepares material safety data sheets (SDS), and manages information issued in the past to promptly supply accurate environmental and safety information to our customers and operators at our business sites. This system manages information on the properties of chemicals, handling methods, and environmental and safety information for all of our products. The SDS that we are currently issuing contain information about safety measures such as physical and chemical characteristics, hazards, dangers, environmental impact, stability or reactivity, and disposal methods of products based on real-time investigation of laws and regulations inside and outside Japan. To comply with GHS\*, we provide SDS and labels that are compliant with GHS globally unified rules for all of our products for the domestic market. When it comes to our exported products, we are also sequentially moving ahead with providing SDS and labels that correspond to the respective languages of our export counterpart countries, as well as suited to the timeframe for the entering into force of GHS in our export counterpart countries.



\* GHS: Abbreviation for Globally Harmonized System of Classification and Labeling of Chemicals. This is an initiative that categorizes chemicals by hazardousness according to certain standards and displays this in an easy to understand manner through the use of pictorial indications and other similar means. The results of this are reflected on the label and MSDS, and are put to good use for the prevention of disasters, and the protection of human health and the environment.

# ■ Reducing Environmental Impact at Overseas Manufacturing Sites

# Strengthening initiatives centered on ISO 14001

At our manufacturing sites in South Korea, Taiwan, the U.S., and China, we strictly comply with the environmental standards, laws and regulations of each region, as well as steadily implement PDCA cycles in conformance with ISO 14001 and other international standards to make improvements and enhancements to environmental performance.

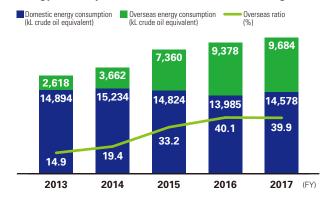
TOK has recently transitioned to the latest (2015 version) of ISO 14001. In the 2015 version, more emphasis is placed on risks and opportunities and the life cycle of products. We have already started to comply with the latest version by sharing information among relevant divisions around the world.

# Starting to use renewable energy as energy consumption increases

The ratio of energy consumption by TOK's overseas manufacturing sites tends to correlate with its overseas sales ratio. In the fiscal year ended March 31, 2017, the overseas sales ratio declined by 2.8 percentage points compared with the previous year, and the ratio of energy consumption by overseas manufacturing sites decreased by 0.2 percentage points.

As a longer-term trend, however, TOK expects both of these ratios to steadily increase. For this reason, we have started to take steps to increase renewable energy, such as by installing solar panels.

## Energy consumption ratio of overseas manufacturing sites





# TOK Advanced Materials Co., Ltd. in South Korea Flexibly Addresses Local Social Issues

Over the past few years, South Korea has experienced many instances of unusual odors of various magnitudes related to chemical substances, leading to an increase in demands by society for better chemical safety management and recycling. At TOK Advanced Materials Co., Ltd., we are working to address this social issue and build a relationship of trust with local communities by continuing to evaluate hazards and dangers, while implementing both individual and joint drills at least twice a year based on 14 situation-specific disaster prevention scenarios to prevent accidents. We will expand activities to recycle waste in a bid to further reduce our environmental impact, and enhance our initiatives to become an environmentally friendly company.

TOK Advanced Materials Co., Ltd.

Manager in charge of environmental safety Choi Keonsoo (left) and representative Kim Taneong (right)

# We continue to evolve as a global niche top company while working alongside society toward sustained growth.

# TOK is promoting value creation through collaboration with employees, suppliers and other stakeholders.

Under the TOK Medium-Term Plan 2018, the TOK Group aims to achieve record-high profits in the fiscal year ending December 31, 2018 and fulfill its "Overarching Aspiration" vision for 2020 by building close relationships with customers and collaborating with its stakeholders, including employees, business partners, academics, and local communities. We must enhance our competitiveness in order to attain these goals. The TOK Group has focused on collaborating and deepening its relationship with all kinds of stakeholders since the previous TOK Medium-Term Plan 2015.

In collaborating with employees, TOK promotes "Diversity and Inclusion" with a focus on women and non-Japanese employees as a part of efforts to hire diverse human resources and enhance its competitiveness, based on the basic philosophy that human resources are a company asset. Moreover, we have begun to see effective outcomes from the TOK Global Practical Training for Selected Members and Level-based Training Program, which are designed to draw out the full potential of each employee. As incentives for employees, TOK offers an Employee Stock Ownership Plan that pays out 10% of invested amounts, and an Employee Stock Ownership Plan (ESOP) Trust system.

The Company shares knowledge and engages in joint research with business partners and academic entities with the aim of nurturing new next-generation businesses and accelerating open innovation. TOK is working to build deep social and relationship capital through efforts including discovering and supporting venture companies with superior technological capabilities, participation in a variety of consortiums, and grant programs for R&D projects through the Tokyo Ohka Foundation for The Promotion of Science and Technology.

The TOK Group aims to continuously improve corporate value and achieve long-term growth as a global niche top company by furthering this collaboration with society.

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

Kunio Mizuki

Director, Executive Officer, Department Manager, General Affairs Dept.

# ■ Diversity and Inclusion for Strengthening Competitiveness

#### **External evaluations**

TOK has created a framework that encourages diverse human resources, such as women and non-Japanese employees, to leverage their abilities to their fullest, as a result of initiatives in merit-based hiring and leveraging human resources with the ultimate aim of strengthening its competitiveness and delivering more value to customers and society. Our efforts to empower female employees were recognized in 2017 with the inclusion of TOK as a constituent stock in the MSCI Japan Empowering Women Index. In 2012, TOK received the Kurumin mark as a company that supports child-raising, based on the Act on Advancement of Measures to Support Raising Next-Generation Children.



# 2017 Constituent MSCI Japan Empowering Women Index (WIN)



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.

#### Number of users of childcare-related systems

(FY)	2013	2014	2015	2016	2017
Childcare leave system (number of users)	5	10	10	13	4
Shorter working hours (number of users)	4	4	10	4	2
Childcare time (number of users)	6	10	4	11	12

# Working to empower women as part of our management vision

As its "Overarching Aspiration" management vision for 2020, TOK has an "Aim to be a globally trusted corporate group by inspiring customers with high value-added products." Our management vision overlaps with the timeline established under the Act of Promotion of Women's Participation and Advancement in the Workplace. TOK has taken steps to comply with this Act as a part of initiatives to establish a foundation for realizing its management vision. Specifically, our hiring targets entail a total female hiring ratio of at least 20%, and over the past few years, the ratio of newly hired females has hovered around 40% based on our merit-based hiring strategy applied in the past. To retain female employees, we are reviewing and upgrading our systems that assist with childcare, nursing care, and employee transfers. While encouraging employees to take

## Indices related to female employee participation\*

(FY)	2013	2014	2015	2016	2017
Ratio of women among new hires (%)	44.4	16.7	45.0	40.0	45.8
Ratio of women among overall employees (%)	10.1	10.0	10.2	10.6	11.3
Difference in average tenure figures for men and women (years)	6.7	6.6	7.7	8.0	8.7
Ratio of women in senior and middle management (%)	0.6	0.5	0.5	1.1	1.5
Ratio of women on the Board of Directors (%)	0.0	0.0	0.0	8.3	8.3

<sup>\*</sup> Non-consolidated basis (employees exclude those seconded from TOK to other companies and contract workers, and include people seconded from other

advantage of these programs, we are also implementing measures to improve awareness of work-life balance and enhance support for career formation.

# Increasing non-Japanese employees and expanding their participation

As we touched upon in the Dialogue section on pages 42–44, one of the most important factors for TOK to continue growing as a global niche top company is the hiring of more non-Japanese employees and expansion of their role in the Company. The ratio of non-Japanese employees on a consolidated basis has gradually risen alongside an increase in the number of overseas customer-oriented sites. Moreover, the ratio of non-Japanese people among hires of new graduates has increased thanks to our renewed focus on merit-based hiring regardless of nationality. We intend to strengthen our measures for employing non-Japanese people on a global basis, while further enhancing post-hiring support.

# Number of non-Japanese employees

	-				
(FY)	2013	2014	2015	2016	2017
Number of non-Japanese employees (non-consolidated)	1	1	5	6	11
Number of non-Japanese employees (consolidated)	191	226	259	301	312
Ratio of non-Japanese employees (consolidated) (%)	12.8	15.0	16.8	19.3	19.6

# Rehiring of retired employees as part of our competitive strategy

Previous-generation technologies often provide clues about possible breakthroughs in the development of cutting-edge technologies, especially in the semiconductor field. At TOK, we believe employees who have reached mandatory retirement age after a long career have knowledge and experience that are an invaluable management resource. We have therefore operated a rehiring system since 2003 for all employees who have reached retirement age, in addition to those who have fulfilled their employment contracts. As a part of our competitive strategy, we will continue to proactively rehire employees after they retire.



# Developing New Businesses from Diverse Perspectives —

I work in the New Business Development Div., which seeks to create new businesses outside the Company's existing business domains, in such fields as high-functional films, electronics and optoelectronics, and life sciences. The Department has a fair number of foreigners including myself, as well as women and people who come from different career backgrounds. Most of us are engineers and marketing personnel. At TOK, the Department is one of the most diverse, in my opinion. The life science field where I work is different from existing businesses in terms of business practices and product development life cycles. Leveraging the diverse viewpoints of employees in the Division, we collaborate with partner companies and research institutions while focusing our best efforts on commercializing products that the world has never seen before.

Yang Guiying Marketing Section, New Business Development Div.

# ■ Training the Next Generation of Employees

The TOK Group makes concerted efforts to train the next generation of employees through education, participation in management, and incentives to foster a sense of ownership in their work and careers as they take the initiative on their own.

#### **Level-Based Training Program**

In light of the overseas ratio of net sales being about 80%, our Level-based Training Program was upgraded during the previous medium-term plan to refocus efforts on the training of self-reliant human resources who can display competence while shouldering risks by themselves in any business situation in Japan or abroad. In this training regimen, participants from various departments form teams to take on challenging tasks together, using their practical skills and pushing their abilities to greater heights (see the list of courses below). The following accomplishments have been achieved since this program began four years ago.

- ◆The Logical Thinking Course has improved employees' ability to iteratively hypothesize and evaluate outcomes in the technological development process.
- The passing rate has risen on promotion exams for various positions.
- Interaction with people from other departments has served as an opportunity to consider one's own role in the organization.



Level-based Training Program: Team-Building Course

## **TOK Global Practical Training for Selected Members**

Under the previous medium-term plan, we started the TOK Global Practical Training for Selected Members, which has consistently shown measurable outcomes, such as 5 of the 32 participants (over the course of 2 training sessions) being assigned to overseas positions and 2 participants being promoted to management positions. The abilities of almost all participants showed signs of improvement in terms of the five requirements for global human resources (→ see the list below). Moreover, employees who participated in the training even showed growth in broadening their horizons and sensitivity, the ability to gather and analyze information to identify problems, and the ability to execute the PDCA cycle, which are all requirements to be considered a candidate for executive positions. This training has already shown promise for grooming the next generation of executives at TOK.



