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Toward Becoming a Company that Creates "Inspiration"

Microprocessing Technology for the Future Microprocessing Technology for the Future

Semiconductor chips, which are as small as 3mm square, are embedded with an enormous number of transistors that allow computers to function. The state-of-the-art chips have approximately 1 billion transistors. Making this many transistors requires the technology to draw ultra-fine lines 1/10,000th the width of a human hair. Advances in computing would not be possible without such microprocessing technology. Since its founding, TOK, an R&D-driven company, has been challenging the limits with cutting-edge microprocessing technologies as a top manufacturer of photoresists.

Editorial Policy ~ What We Wish to Communicate through This Report

The TOK Group aims to increase corporate value through CSR and actively contribute to the advancement of a sustainable society. The CSR Report 2017 has been published to verify CSR activities in fiscal 2016 and promote communication with stakeholders. The report discloses information on efforts we consider particularly important among our various initiatives. This year, we include three special features to give readers a better understanding of TOK's core technology of semiconductor microprocessing, and the related products of high purity chemicals. In addition, we have added as many Voice columns as possible to introduce the thoughts of people who are active at the forefront of our various activities.

We look forward to receiving your honest feedback, which we will use to further improve our CSR initiatives as well as this report. This report can also be read on our website.

Scope of Data Collection

This report covers only the domestic business activities of the TOK Group, which is made up of a total of nine companies (as of March 31, 2017) comprising TOKYO OHKA KOGYO CO., LTD., its subsidiaries, and its equity method affiliates. TOKYO OHKA KOGYO CO., LTD. is indicated as TOK (the Company).

Applicable Period

In principle, the report covers fiscal 2016 (April 1, 2016 to March 31, 2017), but also contains some information about activities conducted in fiscal 2017.

Reference Guidelines

Environmental Reporting Guidelines 2012, published by the Ministry of the Environment Sustainability Reporting Guidelines G4, published by the Global Reporting Initiative (GRI) ISO 26000: 2010 – Guidance on Social Responsibility, released by the Japanese Standards Association

Date of issue: July 2017 Date of next issue: July 2018 (tentative)

Corporate Data

Corporate Name: TOKYO OHKA KOGYO CO., LTD. Established: October 25, 1940 Headquarters: 150 Nakamaruko, Nakahara-ku, Kawasaki, Kanagawa Japan TEL. 044-435-3000(Main number) FAX 044-435-3020(Main number) Paid-in capital: ¥14,640 million (As of March 31, 2017) President: Ikuo Akutsu Number of employees: 1,596 (Consolidated / As of March 31, 2017) Special Feature Net sales: ¥88.764 million (Consolidated / Fiscal year ended March 31, 2017) Business offices and sites: Japan: 8 / Overseas: 9 Ensuring Corporate group: Subsidiaries: 4 / Overseas subsidiaries: 5 Businesses:Manufacture and sales of manufacturing materials, mainlyphotoresists and high purity chemicalsfor photolithography process of semiconductor and liquid crystaldisplay, processing equipment for semiconductor and liquid crystaldisplay manufacturing, and inorganic and organic chemicals



TOK's CSR website http://www.tok.co.jp/eng/csr

Head Offic



CONTENTS Commitment of Top Management	3
TOK's business overview	5
TOK's Business Hubs and Business Activities	7
TOK's CSR	9
Special Feature 1 : TOK's Microprocessing Technology and the Future of Computers $-$	13
Ensuring sound business management	19
Creation of the impression with high value-added products —	25
Special Feature 2 : TOK TAIWAN CO., LTD. (TTW)'s Quality Initiatives for High Purity Chemicals $-$	27
Creating a "Frank and Open-Minded" Workplace Where Workers are Motivated —	31
Special Feature 3 : On the Frontlines: Advancing "Glocalization" and the $-$ Strategy of Building Close Relationships with Customers	35
Environmental Initiatives	39
Stakeholders communication	53
Third party verification	54
Third-Party Opinions / GRI Content Index	55

#京田市工業株式会社

CSR is a continuous, proactive effort to raise shared value with society We will persistently strive to create added-

value unique to TOK, while also enhancing communication with stakeholders

President & Chief Executive Officer

TOK's ideal company image for 2020 and the TOK Medium-Term Plan 2018

TOK, which will celebrate its 80th anniversary in 2020, has set its management vision of "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" as the ideal company image for 2020. In fiscal 2016, we launched the TOK Medium-Term Plan 2018, and we view the three-year period ending December 2018 as an important period that holds the key to achieving our ideal company image. Under the TOK Medium-Term Plan 2018, we will aim to further increase corporate value, including posting record-high profits, based on the company-wide strategy comprising four priorities: reforming business portfolios, evolving our strategy of building close relationships with customers, developing global personnel, and strengthening the management foundation.

TOK, was founded in 1936 and began by launching domestic production of potassium hydroxide (high purity caustic potash). The management principles at the time of TOK's founding included "creating distinctive products that cannot be easily imitated by other companies,""building our business around high purity products," and "developing advanced technological capabilities." These management principles have been passed down within TOK over the years, and based on TOK's identity as a technology-driven company, they have been leveraged to create many top-level products, as well as many products that are the first of their kind in Japan or the even the entire world. "Inspiration," as discussed in the medium-term plan, primarily refers to "creating added-value that only we can provide," and indicates our honest and earnest commitment to establishing technologies and delivering products that are the best in class or not offered by anyone else.

Further improvement of technology and product capabilities and reforming the business portfolio

The state-of-the-art technology in the miniaturization of semiconductors indispensable for the evolution of computers is about to enter the ultrahigh difficulty domain, aiming at line widths of 10nm or less (the width of integrated circuit wiring). The world's top level of technological capability is required for cutting-edge photoresists that enable such ultra-miniaturization and the ultra-high purity chemicals indispensable for manufacturing these semiconductors. In this high-end "global niche" field, we are proud to be one of the few companies in the world that can create higher added-value.

As a technology-driven company, TOK aims to become a 100-year company. It is only by continuing to play a role as a best partner to users who are assuming the challenge to create products utilizing such cutting-edge technologies in a broad range of electronics-related fields that we will be able to achieve this aim. We also believe that this will lead to the creation of additional social value.

Both R&D and capital investment are essential elements for our endeavors. During fiscal 2016, in addition to introducing evaluation equipment with state-of-the-art devices (including high-resolution ArF exposure equipment) at the Sagami Operation Center, which is our core R&D site, we also expanded production facilities (overseas sites), for high purity chemicals targeting cutting-edge fields and launched a mass production plant for high-functional films, which is a new business, among other initiatives. While ascertaining the needs of users and society, and looking to expand and change our business fields, we will continue our proactive investment activities from a medium- to longterm perspective, and continue to strive to create distinctive products in existing and new businesses.

Bolstering our strategy of building close relationships with customers and pursuing positive communication

Our strategy of building close relationships with customers is the most important strategy for us to continue to play a role as the best partner of users. In the field of semiconductor manufacturing, users have different manufacturing technologies, equipment, and processes, so most of the cutting-edge photoresists that we provide are basically built from scratch together with users. The only way to gain users' trust is to stably provide products with characteristics superior to those of other companies, and the key to this is repeatedly engaging in detailed communication with users.

Departments responsible for development, manufacturing, and sales all work together to be physically close with users to grasp their true needs, and by pursuing a strategy of building close relationships with customers to create products that will satisfy these needs, the frequency of contact and information exchange with users has steadily increased. This is partially due to the fact that we have moved development functions to overseas manufacturing sites. However, against a backdrop of increasingly challenging market conditions, users are trying to gauge TOK's willingness to go the extra mile for them. Steve Jobs once said that great products can only come from people who are passionate. For TOK to continue to win the trust of customers in the cutting-edge fields of semiconductors where technological innovation is progressing at a feverish pace in step with the evolution of smartphones and other mobile devices, we must do a good job of communicating our commitment to our customers along with our spirit of going the extra mile for them.

"Glocalization" and development of global personnel

The TOK Group has an overseas sales ratio above 70%, and the number of employees working at overseas sites has been increasing year by year. However, for the entire group to grow further, we must establish a global standard that we can be proud of around the world. To that end, we will further advance global collaboration (globalize), including corporate governance and risk management, to improve quality and EHS (environmental, health and safety), while we must also firmly establish such efforts at each site in more effective ways that match the particular characteristics of each site (localize). For a company aiming to truly globalize, it is extremely important to firmly establish "glocalization" as a part of the corporate culture. Going forward, the Group will basically set "Putting the right people in the right positions" as the only standard, and I believe we should strive to secure, retain, and develop personnel responsible for these efforts, regardless of

their race, nationality, or gender.

Strengthen the management foundation and assume the challenge of "growth-oriented CSR"

Given the need for global business collaboration among group companies in conjunction with the progress in overseas development, we have launched the GMS (Group Management System) Project, and are aiming to build a business management system for the entire Group, including effective risk management. In addition, we are also improving the work environment to realize a satisfying work style that meets the needs of everyone. Such efforts include work-life balance and work style reform. For example, with respect to the environment, we view measures to fulfill corporate responsibility by complying with standards and rules stipulated by laws and ordinances as "defensive CSR." In our case, we define initiatives such as further developing our microprocessing technologies and other core technologies to increase energy-saving benefits as "growth-oriented CSR," but I believe that in addition to clearing environmental standards, striving to further reduce environmental impact is also

"growth-oriented CSR."

CSR is a continuous, proactive effort to raise shared value with society. Previously, I mentioned that "inspiration" is the creation of added-value that only we can provide (to users). Going forward, while deepening communication with various stakeholders, including shareholders and employees, we will continue to firmly communicate to our customers that we have the commitment to go the extra mile for them, as well as act on this commitment.

CK's business overview

business

business (Millions of yen)	Division	Sales (Millions of yen)	field	
Material Business (86,549)			Semiconductor Manufacturing Field	Manufacture semiconductors Rubber type / g-line / Photoresist for i-line, Photoresist for KrF, Photoresist for ArF, Photoresist for EUV, Electron beam photoresist, Materials for Directed Self Assembly
	Electronic Functional Materials 53,074		Semiconductor packaging, MEMS manufacturing field *MEMS(Micro Electro Mechanical System): Micro Electro Mechanical Systems	Semiconductor package materials Au bump / Cu pillar / Micro bump,SnAg photosens (microlens)
			Panel Manufacturing field	LCD photoresists OLED photoresists
	High-Purity Chemicals	33,475		Cleaning solutions , Thinner , Developing solution
Environment	2,205		Semiconductor manufacturing field, Semiconductor packaging, MEMS Manufacturing field	Coating machine, Developing machines, Vacuum U
business			3D Packaging field	Zero Newton bonding machines / debonding mach
(2,205)			Panel Manufacturing field	Coating machine, UV curing machines Non-spin co
other business (9)	Other Fields	9		

Net Sales by Business Segment



Sales breakdown



IC chip manufacturing processes and examples of TOK product applications



Photolithography Relative Chemicals

Interlayer Insulating Film, Spin-On Diffusion Source, Materials for Shrink Process, Materials for Cover Coat, TPF (High-purity aqueous resin solution), etc.

MS • Materials for image sensor

sitive permanent films Photoresists, photosensitive permanent films Photoresists

V hardening machines

ines, Adhesive materials

paters, Coat & Spin Coaters, Cleaning machines



Koriyama Plant

Fukushima 963-0215

Utsunomiva Plant

Tochiai 321-3231

Kumagaya Plant

organic chemical products.

C S Business Hubs and Business Activities

We are working toward the expansion of our network, and developing a global strategy that includes Japan.

Development bases Production bases Sales offices Office / Representative Offices

TOKYO OHKA KOGYO AMERICA INC Headquarters/Oregon Plant* With supply bases in North America and Europe, TOKYO OHKA KOGYO AMERICA, INC. manufactures photoresists for semiconductors, as well as high purity chemicals related to photolithography for semiconductors. 4600NE Brookwood Parkway, Hillsboro Oregon 97124, U.S.A. TEL.+1-503-693-7711 FAX.+1-503-693-2070



Corporate Sales Office 190Topaz Street, Milpitas, California 95035, U.S.A. TEL.+1-408-956-9901 FAX.+1-408-956-9995

TOKYO OHKA KOGYO EUROPE B.V. Headquarters* TOKYO OHKA KOGYO EUROPE B.V. is engaged in the sale of photoresists for semiconductors and high purity chemicals related to photolithography for semiconductors Databankweg 12B, 3821AL Amersfoort, The NETHERLANDS TEL+31-33-4543522 EAX+31-33-4519646 http://www.tok-europe.eu



TOK TAIWAN CO LTD Headquarters* TOK TAIWAN CO., LTD, is engaged in the manufacture and sale of semiconductors, flat-screen displays, high purity chemicals related to photolithography for the production of packaging modules, as well as the sale of manufacturing equipment. 4F., No.95, Beida Rd., East Dist., Hsinchu City 30044, TAIWAN

TEL.+886-3-5345953 FAX.+886-3-5350178



Miaoli Plant No.252, Wunshan, 21st Neighborhood, Wunsheng Village, Miaoli City 36061, TAIWAN TEL +886-37-367918 FAX +886-37-367919

Tongluo Plant No.1, Tongke 1st Rd., Tongluo Township, Miaoli County 36645. TAIWAN TEL.+886-37-987390 FAX.+886-37-981007

CHANG CHUN TOK CO., LTD. Headquarters/Changshu Plant* CHANG CHUN TOK (CHANGSHU) CO., LTD. manufactures and sells high purity chemicals related to photolithography for the production of semiconductors and flat-screen displays. Changchun Road, Riverside Industrial Park, Changshu Economic Development Zone, Jiangsu Province 215537, CHINA TEL +86-512-5264-8000 EAX +86-512-5264-5729



TOKYO OHKA KOGYO EUROPE B.V.

CHANG CHUN TOK (CHANGSHU) CO., LTD. TOKYO OHKA KOGYO CO.,LTD. Shanghai Representative Office

TOKYO OHKA KOGYO CO.,LTD. Singapore Branch

TOK ADVANCED MATERIALS CO. ITD. Headquarters/Incheon Plant* TOK ADVANCED MATERIALS CO., LTD. develops, manufactures, and sells photoresists for semiconductors, and sells high purity chemicals related to photolithography for semiconductors. 45, Cheomdan-Daero 60Beon-Gil, Yeonsu-Gu, Incheon, 21990, KOREA

TEL. +82-32-850-2000 FAX. +82-32-724-2220 http://www.tokam.co.k



TOKYO OHKA KOGYO CO., LTD. Singapore Office The Singapore Office collects and supplies information about user needs in the semiconductor and ICD display fields in Singapore and Malaysia. 8 Shenton Way, #14-01A, SINGAPORE 068811 TEL.+65-62261485 FAX.+65-62261893



TOKYO OHKA KOGYO CO., ITD. Shanghai Representative Office The Shanghai Representative Office collects and supplies information about user needs in the semiconductor and LCD display fields for Shanghai, Beijing, and Guangzhou in China. 1511, China Merchants Tower, 161 Lu Jia Zui East Road, Pu Dong Xin Qu, Shanghai 200120, CHINA



Head Office

150 Nakamaruko, Nakahara-ku, Kawasaki, Kanagawa 211-0012



Sagami Operation Center / Sagami Plant The Sagami Operation Center is an R&D base that is engaged in the production of photoresists for semiconductors and LCD displays, as well as organic chemicals. 1590 Tabata, Samukawa-machi, Koza-gun, Kanagawa 253-0114



Shonan Operation Center

The Shonan Operation Center is an R&D base for the Equipment business. It develops and manufactures LCD panel manufacturing equipment and various types of equipment used in the production of semiconductors. 7-8-16 Ichinomiya, Samukawa-machi, Koza-gun, Kanagawa 253-0111





TOK ADVANCED MATERIALS CO., LTD.

TOKYO OHKA KOGYO CO., LTD.(Headquarters) Sagami Operation Center(Includes Sagami Plant) Shonan Operation Center Koriyama Plant Utsunomiya Plant Kumagaya Plant Gotemba Plant

TOK TAIWAN CO., LTD.