TOK Global Practical Training for Selected Members: Mental Toughness Class

#### Incentive plans for employees

TOK is implementing measures to enhance benefits packages for employees, the people who will drive the future growth of the Company. By giving employees incentives based on its stock price, TOK aims to increase their work motivation and sense of ownership. The following incentive plans have been put in place for employees.

- ◆ Employee Stock Ownership Plan: Introduced in 1979
- Employee Stock Ownership Plan (ESOP) Trust: Introduced in 2012 (Trust matures in March 2017)

## Level-Based Training Program Menu

Step	Course	Content
1	Logical Communication	Participants develop the ability to organize large amounts of information and convey it concisely and logically to others so that it is easy to understand.
2	Team-Building	Participants develop the ability to understand the psychology and behaviors of others and to communicate in a way that facilitates cooperation.
3	Logical Thinking	Participants develop logical thinking ability for clarifying essential points and deriving conclusions through case studies and other practical methods.
4	Leadership	Participants gain an understanding of true leadership through workshops and other activities and identify the type of leader they aspire to be.
5	Junior Management Training	Targeted at junior managers, participants learn through group work practical management methods, including problem-solving approaches and practical interviewing skills for instructing subordinates.
6	New Manager Training	Participants learn methods for analyzing internal and external management conditions and for making appropriate proposals for targets, strategies and visions for their departments.

## **TOK Global Practical Training for Selected Members Content**

Theme	6	Personnel Requirements				
rneme	Content	Flexibility	Speed	Toughness	Communication	Language ability
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 (Singapore)	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.	•	•	•	•	•
Presentation and Results Announcement	Participants make a presentation in English to executives.		•	•	•	•

# ■ Occupational Health and Safety Initiatives

## Prevention of workplace accidents

We have built an effective framework to prevent and handle workplace accidents. Our efforts include: setting up a Safety and Health Committee at each of our offices to conduct activities for preventing workplace accidents including regular safety training and drills for employees; establishing a Safety and Health Liaison Unit, which manages all activities for preventing workplace accidents through information sharing among offices; and preparing manuals for emergency safety measures in the event of workplace accidents.

♦ Injuries resulting in lost workdays in the fiscal year ended March 31, 2017: 2

We will continue to make concerted, Company-wide efforts to prevent workplace accidents, in order to achieve our goals of "zero accidents" as well as "zero accident risks."

#### Mental healthcare

The Tokyo Ohka Kogyo Health Insurance Society promotes the health of employees through an external consultation service that can be used as needed, including for mental health issues. Since no personal information is passed on to the Company, employees can use this service to discuss family matters and other problems with ease. We also host seminars and distribute materials at each office to educate employees about how to take care of their mental health. In accordance with the Industrial Safety and Health Act, TOK has put in place a system for conducting stress checks on all employees in Japan through discussions at each site's Safety and Health Committee.

Percentage of employees who received a stress check in the fiscal year ended March 31, 2017: 96%

# Risk assessments to prevent workplace accidents

Organic solvents, acids, alkalis and various other chemical substances are used in our manufacturing processes. Reducing the risk of injuries and accidents related to these chemicals, even minimally, helps prevent workplace accidents. TOK conducts risk assessment activities, and we share this risk information with employees to reduce risks in dangerous and potentially hazardous work. These activities are in compliance with the amended Industrial Safety and Health Act (June 2016), which mandates risk assessments for 640 types of substances subject to reporting requirements.

Risk assessment involves categorizing the risks and hazards of chemical substances used, and conducting risk assessments based on substance volume handled, work frequency and other factors, and then determining the risk level. Risks for each operation in each process are clarified with a list, and for an operation that exceeds

a certain risk level, the risk is reduced by enclosing facilities, improving ventilation equipment and other measures. Improvements are reported on a regular basis to the Safety and Health Committee.

The Koriyama Plant was awarded the Fire and Disaster

Emergency Management Agency Commissioner's Excellent Hazardous Materials-Related Business Site Award. (Toshiki Okui, Plant General Manager, Koriyama Plant)

## **■ Social Contribution Activities**

## Contributing to scientific and technological progress

Established in 1987 by our late founder Shigemasa Mukai, the Tokyo Ohka Foundation for The Promotion of Science and Technology (hereinafter, "the Foundation") was founded on the 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 the following four grants and bestows one award.

# Grant Programs ■ Grants for Research Projects

Grants are given for promising projects in basic research and applied research in the field of chemistry that are expected to stimulate the development of science and technology through pioneering and creative research. 2016: 12 grants totaling ¥12 million

#### **■** Grants for International Exchange

Grants are given to people who will attend or were invited to speak at international research conferences overseas concerning basic and applied research in the field of chemistry. Grants are also given to international research conferences held inside and outside Japan. 2016: 9 grants totaling ¥3.2 million

#### ■ Support for the Promotion of Research Exchange Programs

Grants are given to organizations to promote research exchange between industry, academia and governments in science and technology expected to contribute to the development of industry and economy. 2016: 1 grant totaling ¥1 million

### ■ Grants for Promotion of Science Education

Grants are given to promote science education for young people who are interested in science. 2016: 48 grants totaling ¥13.2 million

#### Award Presentation:

#### ■ Mukai Award Presentation Events & Commemorative Science Lectures

The Mukai Award is bestowed on recipients in recognition of their excellent research warranting attention for promoting science and technology. 2016: Award presented to Mr. Tetsuya Osaka (Research Council Professor and Advisor of the Office of the President, Waseda University) "Transfer of technology from academia to industry via electrochemical nanotechnology



Books about science are donated to children as a part of the grant program for promoting science education

# **Engagement with local communities**

Local communities are important stakeholders that enable sustainable growth and the creation of corporate value over the medium- to long term at TOK. As a good corporate citizen, TOK makes concerted efforts to communicate with local communities and stakeholders through dialog and engagement with local communities in which it has a business presence, as well as a variety of activities that contribute to society, such as volunteer activities and educational support.

#### ■ Beautification of areas around business sites

Oregon Plant/Sagami Operation Center/Shonan Operation Center/Kumagaya Plant

# ■ Environmental preservation activities

Gotemba Plant (Dragonfly watching at the plant's biotope)

## ■ Communication with neighboring residents

Sagami Operation Center, Shonan Operation Center (summer festival)/Head office, Operation Centers, and Plants (workplace tour for students from the neighborhood)

- Traffic safety activities in areas around business sites
- Red Cross blood donation campaigns



At the Gotemba Plant, every year we invite local children and their families to visit and observe the Dragonfly Pond, a biotope on the grounds of

# Corporate Governance

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

# **Messages from Independent Officers**



# Hiroshi Kurimoto, Outside Director

TOK faces numerous business risks, which are assessed from perspectives such as responsibilities to stakeholders and the occurrence of losses. When considering what the most important risk is, we must first consider what the most important business task is. Speaking from my own personal experience in management of a company driven by technological development, the most important business task is to create new products to fuel sustainable growth so that TOK remains in the game moving forward. However, R&D to deliver a continuous stream of new products that customers want involves taking risks. I therefore want to provide advice so that those latent R&D risks are clarified and minimized, and frameworks are built to address them.



# Noriko Sekiguchi, Outside Director

Internal controls are to be implemented as each individual thinks about what they should do each day, given the flow of overall business operations. They are also to be improved upon repeatedly as various lessons are learned by dealing with new transactions that arise, changes in the internal and external environment, and so forth. To that end, continued steps should be taken to disseminate internal controls and convey their role, functions, and purpose throughout the TOK Group. That is what the Group Management System (GMS) Project entails. It looks to contribute to internal controls and compliance by clarifying procedures and rules to be shared by the Group or through the establishment of a Group management framework, with the aim of sustainably enhancing TOK's corporate value. I want to contribute to maximizing the Project's benefits from my position as an independent officer.



## Hiroshi Saito, Outside Auditor

Dialogue between companies and investors has become more important since Japan's Stewardship Code for institutional investors was introduced. Investors have their own unique investment criteria. There is not just one benchmark. Similarly, there is not just one yardstick for gauging companies' business philosophies or policies. I fear that corporate governance reform of late tends be a tide washing companies all in the same color, and taking away market dynamism. I look to offer my opinions as an independent officer so that TOK can establish philosophies and policies that sit well with it without becoming self-absorbed or following the herd, and confidently engage in numerous conversations with investors.



# Kazumasa Fukada, Outside Auditor

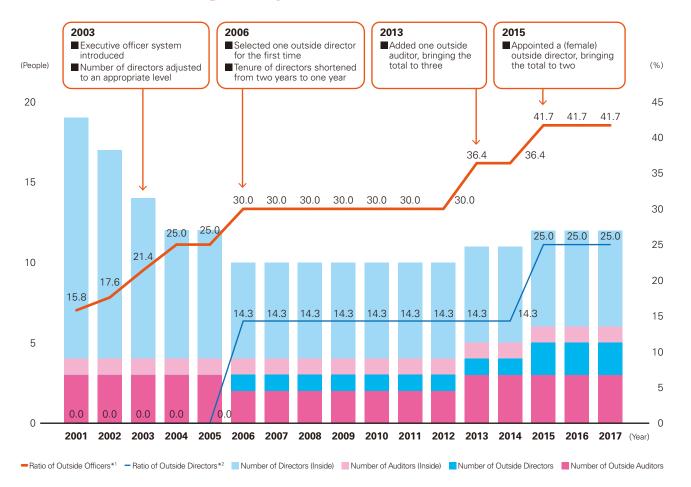
Addressing the risk of production activities being disrupted by events like major earthquakes, accidental fires and explosions, or cyberattacks should be one of TOK's top priorities in terms of fulfilling its obligations to supply products. I will provide advice on everyday improvements to Business Continuity Management (BCM), focusing on Business Continuity Planning (BCP) stipulating matters such as restoration methods and organizations and preparation of alternative resources to restore operations within an acceptable time frame and quality to an acceptable level. Additionally, I will offer advice not just on mitigating individual risks but on comprehensive measures including achievement of strategies within an acceptable risk framework for the TOK Group overall from the perspective of Enterprise Risk Management (ERM) to strengthen corporate governance and internal controls.



# Koichiro Takahashi, Outside Auditor

Changes in the corporate business environment are becoming faster, more diverse, and more complex as globalization advances. Companies need to be able to flexibly and quickly adapt to the environment, and "acceptance of diversity" is a vital approach for acquiring that ability. Given TOK's evolution as an R&D-driven company and development as a global enterprise, I think it should step up diversity management on fronts such as human resource development leveraging individual traits or operating in a manner that respects different views. I will strive to conduct appropriate audits in light of such views and my personnel-related and overseas work experience.