Aso Plant

business management high value-added products Workplace Where Workers are Motivated Initiatives

Ensuring sound Creation of the impression with Creating a "Frankand Open-Minded" Environmental

The Korivama Plant is engaged in the production of semiconductor photoresists and related high purity chemicals. 1-23 Machiikedai, Koriyama-shi,



The Utsunomiya Plant is engaged in the production of photoresists for semiconductors and LCD displays. 21-5 Kiyohara Kogyo Danchi, Utsunomiya-shi,



The Kumagaya Plant is engaged in the production of various high purity chemicals, such as inorganic and

823-8 Kamibayashi, Miizugahara, Kumagaya-shi,

Gotemba Plant

The Gotemba Plant manufactures photoresists for semiconductors, coating fluids for coating formation (OCD) and various types of photoresists. 1-1 Komakado, Gotemba-shi,





Aso Plant

The Aso Plant is engaged in the production of photoresists for LCD displays and related high purity chemicals. 4454-1 Miyaji, Ichinomiya-machi, Aso-shi, Kumamoto 869-2612



Domestic subsidiaries KUMAGAYA OHKA CO., LTD.* TOK ENGINEERING CO., LTD.* TOK TECHNO SERVICE CO., LTD.* OHKA SERVICE CO., I TD.

*Consolidated subsidiary

TOKYO OHKA KOGYO AMERICA,INC.



tok's business TOK's Business Hubs and overview

The TOK Group's CSR

The TOK Group's CSR is a continuous, proactive effort to raise shared value with society.

Based on the spirit of "Reap what you sow," which has been passed down over the years since the founding of the Company, we work to see things through until we are satisfied, and strive to "create value unique to TOK" while deepening communication with stakeholders.

Three qualitative goals aimed at our "ideal company image"

When formulating the "TOK Medium-Term Plan 2015" that began in fiscal 2013, the Group aimed for sustainable earnings growth and to be a company that can earn a high level of trust from stakeholders, under the slogan of "A Company that creates inspiration." Along with this, the Company defined its "ideal company image" comprising three qualitative goals.

Qualitative Goals

1. A corporate group that provides new added value that can inspire customers 2. A corporate group that is trusted around the world 3. A global corporate group with a sense of corporate value that is shared on a global level



The management principles of the TOK Group call on the Group to "Contribute to society" by striving to "Continue efforts to enhance our technology," and "Raise the quality levels of our products," which are useful to society. Most importantly, the management principles state that we should contribute to society through our core business as a company that develops innovative technologies. To this end, the principles state that we should strive to create a frank and open-minded business culture that encourages people to not be afraid of failure and to reap what you sow.

TOK Group Management Principles Continue efforts to enhance our technology Raise the quality levels of our products

Contribute to society Create a frank and open-minded business culture

SDGs (Sustainable Development Goals) - "No one will be left behind"

At the United Nations Sustainable Development Summit held in 2015, member nations unanimously adopted the "2030 Agenda" based on the idea that "No one will be left behind." This agenda established 17 Sustainable Development Goals for the international community to eradicate poverty by 2030 and realize a sustainable society.

The main idea behind the SDGs is to "Correct inequality at the global level" between developed countries and developing countries. The 2030 Agenda also calls upon companies to incorporate this effort into their activities and for senior management to spearhead related initiatives. TOK agrees with the purport of the SDGs, and will always keep this in mind when advancing company-wide strategies

SUSTAINABLE GOALS DEVELOPMENT GOALS					
1 mm. Reffet	2	3	4 1000 1	5≣ @	6
7 Ø	8 	9	10 200	11 Alla	12
13		15 far			GOAL



Management Strategy "TOK Medium-Term Plan 2018" Specific measures aimed at achieving the medium-term targets while making course corrections through the PDCA process

In fiscal 2016, we launched the "TOK Medium-Term Plan 2018." This plan upholds our management vision, which is to "Aim to be a globally trusted corporate group by inspiring customers with high-value-added products" and sets out four company-wide strategies closely related to creating shared value with society.

and

Company-wide strategies

Business Activities

01 Reform business portfolios



As an R&D-driven company, TOK provides high value-added products and services, and works to continuously renew its businesses.

02 Evolve our strategy of building close relationships with customers



Make the most of our sites newly built under the previous medium-term plan, build longterm relationships of trust with customers, and expand business.

03 Develop global personnel



Develop human resources keeping an eye on the needs of the entire TOK Group, and generate synergies throughout the Group. Furthermore, utilize and recruit diverse human resources that are suited to conducting global business.

04 Strengthen management foundation



Make use of the Group Management System ("GMS") Project, and build a governance system aimed at reducing the risks associated with globalization and at raising corporate value.

9 CSR Report 2017

creating shared value

Contribute to the further evolution of computer-related technologies necessary to build a sustainable society

developing new technologies and developing human resources

6 è d

Thoroughly pursue customer satisfaction (quality, stable supply of products)

Contribute to the evolution of related technologies (computer technologies)

Increase employment in conjunction with expansion of

Proactively develop human resources (enhance global education)

Build workplaces that motivate employees

Fair hiring and building of workplaces that value global outlooks and diversity

Firmly establish global standard governance and risk management system

Respect for basic human rights

Enhance initiatives related to EHS (environment, health and safety)

TOK's Business Hubs and

Business Activities



(Result)

Financial capital(Economic values)



Ratio of worth

100	85.9	87.5	84.3	85.1	84.6
80					
60					
40					
40					
20					



Intellectual capital

Award	Customer	FY
Best Supplier Award	ASE Kaohsiung	2014
Supplier Excellence Award	Texas Instruments Incorporated	2014
Preferred Quality Supplier Award	Intel Corporation	2014 2015
IMQR Award	Taiwan Semiconductor Manufacturing Co., Ltd.	2015

Net income

(Millions of yer 10,000

8,000

4 0 0 0

2,000

2014 2015

Social and Relationship Capital(Social value)



Natural Capital(Environmental)value





2012

Creation of Social Value

(Shared value with society that can be created through business activities)

Value Creation Inside the Organization

Financial capital (enhancement of financial position) Manufactured capital (enhancement of manufacturing facilities/equipment) Intellectual capital (accumulation of technologies, know-how and intellectual property) Human capital (increase individual employees' capabilities, organizational strengths)

alue Creation outside the Organization

Create various kinds of value for stakeholders) Natural Capital

(External factors that have an impact on corporate activities: Create value from an environmental aspect, etc.)

(External factors that have an impact on corporate activities:









requency of Workplace Accidents/Severity Rate of Workplace Accident



Microprocessing Technology and the Future of Computers

In 1971, the release of a new kind of electronic calculator by a Japanese calculator manufacturer changed the electronics industry forever. Busicom 141-PF was the name of the new product. Previously, different hardware designs were needed for different specifications in electronic calculators. The new electronic calculator featured an IC chip that enabled the design of unique specifications in software without altering the hardware design. The name of this tiny IC chip was the Intel 4004. Since the launch of the Intel 4004, the world's first commercial central processing unit (CPU), computing technology has advanced at a startling pace, marking the beginning of a new era called the third industrial revolution.

Advances in semiconductor manufacturing technology have driven improvements in the functionality of computers while shrinking in size. Moreover, microprocessing technology and high purity processing technology, TOK's core technologies, are essential in the manufacturing of semiconductors.

This Special Feature 1 answers the questions of general readers that they may be hesitating to ask, such as "what is microprocessing technology?" or "how is this related to advances in computing?" What follows is the history of the TOK Group within the context of its contributions to advances in microprocessing technology, as well as an introduction to state-of-the-art technologies that are bringing autonomous vehicles closer to reality.

The miniaturization of semiconductors is a battle with quality. In the Special Feature 2, we introduce actual initiatives being undertaken by our overseas site TOK TAIWAN CO., LTD.

Advances in Computing Power alongside Development of Microprocessing Technology

The greater the number of transistors* on an IC chip, the greater the computing power

The performance of a computer is directly related to the number of transistors formed on silicon wafers, the semiconductor circuit board material. In 1965 before the Intel 4004 was developed, Gordon Moore, one of the founders of Intel who believed in the potential of semiconductors, predicted that the number of transistors in a single IC chip would double every two years or so. Dubbed "Moore's Law" in the semiconductor industry, this proclamation became a "development target" for semiconductor engineers and a "principle of competition" among semiconductor manufacturers.

Transistors embedded in IC chips are switches that switch digital

can have 16 different values (24). Eight bits (one byte) can have 256

values. Sixteen bits (two bytes) can have 65,536 values (216). This is

lower case), katakana (Japanese alphabet), numbers, symbols and

18,446,744,073,709,551,616 values per instruction. Today, our lives

video calls, thanks to the unceasing increase in transistors.

have become so convenient with smartphones, which can even do

* A bit is the smallest unit that a computer can process.

the level where computers can handle the alphabet (upper case and

common kanji (Chinese) characters. Modern 64-bit CPUs can process

One bit* can have one of two values, either a "0" or a "1". Four bits

*What is a transistor?

signals between "0" or "1" states.

TOK's involvement in semiconductor miniaturization (1970-2015)

- Line width 1/1,000
- Processing speed 1,000 times
- Power consumption 1/1.000²

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

History of Electronic Devices: Smaller and Better

Demand has strengthened sharply around the world for mobile devices such as smartphones and tablets. These mobile devices are used daily by people as a communications tool able to transmit various data and as an information tool instead of computers. They have made our lives much more convenient. Microprocessing technology has played a vital role in these advances. Advances in microprocessing technology enable processing of smaller transistors, which means a larger number can be packed onto a single IC chip, or create smaller-sized IC chips. Microprocessing technology has made electronic devices more powerful and compact 1965



Floating-point operations per second (FLOPS) is a measure of computing power (how fast a computer can perform a calculation)

with several 10 times the computing power

Line width and number of transistors





13 CSR Report 2017



Advances in Computing Power alongside Development of Microprocessing Technology

Photolithography: Ultra-microprocessing technology that creates "channels" 1/10,000 the width of a human hair

Semiconductor manufacturing process (front end) See pages 5-







Pursuing the cutting edge

Increasingly challenging level of requirements

Intense competition envelops the semiconductor industry on a global level. As the line widths of semiconductors narrow, new problems arise that were undetected before. Customer requirements for photoresist performance become increasingly challenging (Figure 1).

To improve photoresist performance and solve these problems, its key characteristics, namely sensitivity, resolution and roughness, must be improved. However, improving the performance of one characteristic decreases the performance of another. These tradeoffs make it extremely difficult to meet stringent requirements (Figure 2).

As a specialist photoresist manufacturer, TOK has accumulated innovative technological capabilities that its customers can count on to meet their expectations. Our exceptionally talented engineers work diligently every day to solve these issues.



Provide high-purity products by thoroughly removing contamination

Semiconductor manufacturing plants wage a constant battle against contamination. One speck of impurity on a silicon wafer can render useless an IC chip on that spot, degrading production efficiency (Figure 3). Controlling contamination becomes even more challenging with IC chips made on cutting-edge 10nm nodes (Figure 4). Non-photoresist chemicals, such as developing and cleaning solutions used for processing, must be able to perform at a high level in controlling contamination.

Measures to prevent contamination begin with the selection of raw materials without impurities at the material design stage, entail the use of machinery to completely remove impurities during the manufacturing process, and also in-house inspection equipment that can detect concentrations of impurities equivalent to one drop of coffee (about 0.025ml) in a 50-meter Olympic-size swimming pool. The development, product manufacturing and inspection divisions work together to ensure the highest levels of quality in our products.

Minimizing human error is as important as using raw materials with trace amounts of contamination, having employees wear highly dustproof workwear, and use of dustless paper and similar items. We aim to improve work quality by giving training opportunities to our employees, because most human errors that lead to contamination stem from a lack of adequate understanding of work methods and procedures. To the Special Feature 2



Same Equipment as Customers

Currently, 10nm node is the line width used in cutting-edge commercial semiconductors. Due to the limitations of physics, further miniaturization is likely to be a hard challenge to achieve, but process rules less than 10nm are feasible. TOK has responded to customer requests by upgrading our own equipment to the same stringent levels of our customers, entailing

the installation of inspection equipment with the latest technologies, including high-resolution exposure equipment at the Sagami Operation Center, its core R&D base.

Advances in Microprocessing Technology and The Future of Computers

"Limits" of Microprocessing and Challenging New Technology

Microprocessing technology, which began at 10µm, has advanced in tandem with Moore's Law (P13) to reach 14nm on a commercial basis today. On an experimental level, it has been reported that miniaturization has surpassed the 10nm level, which had been considered the theoretical limit to miniaturization.

Even though transistors on the IC chip are miniaturized even further, a problem has arisen where cost performance does not improve as much as in the past, such as power consumption does not decline, performance does not increase, or production costs are higher. For these reasons, the semiconductor industry is moving toward the introduction of new ultra-miniaturization technology based on light sources that use Extreme Ultraviolet Lithography (EUV) (Figure 5), which can achieve wavelengths of only 13.5nm. Meanwhile, technologies are being developed in parallel that aim to increase transistor density by stacking three dimensionally more layers onto IC chips (i.e., multi-layer), instead of pursuing miniaturization (Figure 6).

TOK has been developing materials for EUV along with its customers and developing technologies needed for multi-layer IC chips while pushing the limits of microprocessing technology.

Arrival of IoT* Era Pushes "New Approaches"

As mentioned before, the technological development beyond a theoretical limitation of the 10nm level in miniaturization has accelerated. Meanwhile the Internet of Things (IoT), which uses various sensors, requires traditional microprocessing technology. By connecting things to the Internet and things to other things over the Internet, IoT will require a huge volume of semiconductor devices. For example, autonomous vehicles require a large number of sensors to achieve awareness of the surrounding environment in the way a human's eyes do, or to act as an alternative to the five senses. Data from sensors installed around an autonomous vehicle is sent to a central location, where it is processed to find the most relevant data upon which optimal driving decisions are made by the vehicle's systems (Figure 7). In addition to sensors that gather data in IoT, artificial intelligence (AI) is needed to sort through this data and find the best outcomes. While sensors rely on traditional technologies, AI is on the cutting edge of technology.

The TOK Group has been developing technologies for the era of IoT. Every day, we focus our energies on contributing to the advancement of the semiconductor industry, so that everyone can live better lifestyles. *IOT (Internet of Things): Refers to the connection of home appliances, vehicles and other everyday items to the Internet rather than ICT devices such as mobile devices.



Microcomputers in Autonomous Vehicles Generate Huge Volumes of Data

Automobiles have a large number of inexpensive, low power consumption, miniature microcontrollers installed throughout the vehicle. Microcontrollers are semiconductor chips that integrate a CPU and memory. For example, one function is automatic headlights, where the headlights are turned on when it becomes dark outside. If autonomous vehicles take off, it will create a larg volume of data from microcomputers like these





Ensuring sound business management

We firmly believe that the realization of our management vision -"Aim to be a globally trusted corporate group by developing high-value-added products that inspire customers," established under our management principles since the establishment of the company - will bring about shared profits to many of our stakeholders, as well as enhance our corporate value. To achieve this management vision, we strive to ensure a sound and transparent management, and to enhance operational efficiency by speeding up the decision-making process. We have positioned the enhancement of corporate governance as one of our most important management issues, and are fully committed to achieving this goal.

Corporate Governance System

As a company with corporate auditors, TOK adopts a corporate auditor system. This is to enhance audits performed by the corporate auditors, whose authority has been strengthened under the Japanese Companies Act. In addition, we aim to strengthen the functions of managerial decision-making/supervision and business execution, and clarify the responsibility for performing these functions, through the reform of our Board of Directors, establishment of a corporate officer system, and election of an independent outside director. We believe that these are the most effective means of enhancing our corporate governance.

Corporate Governance http://www.tok.co.jp/eng/company/governance/corporate-governance.html

Self-assessment of goal achievement O: Took steps, achieved results \triangle : Took steps, but need to do more x: Did not take steps

ltem	Issues and goals of fiscal 2016	Goal achievement	Issues and goals of fiscal 2017
Corporate Governance	Update internal control rules on a global basis	0	Update internal control rules on a global basis
	Ensure management transparency and constantly enhance governance	0	Ensure management transparency and constantly enhance governance

Corporate Governance System

esults and Goals



Complying with the Corporate Governance Code

The Corporate Governance Code began to be applied to all listed companies in Japan on June 1, 2015, and so we will respect the general principles of the code as we work to build systems for management decision-making to realize sustainable growth and policies related to determining how the amounts are

calculated, and the methods used to make the determinations. raise corporate value from a medium- to long-term standpoint. Going forward, we will strive to further enhance corporate governance through steady improvements to management while regularly confirming compliance with the code.

Directors and the Board of Directors

Business Activities

The Board of Directors comprises eight directors, including two outside directors*. Their term of office is one year, which permits us to respond swiftly to changes in the business environment and clarify the responsibility of directors in each fiscal year. In addition, we elect two outside director with an

Internal Auditing Division

We have fifteen officers, including six officers concurrently serving as directors*. While strengthening the functions of the Board of Directors, i.e. managerial decision-making and supervision, the officers also focus on the function of business execution. In order to reinforce this function, we set up the

Auditors and the Board of Auditors

We have four auditors, including three outside auditors*. Each auditor is required to perform his/her duties allocated in accordance with the auditing standards (Corporate Auditor Auditing Regulations) and the auditing policies/responsibilities stipulated by the Board of Auditors. These include: attending the meetings of the Board of Directors and the Committee of Officers as well as other

Internal Auditing Division

We have set up the Internal Auditing Division, under the direct control of the President, composing of six staff members*. In addition to the standard audits of business operations, this

Remuneration for directors

Remuneration for TOK's directors and auditors is as shown in the following chart. Refer to the corporate governance section of the securities report for specific executive remuneration amounts, policies related to determining how the amounts are calculated, and the methods used to make the determinations.

VOICE Corporate Governance Is Never Truly "Complete"

If you think of corporate governance as a framework for bringing discipline to business for the sake of sustainable growth and enhanced corporate value, I think it is never truly "complete," because as a company grows, governance systems and processes require constant reevaluation. I hope to ensure I fulfill my role as outside director by reviewing whether corporate strategies offered by management are acceptable from the shareholders' perspective, asking management to explain how those strategies will be executed, and supervising management while constantly considering whether or not management decisions are in line with corporate strategy. Outside Director Noriko Sekiguchi

independent status in order to enhance the transparency of the board and strengthen its supervisory function. The board, comprising of representative directors and directors, has an optimal structure in executing its required functions of managerial decision-making and supervision. Number as of June 28, 2017

Committee of Officers composing of the chief executive officer, chief operating officer, senior executive officer, executive officers, and officers, based on their respective duties and responsibilities.

*Number as of June 28, 2017

important meetings; and supervising the performance of directors by receiving progress reports from the directors and others and requesting an explanation when necessary. They also supervise the appropriateness of audit methods and results performed by the accounting auditors by receiving their progress reports and requesting an explanation when necessary.

*Number as of June 28, 2017

division provides suggestions, proposals and advice for continuous improvements by undertaking evaluations of the effectiveness of internal controls on financial reporting.

Position	Number of eligible directors and auditors	Total remuneration (Million yen)
Directors	9	194
Auditors	5	50
Total	14	244

*The above includes the remuneration for one outside director who resigned at the closing of the 86rd General Meeting of Shareholder



Strengthening the Compliance System

TOK fosters a strong spirit of compliance with the law, Company rules and regulations and social norms in all corporate activities, on the part of each and every one of its management executives and employees.

Results and Coals Self-assessment of goal achievement O: Took steps, achieved results \triangle : Took steps, but need to do more x: Did not take steps				
ltem	Issues and goals of fiscal 2016	Goal achievement	Issues and goals of fiscal 2017	
Constitution	Continue activities to instill Compliance Standards of Conduct on a global basis		Continue activities to instill Compliance Standards of Conduct on a global basis	
Compliance	Continue to improve awareness of compliance and training to enhance understanding of pertinent issues	0	Continue to improve awareness of compliance and training to enhance understanding of pertinent issues	

System to Promote Compliance

We recognize that maintaining relationships of trust with all our stakeholders is the foundation for the sustainable development of a company that can coexist with the society. As such, we are putting effort into enhancing our compliance system. Led by the Compliance Committee, we carry out company-wide activities to promote compliance. These activities include providing education and raising awareness of compliance in each department.

Compliance Standards of Conduct

To raise awareness of the importance of compliance and to establish a clearly defined set of shared values and code of conduct among each individual officer and employee, we have drawn up the TOK Group Compliance Standards of Conduct. The Compliance Standards of Conduct was revised in July 2014 and a third edition issued.

The revisions took into consideration the globalization of business activities and changing conditions in society, among other developments, and its scope of application was expanded to

Internal Reporting System

Our internal reporting system system has three options to protect internal reporters: an internal route (reporting to the Compliance Committee Secretariat), an auditor route, and an external route (reporting to corporate lawyers). Employees can select either option

Toward Fair Trading (Compliance with the Subcontract Act)

In order to ensure thorough compliance with the Subcontract Act (Act against Delay in Payment of Subcontract Proceeds, etc. to Subcontractors), we periodically conduct investigations into the capital stock and payment terms, etc. of our trading partners to verify that each transaction is not in violation of the

Initiatives to Eliminate Anti-Social Elements

With the aim of eliminating anti-social elements, we take effort during times of peace to communicate with the relevant parties such as the police and Enterprise Defense Council, in order to establish close cooperative relationships. At the same time, we also collect information pertaining to trends on anti-social elements. We have also laid out items concerning breaking off ties with antisocial elements, and the appropriate response when



include overseas subsidiaries. Versions of the Compliance Standards of Conduct Handbook have been created in Japanese, English, Korean and Chinese and distributed to the executives and employees of Group companies. We intend to work even more rigorously to raise compliance awareness throughout the entire Group both in Japan and overseas.



according to the situation. In addition, we clarify our policy stating that any employee who has taken "internal reporting" actions should not receive a dismissal or other negative consequences, except in cases where such internal reporting was done with a dishonest intent.

Subcontract Act. In addition, the Procurement Department strives to enhance the understanding of the Subcontract Act among its representatives by sending them for external lectures. Efforts are also made to raise awareness among the related departments by conducting activities through the intranet and in meeting spaces.

an unreasonable demand is received, in our Basic Policy on Establishing an Internal Control System, as well as in the TOK Group Compliance Standards of Conduct. Furthermore, by introducing educational materials, we have taken steps to raise awareness about anti-social elements among all members of the TOK Group, and added clauses about the elimination of gangs in our business contracts (TOK format) with business partners.

Measures to Strengthen Risk Management

Business Activities

To preempt various risk events that could affect the business operations of the TOK Group, and to minimize the impact of their materialization, the Group has strengthened its risk management, focusing on mitigation of risk factors and preemptive measures. In addition, we have established a contingency management framework to mitigate damage resulting from emergencies.



Contingency Management

In addition to establishing a Contingency Management Committee of operating department managers and office managers, TOK has established a subordinate Contingency Management Secretariat, and has made revisions to the Group's contingency management procedures, with formulation of contingency management policies.

We have also set up a Contingency Management Conference as a crossdepartmental organization covering the whole Group, which identifies risks that could have a significant effect on business activities, establishes preventive measures and formulates responses in the event of a crisis.

In addition, we have further improved and strengthened our risk management

Risk Management System

In the belief that the Company must continuously develop ways of accurately dealing with risk that threatens to have severe impact on business operations, we have compiled contingency management regulations and a contingency management manual and categorized potentially significant risk into various categories-business risk, public risk, disaster and accident risk, manufacturing risk and environmental risk- based on the manual. We ensure

Business Continuity Plan (BCP)

Drawing on the lessons we learned from the Great East Japan Earthquake, we have revised our Business Continuity Plan(BCP) to deal with a scenario in which our headquarters and multiple business locations are simultaneously devastated

VOICE Overcoming the Kumamoto Earthquake

The Aso Plant was damaged by the Kumamoto Earthquake in April 2016. With help from our stakeholders, we were able to minimize the disruption to operations by implementing the business continuity plan that had been put in place beforehand. For the benefit of the Group, I intend to help fortify the business foundation with lessons learned from this experience.

Self-assessment of goal achievement O: Took steps, achieved results \triangle : Took steps, but need to do more \times : Did not take steps

ioal achievement	Issues and goals of fiscal 2017
0	Implement risk reduction activities
0	Periodically review business continuity plans

systems by introducing a plan, do, check, act (PDCA) cycle of verification and appraisal at all bases including those overseas. This helps us carry out risk appraisal and analysis, and take measures against particularly dangerous risks.

President	Contingency Management
Contingency Management Committee	Secretariat
Contingency Management Conference*	*The Contingency Management Conference is made up of representatives of the responsible
Responsible Person on Contingency Plan Actual Activity Person on Contingency Plan	persons on contingency plan and actual activity persons on contingency plan in each TOK operating department

preventive measures are normally in place by carrying out risk analysis and risk countermeasure formulation while at the same time carrying out appraisals and other forms of risk management.

In the event that a risk event occurs despite our best efforts, leading to an emergency situation as specified above, we have created frameworks for responding rapidly and appropriately based on the manual.

by an earthquake occurring directly under Tokyo, resulting in disruption of order processing and product shipment, and severance of essential supply lines.



For the reinforcement of the information management system

The field of information management is changing quickly every day on a global scale, with frequent cyberattacks and incidents of serious information leaks and lawsuits occurring. For the TOK Group, an incident where information assets are leaked outside the Company could cause major damage to its accumulated competitive advantages and threaten its existence as an ongoing concern. While advancing corporate activities, information management is a priority issue for management in terms of enhancing corporate value and fulfilling its social responsibility. The TOK Group has been taking new steps to ensure information is managed properly.

Results and	Goals Self-assessment of goal achievement	(): Took steps, achie	eved results \triangle : Took steps, but need to do more x: Did not take steps
ltem	lssues and goals of fiscal 2016	Goal achievement	Issues and goals of fiscal 2017
Information Management	Maintain, manage and improve information management systems	0	Maintain, manage and improve information management systems

Policies related to information management

TOK is implementing measures in line with the following policies, having positioned risk management related to information assets as a priority management issue to fulfill its corporate social responsibility.

- 1. With respect to all information assets held by the TOK Group, including managerial, client, marketing, personal, and technical information, the Group will comply with laws and regulations related to information security, other social norms, in-house rules and other guidelines, and protect the information appropriately. The Group shall only use the information to efficiently execute the operations of the Group, within the stipulated scope of authority, and for the prescribed purpose.
- 2. The TOK Group has established an Information Management Committee and will continue to build, maintain, and promote an information asset management structure for the overall Group.
- 3. The TOK Group will implement appropriate management through a range of human, physical, organizational and IT-based measures to prevent leakage, falsification, theft, destruction, and other damage to the information assets held by the TOK Group.
- 4. The TOK Group will implement in-house education regularly and continuously and work to raise awareness and keep everyone well informed of the in-house rules and other regulations.
- 5. In the case that accidents and other incidents related to information security occur, the TOK Group will endeavor to minimize the damage from such incidents and implement measures to prevent their recurrence.
- 6. The TOK Group will implement regular audits and make continuous improvements as a part of its management of information assets.

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

Information Management Structure

The Manager of the General Affairs Department is the designated chairman of the Information Management Committee, which consists of departmental managers from across the Group, including overseas affiliates and subsidiaries. The Committee works to strengthen the information management systems of the entire Group.

During the fiscal year under review, 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.

orders are issued to the audited divisions and the Information Management Committee. In this way the division works to improve our information management system.

TOK Group Information Management Structure



Action about the information management

1. Working Groups that Promote Information Management Working groups ("WG") are established to handle various issues determined by the Information Management Committee under the information management policy and to conduct related activities.

Trade Secrets WG

In light of recent incidents involving the leak of trade secrets, secret information needs to be managed as trade secrets under the law. This secret information entails information TOK has accumulated, including customer information that could cause untold damage to its business if leaked externally or used illicitly. This working group sets rules for the specific type of information to be managed and how it should be managed, and monitors its management while aiming to continuously improve the system.

Training and Rules WG

Each and every employee must be aware of the importance of information management and strictly follow the rules for information management. It is therefore vital that employees correctly understand these rules. This working group is in charge of explaining the rules so that employees understand them correctly and periodically trains employees on the importance of information management and management methods, as well as enhances system operations.

Information Management Slogans

We asked all officers and employees to come up with a slogan for information management for the purpose of increasing awareness of information management. The person who thought of the winning slogan is given an award, and the slogan is being used as a tool to raise awareness among all employees.



VOICE Strengthening Information Management

In the Information Management Committee Secretariat, we draft the Information Management Committee's action plans, administer them, support each working group, train employees, and engage in other activities for the entire Group. This year, we updated and disseminated the rules and systems across the Group. We will continue to strengthen our information management systems with the aim of enhancing corporate value and fulfilling our social responsibility. Secretariat of the Information Management Committee Shinichi Omori

high value-added products Workplace Where Workers are Motivated

Creation of the impression with Creating a "Frank and Open-Minded"

Information

Management Guidebook

A guidebook with illustrations and easy-to-understand content is distributed to all bases inside and outside Japan to further understanding of information management rules.



Human Resources Related WG

This working group creates and implements rules required for human resource management, and training programs for different ranks. It is in charge of the rules for when employees join and leave the Company, and also spot checks of employee desks*. * Unannounced checks

WG for IT Development, including Overseas Subsidiaries

The importance of IT in information management has continued to increase on a daily basis. Groupwide measures are needed to prevent human error and malicious information leaks. We have installed the necessary IT infrastructure and document management systems, and conduct mock training to prepare for targeted cyberattacks.

WG for Building Access System Management, including Overseas Subsidiaries Throughout the Group, building access systems have been introduced and are managed in line with relevant rules, while broad-ranging activities are undertaken to enhance the systems.



TOK's CSR

Creation of the impression with high value-added products

In order to provide customers with high quality products that can "inspire" them, the TOK Group has put in place initiatives aimed at enhancing quality in all processes, from design and development, to procurement of raw materials, production, and sales.

Results and	Goals Self-assessment of goal achievement	O: Took steps, achi	eved results $ riangle$: Took steps, but need to do more $ imes$: Did not take steps
ltem	Issues and goals of fiscal 2016	Goal achievement	Issues and goals of fiscal 2017
Quality	Initiatives to enhance product quality	0	Initiatives to enhance product quality
	Strengthen quality control systems	0	Strengthen quality control systems

Quality policy

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

1.Strengthen Marketing Ability, Be Motivated by a Strong Sense of Crisis, Prepare Well, and Take Immediate Action. 2. Promote Human Resource Development for Global Operation.

3.System to Capture Customer's Voice Accurately and to Respond Them Immediately. Each one of us clearly understand current situation and challenge ourselves with a sense of crisis.

Quality Management Initiatives

The TOK Group is committed to building relationships of trust and enhancing customer satisfaction by providing products that meet the needs of customers, and which customers can use with a sense of assurance and security. These efforts are undertaken in accordance with the TOK Group's "Quality Manual."

TOK conducts activities to ensure the stability of product quality from the initial stages of mass-production by conducting risk assessments for newly developed products in their early stages, to provide superior products and services in terms of quality and function. Furthermore, we monitor the quality stability of existing products and work to discover irregularities in their early stages to ensure stable manufacturing processes. TOK has also introduced MES* to further improve quality and process management at the Koriyama Plant, a mass production plant for our advanced photoresists and promoting efficient and continuous improvement in quality.

Production plants have already acquired ISO

9001 certification (international standard for quality management systems), and under a system in which all related divisions take part, we hold various meetings related to quality management on a regular basis and carry out activities throughout the organization to raise quality, which include exchanging opinions on solutions to problems and sharing information.

Going forward, we aim to improve the level of customer satisfaction and focus on continuously improving our highly reliable quality management system.