# **TOK's Path to Stronger Corporate Governance**



- \*1 Ratio of Outside Officers = (Number of Outside Directors + Number of Outside Auditors) / (Number of Directors + Number of Auditors)
- \*2 Ratio of Outside Directors = Number of Outside Directors / Number of Directors

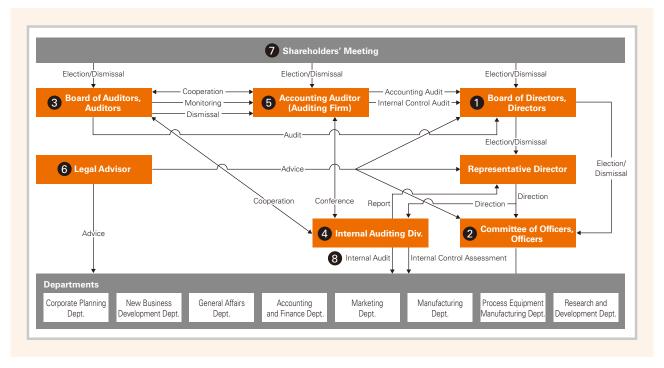
# **Basic Concept**

We have 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 business 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 a 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.

# 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 upgrade our corporate governance.



# Diagram of Corporate Governance System (As of June 28, 2017)

# 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. To make the activities of the directors more transparent and reinforce the corporate governance system, there have been two independent outside directors since June 2015.

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 June 28, 2017, 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 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 self-assessment in the fiscal year ended March 31, 2017 was the second such conducted. It took the form of an anonymous survey and space to comment freely was expanded from the previous year. It generated opinions along the lines of the following.

The Board of Directors is generally positively assessed as:

- having a 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
- · realizing rapid decision-making and a high degree of transparency with participation of outside directors and outside auditors
- · practicing good external communication

# Key future tasks and requests are:

- · further enhancement of time for deliberation
- preparation of materials to enhance deliberations of the Board of Directors
- improvement of the manner in which business execution and resolutions and reports are explained

Accordingly, we have taken steps such as holding Board of Directors meetings longer than before, and enhancing supplementary materials for technology-related agenda items.

We will continue making additional improvements to increase the effectiveness of the Board of Directors.

# 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 Board of Directors
- 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 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 June 28, 2017, we had 15 officers, including six 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 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 June 28, 2017, 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 meetings are held to receive reports regarding important auditing matters from each auditor, with the goal of deliberating and reaching resolutions on those matters. 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.

Note that the corporate auditors (including standing statutory and outside auditors) hold regular quarterly meetings with the outside directors in an effort to share information and opinions. 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 Division Diagram 4

The Internal Auditing Division, under the direct control of the president, comprises six full-time staff members. 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 March 31, 2017: Yasuhiro Ohnaka and Masato Shoji, both of whom are designated limited liability partners and executive members of accounting auditor Deloitte Touche Tohmatsu LLC. Moreover, there were five other certified public accountants, three 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 March 31, 2017 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): ¥52 million

# Legal Advisor, etc. Diagram 6

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 7

To facilitate the exercise of voting rights by shareholders, we try to avoid holding our General Meeting of Shareholders on days when most other Japanese companies hold their meetings. We also set a period for reviewing the resolutions for approval by the meeting that is longer than the number of days required by law, and send our Notice of Convocation of the General Meeting of Shareholders out early (21 days (three weeks) before the day of the meeting). It is also published on our website ahead of time, four weeks prior to being sent out.

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 8 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 (auditing firm) once a year. In addition, the auditors also accompany the accounting auditor (auditing firm) to the factory audits the accounting auditor

addition, the auditors also accompany the accounting auditor (auditing firm) to the factory audits the accounting auditor conducts around twice a year, as well as examine the auditing method of the accounting auditor (auditing firm). Apart from this, the auditors also exchange information and opinions with the accounting auditor (auditing firm) 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.
- I. 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 Representative Director President & Chief Executive Officer	Since assuming the position of Representative Director, President and Chief Executive Officer, Akutsu has led the management of the TOK Group ("the Group") as its top executive and contributed to the Group's further development through the measures in the Medium-Term Plan. Thus, Akutsu can be expected to continue contributing to the management of the Company.
Harutoshi Sato Director	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 customer 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 Director	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 Director	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.
<b>Keiichi Yamada</b> Director	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 contribute to the management of the Company.
<b>Noriaki Taneichi</b> Director	Taneichi has held important positions in the Group, serving in such roles as representative at the U.S. subsidiary, person in charge of the sale and marketing of mainstay products, and person responsible for new business development before assuming the position of Deputy Department Manager, New Business Development Dept. Owing to this experience, he is well versed in not only the Company's existing business areas, but also in new business areas, 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, Taneichi can be expected to contribute to the management of the Company.

# **Reasons for the Election of Outside Directors**

	Name	Reasons for election
		Kurimoto was elected on the expectation that he would supervise 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	Sekiguchi was elected to contribute to corporate governance and TOK's management from an objective and neutral point of view, 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**

		Reasons for election and Independence			
	Hiroshi Saito	Saito 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.  Saito 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. In addition, Saito was also once a business executive with Mitsubishi UFJ Financial Group, Inc. stock in which TOK owns, however this capital relationship was deemed not to affect Saito's independence as an outside auditor of TOK.			
	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.			

## The Main Activities of Outside Directors and Outside Auditors

Name	Attendance record and activities at Board of Directors and Auditors meetings
Hiroshi Kurimoto Outside Director	Kurimoto attended all 15 of the 15 Board of Directors meetings (attendance rate 100%) held during the fiscal year ended March 2017. He voiced timely opinions as required when discussing resolutions, based on his broad experience and abundant expertise as a business executive.
Noriko Sekiguchi Outside Director	Sekiguchi attended 14 of the 15 Board of Directors meetings (attendance rate 93%) held during the fiscal year ended March 2017. 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.
Seiichi Shimbo Outside Auditor	Shimbo attended all 15 of the 15 Board of Directors meetings (attendance rate 100%) and all 15 of the 15 Board of Auditors meetings (attendance rate 100%) held during the fiscal year ended March 2017. 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.
Katsumi Yoneda Outside Auditor	Yoneda attended all 15 of the 15 Board of Directors meetings (attendance rate 100%) and all 15 of the 15 Board of Auditors meetings (attendance rate 100%) held during the fiscal year ended March 2017. 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.
Hiroshi Saito Outside Auditor	Saito attended all 15 of the 15 Board of Directors meetings (attendance rate 100%) and all 15 of the 15 Board of Auditors meetings (attendance rate 100%) held during the fiscal year ended March 2017. 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 March 2017

- Introduced evaluation equipment for cutting-edge miniaturization process in semiconductor manufacturing (Sagami Operation Center)
- Reinforced production facilities for photoresist-related chemicals used to manufacture semiconductors (TOKTAIWAN)
- Invested in R&D for cutting-edge products (Equipment Business, Shonan Operation Center)
- Started mass production of new products (high-functional films with high resistance to heat and chemicals)
- Decided plans for new R&D Building (to be completed in 2019 at the Sagami Operation Center)
- Confirmed progress on Group Management System (GMS)
   Project
- ◆ Created policy for balance sheet management
- Reviewed EHS measures and reinforced measures at domestic and overseas business sites
- Reviewed and strengthened measures for employee training programs

# Remuneration of Directors and Auditors

TOK's guidelines for remunerating its directors 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 is decided and paid within the remuneration framework approved at the General Meeting of Shareholders (of within ¥420 million per year), based on specific standards established by the Company's Board of Directors.

Bonuses are set within the above-mentioned remuneration framework (of within ¥420 million per year). The Board of Directors decides whether or not to pay bonuses, and the amount of bonuses to be paid, after taking into consideration the performance of the Company and the individual director.

# **Incentives Granted to Directors**

 $\cdot \ \text{Regular stock options}$ 

Regular stock options are granted to directors within a separate compensation framework (of within ¥42 million per year) approved at the Ordinary General Meeting of Shareholders, in addition to the above-mentioned remuneration framework. The Board of Directors decides the number of subscription warrants to be allocated to each director.

# · Stock compensation-type stock options

Stock compensation-type stock options were set as a part of the above-mentioned remuneration framework (of within ¥420 million per year) when revisions to TOK's remuneration system were approved by the Ordinary General Meeting of Shareholders. Based on certain standards set forth by TOK, the Board of Directors decides the amount of fixed salary of each director to be replaced by stock compensation-type stock options. This is done to bolster morale and motivate each director to raise the corporate value of TOK by contributing to an increase in earnings, and thereby the stock price of TOK, over the long term. Outside directors do not receive stock options (subscription warrants) in consideration of their roles.

#### **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 March 2017)

Position	Total remuneration (Millions of yen)	Total of vario	Number of		
FOSITION				Bonuses	eligible personnel
Directors (Excluding outside directors)	175	139	22	13	7
Auditors (Excluding outside auditors)	22	22	_	_	2
Outside directors and auditors	47	46	_	1	5

Notes: 1. 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 http://www.tok.co.jp/content/download/927/11053/file/gov\_report170630.pdf (in Japanese)

# **Compliance System**

- · Based on its compliance regulations, the Group's Compliance Committee meets, and provides a summary of the Committee's activities to the Board of Directors.
- · TOK is working to improve its group compliance system, including internal reporting at overseas subsidiaries and strengthened centralized management of Group internal compliance information.

## **Risk Management System**

- · Based on its risk management regulations, the Group's Risk Management Committee meets, and a summary of the Committee's activities is provided to the Board of Directors.
- · TOK reviewed its Business Continuity Plan (BCP) based on lessons learned from the Kumamoto earthquakes that struck in April 2016.
- · The TOK Group Risk Management Committee was established and performed a risk analysis of the Group.
- · Based on its financial risk management regulations, the status of Group internal financial risk is reported to the Board of Directors, with annual policies for responding to that risk presented to and voted on by the Board.

# **Business Execution Reporting and Other Group Internal Control Systems**

- · Based on its subsidiary management regulations, the Company receives monthly business reports from its domestic and overseas subsidiaries, with a report on overseas subsidiaries presented to the Board of Directors annually.
- To ensure cohesion with its subsidiaries, the Company has launched the Group Management System project to build a corporate management system to oversee the Group as a whole, with the goal of enhancing the Group's corporate value. This project entails reviewing and refining regulations related to authority, approvals, and reporting in business processes across the Group.
- Based on the basic policies regarding internal controls related to financial reporting, internal control assessments are conducted annually, the results of which are reported to the Internal Control Committee, with a summary provided to the Board of Directors.

<sup>2.</sup> The amounts for total remuneration and total of various types of remuneration for directors (excluding outside director) and outside directors and auditors include payments to one director and one auditor who retired at the end of the 86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held on June 28, 2016 ("86th Ordinary General Meeting of Shareholders held o

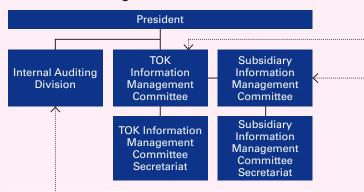
## **Retention and Management of Information**

- Based on the basic regulations for information management, the Information Management Committee meets with a summary of its activities provided to the Board of Directors
- · Based on the document organization and retention regulations, retention periods have been established by type for minutes of the Board of Directors, approval forms and other important information related to decision-making, and such documents are appropriately retained and managed.

## **Reinforce Information Management Structure**

It would not be going too far to say that for TOK, which engages in R&D in cutting-edge semiconductor fields under its strategy of building close relationships with its customers, a solid information management structure is the most important aspect of risk management. Positioning information management as one of its most important corporate governance issues, the Group is working to steadily implement an information management scheme based on the Information Management Policies, and to continuously reinforce that scheme. During the year ended March 31, 2017, information management committees were set up at key subsidiaries, putting into place a system for collaborating organizationally under the guidance of TOK's Information Management Committee.