System of Meetings for Quality Management



Manufacturing Execution System (MES): A technique for providing information for managing and optimizing all manufacturing processes, from receipt of order to manufacture of the product

Advanced Quality Management System

The ArF immersion photoresists that are used in our Advanced semiconductor production process create circuit widths of approximately 20nm, realizing miniaturization of semiconductors and enabling high-level integration. In this way, it provides support for the conservation of resources. These cutting-edge semiconductor production processes call for high purity products that have less contaminants and metals in them than ever before.

The TOK Group has put in place company-wide initiatives to create systems

We are engaged in the following activities to provide materials with minimal levels of impurities.

- 3. Enhancement of filtering technology used to remove defective-causing substances.

Manufacturing process



VOICE The Highest Quality for Customers

At TOKYO OHKA KOGYO AMERICA, INC., we emphasize understanding customer needs and responding to them with an awareness of the urgency of each request. We also take pride in providing high-quality technical service to ensure delivery of only products of the highest quality to customers.

We are a team of technical engineers embracing the challenge of meeting demand for cutting-edge technology and presenting effective solutions. We listen to what customers want and once we know what that is, we make meticulous plans and implement them in a timely manner. We will keep working to live up to customer expectations by really solving problems and making ongoing improvements (PDCA) based on our belief that the success of our customers leads to our success.

25 CSR Report 2017

that can supply such products to customers, in order to satisfy their demands. TOK Group is also engaged in technological development with the aim of achieving metal impurity control. We are able to supply high purity products at the ppb* level. In addition to our measuring technology, production facilities that are exceptionally clean, as well as the reduction of metals from raw materials, are also technologies that support our efforts. *ppb: Parts per billion. 1 part of 1 billion is 1ppb.

1. In addition to the conventional technologies that are used to extract impurities, we also consider new defect detection methods based on appropriate models. 2. Control of polymer materials at the atomic level, in order to prevent the introduction of impurities and/or the generation of causative agents.

TOKYO OHKA KOGYO AMERICA,INC. Eileen Atterberry

Frontlines of building close relationships with customers

TOK TAIWAN CO., LTD. (TTW)'s Quality Initiatives for High Purity Chemicals

Referred to as Taiwan's "Silicon Valley," Hsinchu Science Park is located about 80 kilometers south of Taipei. Taiwan's cutting-edge semiconductor industry is concentrated in the surrounding area. Universities and research facilities as well as the business sites of numerous related companies are located in the vicinity.

The TOK Group's local subsidiary TOK TAIWAN CO., LTD. (TTW) also has two plants in the nearby Miaoli County where cleaning solutions and other high purity chemicals for semiconductors are produced.

In this special feature, we introduce quality management at TTW of high purity chemicals used in ultra-miniaturization processes.

"Quality" and "Speed" are Key Words for Rapidly Expanding Value Chain

As Figure 1 shows, semiconductor manufacturing is a major industry in Taiwan. "Quality" and "speed" are key words pertaining to production in the fiercely competitive semiconductor market. In Taiwan's "Silicon Valley," where the pace of technological innovation is fast and there is a flood of new products, those two qualities create the cutting edge and are vital to beating the competition. We established the local subsidiary TOK TAIWAN CO., LTD., and are meeting such needs employing a strategy of building close relationships with customers.



Fiscal 2017 plant objectives (Tongluo Plant)

With TOK brand establishment as a theme and in keeping line with the Group's overall strategy—the "TOK Medium-Term Plan 2018," we formulate goals for the fiscal year like those below and work toward them.

Establish TOK brand power through higher quality and technology innovation
 Put high priority on customer feedback and establish abilities and systems to that end

- 3. Make the most of localization benefits and work to support customers
- 4. Promptly build a mass production system for new products and stabilize quality
- 5. Foster an organizational culture dedicated to rigorous "monozukuri"



In addition to such facilities and systems, everything from the manufacturing tanks to each jig used to connect raw materials carried by tanker trucks to tanks at the Tongluo Plant is selected for use with utmost regard for quality. The basis of the TOK Group's production process for high-purity chemicals is the "preparation and use of good raw materials and good facilities under good conditions in good environments." This is evident in the many areas where the TOK Group's cultivated expertise as a photoresists manufacturer is crystallized.

Initiatives within the Plant to Maintain and Enhance Quality (Tongluo Plant)

Various high purity chemicals are used in transistor formation (p15-16) during the pre-process of semiconductor manufacturing. The high purity chemicals produced at the Tongluo Plant are mainly cleaning solutions, which are used to remove residue and photoresists after the etching process.

The miniaturization of semiconductors has led to cases where micro impurities that were previously not a problem are one now. Impurities on semiconductor circuit board can cause defective products and reduce customers' cost performance. Thus, high purity chemicals also require strict quality control.

Tongluo Plant's Quality Management System: Physical infrastructure for providing high purity products

There are three core types of facilities to prevent contamination. Metal-free lines, closed lines, and clean rooms.* Clean rooms are used in all places where products may be exposed (i.e., come in contact with air).

Tongluo Plant's Quality Management System: Work Culture-Driven Initiatives to Deliver High Purity Products

Looking at "good raw materials and facilities," "good conditions," and a "good environment" from a different perspective, the qualities of employees handling manufacturing site operations are a component of a "good environment."

Based on the Fiscal 2016 Plant Plan very similar in content to the Fiscal 2017 Plant Plan, Tetsuya Nishijima, the Tongluo Plant's Manager since April 2017, has set out three key principles for all plant employees. They aim to instill an organizational culture more devoted than ever to "monozukuri," thereby enabling even faster establishment of mass production systems and stable quality to meet customers increasingly sophisticated needs in Taiwan's Silicon Valley where technology advances at breakneck speed and new products emerge one after another.

The first principle is observation of rules. A policy statement on it has been issued comprising three items: "observing rules,""creating rules when none exist," and "consulting with supervisors to improve rules that are out of synch with current conditions." The second principle of performing perfect verification work is to be worked into the culture of the Tongluo Plant.

The third principle is taking an interest in your surroundings. Naturally, getting employees interested in their own jobs comes before getting them to take interest in their surroundings. Since that requires employees to have a deep understanding of what their work entails, we are spending a lot of time in particular on educationrelated programs at the Tongluo Plant.

Nishijima says, "If employees fullyTaipei Citygrasp their work down to the details,they will also gain a deeper interest



in their work. At that point, employees come to notice things. For instance, things that are not written in the manual but seem likely to lead to contamination. Such awareness at the individual level helps avoid risks and to maintain and enhance quality. Greater interest in one's work also ties to interest in how colleagues perform their jobs."

"If possible, I would like employees to gain even more knowledge. I would like them to understand the entire manufacturing process through the delivery of products to customers and be able to act with a solid grasp of the role their division and their job plays in the process."

He notes that "Recognizing the importance of one's role in the big picture generates a sense of responsibility and pride, and increases motivation. It also gives rise to ideas about how to do things in a way that makes subsequent work easier when thinking about the next process. Being engaged in that sense is a part of 'taking interest in one's surroundings."" Tongluo Plant employees ask an amazing amount of questions during training. "They are very ambitious. I ask for a lot, but I am confident that they are up to the task."

AND DESC NOR ADDR

Customer-Oriented Problem Solving Putting the Customer's Voice First

Speedy customer-oriented response in an important criteria for quality rankings in Taiwan

Customers chose reliable suppliers. In that sense, the TOK Group's ability to respond to users is an aspect of the quality of the cleaning solutions it supplies, in addition to factors such as the purity and properties of products, notes Nishijima. As a member of the TOK Group, TTW is working to bring together development, manufacturing, and sales to inspire customers. Firstly, sales staff from TTW headquarters handle initial contact with customers. However, they coordinate with

Path to resolving problems paved by relationships built on mutual trust

For example, when a serious problem arises during a corporate customer's manufacturing process, there are several factors that could be causing it, including products supplied by TTW. We initially respond by promptly conducting a trace check of in-house products. Responding with a sense of urgency is also imperative on this front. A speedy reply from us enables customers to narrow the scope of their investigation, which makes resolving the problem that much faster, says plant manager Nishijima.

"In this case, emergency steps are first taken to get around the problem so that customers can continue production. During that time, we work with customers to search for clues to resolve the problem and get operations back to normal when it is something we can handle with our technology."

At TTW, there is very strict quality control. We conduct quality inspections during each process. Unless there are unforeseen problems after shipment, such as issues related to transportation, defective products are basically inconceivable. The check points (parameters) that should be cleared with regard to product specs are cleared at the point of quality inspections. However, problems arising from changes in usage conditions at customer sites or other unanticipated

Column Safety Comes First: Prevention is Also Key to Quality

Since manufacturing high purity chemicals entails handling hazardous raw materials, safety must come first. At the Tongluo Plant, the plant manager leads 5S patrols. When issues are discovered, work continues until all designated matters have been improved. Regarding EHS, an integrated management of environment, health, and safety matters, TTW has in place an internal EHS division that works to keep abreast of pertinent information. We also appropriately conduct surveys and reports according to customers' requests.

the development and manufacturing divisions as necessary, depending on the content of customer inquiries.

Also, speed is an important strategy at TTW. We promise to serve our corporate customers as quickly as possible and carry this out. TTW consistently receives rates highly for a certain corporate customer's quality ranking of major suppliers, and that kind of swift response is likely naturally among the evaluation criteria.

parameters are naturally not detected.

"In such cases, new parameters causing the problem need to be identified and changes made to raw materials, manufacturing processes, and so forth. That also requires asking for more detailed information like 'How are products being used?' Really inquiring makes it easier for us to draw on our experience and knowledge gained to date to figure out what is probably causing the problem."

The strategy of building close relationships with customers is extremely effective in that way as well, says Nishijima.

"Unless customers really trust us, they cannot divulge important information like that to us. I believe our success on this front owes to our steady efforts, including those of local employees and the building of close relationships with customers rooted in trust."

"So that our achievements so far do not go to waste, I look to boost motivation and keep up the solid work going forward. Being trusted by customers in this way is the ultimate panacea for us. It is very uplifting when both parties trust each other and work together to solve a problem. I want even more employees to experience that sense of fulfilment."



Creating a "Frank and Open-Minded" Workplace Where Workers are Motivated

In line with one of our management principles, the creation of a frank and open-minded business culture, we are committed to developing a safe and sound working environment where each and every one of our employees can work in a motivated manner. *"Employees" includes contract workers, while "staff" excludes contract workers.

Results and	Goals Self-assessment of goal achievement	(): Took steps, achi	eved results $ riangle$: Took steps, but need to do more x: Did not take steps
ltem	Issues and goals of fiscal 2016	Goal achievement	Issues and goals of fiscal 2017
Work style reform	Steps to improve work style		Initiatives to improve work style

Human Resources Policy	Never forget that business always starts with "people".		
TOK has established a consistent policy of regarding	□ Any discrimination within company and among employees is strictly prohibited.		
human resources as the asset of the company since our	□ Full compliance with applicable laws and regulations, as well as fair and equal compensation.		
establishment. We view all employees as valuable assets, and	Educate personal and promote creativity to become a company that develops innovative technologies.		
have stipulated the following items in line with this belief.	Personnel systems based upon performance, emphasizing and ensuring transparency.		

Respect for Human Rights and Initiatives for Fair Working Conditions

Respect for Human Rights and Prohibition of Discrimination

In our Compliance Standards of Conduct, the TOK Group states clearly its respect for basic individual human rights, and for diverse values, personalities, and privacy throughout the headquarters and at bases in Japan and overseas. Furthermore, it stipulates the prohibition of any behavior that violates the human rights of each officer and employee based on birth, nationality, race, ethnicity, beliefs, religion, gender, age, disability, and/or academic gualifications. Such acts include forcing another to carry out work or bullying behavior through discriminating speech and conduct, violence, verbal abuse, libel, slander, and/or intimidation. We conduct company-wide activities aimed at raising awareness of human rights, and we have put in place systems such as collaboration with legal firms, to respond to complaints and carry out improvements.

Assessing Human Rights and Labor Practices on the Supply Chain

In the course of doing business we work to conduct assessments of raw material suppliers and other partner companies in Japan and overseas in connection with human rights and labor practices. Manufacturing systems are inspected and confirmed through regular audits that include direct visits. Suppliers and partners are requested to make appropriate considerations for human rights and labor practices in accordance with the TOK Group's Compliance Standards of Conduct

Measures Against Harassment

As a measure to prevent sexual harassment and deal with it should it arise, we educate all employees on prevention of sexual harassment. We have also drawn up "Detailed rules concerning power harassment," which similarly clarifies contact points and procedures for handling power harassment incidents

Building Good Labor Relations

The Tokyo Ohka Kogyo Labor Union was formed in 1976 and is a member of the Japanese Federation of Textile, Chemical, Food, Commercial, Service and General Workers' Unions. TOK has a union shop agreement with the labor union. As of March 31, 2016, there were 1,105 labor union members affiliated with the Group.

Since the labor union was first formed, labor and management have maintained good, cooperative relations. Every two months at the central labormanagement meeting take place on the operating environment and other labor-management issues. As a part of this, we have concluded various labor agreements that include provisions on occupational safety and health for maintaining good labor and workplace conditions. When changes are made for business purposes, they are always discussed in advance with the labor union.

Creating a Workplace Environment that is Easy to Work in

Personnel System

Our personnel system comprises the "rank system," "remuneration system," "evaluation system" and "job challenge system." Our goal is to firmly establish the Basic Policy of Human Resources within the Company, and create a rewarding workplace for employees through a performance-based evaluation system.

Rank System

The rank system allows talented employees to earn early promotion, which is composed of two career paths: the "work-location selection course" based on aptitude, training, assignment and rotation; and the "qualification rank system" based on duties and responsibilities.

Remuneration System

Under the remuneration system, staffs receive a "base salary" that reflects their skills and performance and a "job category salary" that reflects their duties and responsibilities. For regular staffs, the "base salary" is determined based on their functional skill grade and job

Take advantage of the diversity of personnel

Specialist Development System

We have set up a new Specialist Development System that is separate from the management development system that we have had in place thus far. This new system aims to foster personnel with a high level of expertise in specific fields, not as organizational leaders but as specialists to lead the completion of specific tasks and contribute to improving the company's results. In fiscal 2016, 40 employees were inducted into the Specialist Development System. Self-Reporting System

Under this system, all staffs are required to submit a report on their activities once each year. The report should cover the nature and volume of their tasks as well as their working environment, desired position/work location, comments and messages to the management of the Company, etc. These reports are submitted to the supervising director and used as basic information for skill and career developments, appropriate personnel allocations, improvement planning of worksites, and so on.

Job Challenge System

This system aims to support staffs who take their career

Relationship with Employees
 http://www.tok.co.jp/eng/csr/employees/rights.html

Employment Situation (As of March 31, 2017)

Employee composition(Non-consolidated)

	Number of people	Average age	Average length of service (No. of years)
Male	1,051	44.0	21.5
Female	135	35.2	12.8
Total or average	1,186	43.0	20.5

*1 Number of employees excludes 94 seconded to other companies, 64 contract workers, and includes 3 seconded from other companies

*2 The average age and average length of service are calculated excluding local employees at overseas subsidiaries (7 people) and seconded employees from other companies (3 people). *3 For consolidated basis, the number of employees does not include contract workers and people seconded from

the Group to other companies a For the non-consolidated basis, the number of employees does not include contract workers and people seconded to other companies, and includes people seconded from other companies

performance; for executives, it is primarily based on the performance that is demanded of them according to their functional skill grade. Furthermore, there are upper and lower limits of remuneration for each qualification rank. This system eliminates seniority-based factors in salaries and gives younger employees the opportunity to earn more.

Evaluation System

We have incorporated a goal management approach into the staffs evaluation system, where employees set their goals and assignments and clarify their duties to perform and goals to achieve. The evaluation system combines a "performance evaluation" reflecting the degree of employees' attainment of goals/assignments, and a "competency evaluation" reflecting employees' competency to perform their everyday duties and responsibilities defined under their job descriptions (volume and quality of work, attitude, and skills). This system completely eliminates factors such as age, academic background and gender of employees in evaluating their performance.

development seriously and wish to challenge a new position at their own risk. The system consists of the following two options.