# **Information Management Structure**



# Information Management Audits by the Internal Auditing Division

The Internal Auditing Division, which is independent of the 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 continuously improve our information management system.

# Information Management Initiatives of Working Groups

Based on our information management policy, the Information Management Committee has set up the following working groups (WG) as a part of the PDCA cycle for information management.

- · Trade Secrets WG
- · Training and Compliance with Rules WG
- · Human Resources-Related WG
- · IT Development, Including Overseas Subsidiaries WG
- · Building Access System Management, Including Overseas Subsidiaries WG





At domestic and overseas production bases, applying a blindfold sticker on mobile phone cameras is mandated.

In TOK Advanced Materials Co., Ltd. (TOKAM), our strategic base in South Korea for building close relationships with customers, depositing recording equipment at the security gate is mandated.

Group Management System

# **GMS Project**

# Aiming to **Strengthen Corporate Value**

and Risk Management

TOK is advancing a Group Management System (GMS) Project to ensure the value it creates through continued growth inside and outside Japan translates into sustained enhancement in corporate value.

Project leader: Ikuo Akutsu, Representative Director, President & Chief Executive Officer Period: Fiscal 2016-Fiscal 2017 (Continue after project ends)



OK Group

# Main Management Functions Involved in GMS

Business management

Sales management

Accounting/ Financial management

Purchase/ Procurement management

Risk management

Human resource management

Production management

EHS management

Compliance

Information management

Safety Exports/ Imports management

. etc.

# **Action Plans and Goals**

- Clarify organizational jurisdiction within Group operations
- Examine creation of new organization dedicated to advancing GMS









 Internal audits of overseas subsidiaries

# Goals

- Create system for continuous operation of GMS
- Increase corporate value and strengthen risk management

# **Examples of Actions Taken**

# Rewrote procedures for complying with laws and regulations when importing chemical substances, spread awareness of procedures

TOK often transports chemical substances between Japan and its customer-oriented sites in South Korea, Taiwan, and North America. This project entailed creating a manual of rewritten procedures for complying with laws and regulations when importing chemical substances from overseas subsidiaries into Japan, and then spreading awareness of the new procedures among relevant parties, including subsidiaries. This will prevent certain risks from emerging, such as omission of compliance procedures and time lost to address the omission.

# Unification of information management rules and updates to Group systems

TOK required more advanced information management and control systems to deal with the constantly increasing volume of information exchanged with customers in cutting-edge semiconductor fields. This project set up an information management organization at relevant sites and rewrote information management regulations and information lists with the aim of instituting high levels of information security at all customer-oriented sites.

# Update to internal reporting channels for a unified Group

In this project, reporting systems are being put in place for subsidiaries to communicate important information to the parent company, TOK, by expanding the scope of the internal reporting system in operation since 2005 to include overseas subsidiaries and other Group companies. TOK is focusing in particular on developing a highly effective internal reporting system for overseas subsidiaries that considers differences with laws, regulations, and business customs in Japan to prevent or quickly discover scandals.

# IR Activities/SR Activities

# **Dialogue with Shareholders and Investors**

The Director, Executive Officer, Department Manager of General Affairs Dept. is responsible for managing and overseeing 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 FY2017

Business results meetings for institutional investors/analysts		
Individual meetings with institutional investors/analysts	230	
Financial results briefings for individual investors	11	

#### **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 president and other management, and we work to ensure that information is understood and shared.

In accordance with our Compliance Standards of Conduct, 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.

# **Anti-takeover Measures**

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

http://www.tok.co.jp/content/download/2637/40347/file/150521.pdf (in Japanese)

# **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

Given that our business centers primarily on cutting-edge fields in the electronics market, and that we are expanding our business domains, we believe that maintaining and developing smooth relationships with our business partners is essential to achieving sustainable growth in the medium- to long-term. For that reason, we may at times acquire and own shares in the companies we do business with.

Our basic policy is that such acquisition and ownership will target shares of those business partners through which such ownership will enable us to strengthen relationships, thus leading to sustained enhancement in corporate value. At the same time, the Board of Directors regularly reviews these cross-holdings in terms of whether they are fulfilling their role and purpose, and determines whether to continue holding them or sell them off.

(2) Criteria for exercising voting rights

In exercising voting rights with regard to cross-shareholdings, we not only look at whether such exercise will contribute to improving the corporate value of the business partner in question, but also determine whether to approve such measures based on comprehensive consideration for maintaining our rights as a shareholder and of the objectives of the cross-shareholding.

# (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 3.1) Full Disclosure

- (1) Company objectives (e.g. business principles), business strategies and business plans
  - → See the first page "Management Principles"; page 5 "Business Model & Strategy" and pages 14–21 "A Message from the President"
- (2) Basic views and guidelines on corporate governance
  - → See page 55 "Basic Concept"
- (3) Board policies and procedures in determining the remuneration of the senior management and directors
  - → See page 60 "Remuneration of Directors and Auditors"
- (4) Board policies and procedures in the appointment 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

Once a year, the president prepares a draft used in determining senior management and director personnel issues (e.g. elections and dismissals), based on consideration of the Group's performance, the contribution of senior management and directors to the medium-term plan and the previous fiscal year's budget, and a self-assessment by the Board of Directors. Outside directors are briefed on this draft in advance, and provide advice as required. 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 In nominating auditor candidates, the president will, (a) in the case of auditors nominated from within the Company, consider the knowledge, experience and capabilities gained by the individual through execution of their duties within the Company, and, (b) in the case of outside auditors, will consider their independence, objectivity, and the knowledge, experience and capabilities gained through execution of their duties outside the Company. The president will then prepare a draft proposal for the Board of Auditors. Upon the consent of the Board of Auditors, the Board of Directors then decides on a resolution to the General Meeting of Shareholders.
- (5) Explanations with respect to the individual appointments of senior management and nominations of director and auditor candidates based on (4)
  - → Refer to page 59 "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 58 "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

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. With regard to the diversity and size of the Board of Directors, we strive for a balanced composition, with internal directors selected for their thorough understanding of areas including sales, development, and manufacturing, as well as whether they are newly appointed or reappointed, their experience and past performance. We also ensure diversity by bringing in multiple outside directors of differing backgrounds, knowledge and expertise. Our policy is to maintain a Board of appropriate size that will contribute to quick, bold decision-making in a manner commensurate with our business.

(2) Procedures for appointing director candidates
Based on the above policy, the president prepares a draft
appointment of director candidates. Outside directors are briefed
on this draft in advance and provide advice as required. 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 66–67 "Board of Directors/Corporate Auditors and Officers"

## (Supplementary Principle 4.11.3)

Board of Directors evaluation

→ See page 56 "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 64 "IR Activities/SR Activities"

# **Board of Directors/Corporate Auditors and Officers**



# **Directors**

# Ikuo Akutsu

Representative Director, President & Chief Executive Office

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 (to the present)

# Harutoshi Sato

Director, 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.

2012 Director; Officer; Dept. Manager, Research and Development Dept.

2017 Director; Executive Officer; Dept. Manager, Research and Development Dept. (to the present)

# Kunio Mizuki

Director, Executive Officer Dept. Manager, General Affairs Dept

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)

# **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)

# 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)

# Noriaki Taneichi

Director, Officer

Dept. Manager, New Business Development Dept.

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. (to the present)

# Hiroshi Kurimoto

Outside Director

(Executive Advisor, OILES CORPORATION)

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 (to the present)

# Noriko Sekiguchi

Outside Director (Representative of Sekiguchi CPA Office)

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)



# **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)

## 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 TMNI
- 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 (to the present)
- 2017 Auditor of the Company (Outside Auditor) (to the present)

#### Hiroshi Saito

Outside Auditor

- 1974 Joined Mitsubishi Trust and Banking Corporation ("MTB," present Mitsubishi UFJ Trust and Banking Corporation)
- 1998 Manager, Foreign Exchange and Money Market Div. of MTB 2000 Manager, Asset Management Div. 2 of MTB
- 2002 Manager, Investment Planning Div. of MTB
- 2002 Officer and Manager, Investment Planning Div. of MTB
- 2004 Officer and Manager of Kyoto Branch of MTB
- 2006 Representative Director and Managing Director of Mitsubishi UFJ Trust and Banking Corporation
- 2007 Representative Director and Senior Managing Director of Mitsubishi UFJ Financial Group, Inc. Director (Outside Director) of The Bank of Tokyo-Mitsubishi UFJ, Ltd.
- 2011 Representative Director and President of Mitsubishi UFJ Trust Investment Technology Institute Co., Ltd. ("MTEC")
- 2012 Corporate Auditor (Outside Corporate Auditor) of Maruzen Showa Unvu Co., Ltd
- 2014 Advisor of MTEC (to the present)
- 2015 Auditor of the Company (Outside Auditor) (to the present)

## Koichiro Takahashi

- 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 (to the present)
- 2017 Auditor of the Company (Outside Auditor) (to the present)

# **Officers**

# Yoichi Shibamura

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

# Koichi Irino

Officer Chairman and President of TOKTAIWAN CO., LTD.

# Yoshio Hagiwara

Senior Executive Officer Dept. Manager, Corporate Planning Dept.

# Yuichi Murakami

Officer Deputy Dept. Manager, Manufacturing Dept

# Atsuro Shibagaki

Executive Officer President and CEO, TOK Advanced Materials Co., Ltd.

# **Kousuke Doi**

Officer President, TOKYO OHKA KOGYO AMERICA, INC.

# Jun Jang

Officer Vice President, TOK Advanced Materials Co., Ltd.

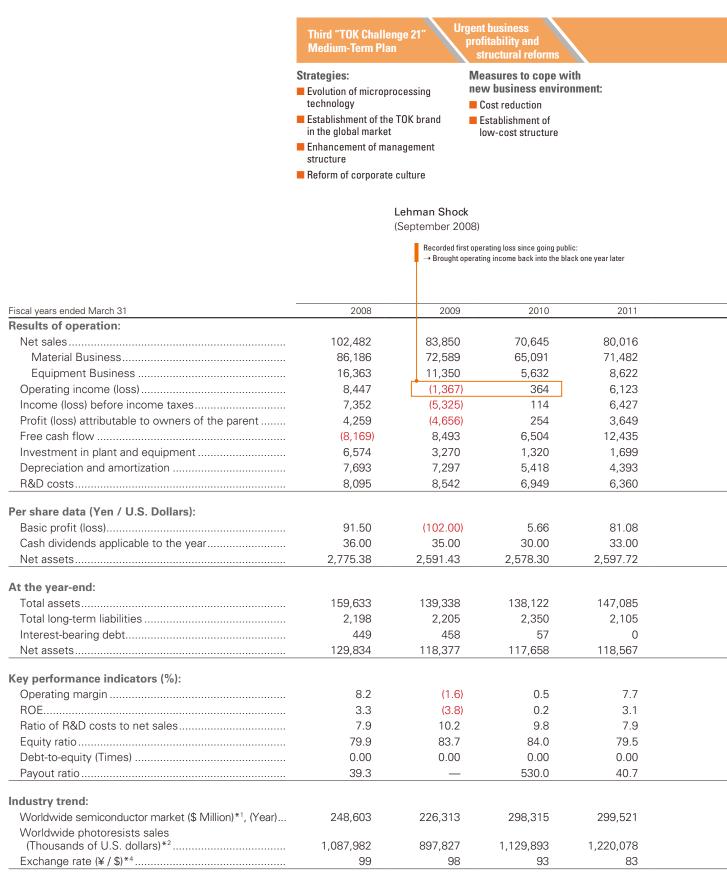
# Tsukasa Honkawa

Officer Dept. Manager, Process Equipment Manufacturing Dept.