1. Free Agent (FA) System

In this system, employees can select a position to which they wish to be transferred. Then, they go through an interview with the relevant supervisors. Their ability, aptitude, career goals, self-development, etc. are comprehensively assessed to determine whether or not they can be transferred to their desired position. This aims to promote employees' motivation, so that they do not merely accept assignments dictated by the Company, but voluntarily extend their career paths. They may also apply for positions overseas.

2. Career Challenge (CC) System

This system allows employees to apply for work at a particular location. The request will be processed through coordination between their current division and desired division taking into consideration their gualification and ability. In principle, employees must return to their original division within five years. This system encourages employees to explore their growth direction and suitable role within the Company from a medium and long term perspective, while fostering their skills and career motivation to help them gain professional expertise through their duties.



TOK's CSR

Creating a Workplace Environment that is Easy to Work in

Take advantage of the diversity of personnel

Developing Systems for Work-Life Balance ("WLB") TOK has formulated an action plan based on the Act on Advancement of Measures to Support Raising Next-Generation Children. In order to ensure

that employees are able to balance work and family commitments, we are injecting efforts into creating workplace environments that are easy to work in. The results of our efforts were recognized with the "Kurumin"



(Mark of Support for Raising Next-Generation Children) accreditation in 2012.

Childcare Leave System

We introduced the childcare leave system in July 1990. Under the system, employees are allowed to take leave for child care from the birth of their child up until 18 months of age or up until the first April 30 after the child's first birthday, whichever is longer. This enables employees to take leave for up to two years, which exceeds the length of the statutory leave period. The employee who has taken childcare leave can return to the same or an equivalent position in principle. They are also allowed to shorten their working hours until their child completes the third grade of elementary school. In addition, we introduced a flextime scheme for childcare in October 2007 in order to further enhance the support for employees' child raising efforts.

User breakdown(As of March 31, 2017)

Childcare related systems	Number of users
Childcare Leave System	4(2)
Shorter Working Hours	2(3)
Childcare Time	12(6)

*Figures in parentheses indicate FY2016 new user

Sick Leave System

In March 1993, we adopted the sick leave system that supports staffs who are unable to work due to non-occupational injury or illness and have used all their paid leave. The sick leave is classified

into three categories of "short-term sick leave,""long-term sick leave" and "special long-term sick leave" and the amount of compensation for absence from work is determined according to the categories.

Occupational Rehabilitation System

In April 2005, we adopted the occupational rehabilitation system to help employees return comfortably to work after an absence of more than one month or longer due to non-occupational injury or illness. Under this system, these employees can reduce their working hours for up to two months from the day they return to work.

Expired Paid Leave Reserve System

In April 2008, we introduced the expired paid leave reserve system. Under the system, employees can reserve their unused, expired paid leave in cases where they have non-occupational injury or illness. A maximum of five days can be added each year and a total of up to 30 days can be reserved. The reserved paid leave can be used in units of 0.5 days.

Addressing the Women's Advancement Promotion Act

With the establishment of the Act of Promotion of Women's Participation and Advancement in the Workplace (Women's Advancement Promotion Act), we are working to create a workplace environment that enables women to fully demonstrate their personal characteristics and abilities and maintain employment while experiencing various life events such as marriage, pregnancy, and childbirth.

Key initiatives

Recruiting Women's recruitment ratio of 20% or higher Further establishment Review, improve and promote use of childcare, nursing care, transfer and other systems, consider and implement measures to raise awareness of work-life balance, and consider and implement support for career development

VOICE Providing a Workplace Where Women Can Thrive

I have been with the Company for 20 years. I am now in a management position busy with work and parenting, after having taken leave upon having a child. Looking back, I could delve into my work without worrying about the time before I became a parent. Now that I am balancing work and parenting, I have to deal with daily time constraints. Despite that, I have managed to persevere due to the tremendous support and cooperation of my supervisor, colleagues, and others around me. I gave up pursing a path to management at one point when parenting required a lot of my time, making it difficult to balance with work. However, I became more interested in putting more of my energy into work again as my child grew, and used the internal career change system .

I remember it being very reassuring that the Company is backing up the creation of a good working environment for women. Now that my child is a high school student, work is central to my life again. I want to repay the kindness I received from everyone by supporting the Company's development and the next generation of working women.



Quality Assurance Div. Motoko Samezawa

Developing Global Personnel

To develop human resources who can perform globally, TOK is working to train personnel from an early stage by providing programs starting from when employees initially enter the company. Global personnel are defined as employees capable of exhibiting their abilities while bearing risk themselves in any business situation, whether in Japan or overseas. To develop human resources capable of performing globally from the time they enter the company, we conduct training that emphasizes multicultural understanding, teamwork, logical communication skills and autonomy.

Employment of Foreign Nationals

Nationality is not an issue when it comes to hiring at TOK. Having diverse human resources gives rise to new perspectives and insights, which leads to the creation of new value. The TOK Group is developing business globally and forums where employees of foreign nationalities play an active role are rapidly expanding. As of March 31, 2017, 13 foreign nationals are working in Japan for TOK.

Number of employees at the overseas subsidiaries

	Number of employees
KUMAGAYA OHKA CO., LTD.	8
TOK ENGINEERING CO., LTD.	4
TOK TECHNO SERVICE CO., LTD.	18
TOKYO OHKA KOGYO AMERICA, INC.	95
TOKYO OHKA KOGYO EUROPE B.V	10
TOK TAIWAN CO.,LTD.	150
CHANG CHUN TOK CO.,LTD.	21
TOK ADVANCED MATERIALS CO.,LTD.	104
Total	410

Level-Based Training

Train

TOK has established level-based training programs for employees at differing levels in the organization. The programs are designed to help employees acquire abilities and fulfill the roles required at their respective levels.

New Employees		Entry Leve	
New employee training a plant training to teach th being a working member learn about the TOK's cor	nd production e basics of r of society and porate identity	Basic training to facilitate processes at the workpla related departments	
Mid-to- Upper Level		Upper Leve	el
T · · ·		T · · · · I	

Training on management
fundamentals including
communications with
subordinates and problem-solving

Training to learn the management philosophies and theories needed by managers to lead an enduring organization, and the fundamentals of business departments and toplevel executive training

Rehiring System

We have introduced the Rehiring System in April 2003, targeting the skilled retired employees who are physically and mentally healthy and wish to continue working after their mandatory retirement (or expiration of a contract). The rehired employees can work until the day on which they reach the age eligible to receive the full payment of employee pension. This maximum age limit has been increased gradually, and extended to 65 in April 2009.

System users

Fiscal Year	2012	2013	2014	2015	2016
The number of users	31	42	44	54	64
The number of users	124	136	147	157	167

Employment rate of persons with disabilities

The person with a disability employment rate of the end of 2015 was 2.27%. It continues and is going to push forward the employment of the person with a disability in future.



ork with



Special Feature 3

LiTsung Hao CLEAN SOLUTION SEC. MATERIAL TECHNOLOGY SALES DEPT. Joined the Group in 2014

In charge of sales of cleaning solutions. Encouraged to join the Group by an acquaintance. As sales staff at a competitor, had been interested in TOK having noted its strong technological capabilities and sensed it was a company with growth potential.

Chuang YaChien RESEARC

RESEARCH & DEVELOPMENT DEPT. Joined the Group in 2016

In charge of development related to cleaning solutions. Previously worked as a process engineer at a semiconductor manufacturer. Having used TOK's products, felt TOK was a company with outstanding technological capabilities that makes high quality products.

Koei Otomo QUALITY MANEGMENTSEC. Tongluo Plant Joined the Group in 1999

In charge of quality assurance for cleaning solutions. Assigned to the Tongluo Plant since 2014 from the Sagami Operation Center's Quality Assurance Division. This is his first overseas assignment.

TIEN CHIA YUN

QUALITY ASSURANCE DEPT. QUALITY ASSURANCE SEC. Joined the Group in 2005

CHIU YEN YU Manufacturing SEC 1 Tongluo Plant

In charge of operations at the manufacturing division.

Experienced similar operations at previous employer.

Initially drawn to the substantial employee benefits

at TOK. Hoped that working at a Japanese company

would provide opportunities for skill enhancement.

Joined the Group in 2014

Mainly in charge of post-process materials. Initially joined the Group as a part-timer. Being fluent in the Japanese language, worked interpreting matters related to post-process materials. Having gained more knowledge about the subject through that work, was hired as a full-time employee.



Stakeholder Communication TOK TAIWAN CO., LTD. Employee Roundtable

On the Frontlines: Advancing Glocalization

and the Strategy of Building Close Relationships with Customers

How well can we localize by tapping into local (customer) demand amid global development (globalization)? Success or lack thereof with that so-called "glocalization" is said to determine the outcome of overseas development. TOK's strategy of building close relationships with customers is a strategy of "glocalization" and generating new value. Looking at it from a different view, it is TOK's promoting a global strategy working with local employees to create new value.

So, what kind of creative changes are actually taking place locally? Or are they lacking? In Special Feature 3, we convey the reality through the voices of local employees.

*In this Special Feature, TOKYO OHKA KOGYO CO., LTD. is referred to as TOK.

Work and Growth 🏓

Otomo: Hello everyone. I'm Otomo, in charge of quality assurance at the Tongluo Plant. Today is an informal Japanstyle gathering, so please tell us what you really think. I would like to start by having everyone tell us about your current job and how you have grown so far.

Qiu: I am involved in production at a manufacturing site. TTW is extremely devoted to quality, so there are lots of opportunities on and off the job to learn about how to maintain quality. I feel I have gained a much deeper understanding of knowledge indispensable to operations. Since maintaining good quality also requires work to be performed meticulously, I think I have also grown with respect to that.

Lee: As the leader of the cleaning solutions sales team, I take care of existing customers and work to cultivate new customers. I supervise two people and we divide our customers among the three of us. Our job is to meet customer needs. We regard our mission as quickly getting up to date on what those needs are exactly, and rapidly responding to them.

From requests for development through to complaints, sales staffs take charge of handling contact with customers. However, TOK's core strategy of building close relationships with customers is also pervasive at TTW and cooperation among "the trinity" of development, manufacturing, and sales realizes a swift response that customers rate highly.

I am happy about my personal growth and the growth in team power in the sense that effective teamwork among "the trinity" and the sales team is enhancing our response capabilities.

Tian: If there is a problem with the products we supply to customers, we go to the plant and investigate the cause. After we identify the cause and hammer out steps to prevent recurrence, we provide an explanation to customers and gain their understanding. That is the scope of our job. During the last part of the process, the closing meeting, I strike a little victory pose in my mind when customers are satisfied with the countermeasures we present (laughs).

Further, I receive a lot of support from TOK since I also handle quality assurance related to chemicals and photoresists for post-processing manufactured at TOK.



Chong: I develop cleaning solutions matching customer requirements. I also participate in customer meetings depending on what is being developed and the content of requests.

At my previous company, I did not get a chance to do much engineering-related work. Since joining TTW, I have become involved in the core work of product development. I really feel that my wishes have come true on that point.

I have been learning the job of development from scratch. I feel that I am steadily advancing my skills by acquiring knowhow from more experienced colleagues and my supervisors and gaining experience in the field, including through meetings. Otomo: That means Ms. Chong's actual career as a cleaning solutions engineer is only about one year long. Even so, you are already participating in customer meetings. That is amazing.

Devotion to Quality 🎢

Chong: Even if we have met customer requirements, more experienced colleagues and my supervisors often keep striving for performance above the required level, time permitting. Actually seeing that up-close drives home again just how dedicated TOK is to quality. I really admire that uncompromising attitude.

The same is expected of me as well, and the data and reports that I submit are checked in detail. Recently, I finally came to see how that mindset also ties into devotion to quality. Tian: Japanese certainly are very detail oriented. If I say I will "do A," Japanese employees ask "what about B, C, and D then?" Things like that drive home just how attentive the Japanese are to detail. Lee: I also think that attention to detail is an extremely effective means of attaining the quality that customers truly want. That said, I really feel that customers, at least in Taiwan, are looking for even greater speed based on my experience of how business flows as TTW's contact person interacting the most directly with customers. More efficient attention to detail may be asking for the impossible, but I think we would be even more powerful if we could make that happen (laughs). Qiu: I started out learning about the work as a general operator, but am now entrusted with tasks such as new employee education, production schedule management, and dealing with problems that arise.

At the Tongluo Plant, putting safety first is regarded as the first step in quality control. Accordingly, prioritizing safety is a key point in new employee education. We also take care to convey the potential risks of departing from SOP (standard operating procedures), aiming to thoroughly implement the part of the plant manager's policy statement about the observation of rules (p. 29).

The 5S activities implemented at the Tongluo Plant are certainly part of that. The idea is that dedication to quality is not just about product purity or performance, but starts with thoroughly implementing the basics such as putting safety first and observing rules. There are truly many parts of that philosophy that resonate. Otomo: I think what Mr. Lee said about more efficient attention to detail is spot on. We are working pretty hard to speed things up but there are customers who want even greater speed. Feeling compelled to go the extra mile is in TOK's DNA. Some aspects of that dedication have come to be appreciated by customers, but what might be needed is working in ways that further increase time efficiency such as first taking an interest in one's surroundings and giving consideration to the next process, as the plant manager says.

Times When Work Feels Fulfilling or Rewarding 🎢

Lee: Being in sales, it is rewarding when we get an order from a customer who is satisfied with the proposal for a solution through our interactions with the customer. Our success is built on cooperation with peers in development, manufacturing, and quality assurance including those at TOK, which makes it that much sweeter.

Qiu: Since joining the Group, I have received a variety of training and taken part in different types of meetings. I have not just participated in production-related meetings, but meetings pertaining to EHS (environment, health, and safety) and cross-departmental meetings. I do not simply attend the meetings; my opinion is also sought at them. At one of those meetings, my suggestion went over well and it was proposed that I give it a go.

It was a suggestion about improving tank cleaning. When I had previously been in charge of the task, it took a lot of time due to my lack of experience and ended up also being costly. I devised and executed a plan for improvement including equipment



purchases and training. Work time and costs were successfully reduced, and I received considerable praise. Otomo: I remember Mr. Qiu's proposal very well. I felt before that there was a clear gap in the level of enthusiasm for quality between the Japanese manager and the Taiwanese operators working on the frontlines at the Tongluo Plant. However, programs have since been regrouped to enable sound training and opportunities were actively provided for operators to attend and offer their opinions at meetings. Such steps to encourage Taiwanese operators have resulted in more personnel with a sense of ownership and who understand the significance of operations and their role.

And that has led to more people like Mr. Qiu who seek advice and consider things like how to reduce contamination risk and what they can do to make work safer, easier, and more efficient. The increased interaction with Japanese employees has also improved the quality of communication between Taiwanese and Japanese employees. I feel we have now reached the point where we can have discussions as issues solving partners.

Sometimes, the going is not easy when proposals for improvement require additional investment. In those cases, I think Japanese employees need to be positively affected by their passion. We also need to respond in good faith if we feel that their opinions are correct. I think that is also important in terms of establishing relationships built on trust.

Qiu: That is true. At my previous workplace, it was dispiriting that my job did not change no matter how many years passed. Here, I have been entrusted with more important work as I have built up experience. And since I came to feel that my suggestions are really listened to and responded to in good faith, I have become able to constantly work with a positive attitude, looking to make the company better and better. Chong: I also lacked specialist expertise in many areas, but was able to grow step by step with guidance from more experienced colleagues and my supervisors since joining TTW. For example, when someone felt that I did not really understand their answer to my question about basic knowledge due to a communication gap, they went out of their way to search for documents on the Internet so that I would understand. Thanks to that kind of thorough guidance, I have gradually become able to effectively respond to requests from customers.

We work as a team, and I have felt fulfilled when I have contributed by playing my part as a member of the team to successfully meet customer requirements and satisfy customers. At those times, I have also been motivated to work harder, taking on a positive attitude.