# Kazufumi Sato

Officer Deputy Dept. Manager, Research and Development Dept

# **10-Year Financial Summary**



<sup>\*1</sup> Source: World Semiconductor Trade Statistics \*2 Source: SEMI (Total sales of ArF and KrF excimer laser and g- and i-line photoresists)

<sup>\*3</sup> Forecast-based amount for 2017 \*4 As of March 31

#### Rebirth of TOK

# **TOK Medium-Term Plan 2018**

# **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

# **Objectives:**

- Surpass record-high earnings
- Enhance business foundations that support sustainable growth

**TOK Medium-Term Plan 2015** 

# Strategies:

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

# 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

	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		
					Millions of yen	Thousands of U.S. dollars	
2012	2013	2014	2015	2016	2017	2017	
80,037	72,919	75,269	88,086	89,969	88,764	792,540	
66,645	67,697	72,866	84,611	87,280	86,558	772,848	
13,500	5,302	2,484	3,581	2,748	2,252	20,107	
6,102	7,872	10,025	13,253	12,438	9,954	88,883	
6,577	8,031	11,666	14,301	11,777	9,220	82,325	
3,818	5,443	7,549	8,818	7,716	6,343	56,637	
(6,641)	12,363	(2,610)	3,380	7,517	(926)	(8,267)	
3,162	5,332	14,577	7,276	5,919	9,378	83,736	
4,038	3,758	2,672	4,276	5,631	6,118	54,630	
6,157	6,211	6,389	6,903	7,015	8,207	73,279	
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84.86	121.69	168.54	196.61	177.30	146.18	1.31	
38.00	44.00	52.00	60.00	64.00	64.00	0.57	
2,641.28	2,796.37	3,044.24	3,285.81	3,298.00	3,384.14	30.21	
			2,2000	2,233.53	2/22		
138,767	145,664	155,859	174,863	167,300	174,492	1,557,967	
2,613	2,811	1,518	3,569	2,899	2,024	18,078	
610	488	366	814	534	135	1,208	
119,590	127,838	139,962	151,999	147,270	152,931	1,365,458	
119,590	127,030	139,902	151,999	147,270	152,931	1,300,406	
7.6	10.8	13.3	15.0	13.8	11.2	Equity ratio:	
3.3	4.5	5.8	6.2	5.3	4.4	Consistently hovered	
7.7	4.5 8.5	8.5	7.8	7.8	9.3	around 85% since 2012	
85.1	85.9	87.5		85.1			
			84.3		84.6		
0.01	0.00	0.00	0.00	0.00	0.00		
44.8	36.2	30.9	30.5	36.1	43.8		
291,562	305,584	335,843	335,168	338,931	377,800*3		
1,279,706	1,152,306	1,288,713	1,230,022	1,358,009			
82	94	103	120	112	112		

# FY2017 Market Trends, Results of Operations, Financial Position, and FY2018 Performance Outlook

#### **Business Environment**

In the fiscal year ended March 31, 2017, the global economy overall continued to make a modest recovery. The Chinese economy began to strengthen again, while a gradual economic recovery continued in Europe and the U.S. economy also improved steadily. Furthermore, the Japanese economy stayed on a recovery track, aided by various government policies amid ongoing improvement in employment and income conditions against a backdrop of strong corporate earnings.

The yen grew stronger in the first half of the fiscal year ended March 31, 2017, averaging  $\pm 103.8$  against the U.S. dollar. In the second half the yen began to weaken, but the average rate for the full fiscal year was  $\pm 12.2$  higher than the previous fiscal year at  $\pm 107.1$  against the U.S. dollar.

# **Net Sales and Operating Income**

In the fiscal year ended March 31, 2017, consolidated net sales decreased  $\pm$ 1,204 million, or 1.3%, from the previous fiscal year to  $\pm$ 88,764 million. Net sales in the first half decreased  $\pm$ 1,908 million, or 4.3%, to  $\pm$ 42,897 million. Net sales in the second half increased  $\pm$ 703 million, or 1.6%, to  $\pm$ 45,867 million.

In the electronics industry, the leading source of demand for our products, the semiconductor market overall performed strongly driven by continued growth in smartphone sales, despite a drop in demand for PCs and tablet devices.

Cost of sales increased ¥126 million, or 0.2%, from the previous fiscal year to ¥56,786 million. The increase was driven mainly by increases in costs for consumables, despite declines in materials costs, storage and transportation costs, and repair costs, among others. The cost of sales ratio climbed 1.0 percentage point to 64.0%. As a result, gross profit decreased ¥1,331 million, or 4.0%, to ¥31,978 million.

Selling, general and administrative (SG&A) expenses

increased ¥1,152 million, or 5.5%, from the previous fiscal year to ¥22,023 million, mainly due to increases in depreciation and amortization and research consumables, despite decreases in patent royalties, subcontracting costs and utilities costs (water, gas, and electricity).

Operating income declined by ¥2,483 million, or 20.0%, from the previous fiscal year to ¥9,954 million, mainly due to a decrease in gross profit and the increase in SG&A expenses.

# Performance by Segment\*

## **Material Business Segment**

Sales in the Material Business decreased by ¥721 million, or 0.8%, from the previous fiscal year to ¥86,558 million. Operating income decreased ¥1,733 million, or 10.7%, to ¥14,470 million, due to increases in expenses such as foreign exchange fluctuation losses, manufacturing expenses, and SG&A expenses, despite an increase in sales of high value-added products and discounts on raw materials procurement.

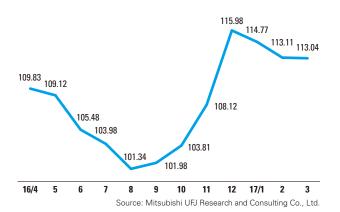
#### ■ Electronic Functional Materials Division

In the electronic functional materials division, sales increased ¥1,940 million, or 3.8%, to ¥53,074 million.

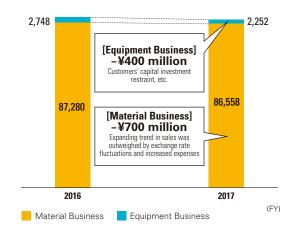
Sales of semiconductor photoresists increased, but only slightly. Sales were solid due to sales expansion of locally developed products at the Company's South Korean subsidiary, expansion in the market for 3D memory, which is a new application for excimer laser photoresists, and ramping up of mass production of semiconductors using cutting-edge processes by major users. However, the impact was offset by the appreciating trend of the yen. Furthermore, sales of high-density integration materials grew sharply thanks to successful R&D, sales activities that precisely reflect user needs, and higher sales of photoresists for semiconductor packages and photoresists for MEMS

\* Intersegment sales or transfers have not been eliminated.

**Exchange Rate** (Yen/U.S. dollars, Monthly average)



Net Sales by Segment Year-on-Year Comparison (Millions of yen)



(microelectromechanical systems).

In contrast, sales of photoresists for LCDs decreased year on year as products for high-definition displays were affected by changes in the demand environment and a drop in product prices.

### ■ High-Purity Chemicals Division

Sales in the high-purity chemicals division decreased ¥2,456 million, or 6.8%, from the previous fiscal year to ¥33.475 million.

Sales of photoresist chemicals used to manufacture semiconductors declined, mainly reflecting a decrease in sales centered on North America and Asia due to changes in user needs related to cutting-edge processes, as well as exchange rate impact due to the yen's appreciation. Furthermore, sales of photoresist-related chemicals used to manufacture LCDs also declined, especially in Asia, reflecting the yen's appreciation in foreign exchange rates.

#### **Equipment Business Segment**

### ■ Process Equipment Division

In the 3D packaging market, the Zero NewtonTSV process system is driving higher functionality and higher performance of semiconductors. While this system is seeing expanding use for applications such as data servers, its penetration of the PC and smartphone markets has been weak. As a result, investments by users to upgrade production capacity have been subdued, leading to declines in both orders and sales.

As a result, sales in the Equipment Business decreased ¥496 million, or 18.1%, year on year to ¥2,252 million. Operating loss expanded by ¥327 million from the previous fiscal year to a loss of ¥750 million.

Orders decreased ¥637 million, or 29.4%, from the previous fiscal year to ¥1,528 million. Orders in the first half totaled ¥998 million and in the second half ¥529

million. The year-end order backlog decreased \$173 million, or 15.2%, to \$966 million.

### **Financial Condition**

Total assets as of March 31, 2017 increased by ¥7,192 million from the previous fiscal year-end to ¥174,492 million.

Total current assets increased ¥1,533 million from the previous fiscal year-end to ¥88,647 million. This primarily reflects increases of ¥1,972 million in trade notes and accounts and ¥613 million in inventories, which outweighed a decline of ¥1,212 million in cash and deposits and time deposits, and an increase of ¥205 million in allowance for doubtful accounts.

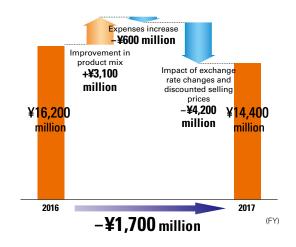
Non-current assets increased ¥5,658 million from the previous fiscal year-end to ¥85,844 million. This was mainly attributable to increases of ¥3,865 million in investment securities due to purchase and rise in market value of shares and ¥1,752 million in property, plant and equipment reflecting investment in plant and equipment.

Total liabilities as of March 31, 2017 increased ¥1,531 million year on year to ¥21,561 million. This primarily reflects an increase of ¥1,819 million in trade notes and accounts, despite decreases of ¥619 million in deferred tax liabilities and ¥261 million in short-term loans payable.

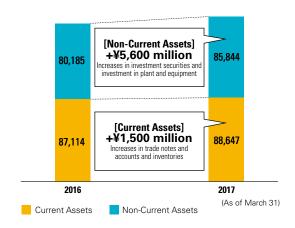
Total equity as of March 31, 2017 increased ¥5,660 million from the previous fiscal year-end to ¥152,931 million. The increase mainly reflects profit attributable to owners of the parent of ¥6,343 million and an increase in unrealized gain on available-for-sale securities of ¥1,860 million, which were partly offset by cash dividends paid of ¥2,775 million and foreign currency translation adjustments of ¥1,290 million.

As a result, the equity ratio stood at 84.6% at the end of the fiscal year.

#### Breakdown of Change in Material Business Segment Operating Income



### Total Assets Year-on-Year Comparison (Millions of yen)



#### **Cash Flows**

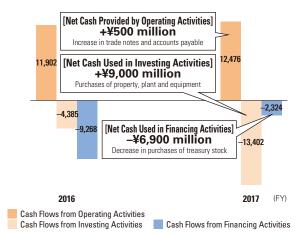
Net cash provided by operating activities during the fiscal year under review came to ¥12,476 million, an increase of ¥573 million from the end of the previous fiscal year. The increase reflected an increase in trade notes and accounts receivable, partially offset by income taxes paid, and an increase in trade notes and accounts payable.

Net cash used in investing activities was  $\pm 13,402$  million, an increase of  $\pm 9,016$  million from the previous fiscal year, mainly reflecting outflows for purchases of property, plant and equipment and investment securities, which outweighed an inflow of cash from withdrawal of long-term time deposits.

Net cash used in financing activities was ¥2,324 million, a decrease of ¥6,944 million from the previous fiscal year. The decrease reflected purchases of treasury stock.

As a result, cash and cash equivalents on March 31, 2017 decreased ¥3,608 million to ¥35,907 million from ¥39,516 million at the previous fiscal year-end.

Cash Flows Year-on-Year Comparison (Millions of yen)



## FY2017/12\*1 Performance Outlook

Net sales in the fiscal year ending December 31, 2017 are forecast to increase 10.0% compared with adjusted results\*2 for the fiscal year ended December 31, 2016 to

¥88,800 million due to growth in sales of electronic functional materials and expectations of a recovery in high-purity chemicals. Operating income is forecast to decline by 9.8% to ¥8,400 million, mainly due to an increase in amortization and expenses arising in association with the change of fiscal year-end, which are expected to outweigh the effect of higher sales. Profit attributable to owners of the parent is forecast to decrease 10.7% to ¥4,900 million, mainly due to the decline in operating income.

### Investment in Plant and Equipment/ Depreciation and Amortization/R&D Costs (Five-Year Summary)



Earnings	Forecasts
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(Millions of yen)

	FY2016/12	FY20	FY2017/12*1 Forecast				
	Adjusted Result*2		Change	%			
Net Sales	80,761	88,800	8,038	10.0			
Operating Income	9,310	8,400	(910)	(9.8)			
Profit Attributable to Owners of the Parent	5,485	4,900	(585)	(10.7)			

<sup>\*1</sup> The Company has decided to unify its fiscal year-end with that of its overseas consolidated subsidiaries with the aim of strengthening and streamlining the unified financial results and administration systems of the Group, as well as enhancing management transparency through timely and accurate disclosure of management information. Accordingly, the Company's fiscal year-end will change from March 31 to December 31 for the next fiscal year, ending December 31, 2017. Furthermore, this fiscal year ending December 31, 2017 is a transitional accounting period of nine months from April 1, 2017 to December 31, 2017.

<sup>\*2</sup> 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)

			FY2016/1	12 Adjuste	d Result		FY201	recast	
	3Q	40	1Q	20	3Q	40	1Q	2Q	3Q
	Oct Dec.	Jan.– Mar.	Apr.– Jun.	Jul Sep.	Oct Dec.	Jan.– Mar.	Apr.– Jun.	Jul Sep.	Oct Dec.
Domestic (March fiscal year-end)			1Q	2Q	3Q	4Q	1Q	2Q	3Q
Overseas (December fiscal year-end)		10	20	3Q	40	10	20	3Q	40

## **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 March 31, 2017 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 LCDs 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 Balance Sheets**

TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries March 31, 2017 and 2016

	Millions	Thousands of U.S. dollars	
ASSETS	2017	2016	2017
CURRENT ASSETS			
Cash and deposits	¥ 33,907	¥ 37,516	\$ 302,746
Time deposits	15,756	13,360	140,679
Receivables:			
Trade notes and accounts	19,893	17,921	177,624
Securities	2,000	2,000	17,857
Other	581	303	5,190
Allowance for doubtful accounts	(242)	(37)	(2,167)
Inventories	13,613	12,999	121,546
Deferred tax assets	1,421	1,497	12,692
Prepaid expenses and other current assets	1,716	1,553	15,329
Total current assets	88,647	87,114	791,499
PROPERTY, PLANT AND EQUIPMENT			
Land	8,976	9,098	80,144
Buildings and structures	60,088	59,019	536,508
Machinery and equipment	57,828	55,226	516,327
Furniture and fixtures	19,844	18,190	177,185
Construction in progress	3,214	3,176	28,698
Total	149,952	144,711	1,338,864
Accumulated depreciation	(100,286)	(96,798)	(895,417)
Net property, plant and equipment	49,666	47,913	443,447
	10/000	17,010	110/11/
INVESTMENTS AND OTHER ASSETS			
Investment securities	13,389	9,524	119,547
Investments in and advanced to an unconsolidated subsidiary and associated companies	936	953	8,361
Long-term loans receivable	572	7	5,108
Net defined benefit asset	1,462	946	13,061
Long-term time deposits	18,000	18,000	160,714
Deferred tax assets	457	1,293	4,085
Other assets	1,360	1,546	12,143
Total investments and other assets	36,178	32,272	323,021
TOTAL	¥ 174,492	¥167,300	\$1,557,967