Tian: The most rewarding thing for me is when customers are satisfied at the closing meeting. When it comes to a sense of accomplishment and fulfilment, I'm the kind of person who is easily inspired and motivated, so pretty much every day I find something rewarding.

The topic of increasing speed was previously mentioned. I think TTW has really grown on many fronts since I joined the company. Response is much faster. There are more employees. The plant is also new. Work is rapidly increasing too. It is like a whole different company. I am also proud of how TTW has



grown (laughs).
Otomo: I constantly sense
TTW employees' passion for
learning everything they
can. Before coming here, I
had some preconceptions
from what I heard here and
there about Taiwan being
a society where people
frequently change jobs and
are more focused on moving



pecial Feature 3 Stakeholder Communication JTOK TAIWAN CO., LTD. Employee Roundtable

to a company with better "conditions" to develop their careers. However, I have come to believe that is not so through my daily interactions with Taiwanese employees.

From what I have seen, feeling that the



work is fulfilling and pride in the company where they work is what is important. I sense those are also important "conditions."

For engineers, devotion to better "monozukuri" is an additional factor. Like with Mr. Qiu's proposal, Taiwanese engineers sometimes come up with ideas that we Japanese engineers had not considered. For me, I think I could not have gained the knowledge that candidly incorporating such ideas also leads to better and more stable quality had I not been sent to work overseas.

I think Taiwanese employees combining a solid grasp of TOK's standards with ideas of their own to generate new value is a form of "glocalization." For engineers, enthusiasm for better "monozukuri" is a necessary common trait at the root of that, which I recognized anew through my interactions with them. In that sense, I think everyone is helping me grow.

I would like to thank everyone for today, and I look forward to continuing to work together.

Environmental Initiatives

Products manufactured by the TOK Group contribute to greater comfort in the lives of people. However, the manufacturing process also places a burden on the environment. We have put in place initiatives to reduce the environmental burden created through our corporate activities, so that future generations can inherit an even better world from us.

Responsible Care Activities and PDCA

TOK works through a PDCA process to make continuous improvements to important CSR issues related to corporate activities, including the environment, safety and health, on the basis of Responsible Care (RC) activities.



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



The aim of RC activities is to solve problems through dialogue by respecting the right of citizens to know and listening to their concerns based on RC ethics, which came out of dialogue between the Canadian Chemical Producers Association and citizens, the government, NPOs and other organizations in the 1970's. Responsible Care implies that it is not sufficient only to act within the scope of the law. The activities are based on a commitment to voluntarily doing more than what the law requires and to doing what is ethically correct. The people involved in the activities (employees) continue to make improvements through a PDCA process while gaining a sense of achievement.

In Japan, the Japan Responsible Care Council was established in 1995, and the country's major chemical manufacturers participate in RC activities.

Medium- to Long-term Goals

Energy Consumption

We are putting effort into energy conservation activities in order to achieve the goal of reducing the amount of energy used by We are committed to reducing the amount of industrial waste generated, and our goal is to reduce 10 points (1 point per year) by fiscal 2019, based on a crude oil equivalent and taking the index for fiscal 2009 as the base unit. this amount by 5 points (1 points per year) by fiscal 2020, taking the index for 2015 as the base unit.

Results of Responsible Care (RC) Activities in Fiscal 2016

he following is a report of the main environmental initiatives that we undertook in fiscal 2016 and the results of these activities, which we implemented with the aim of reducing the environmental burden arising from our corporate activities.

Items	Goals of fiscal 2016	Results of fiscal 2016	Self- assessment	Goals of fiscal 2017			
	Promotion of environmental management						
	Eradicate environmental accidents that affect external parties Severe accidents: Zero	Number of environmental accidents that affect external parties Severe accidents: Zero	0	Number of environmental accidents Severe accidents: Zero			
	Accurately respond to stricter environmental regulations in Japan and abroad	Grasped trends in environmental regulations without delay and responded appropriately	0	Accurately respond to regulations in Japan and abroad, address new environmental regulations			
	Proactively disclose information Publish CSR Report	Proactively disclosed information Published CSR report and released web version	0	Proactively disclose information Publish CSR Report			
	Address climate change issues						
	Improve energy consumption per base unit Work to improve energy consumption per base unit toward achieving fiscal 2016 goal	Improve energy consumption per base unit Target 7 points improvement compared with fiscal 2009/ Improved by 15 points	0	Improve energy consumption per base unit B points improvement compared with fiscal 2009			
Environmental protection	Reduce emissions of industrial waste Work to reduce industrial waste emissions per base unit toward achieving fiscal 2016 goal	Reduce emissions of industrial waste Target 1 point improvement compared with fiscal 2015/ Up 4 points year on year	×	Reduce emissions of industrial waste			
	Reduce industrial waste disposed in landfills Maintain zero emissions	Reduce industrial waste disposed in landfills Kept less than 1%	0	Reduce industrial waste disposed in landfills Kept less than 1%			
	Preservation of air, water and soil environment						
	Prevent air and water pollution Work to keep under operational thresholds	Prevent air and water pollution Incidents where operational thresholds were exceeded: 0	0	Prevent air and water pollution Work to keep under operational thresholds			
	Effectively use water resources Work to effectively and efficiently use water resources	Effectively use water resources Water consumption/Increased 0.8 points year on year	×	Effectively use water resources Work to effectively and efficiently use water resources			
	Comply with PRTR Accurately measure emissions and report	Comply with PRTR Accurately measure emissions and report	0	Comply with PRTR Accurately measure emissions and report			
	Preserve biodiversity Improve awareness based on TOK Biodiversity Protection Declaration	Preserve biodiversity Participated in environmental conservation groups	0	Preserve biodiversity Improve awareness and encourage participation based on TOK Biodiversity Protection Declaration			
Product responsibility Product stewardship	Properly manage chemical substances and reduce risks posed by harmful chemical substances	Properly managed chemical substances and reduced risks posed by harmful chemical substances Advanced management of chemical substances at raw material procurement stage Conducted prescreening for harmful substances before using raw materials	0	Properly managed chemical substances and reduced risks posed by harmful chemical substances Promote risk-based chemical substance management and improve information disclosure			
	Establish chemical substance management system based on laws of the country of dispatch	Accurately responded to laws of relevant countries	0	Precisely address laws and regulations worldwide			
Occupational health and safety, security and disaster prevention	Injuries resulting in lost workdays: 0	Injuries resulting in lost workdays: 1 (four or more lost workdays)	×	Injuries resulting in lost workdays: 0			

VOICE Responsible Care Activities

security

In fiscal 2016, Responsible Care activities included business activities to conserve energy, reduce the risk of occupational injuries and environmental accidents, and reduce industrial waste. Regarding energy conservation, although energy usage increased alongside higher product production volume, in addition to continued reduction of energy use through the switch to natural gas as a fuel for boilers at the Koriyama Plant in the previous fiscal year, we conserved energy in various ways. As a result, we were able to achieve our base unit targets.

We are pleased to report that no major environmental accidents happened during this fiscal year as well. As a company that handles chemical substances, TOK will continue handling chemicals with care while instructing and training employees to ensure work is performed safely and securely.

In fiscal 2017, TOK will continue working to promote Responsible Care activities through investment in effective energy-saving measures that reduce environmental impact, including revising industrial waste processing methods.

The Company has set the medium- to long-term energy consumption targets for fiscal 2020. However, as energy-saving activities are making favorable progress, we have moved the schedule forward by one year to fiscal 2019.

Industrial Waste

Director, Department Manager, Manufacturing Dept. Nobuo Tokutake



Reduction in Environmental Burden from our Corporate Activities

Environmental Performance*

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

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

Emissions from Transportation*

Transportation volume	23.55million ton-kilometer		
Energy consumed	1,159crude oil equivalent		
CO2emissions	2,992t-CO ₂		
CO2emissions	2,992t-CO ₂		



microorganisms. BOD is a major indicator used when evaluating the degree of contamination of rivers and other water bodies. A higher value for BOD means that the water involved is more contaminated

Data on environmental impact by site for fiscal 2016 http://www.tok.co.jp/eng/csr/env-activity/load_data.html

VOICE Installation of Thermal Recycling Equipmen

In July 2016, an incinerator capable of thermal recycling waste was installed at the Sagami Operation Center. This incinerator took approximately two years from the start of planning to its installation, entailing numerous consultations with government authorities to ensure compliance with laws and regulations, as well as careful explanation to neighborhood associations. In addition to conserving energy, the facility takes into full consideration compliance and environmental issues.

This incinerator is composed of three units: a pyrolysis furnace that gasifies solid material like wastepaper and plastic waste, an incinerator that burns the gasified material and waste oil, and a hot water recovery furnace that recovers heat. More stable incineration is enabled by gasifying the solid material, and the release of dioxins is reduced by keeping temperatures above 800°C. Heat is recovered from the incineration process, which lasts 15-18 hours per day. Recovered hot water is supplied to steam boilers, helping reduce the amount of city gas used by the boilers.



We aim to further reduce the amount of city gas used by improving heat recovery efficiency while maintaining strict compliance with relevant laws and regulations.

Facilities Office, Manufacturing Dept. Shinichi Kanno (right) Wataru Suzuki (left)

			(MINIONS OF TELL	
Category		Key Initiatives	Investment	Cost
Business	Pollution prevention cost	Air, water and other pollution prevention equipment and its renewal, operation, maintenance and management		85
	Global environmental conservation cost	Energy conservation activities	89	46
	Resource circulation cost	Waste processing		201
Upstream/Downstream cost		Green purchasing, collection of used products	0	6
Administration cost		Approach to environmental management system	0	81
R&D cost		Research and development related to environmental conservation (equipment and products for reducing environmental impact)	0	29
Social activity cost		Cleanup activities around the production plants	0	1
Environmental remediation cost			0	0
Total			102	449

Environmental Conservation Cost

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

Economic benefits associated with environmental conservation measures

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

		(Millions of Yen)
	Revenue	Amount
Revenue	Gains on the sale of recycled products	14
Cost savings	Reduction in disposal costs through reduction in the volume of waste	93
Total		107

*Scope of environmental accounting covers production facilities in Japan and distribution centers, excluding the headquarters and marketing offices. Reference used is the Environmental Accounting Guidelines 2005, published by the Ministry of the Environment. *Amounts of less than one million ven have been rounded off.

Environmental Management

Environmental Management System

TOK positions environmental conservation as one of our priority management issues. With the aim of enhancing the effectiveness of environmental conservation in our corporate activities, we have established a goal that

integrates the environmental management system with the guality management system, at each of our offices and sites. We put effort into ensuring continuous improvements in the implementation of the PDCA cycle*. *PDCA cycle: This is a method that facilitates the smooth implementation of management work, such as production activities and quality management, through the repetition of the four stages of activities—Plan, Do, Check, Act.

Environmental Management System http://www.tok.co.jp/eng/csr/env-activity/s_management.html

The TOK Environmental Policy

The TOK Group is putting in place environmental initiatives in line with TOK's environmental policy to help achieve a sustainable society that does not harm the environment.

Manufacturing chemicals is one of the main pillars of the corporate activities undertaken by the TOK Group. This activity affects the environment primarily through releases and emissions into the atmosphere from the effluents and vaporization of organic solvents and other substances during production processes beginning with the procurement process, and following the use of the Company's products. Since its inception, TOK has placed priority on handling and disposing of chemical substances properly, as well as on dealing with emissions into the atmosphere. In November 1998, an environmental policy was established to clarify the Company's commitment regarding the reduction of waste materials and conservation of resources and energy. In April 2010 we carried out a review that encompassed our corporate social responsibility and the state of our environmental conservation activities thus far, and are striving toward the realization of our environmental policy. Furthermore, we are also engaged in activities to deal with environmental risks in the corporate activities that we undertake throughout the entire life cycle of our products.

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.

The TOK Environmental Policy http://www.tok.co.jp/eng/csr/env-activity/policy.html

Compliance with Environmental Laws and Regulations

Each domestic production site has prepared a List of Legal and Other Required Items and the Monitoring and Measurement Table and complies with laws and regulations. On the list, laws, rules, agreements and other regulations that must be observed are compiled in accordance with corresponding requirements, such as submitting applications and reports, performing measurements and enforcing compliance. The list is used to clarify the frequency of evaluations made by the sections responsible.

In addition, in 2016, the case more than the discharge standard values did not occur as a result of monitoring, measurement.

Activity of 2016 started a setup, observance activity in each working group for the purpose of the observance of environment, the Occupational Safety and Health Act. Main by working group setup , the registration of the product new by the observance activity that was the main constituent the item of laws and ordinances, the legal compliance at the time of various changes (event) including the transfer of the product; was intended.

Utsunomiya Plant Received Highest Award for Energy Conservation

On February 7, 2017, the Utsunomiya Plant received the Highest Award from the Japan Electric Association Kanto Branch for its initiatives to conserve energy by efficiently using electricity, and the outstanding results it achieved rationalizing the use of electricity, such as by improving the load factor.



Environmental Risk Management

At every business site in Japan, we examine all overt and potential environmental risks in accordance with items required by the ISO14001 standards, in order to prevent problems and reduce the occurrence of incidents. Furthermore, we evaluate and rank risks based on their magnitude to create a table identifying significant environmental factors*. In addition, each division

Environmental Safety Education for Employees

TOK has an environmental education program designed to raise awareness of environmental issues among all employees, and to encourage employees to act in consideration of the impact on the environment in all aspects of their daily work. Each business unit receives the Environmental Manual to use as the basis for its environmental activities.

Emergency Response Training

In order to minimize the impact when an environment contamination risk surfaces in the form of an environmental accident, we conduct periodic training programs at each office and site.

These include training to prevent and report on the diffusion of chemical substances, such as organic solvents and poisonous and deleterious substances, in the event of a chemical leakage. In addition, we have put in place emergency back-up drainage tanks



Working to maintain biodiversity

We prevent chemical substances from having a negative impact on ecosystems ahead of time by removing such substances from gas emissions and industrial wastewater given off by each site before releasing it into the atmosphere or waters using appropriate purification facilities. In fiscal 2016, we formulated the TOK Biodiversity Protection Declaration and are working to raise employee awareness of the issue. In fiscal 2017, TOK became a member of the Kanagawa Trust Midori Foundation to augment efforts to preserve the natural environment, including village forests.

TOK Biodiversity Protection Declaration

- 1. We will position biodiversity protection as one of management's highest priorities and strengthen protection activities for the global environment
- 2. We will work to continually reduce our environmental impact through our pro activities, our development and provision of products and services, and in coor with the supply chain, thereby working to protect biodiversity.
- 3. We will strive to enhance activities by educating employees on a regular basis and fa recognition and a correct understanding of the importance of biodiversity protection
- 4. We will continually conduct social contribution activities for environmen protection to earn the esteem and trust of society.
- 5. We will announce the results of initiatives and promote communication the general public.

and the company asa whole select environmental factors requiring particular attention. Annual targets for improvements are then established and progress toward those targets is monitored. For environmental factors at each business unit, progress is supervised by establishing management standards.

*Environmental factors: Factors involving organizational activities, products or services that could have an environmental impact.

and emergency shutoff valves at each production site in order to prevent the direct flow of discharged water out of the premises during an accident, in the event that this water does not satisfy the standards stipulated by regulations. Training on Methods of Identifying Environmental Factors,

Safety, ISO Requirements, and Management Systems We provide periodic training about the relationship between the requirements of standards and TOK's systems, in order to deepen understanding of how our management systems satisfy the requirements of the quality ISO9001 and the environment ISO14001.

We also conduct regular briefing sessions on methods of identifying safety risks, aimed at enhancing each individual employee's awareness of the environment and of safety.

In fiscal 2016, 213 employees took safety training and 36 employees participated in group training on ISO standards. In addition to these trainings, we offered classes on the environment and chemicals tailored to the situation at each site.