LABILITIES AND EQUITY		Millions	Thousands of U.S. dollars	
Payables:   Trade notes and accounts   Y 9,607	LIABILITIES AND EQUITY	2017	2016	2017
Trade notes and accounts       ¥ 9,607       ¥ 7,787       \$85,777         Construction and other       4,107       3,717       36,674         Income taxes payable       1,390       1,310       12,416         Accrued expenses       3,418       3,550       30,521         Advances from customers       336       9       3,008         Deferred tax liabilities       21       18       191         Other current liabilities       654       736       5,841         Total current liabilities       19,536       17,130       174,430         LONG-TERM LIABILITIES         Long-term loans payable       −       137       −         Deferred tax liabilities       1,515       2,137       13,527         Net defined benefit liability       223       150       1,992         Other long-term liabilities       286       473       2,559         Total long-term liabilities       2,024       2,899       18,078         EQUITY         Common stock—authorized, 197,000,000 shares in 2017       14,640       14,640       130,718         Capital surplus       15,07       15,207       15,207       135,784         Retained earnings       113,708	CURRENT LIABILITIES			
Construction and other         4,107         3,717         36,674           Income taxes payable         1,390         1,310         12,416           Accrued expenses         3,418         3,550         30,521           Advances from customers         336         9         3,008           Deferred tax liabilities         21         18         191           Other current liabilities         654         736         5,841           Total current liabilities         19,536         17,130         174,430           LONG-TERM LIABILITIES         -         137         -           Long-term loans payable         -         137         -           Deferred tax liabilities         1,515         2,137         13,527           Net defined benefit liability         223         150         1,992           Other long-term loans payable         -         15         2,137         13,527           Net defined benefit liabilities         2,024         2,899         18,078           EQUITY         -         -         18         473         2,559           Total long-term liabilities         2,024         2,899         18,078           EQUITY         -         -         13,078 </td <td>Payables:</td> <td></td> <td></td> <td></td>	Payables:			
Income taxes payable	Trade notes and accounts	¥ 9,607	¥ 7,787	\$ 85,777
Accrued expenses         3,418         3,550         30,521           Advances from customers         336         9         3,008           Deferred tax liabilities         21         18         191           Other current liabilities         654         736         5,841           Total current liabilities         19,536         17,130         174,430           LONG-TERM LIABILITIES         -         137         -           Long-term loans payable         -         1,515         2,137         13,527           Net defined benefit liability         223         150         1,992           Other long-term liabilities         2,86         473         2,559           Total long-term liabilities         2,024         2,899         18,078           EOUITY         Common stock—authorized, 197,000,000 shares in 2017	Construction and other	4,107	3,717	36,674
Advances from customers.         336         9         3,008           Deferred tax liabilities         21         18         191           Other current liabilities         654         736         5,841           Total current liabilities         19,536         17,130         174,430           LONG-TERM LIABILITIES         -         137         -           Long-term loans payable         -         137         -           Deferred tax liabilities         1,515         2,137         13,527           Net defined benefit liability         223         150         1,992           Other long-term liabilities         286         473         2,559           Total long-term liabilities         2,024         2,899         18,078           EQUITY         Common stock—authorized, 197,000,000 shares in 2017	Income taxes payable	1,390	1,310	12,416
Deferred tax liabilities         21         18         191           Other current liabilities         654         736         5,841           Total current liabilities         19,536         17,130         174,430           LONG-TERM LIABILITIES         -         137         -           Deferred tax liabilities         1,515         2,137         13,527           Net defined benefit liability         223         150         1,992           Other long-term liabilities         286         473         2,559           Total long-term liabilities         2,024         2,899         18,078           EQUITY         Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2017 issued, 45,100,000 shares in 2016 issued, 45,100,000 shares in 2016         14,640         14,640         130,718           Capital surplus         15,207         15,207         135,784           Retained earnings         113,708         110,359         1,015,255           Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016         (4,086)         (5,239)         (36,482)           Accumulated other comprehensive income:         Unrealized gain on available-for-sale securities         4,694         2,834         41,914           Foreign currency translation adjustments	Accrued expenses	3,418	3,550	30,521
Other current liabilities         654         736         5,841           Total current liabilities         19,536         17,130         174,430           LONG-TERM LIABILITIES         -         137         -           Long-term loans payable         -         1,515         2,137         13,527           Net defined benefit liabilities         223         150         1,992           Other long-term liabilities         286         473         2,559           Total long-term liabilities         2,024         2,899         18,078           EQUITY         Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2016 issued, 45,100,000 shares in 2016         14,640         14,640         130,718           Capital surplus         15,207         15,207         135,784           Retained earnings         113,708         110,359         1,015,255           Treasury stock—at cost, 1,496,738 shares in 2017 and 1,330,932 shares in 2016         (4,086)         (5,239)         (36,482)           Accumulated other comprehensive income:         Unrealized gain on available-for-sale securities         4,694         2,834         41,914           Foreign currency translation adjustments         3,533         4,823         31,550           Re	Advances from customers	336	9	3,008
Total current liabilities   19,536   17,130   174,430	Deferred tax liabilities	21	18	191
LONG-TERM LIABILITIES           Long-term loans payable         —         137         —           Deferred tax liabilities         1,515         2,137         13,527           Net defined benefit liability         223         150         1,992           Other long-term liabilities         286         473         2,559           Total long-term liabilities         2,024         2,899         18,078           EQUITY         Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016         14,640         14,640         130,718           Capital surplus         15,207         15,207         135,784           Retained earnings         113,708         110,359         1,015,255           Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016         (4,086)         (5,239)         (36,482)           Accumulated other comprehensive income:         Unrealized gain on available-for-sale securities         4,694         2,834         41,914           Foreign currency translation adjustments         3,533         4,823         31,550           Remeasurements of defined benefit plans         (139)         (253)         (1,244)           Total         147,559         142,3	Other current liabilities	654	736	5,841
Long-term loans payable       —       137       —         Deferred tax liabilities       1,515       2,137       13,527         Net defined benefit liability       223       150       1,992         Other long-term liabilities       286       473       2,559         Total long-term liabilities       2,024       2,899       18,078         EQUITY         Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016       14,640       14,640       130,718         Capital surplus       15,207       15,207       135,784         Retained earnings       113,708       110,359       1,015,255         Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016       (4,086)       (5,239)       (36,482)         Accumulated other comprehensive income:       Unrealized gain on available-for-sale securities       4,694       2,834       41,914         Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221	Total current liabilities	19,536	17,130	174,430
Long-term loans payable       —       137       —         Deferred tax liabilities       1,515       2,137       13,527         Net defined benefit liability       223       150       1,992         Other long-term liabilities       286       473       2,559         Total long-term liabilities       2,024       2,899       18,078         EQUITY         Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016       14,640       14,640       130,718         Capital surplus       15,207       15,207       135,784         Retained earnings       113,708       110,359       1,015,255         Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016       (4,086)       (5,239)       (36,482)         Accumulated other comprehensive income:       Unrealized gain on available-for-sale securities       4,694       2,834       41,914         Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221				
Deferred tax liabilities         1,515         2,137         13,527           Net defined benefit liability         223         150         1,992           Other long-term liabilities         286         473         2,559           Total long-term liabilities         2,024         2,899         18,078           EQUITY         Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016         14,640         14,640         130,718           Capital surplus         15,207         15,207         135,784           Retained earnings         113,708         110,359         1,015,255           Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016         (4,086)         (5,239)         (36,482)           Accumulated other comprehensive income:         Unrealized gain on available-for-sale securities         4,694         2,834         41,914           Foreign currency translation adjustments         3,533         4,823         31,550           Remeasurements of defined benefit plans         (139)         (253)         (1,244)           Total         147,559         142,371         1,317,496           Stock acquisition rights         221         309	LONG-TERM LIABILITIES			
Net defined benefit liability         223         150         1,992           Other long-term liabilities         286         473         2,559           Total long-term liabilities         2,024         2,899         18,078           EQUITY         3,000,000 shares in 2017         2016         2,809         14,640         14,640         14,640         14,640         14,640         130,718         15,207         15,207         135,784         15,207         15,207         135,784         15,207         135,784         15,207         135,784         10,15,255         17,200         1,201	Long-term loans payable	_	137	_
Other long-term liabilities         286         473         2,559           Total long-term liabilities         2,024         2,899         18,078           EQUITY         Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016         14,640         14,640         130,718           Capital surplus         15,207         15,207         135,784           Retained earnings         113,708         110,359         1,015,255           Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016         (4,086)         (5,239)         (36,482)           Accumulated other comprehensive income:         Unrealized gain on available-for-sale securities         4,694         2,834         41,914           Foreign currency translation adjustments         3,533         4,823         31,550           Remeasurements of defined benefit plans         (139)         (253)         (1,244)           Total         147,559         142,371         1,317,496           Stock acquisition rights         221         309         1,974           Non-controlling interests         5,150         4,589         45,987           Total equity         152,931         147,270         1,365,458	Deferred tax liabilities	1,515	2,137	13,527
EQUITY         2,024         2,899         18,078           EQUITY         Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016         14,640         14,640         130,718           Capital surplus         15,207         15,207         135,784           Retained earnings         113,708         110,359         1,015,255           Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016         (4,086)         (5,239)         (36,482)           Accumulated other comprehensive income:         Unrealized gain on available-for-sale securities         4,694         2,834         41,914           Foreign currency translation adjustments         3,533         4,823         31,550           Remeasurements of defined benefit plans         (139)         (253)         (1,244)           Total         147,559         142,371         1,317,496           Stock acquisition rights         221         309         1,974           Non-controlling interests         5,150         4,589         45,987           Total equity         152,931         147,270         1,365,458	Net defined benefit liability	223	150	1,992
EQUITY  Common stock—authorized, 197,000,000 shares in 2017	Other long-term liabilities	286	473	2,559
Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016.       14,640       14,640       130,718         Capital surplus	Total long-term liabilities	2,024	2,899	18,078
Common stock—authorized, 197,000,000 shares in 2017 authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016.       14,640       14,640       130,718         Capital surplus				
authorized, 197,000,000 shares in 2016 issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016  Capital surplus	EQUITY			
issued, issued, issued, 45,100,000 shares in 2017 issued, 45,100,000 shares in 2016       14,640       14,640       130,718         Capital surplus       15,207       15,207       135,784         Retained earnings       113,708       110,359       1,015,255         Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016       (4,086)       (5,239)       (36,482)         Accumulated other comprehensive income:       4,694       2,834       41,914         Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458				
issued,       45,100,000 shares in 2016       14,640       14,640       130,718         Capital surplus       15,207       15,207       135,784         Retained earnings       113,708       110,359       1,015,255         Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016       (4,086)       (5,239)       (36,482)         Accumulated other comprehensive income:       Unrealized gain on available-for-sale securities       4,694       2,834       41,914         Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458				
Retained earnings       113,708       110,359       1,015,255         Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016       (4,086)       (5,239)       (36,482)         Accumulated other comprehensive income:       4,694       2,834       41,914         Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458		14,640	14,640	130,718
Treasury stock—at cost, 1,496,738 shares in 2017 and 1,930,932 shares in 2016       (4,086)       (5,239)       (36,482)         Accumulated other comprehensive income:       4,694       2,834       41,914         Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458	Capital surplus	15,207	15,207	135,784
1,930,932 shares in 2016       (4,086)       (5,239)       (36,482)         Accumulated other comprehensive income:         Unrealized gain on available-for-sale securities       4,694       2,834       41,914         Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458	Retained earnings	113,708	110,359	1,015,255
1,930,932 shares in 2016       (4,086)       (5,239)       (36,482)         Accumulated other comprehensive income:         Unrealized gain on available-for-sale securities       4,694       2,834       41,914         Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458	Treasury stock—at cost, 1,496,738 shares in 2017 and			
Unrealized gain on available-for-sale securities       4,694       2,834       41,914         Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458		(4,086)	(5,239)	(36,482)
Foreign currency translation adjustments       3,533       4,823       31,550         Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458	Accumulated other comprehensive income:			
Remeasurements of defined benefit plans       (139)       (253)       (1,244)         Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458	Unrealized gain on available-for-sale securities	4,694	2,834	41,914
Total       147,559       142,371       1,317,496         Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458	Foreign currency translation adjustments	3,533	4,823	31,550
Stock acquisition rights       221       309       1,974         Non-controlling interests       5,150       4,589       45,987         Total equity       152,931       147,270       1,365,458	Remeasurements of defined benefit plans	(139)	(253)	(1,244)
Non-controlling interests         5,150         4,589         45,987           Total equity         152,931         147,270         1,365,458	Total	147,559	142,371	1,317,496
Total equity	Stock acquisition rights	221	309	1,974
	Non-controlling interests	5,150	4,589	45,987
TOTAL ¥174,492 ¥167,300 \$1,557,967	Total equity	152,931	147,270	1,365,458
	TOTAL	¥174,492	¥167,300	\$1,557,967

## **Consolidated Statements of Income**

TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries Years Ended March 31, 2017 and 2016

	Millions	s of ven	Thousands of U.S. dollars
	2017	2016	2017
NET SALES	¥88,764	¥89,969	\$792,540
COST OF SALES	56,786	56,659	507,020
Gross profit	31,978	33,309	285,520
SELLING, GENERAL AND ADMINISTRATIVE EXPENSES	22,023	20,871	196,637
Operating income	9,954	12,438	88,883
OTHER INCOME (EXPENSES):			
Interest and dividend income	277	287	2,476
Foreign exchange loss—net	(445)	(642)	(3,981)
Gain (loss) on valuation of derivatives	(439)	270	(3,927)
Equity in earnings of an associate	126	219	1,129
Operation preparation expense	_	(339)	_
Gain on sales of investment securities	265	50	2,373
Loss on impairment of long-lived assets	(678)	(752)	(6,054)
Loss on disaster	(91)	_	(815)
Other—net	251	246	2,241
Other (expenses) income—net	(734)	(660)	(6,558)
INCOME BEFORE INCOME TAXES AND			
NON-CONTROLLING INTERESTS	9,220	11,777	82,325
INCOME TAXES:			
Current	2,635	3,031	23,534
Prior years	0	18	2
Deferred	(454)	468	(4,062)
Total income taxes	2,181	3,518	19,473
NET INCOME BEFORE NON-CONTROLLING INTERESTS	7,039	8,259	62,851
NON-CONTROLLING INTERESTS IN NET INCOME	695	543	6,214
PROFIT ATTRIBUTABLE TO OWNERS OF THE PARENT	¥ 6,343	¥ 7,716	\$ 56,637
	Ye	U.S. dollars	
PER SHARE OF COMMON STOCK	2017	2016	2017
Basic profit	¥146.18	¥177.30	\$1.31
Diluted profit	145.53	176.17	1.30
Cash dividends applicable to the year	64.00	64.00	0.57

		U.S. dollars	
PER SHARE OF COMMON STOCK	2017	2016	2017
Basic profit	¥146.18	¥177.30	\$1.31
Diluted profit	145.53	176.17	1.30
Cash dividends applicable to the year	64.00	64.00	0.57

## **Consolidated Statements of Comprehensive Income**

TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries Years Ended March 31, 2017 and 2016

	Millions	s of yen	Thousands of U.S. dollars
	2017	2017	
NET INCOME BEFORE NON-CONTROLLING INTERESTS	¥ 7,039	¥ 8,259	\$ 62,851
OTHER COMPREHENSIVE INCOME:			
Unrealized (loss) gain on available-for-sale securities	1,860	(1,043)	16,609
Foreign currency translation adjustments	(1,369)	(1,127)	(12,223)
Remeasurements of defined benefit plans	114	(1,844)	1,022
Share of other comprehensive income in an associate	(56)	(55)	(500)
Total other comprehensive income	549	(4,071)	4,908
COMPREHENSIVE INCOME	¥ 7,589	¥ 4,188	\$ 67,759
TOTAL COMPREHENSIVE INCOME ATTRIBUTABLE TO:			
Owners of the parent	¥ 7,028	¥3,838	\$ 62,750
Non-controlling interests	560	349	5,008

## **Consolidated Statements of Changes in Equity**

TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries Years Ended March 31, 2017 and 2016