	Examples of Activities
	Develop green processes and green products
duction dination cilitating	Improve energy efficiency and promote resource recycling and 3R activities
	Assess environmental impact in new plant construction or extension plans and take measures
	Reduce environmental impact through activities to reduce waste
tal	Control diffusion into the environment of substances that readily accumulate and do not easily biodegrade through appropriate
with	management of chemical substances

Initiatives to Reduce Environmental Burden

Reducing Energy Consumption*

We are working to reduce our environmental burden through a number of initiatives. These include improving our product manufacturing processes, increasing the efficiency of our work, and overhauling our facility operation methods. When it comes to facilities, we are also upgrading to highly efficient equipment, reinforcing insulation of steam piping, aggregating compressors, and changing our lighting to LED lamps.

Emissions to the Atmosphere

We are working to reduce emissions of greenhouse gases* by improving our product manufacturing processes and through the management of our product manufacturing facilities. As of fiscal 2008, we had converted the boiler fuel at our Sagami Operation Center, Utsunomiya Plant, and Shonan Operation Center from heavy oil to gas fuel that gives off a smaller amount of SOx, which is a cause of air pollution. Moreover, we have also been upgrading to highly efficient equipment at our manufacturing sites and overhauling our operation methods in order minimize emissions into the atmosphere.

CO2 emissions related to business activities in fiscal 2016 totaled 30,000t-CO2, roughly the same as last year. SOx emissions declined significantly compared to the previous year, to 1.8 tons, as a result of changing boiler fuels at the Koriyama Plant.

*Greenhouse gas: Gas in the atmosphere that allows sunlight to pass through but absorbs infrared rays emitted from the ground and sea. These gases are believed to cause global warming





*We are putting effort into energy conservation activities in order to achieve the goal of reducing the amount of energy used by 10 points (one point per year) by fiscal 2020, based on a crude oil equivalent and taking the index for fiscal 2009 as the base unit

*The CO2 conversion factor is computed through the application of the fiscal 2009 conversion factor on other fiscal years, in order to gain a better understanding of the changes resulting from the company's activitie

2012 2013 2014 2015 2016 ^{(F} * There was an error in the amount of SOx emissions for fiscal 2013 so we have revised that figure. $(3.4 \rightarrow 3.0)$

3.0

1.8

1.2

Direct emissions by TOK (Scope 1) were 9,244 tons-CO2. Indirect emissions from use of electricity purchased by TOK were 20,846 tons-CO2 (Scope 2). Other indirect emissions (Scope 3) were 44,982 tons-CO2.

Scope3 Emissions by Category

Greenhouse Gas Emissions

Purchased goods and services	30,022t-CO ₂	Upstream leased assets	-
Capital goods	Not applicable	Downstream transportation and distribution	Domestic:2,992t-CO ₂ Overseas:3,165t-CO ₂
Fuel-and energy-related activities not included in Scope 1or 2	-	Processing of sold products	Not applicable
Upstream transportation and distribution	Not applicable	Use of sold products	Not applicable
Waste generated in operations	7,403t-CO ₂	End-of-life treatment of sold products	Not applicable
Business travel	860t-CO ₂	Downstream leased assets	Not applicable
Employee commuting	540t-CO ₂	Franchises	Not applicable
		Investments	Not applicable

In fiscal 2016, TOK installed and began operating new production facilities and evaluation equipment at each site, leading to a year-on-year increase of 4% in energy consumption, including electricity, heavy oil and city gas, for a crude oil equivalent of 14,578kL. Energy consumption per base unit worsened 2 points from the previous fiscal year, owing to the increase in energy consumption.

Measures Involving Ozone-Depleting Substances

Specified CFCs* such as CFC-11 and CFC-12 that cause ozone depletion are primarily used as a coolant in refrigerators and freezers. Under the Act on the Rationalization of Use and Appropriate Management of Chlorofluorocarbons (CFC Emissions Reduction Act), which was revised in April 2015, basic inspections and regular inspections must be conducted based on the type and size of device, and inspection and maintenance records must be retained until disposal of the facilities. When the law was revised, we instituted a management system and developed a system for conducting appropriate management, filling and disposal.

As a result, TOK's estimated CFC leakage volume for fiscal 2016 was 82t-CO2, less than the specified value that mandates reporting to the government. Also, although we have firefighting equipment that uses halon, even this firefighting equipment using an ozone depleting substance is inspected regularly.

SOx emissions

3.3

3.0

4.0

3.0

2.0

1.0



In fiscal 2016, the volume of overseas exports increased and the use of large vehicles in domestic transportation increased, resulting in increases of 14% in transportation tonkilometers and 14% in fuel usage. In terms of the base unit, there was no change compared with the previous year, as domestic transportation volume declined, but long-distance transportation with large vehicles increased, causing the distance traveled also to increase.

Progress in Use of Eco-Friendly, Low-Emission Vehicles TOK owns a fleet of 36 motor vehicles (including by lease). As of the end of May 2017, 97% of these vehicles use hybrid engines and other means to reduce emissions and protect the environment.



* In the CSR Report 2016, there was a mistake in the fiscal 2015 calculation of used water consumption. The correction is shown here (401t instead of 379t).

VOICE Helping TOK Conserve Energy

At YOKOTA INDUSTRIAL CO., LTD., our business revolves around the engineering and installation of heat and cold retention materials and soundproofing materials, applying our extensive track record and technical knowledge accumulated since the company's founding. Corporate awareness of energy conservation has improved in recent years. However, public awareness of thermal insulation, our main focus, is still quite low. One reason is that even if heat from a boiler escapes, it does not adversely affect the operations of surrounding equipment. For this reason, thermal insulation does not tend to be associated with energy conservation to a significant extent. The first time I visited the Sagami Operation Center, I noticed several places where heat was escaping from exposed pipes, because the same heat-related energy conservation standards were being followed as back when the center was constructed. We used thermography to visualize where heat was escaping from uninsulated areas. We then wrote up a proposal with estimates of how much energy can be reduced with heat insulation. This is when our relationship with TOK really took off. Afterwards, TOK became more aware of heat dissipation as a part of its efforts to conserve energy, and took steps to improve insulation at all its plants with our help. Thanks in part to these measures to insulate heat, energy consumption was reduced by 867t-CO2. I look forward to working with TOK on measures to conserve energy and make the environment better.

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

Provision of Environmental and Safety Information for Product Transportation We require that our drivers carry emergency contact cards (yellow cards) at all times while they are on duty to transport potentially harmful products. This reflects our commitment to environmental conservation and to ensuring safety, by protecting people, merchandise and the environment from harm caused by leaks, fires, explosions and other accidents that may occur during the transportation of hazardous substances.

Emissions to Water

At the same time, effluents from production plants undergo an activated sludge treatment process and other cleansing processes at wastewater treatment facilities before being released to public waters such as sewer systems and rivers. The BOD discharge discharged into to the public area of the sea becomes

approximately 0.4t in 2016 and rises 0.1t from last year. I try for maintenance, management of providing equipment and will work on drainage processing for discharge reduction in future.





Creation of a Recycling-Based Society: Appropriate Management Occupational Safety Environmental Burden Initiatives to Achieve Zero Emissions of Chemical Substances and Health Initiatives

Creation of a Recycling-Based Society: Initiatives to Achieve Zero Emissions

We conduct 3R activities (reduce, reuse, recycle) for effective utilization of limited resources. By limiting the volume of waste generated, thoroughly sorting the waste that is generated and increasing the volume that's recycled, we are working to make more effective use of

resources. Every year we strive to achieve zero emissions * by working to reduce landfill disposal volume by processing waste products through combustion or crushing, called intermediate treatment, and through stabilization and volume reduction initiatives.



VOICE Turning Waste into Valuable Material

Currently, most of the Company's waste is generated by the Gotemba Plant. We are working to reduce the volume of waste and make this situation better.

The waste generated by the Gotemba Plant mainly consists of flammable waste oil, a specially controlled industrial waste. We are working to turn this flammable waste oil into a useful substance.

Although not all of the waste oil has been turned into valuable substances, a portion is purified by distillation at a distillation company, which we buy back and reuse as new raw materials. Through these and other efforts, we are steadily moving to reduce environmental risks.

We will continue to collaborate with environmental department and business partners to turn waste into valuable materials and effectively use them. Gotemba Plant General affairs office Hiroshi Sugawara







*1. Reduce: This refers to reducing the volume of waste material generated. Reduction involves minimizing the volume of materials in products in order to minimize the volume of materials that is eventually discarded *2. Reuse: This refers to the use of manufactured goods, containers and other products repeatedly in order to reduce the volume of waste materials generated and conserve resources. *3. Recycle: Recycling is the use of waste materials as a resource rather than burning these materials or sending them to a landfill. Recycling thus conserves resources and prevents pollution *4. The base unit index is calculated after adding general industrial waste and specially controlled industrial waste. *5. We are committed to reducing the amount of industrial waste generated, and our goal is to reduce this amount by 10 points (two points per year) by fiscal 2015, taking the index for 2010 as the base unit. *6. From fiscal 2013, we have changed to the method of adding together the amount of general industrial waste and specially controlled industrial waste generated and calculating the base unit for the total industrial waste

To provide information about chemical substances, it is important to accurately We will reflect on the opinions we receive and use them in future activities. We will continue EHS Div. EHS Business Documentation Section Kenji Yamauchi

VOICE With Our Business Partners In the CSR Report, opinion pieces written by four business partners have been published from fiscal 2013 to fiscal 2016. All have asked us to provide more detailed information about chemical substances contained in liquid chemicals due to the hazards inherent in purification and refining and the production of regenerated fuel. understand the chemical substances used in each process, and also to establish a separation method for used liquid chemicals. When a change is made in the materials used, we immediately inform relevant parties. By carefully exchanging information with our business partners, we are helping to ensure safety as well as the environment. zero emissions initiatives while building sound relationships with our business partners.

revising processing methods we achieved a recycling rate for overall industrial waste of 53%, equivalent to the previous fiscal year.

*Definition of zero emissions: Landfill disposal volume (direct or after intermediate treatment) of less than 1% of industrial waste discharged by business activities

From 2016 by 2020 the 2015 ratio, we set new aim (P40) to reduce five points.We promoted waste reduction activity such as company disposal of reuse and waste fluid by the refinement of the process waste fluid, the company heat collection for accomplishment, but 4 points increased in comparison with 2015 in 2016 because I had effect such as the periodic inspections of the identification processing facilities of the recycling supplier.

Volume of Industrial Waste^{*4,5,6}



Appropriate Management of Chemical Substances

In order to properly manage the chemical substances that are used in the manufacturing processes for products, we take a multifaceted approach. This involves not only utilizing systems that compute the amount of usage and emissions, but also other steps such as conducting checks during the procurement of raw materials and the design of a new product.

Conducting a Management System for Substances Covered by the PRTR Law

The first step in managing chemicals is determining which chemicals and how much of them are discharged from specific production processes. Under the Japanese Pollutant Release and Transfer Register (PRTR) Law, companies are required to manage releases and transfers of chemicals and submit reports. TOK has its chemicals and PRTR management systems for the accurate determination of PRTR data and the submission of reports.

In fiscal 2016, TOK handled 36 of the PRTR Law's 462 Class I Designated Chemical Substances. TOK handled 1,450 tons of these Class I chemicals during the fiscal year and released an

List of substances covered by the PRTR law http://www.tok.co.jp/eng/csr/env-activity/load_data.html

Chemical Substance Management at the Raw Materials Procurement Stage

To promote initiatives related to reducing environmental impact, the TOK Group is managing chemical substances during the raw material procurement stage. In January 2005, we formulated the TOK Standards on Chemical Substances Management, which specifies chemical substances to be prohibited or managed. Since then, we have revised the Standards multiple times to comply with the most recent laws, ordinances, and regulations, including REACH* and conflict minerals regulated under and the U.S. Dodd-Frank Act (financial regulatory reform act).

In the 7th edition of the TOK Standards on Chemical Substances Management issued in May 2017, we clarified the chemical substance regulations at each Group site and customer requirements as "environmental management substances," and thoroughly reformed the chemical substances to be managed. In addition, we changed the name to the TOK Group Standards on Chemical Substances Management, and distributed these Standards to all of the Group's suppliers that handle chemical substances, as we are working to appropriately manage chemical substances by

estimated 3 tons of these chemicals into the atmosphere and public water systems. There was no soil contamination as TOK does not have waste material landfills at its production sites.



sharing information through the supply chain.

Under these Standards, we demand that suppliers 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. In addition to these efforts to proactively share information on chemical substances with suppliers, we have established reduction targets for specific environmental management substances according to the degree of impact on the environment, and have revised our product designs and manufacturing processes in order to lower our environmental impact.

Through these activities, we aim to establish a common system for managing chemical substances for the entire TOK Group, which operates globally, to preserve the environment of local communities, comply with legal and customer requirements with respect to products, and ensure the safety of everyone involved with the TOK Group.

* REACH: Registration, Evaluation, Authorization and Restriction of Chemicals. This is an EU regulation that manages the registration, evaluation, and accreditation of chemical substances through an integrated system, with the aim of ensuring complete fulfillment of responsibility on the producers' part, as well as thorough compliance with preventive principles.

Providing Environmental and Safety Information on Products

We have adopted a system that collects and manages specialized 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 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.

Prescreening for Harmful Substances Before Using Raw Materials for a Newly Developed Product

When designing and developing new products, we use a preliminary assessment system to ensure that products will not be harmful to the environment or the health and safety of people who use our products. We base this system on the TOK List of Prohibited Substances.

This list incorporates the hazard rankings of laws and regulations,



Management of PCB* and Waste Materials Containing PCB

In fiscal 2016, we plan to process PCB waste stored at the Utsunomiya Plant. For electrical substation facilities containing PCB that are used at the two other sites as well as PCB waste stored at those locations, we intend to conduct treatment within the legally stipulated timeframe.

We state a PCB component clearly and manage Sagami Operation Center, the applicable apparatus of the Shonan Operation Center and perform a report to administration.

*Polychlorinated biphenyl (PCB): A kind of organic compound, PCB was formerly used for thermal media, insulating oils, paints and other applications because it excels in terms of heat resistance and electrical insulation. However, due to its poor degradability and high toxicity. PCB production was discontinued in 1972. Nevertheless, little progress has been made with regard to its disposal, and managers responsible for its storage are required to place it under strictly controlled conditions.

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ing-based society:	Appropriate Management	Occupational salety
e Zero Emissions	of Chemical Substances	and Health Initiatives



*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

research institutions and other sources concerning substances that are carcinogenic, mutagenic, toxic to the reproductive system, or harmful in other ways. We perform assessments of chemicals to be certain that all newly developed TOK products are free of substances prohibited by TOK and our customers.



Occupational Safety and Health Initiatives

Prevention of the Accident

We have established 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.

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 Health Care

In the stressful society we live in today, regrettably it now appears that the number of our employees who have become ill due to mental health problems is on the rise. Therefore, we are also placing a greater emphasis on the importance of mental health care. In April 2004, we launched a health care counseling service, establishing a help desk for access to mental health professionals, as part of initiatives by the Tokyo Ohka Kogyo Health Insurance Society to promote employees' good health. Consultations are provided upon request by outside experts. 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 addition, with the enforcement of the Revised Industrial Safety and Health Act, stress checks have become mandatory as of December 2015. TOK developed a system for conducting stress checks on all employees in Japan through discussions at each site's Safety and Health Committee. Fiscal 2016 stress checks were carried out in March 2017, and were performed on 96% of domestic employees.

Promoting Risk Assessment Activities to Prevent Workplace Accidents

Organic solvents, acids, alkalis and various other chemical substances are used in manufacturing processes. Reducing the risk of injuries and accidents related to these chemicals, even minimally, helps prevent workplace accidents. TOK has conducted risk assessment activities for approximately 10 years, and we continue to share risk information with employees and to reduce risk in dangerous and potentially hazardous work.

The risk assessment method involves categorizing the risks and hazards of chemical substances used, and conducting risk assessments based on chemical 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, with improvements reported on a regular basis to the Safety and Health Committee.