	Thousands						Millions of ye	n				
							cumulated o					
							hensive inco	me (loss)				
	Number of shares of common stock outstanding	Common stock	Capital surplus	Retained earnings	Treasury stock	Unrealized (loss) gain on available- for-sale securities	Foreign currency translation adjustments	Remeasure- ments of defined benefit plans	Total	Subscrip- tion rights to shares	Non- controlling interests	Total equity
BALANCE, APRIL 1, 2015	44,873	¥14,640	¥15,207	¥109.500	¥(3,183)	¥ 3,877	¥ 5,813	¥ 1,590	¥147.447	¥ 191	¥4,360	¥151,999
Profit attributable to	, -	,	-, -	,		-,-	-,-	,	,		,	,,,,,,
owners of the parent	_	_	_	7,716	_	_	_	_	7,716	_	_	7,716
Cash dividends paid:				.,					.,			.,
Final for prior year,												
¥32.0 per share	_	_	_	(1,350)	_	_	_	_	(1,350)	_	_	(1,350)
Interim for current				(.,,					(.,,			(.,,===,
year, ¥32.0 per share	_	_	_	(1,384)	_	_	_	_	(1,384)	_	_	(1,384)
Purchase of				(.,,,,					(.,,			( . , ,
treasury stock	(1,750)	_	_	_	(6,269)	_	_	_	(6,269)	_	_	(6,269)
Disposal of	. ,,				, ,				, , , , , ,			,
treasury stock	45	_	_	(0)	89	_	_	_	88	_	_	88
Retirement of												
treasury stock	_	_	_	(4,123)	4,123	_	_	_	_	_	_	_
Net change in the year	_	_	_	_	_	(1,043)	(990)	(1,844)	(3,877)	118	229	(3,530)
BALANCE, MARCH 31, 2016	43,169	14,640	15,207	110,359	(5,239)	2,834	4,823	(253)	142,371	309	4,589	147,270
Profit attributable to												
owners of the parent	_	_	_	6,343	_	_	_	_	6,343	_	_	6,343
Cash dividends paid:												
Final for prior year,												
¥32.0 per share	_	_	_	(1,384)	_	_	_	_	(1,384)	_	_	(1,384)
Interim for current												
year, ¥32.0 per share	_	_	_	(1,391)	_	_	_	_	(1,391)	_	_	(1,391)
Purchase of												
treasury stock	(0)	_	_	_	(2)	_	_	_	(2)	_	_	(2)
Disposal of												
treasury stock	435	_	_	(218)	1,156	_	_	_	937	_	_	937
Retirement of												
treasury stock	_	_	_	_	_	_	_	_	_	(174)	_	(174)
Net change in the year	_	_	_	_	_	1,860	(1,290)	114	684	86	560	1,332
BALANCE, MARCH 31, 2017	43,603	¥14,640	¥15,207	¥113,708	¥(4,086)	¥ 4,694	¥ 3,533	¥ (139)	¥147,559	¥ 221	¥5,150	¥152,931

					Thous	ands of U.S.	dollars				
	Accumulated other										
						hensive inco	me (loss)				
					Unrealized (loss)		Remeasure-				
					gain on	Foreign	ments of				
					available-	currency	defined		Subscrip-	Non-	
	Common	Capital	Retained	Treasury	for-sale	translation	benefit		tion rights	controlling	Total
	stock	surplus	earnings	stock	securities	adjustments	plans	Total	to shares	interests	equity
BALANCE, MARCH 31, 2016	\$130,718	\$135,784	\$ 985,350	\$(46,784)	\$25,304	\$ 43,069	\$(2,267)	\$1,271,176	\$ 2,761	\$40,978	\$1,314,916
Profit attributable to owners of											
the parent	_	_	56,637	_	_	_	_	56,637	_	_	56,637
Cash dividends paid:											
Final for prior year, \$0.28 per share	_	_	(12,358)	_	_	_	_	(12,358)	_	_	(12,358)
Interim for current year,											
\$0.28 per share	_	_	(12,421)	_	_	_	_	(12,421)	_	_	(12,421)
Purchase of treasury stock	_	_	_	(24)	_	_	_	(24)	_	_	(24)
Disposal of treasury stock	_	_	(1,952)	10,326	_	_	_	8,373	_	_	8,373
Retirement of treasury stock	_	_	_	_	_	_	_	_	(1,560)	_	(1,560)
Net change in the year	_	_	_	_	16,609	(11,518)	1,022	6,113	773	5,008	11,895
BALANCE, MARCH 31, 2017	\$130,718	\$135,784	\$1,015,255	\$(36,482)	\$41,914	\$ 31,550	\$(1,244)	\$1,317,496	\$ 1,974	\$45,987	\$1,365,458

## **Consolidated Statements of Cash Flows**

TOKYO OHKA KOGYO CO., LTD. and Consolidated Subsidiaries Years Ended March 31, 2017 and 2016

	Millions	s of yen	Thousands of U.S. dollars
	2017	2016	2017
OPERATING ACTIVITIES:			
Income before income taxes and non-controlling interests	¥ 9,220	¥ 11,777	\$ 82,325
Adjustments for:			
Income taxes paid	(2,567)	(4,157)	(22,921)
Depreciation and amortization	6,118	5,631	54,630
Provision for doubtful accounts	180	(18)	1,608
Foreign exchange loss—net	576	934	5,148
Equity in earnings of an associate	(126)	(219)	(1,129)
Gain on sales of investment securities	(265)	(50)	(2,373)
Loss on impairment of long-lived assets	678	752	6,054
Loss (gain) on valuation of derivatives	439	(270)	3,927
Increase in net defined benefit asset	(248)	(686)	(2,222)
Increase (decrease) in net defined benefit liability	(31)	16	(281)
(Increase) decrease in trade notes and accounts receivable	(2,124)	1,200	(18,971)
Increase in inventories	(915)	(1,755)	(8,178)
Increase (decrease) in trade notes and accounts payable	1,836	(1,522)	16,395
Increase (decrease) in advances from customers	327	(5)	2,924
Increase in consumption taxes refund receivable	(246)	(86)	(2,203)
Other—net	(373)	361	(3,336)
Net cash provided by operating activities	12,476	11,902	111,398
INVESTING ACTIVITIES:			
Deposit for time deposits—net	(445)	(12)	(3,974)
Purchases of property, plant and equipment	(9,008)	(5,335)	(80,433)
Payments into long-term time deposits	(14,000)	(14,000)	(125,000)
Withdrawal of long-term time deposits	12,000	15,000	107,142
Purchases of investment securities	(1,499)	(345)	(13,391)
Proceeds from sales of investment securities	392	83	3,505
Collection of loans receivable	0	373	8
Payments of loans receivable	(565)	(2)	(5,052)
Other—net	(276)	(146)	(2,469)
Net cash used in investing activities	(13,402)	(4,385)	(119,663)
FINANCING ACTIVITIES:			
Repayments of short-term loans payable	_	(143)	_
Repayments of long-term loans payable	(374)	(122)	(3,345)
Dividends paid	(2,769)	(2,729)	(24,730)
Dividends paid for non-controlling interests	_	(120)	_
Disposal of treasury stock	823	152	7,350
Purchases of treasury stock	(2)	(6,304)	(24)
Other—net	0	(1)	(1)
Net cash used in financing activities	(2,324)	(9,268)	(20,752)
FOREIGN CURRENCY TRANSLATION ADJUSTMENTS	,	-	
ON CASH AND CASH EQUIVALENTS	(358)	(298)	(3,201)
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(3,608)	(2,049)	(32,217)
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	39,516	41,565	352,821
CASH AND CASH EQUIVALENTS, END OF YEAR	¥ 35,907	¥ 39,516	\$ 320,604

# Corporate Information/External Evaluation

## Corporate Information (As of March 31, 2017)

**Corporate Name** TOKYO OHKA KOGYO CO., LTD.

**Established** October 25, 1940

**Head Office** 150 Nakamaruko, Nakahara-ku, Kawasaki-shi,

Kanagawa 211-0012, JAPAN

**Number of Employees** 1.596 (Consolidated) **Paid-In Capital** ¥14,640,448,000 Web Site http://www.tok.co.jp/eng

**Stock Listing** Tokyo

**Investor Relations** Public Relations Division

Contact 150 Nakamaruko, Nakahara-ku, Kawasaki-shi,

Kanagawa 211-0012, JAPAN TEL. +81-44-435-3000 FAX. +81-44-435-3020



Head office

### **External Evaluation**

### Selected for ESG-related indices

**MSCI Japan Empowering Women Index** (2017)

2017 Constituent MSCI MSCI Japan Empowering Women Index (WIN)

SNAM Sustainability Index (A constituent stock in 2017)



(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 MSCL MSCLAND THE MSCLINDEX NAMES AND LOGOS ARE TRADEMARKS OR SERVICE MARKS OF MSCLOR ITS AFFILIATES

### Evaluations and commendations for various activities

45th Nikkei Science Advertising Awards Grand Prize (2016)





18th Nikkei Annual Report Awards Award for Excellence (2016)



**Global Niche Top Companies Selection 100** (Ministry of Economy, Trade and Industry)



**Intel Corporation** Preferred Quality Supplier (PQS) Award (2016) Taiwan Semiconductor Manufacturing Company Limited IMQR Award (2016)

## Global Network



### TOKYO OHKA KOGYO CO., LTD.

- 1 Head office
- 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

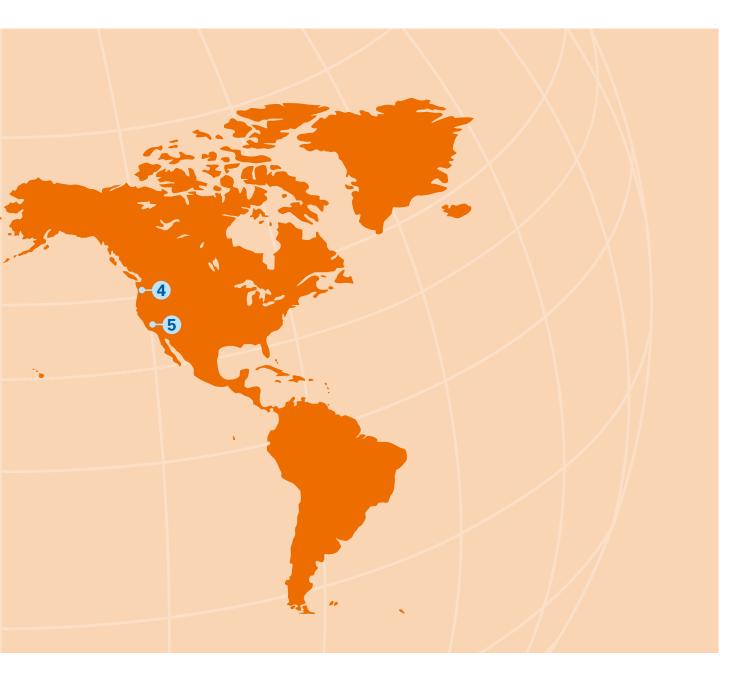
- 4 Head office/Oregon Plant
- 5 Sales Office (California)

### TOK TAIWAN CO., LTD.

Established: January 1998

Business: Manufacture and sales of photoresists, and development, manufacture and sales of photoresists-related chemicals

6 Head office (Hsinchu City) Miaoli Plant (Miaoli City) Tongluo Plant (Miaoli County)



### CHANG CHUNTOK (CHANGSHU) CO., LTD.

Established: October 2004

Business: Manufacture and sales of photoresists-related chemicals

7 Head office/Changshu Plant (China)

## Tokyo Ohka Kogyo Europe B.V.

Established: December 2005

Business: Sales of photoresists and related chemicals

8 Head office (The Netherlands)

## **TOK Advanced Materials Co., Ltd.**

Established: August 2012

Business: Development, manufacture, and sales of photoresists and related chemicals

9 Head office/Incheon Plant (South Korea)

# tok TOKYO OHKA KOGYO CO., LTD.

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