VOICE Awarded the Fire and Disaster Management Agency Commissioner's Excellent Hazardous Materials-Related Business Site Award

At the Koriyama Plant, a plant handling many hazardous substances, we fully recognize the dangers associated with hazardous materials. We implement safety management activities, and the Safety and Health Committee and other entities carry out a variety of safety activities that target not only employees but also other service providers who come to the plant, thereby enhancing our safety and disaster prevention system. In particular, as a safety and health risk assessment, we repeatedly identify problems and carry out improvements to eliminate risks. Also, by organizing a self-defense fire brigade and participating in local firefighting activities, we have strengthened our ability to respond in the event of a disaster. We believe that our efforts, including both employees and related service providers, have been highly recognized for yielding excellent results, and this led to our receiving this award.

Encouraged by having won this award, the Koriyama Plant will continue to strive to prevent workplace accidents and accidents involving hazardous substances, and further promote safety management and security measures going forward.



Plant General Manager, Koriyama Plant Toshiki Okui





Reducing Environmental Impact at Overseas Manufacturing Sites

At the TOK Group's overseas manufacturing sites, we comply with the environmental standards established by the host countries (U.S., China, South Korea, and Taiwan) and have created environmental policies based on environmental management systems that are in conformance with ISO14001 and other international standards. Based on these policies, we use PDCA cycles to make a variety of improvements and enhancements to environmental performance.

Reducing Energy Consumption

With the TOK Group increasing its overseas production ratio, the ratio of energy consumed at overseas manufacturing sites has also increased. In response, we have begun installing solar panels at some of the sites and utilizing natural energy.

Fiscal Year	Domestic total(kL)	Overseas total(kL)	Overseas rate(%)
2012	14,894	2,618	14.9
2013	15,234	3,662	19.4
2014	14,824	7,360	33.2
2015	13,985	9,378	40.1
2016	14,578	9,684	39.9

VOICE TOK Advanced Materials Fulfills the Responsibilities Demanded by Society

In recent years, South Korea has experienced many instances of unusual odors of various magnitudes related to chemical substances. Consequently, social demands related to safety management and recycling of chemical substances are becoming increasingly strong.

To comply with the required levels, we have developed 14 situation-specific disaster prevention scenarios aimed at preventing chemical accidents, and we conduct individual or joint drills at least twice a year.

By continuously evaluating harm and risk, we have built a relationship of trust with the local community, and we actively cooperate on national environmental measures as well.

Furthermore, in order to reduce our impact on the environment, we will explore ways to recycle waste, expand the scope of the initiatives, and strive to become an environmentally-friendly company.

Data sources for the chemicals and manufacturing industries: "Survey on Industrial Accidents," Ministry of Health, Labour and Welfare



Kim Tanyeong (Right)



Shareholders communication

The company conducts activities while engaging with its various stakeholders, so accepting their opinions and expectations is particularly important.

The TOK Group appropriately discloses information and communicates with stakeholders through various opportunities on whether business activities are meeting their requirements and expectations.



For Shareholders, Investors

Investor Relations (IR)

The primary mission of our IR activities is to ensure the timely release of corporate information, such as management strategy and financial results, in a manner that is fair and proper for all shareholders and investors. Information and comments obtained through IR activities are fed back to management and used in the formulation of management and operations policies.



For Employees

Conversation with the President One of the initiatives in the medium-term plan is to "boost the morale of employees" and we plan and implement a variety of activities to achieve this. As a part of this, we create opportunities for mainly young employees working at production plants to engage in direct dialogue with top management. This has been conducted mainly at each production plant to facilitate renewed understanding of the relationship between the progress of the company and the daily work activities of employees, as well as to further raise job awareness.



For Students

Plant Tours

We conduct tours of production plants for local students that include explanations of products and facilities to assist in their learning activities In this fiscal year, the headquarters received local middle school students for a workplace visit. They toured the facilities, and TOK employees serving as instructors provided basic explanations of the work being done and some perspectives on it and gave their opinions in response to questions submitted by the students beforehand.



For Development of Science and Technology

Assistance to Tokyo Ohka Foundation Tokyo Ohka Foundation for The Promotion of Science and Technology was established by the late Shigemasa Mukai, the founder of Tokyo Ohka Kogyo. Its mission is to develop proprietary technology through fundamental research for the development of Japan, which has few natural resources, and the application of these technologies to industrial uses to achieve peace and prosperity among humankind. To that end, the Foundation provides funding for research and development in the field of science and technology, as well as for research exchange. A large number of beneficiaries are covered under the following grant categories: Grants for Research Projects; Grants for International Exchange; Support for the Promotion of Research Exchange Programs; and Grants for Promotion of Science Education.



For Environmental preservation

Clean-up activities

Employees at every TOK production facilities in Japan periodically clean up surrounding areas, an activity that makes them more aware of the need to protect the environment.

At the Sagami Operation Center, employees help clean the banks of the nearby Sagami River and participate in patrols to stop illegal dumping of waste. Employees at the center also participate in the community's beautification campaigns.



For local community

Citizens' FestivalTombo-Ike Observation Tour TOK held its 30 annual Noryosai (summer festival) at the dormitory and Company housing complex adjacent to the Shonan Technical Center in August 2016. Many local residents, employees of business partners and others attended the event.

Children and their parents were invited to participate in a Living Nature Observation Tour at the Dragonfly Pond, a biotope on the grounds of the Gotemba Plant.

Third-Party Opinions

I have been reading the CSR Reports of TOKYO OHKA KOGYO CO., LTD. since fiscal 2012. The Company has steadily advanced its activities in the major aspects of business, such as corporate governance, utilizing human resources, and addressing environmental issues. I can see that the Company has extended this operational framework throughout the Group and spread its initiatives throughout the entire organization.

This year's report contains a special feature about the Company's subsidiary in Taiwan, where the Group is currently implementing its strategy of building close relationships with customers. By reporting on an actual example of how TOK is implementing its medium-term plan theme of "Evolve our strategy of building close relationships with customers," the report allows stakeholders to read about the Group's specific initiatives and activities. The report also includes messages from workers, which provides a sense of how all of the employees of the Group are working together to achieve their targets.

Recently, there have been moves in Japan and overseas to establish frameworks for promoting the creation of sustainable societies. For example, Japan has introduced its own Stewardship Code and Corporate Governance Code, and the international community has adopted the 2030 Agenda for Sustainable Development/SDGs. As its overseas locations grow in importance, TOK will face the challenge of expanding the scope of themes it has been pursuing in Japan, such as human rights and labor practices, as well as work style reforms. I expect to see the Company make even further progress going forward as a Group contributing to the sustainable development of society through integrated business and CSR activities.

On Receiving Third-Party opinions

We thank you for providing invaluable feedback on the TOK Group's CSR Report again this fiscal year. In this report, for readers to better understand the Company, we wrote about semiconductor microprocessing technology, one of our core competences, in an easier-to-understand manner. We also reported the activities of TOK TAIWAN CO., LTD., the frontline of our strategy of building close relationships with customers, from the perspective of local employees including many voices of them. By doing so, we tried to make stakeholders feel closer to us and gain a deeper understanding of TOK. In addition, we received Responsible Care verification of Japan Chemical Industry Association for two consecutive years, and worked to provide numerical data in an easier-to-understand manner.

Going forward, we will sincerely listen to a wide-range of opinions and make improvements to respond to expectations and trust from stakeholders. Thus we work to further improve our corporate value, as well as to contribute to a sustainable society.



Professor, Dean of the College of Economics, Kanto Gakuin University Atsushi Fukuda



Manager, EHS Division, Manufacturing Dept.

Kimitoshi Kato

Third-Party Verification Written Opinion



CSR Report 2017 **Third-Party Verification Report**

July 3, 2017

To Ikuo Akutsu President & Chief Executive Officer TOKYO OHKA KOGYO CO., LTD.

Purpose of Verification

The purpose of this verification is to express the opinions of chemical industry experts with respect to the following matters, covering "CSR Report 2017" prepared by "TOKYO OHKA KOGYO CO., LTD." (hereinafter, the "Report" and the "Company" or "TOK" respectively).

- 1) Rationality of the methods for calculating and compiling performance indicators (numerical figures) and the accuracy of these numerical figures.
- 2) Accuracy of non-numerical information in the Report
- Responsible Care® and CSR activities
- Distinctive characteristics of the Report

Verification Procedure

- · At the Sagami Operation Center, we inspected the rationality of the methods used for compiling the numerical data reported from each site (office, plant) and checked the accuracy of non-numerical information. The inspection at the Sagami Operation Center was performed by asking questions about the Report to people responsible for relevant operations and people responsible for preparing the Report, as well as receiving materials and explanations.
- · At the Gotemba Plant, we inspected the rationality of the methods used to calculate the figures reported to the Sagami Operation Center, as well as the accuracy of non-numerical information. The inspection at the Gotemba Plant was performed by asking questions to people responsible for relevant operations and people responsible for preparing the report, receiving materials and explanations, and cross-checking them against evidences.
- · We applied the sampling method for investigating numerical figures and stated information.

Opinions

- 1) Rationality of the methods for calculating and compiling performance indicators (numerical figures) and the accuracy of these numerical figures
- Both the Sagami Operation Center and the Gotemba Plant use improved, reasonable methods to calculate and compile numerical figures, and for the scope of our investigation the performance figures were checked by multiple people and were calculated and tabulated correctly.
- · Going forward, we hope that the Company will consider an automated compiling system that enables checking the accuracy of figures submitted by plants, etc.
- 2) Accuracy of non-numerical information in the Report
- We confirmed that the data included in the Report are accurate. We pointed out a few issues regarding appropriateness of expressions and readability in the draft stage, but all of these issues are edited in the current Report.
- 3) Responsible Care and CSR activities
- · We commend the fact that the Report mentions CSR initiatives in the section of "the challenge of growthoriented CSR", a part of the article on "Commitment of Top Management", and in the article of "The TOK Group's CSR". Going forward, we hope that the Company will enhance the CSR and Responsible Care platforms to put the aforementioned initiatives into plans and execute them.
- Departments' daily activities are deeply tied to Responsible Care and CSR activities. We hope that each and every person in the Company will firmly understand these activities, and that the level of Responsible Care and CSR activities will be raised
- · At the Gotemba Plant, 5S activities are deeply ingrained in the workforce, and when near-misses occur the events are immediately addressed. We also applaud the fact that there have been zero injuries resulting in lost workdays for five consecutive years.
- 4) Distinctive characteristics of the Report
- Special Feature 1 details TOK's history, which contributed to the development of microprocessing technologies on IC chips. This was one of the keys to improving computer performance. The special feature also discusses the future of computer technology, which is pertinent today as autonomous vehicles will soon be on the roads. Therefore, we appreciate the timeliness of this special feature, as well as the fact that it was easy to understand.
- · Also, following Special Feature 1, we enjoyed how Special Feature 2 introduced the initiatives aimed at the quality management of ultra-high purity chemicals used in the ultra-miniaturization process of 10nm and beyond

Shigelii hagamatan

Shigeki Nagamatsu Chief Director, Responsible Care Verification Center Japan Chemical Industry Association

GRI Content Index

This section provides information on standard disclosures cited in the GRI G4 Sustainability Reporting Guidelines. *Items with no information to disclose, or which are not relevant, have been omitted from the table. In addition, due to space restrictions, index descriptions have been omitted, and in some cases, several disclosures have been combined into one entry

Gen	eral Standard Disclosures	
Items	Indicator	Page and Relevant Materials
Strate	egy and Analysis	
1	Statement from the most senior decision-maker of the organization about the relevance of	Commitment of Top Management(P3-4)
	sustanability to the organization and the organizations strategy for addressing sustanability Key impacts, risks and opport unities. Two concise parrative	
2	sections on key impacts, risks and opportunities.	Environmental Initiatives(P43)
Orga	nizational Profile	
3,5	Name of the organization / Location of the organization's headquarters	◇Corporate Data(P2)
4	Primary brands, products and services	◇TOK's Business Fields(P5-6)
6	Number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report	
7	Nature of ownership and legal form	♦Corporate Data(P2)
8	Markets served (including geographic breakdown, sectors	♦ TOK's Business Hubs and Business Activities(P7-8)
	served, and types of customers and beneficiaries) Scale of the organization (total number of employees total number of operation, net sales total	······································
9	capitalization broken down in terms of debt and equity, quantity of products or services providedScale of the organization (total number of employees, total number of operation, net sales, total capitalization broken down in terms of debt and equity, quantity of products or services provided	◇Financial Highlights(P11-12)
10	Total number of employes by employment contract and gender /Total number of germanent employees by employment type and gender /Total nonkforce by employees and supervised incidens and by gender /Total nonkforce by region and gender following omitted) / Percentage of total employees concered by collectivelargaring agreemen	Human Rights Initiatives and Initiatives for Fair Working Conditions(P31)
11	Percentage of total employees covered by collective bargaining agreements	Human Rights Initiatives and Initiatives for Fair Working Conditions/P32
12	Organization's supply chain	⇒Value creation process of TOK(P11-12)
Com	mitments to External Initiatives	
Com	Weather and how the precautionary approach or principle	Astronathoning the Compliance Sustem(P21)
14	is addressed by the organization	Measures to Strengthen Risk Management(P22)
Ident		
17	All entities included in the organization's consolidated financial statements or equivalent documents. Any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report	OFinancial Statements
18 20	Process for defining the report content and the Aspect Boundaries How the organization has implemented the Reporting Principles for Defining Report Content Aspect Boundary within the organization for each material Aspect (following omitted)	⇒Editorial Policy(P1) ⇒Value creation process of TOK(P11-12)
19	List all the material aspects identified in the process for defining report content	⟨>Value creation process of TOK(P11-12)
Stake		
25	Basis for identification and selection of stakeholders for engagement	Shareholders communication(P53) Collaboration with Recycling Companies(P46) WEB
27	Key topics and concerns that have been raised through stakeholder engagement, the stakeholder groups that raised them, how the organization has responded	Oweb
Repo		
28 29 30	Reporting period (such as fiscal or calendar year) for information provided Date of most recent previous report (if any) Reporting cycle (such as annual, biennial)	⇒Editorial Policy(P1)
31	Contact point for questions regarding the report or its contents	◇Back Cover
GRIC	Fontent Index	
32	The 'in accordance' option the organization has chosen GRI Content Index for the chosen option Reference to the External Assurance Report. If the report has been externally assured	⇒Editorial Policy(P1)
Gove	ernance	1 1
Gove	ernance structure and composition	
34	Governance structure of the organization (including committees of the highest governance body) Committees responsible for decision-making on economic, environmental and social impacts	Ensuring sound business management(P19-24)
39 41	Whether the Chair of the highest governance body is also an executive officer Processes for the highest governance body to ensure avoidance and management of conflicts of interest Whether conflicts of interest are disclosed to stakeholders (following omitted)	OFinancial Statements
Rem		
51	Remuneration policies for the highest governance body and serior executives How performance criteria in the remuneration policy relate to the highest governance body's and serior executives' economic, environmental and social objectives	Ensuring sound business management(P19-24)
52	Process for determining remuneration Whether remuneration consultants are involved Whether remuneration consultants are independent of management. Any other relationships which the remuneration consultants have with the organization	Ensuring sound business management(P19-24)
Ethic	s and Integrity	1
56	Organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.	♦TOKS CSR(P9) ♦Strengthening the Compliance System(P21)
57 58	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity, such as helplines or advice lines. Internal and external mechanisms for reporting concerns about unerlikial or unlawful behavior, and matters related to organizational integrity.	♦ Strengthening the Compliance System(P21)

Third-Party Opinions / GRI Content Index

Spe	cific Standard Disclosures	
Items	Indicator	Page and Relevant Materials
Econ	omic ct: Economic Performance	
EC1	Direct economic value generated and distributed	◇Financial Highlights(P11-12) ○Financial Statements
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	Results of Responsible Care (RC) Activities in Fiscal 2016(P40) Reduction in Environmental Burden from our Corporate Activities(P41-42)
EC3	Coverage of the organization's defined benefit plan obligations	OFinancial Statements
Aspe	ect:Indirect Economic Impacts	AEnvironmental Accounting(D42)
ECO	onmental	
Aspe	ct:Raw Material	
EN1 EN4	Materials used by weight or volume Energy consumption outside the organization	Environmental Performance(P41-42)
EN2	Percentage of materials used that are recycled input materials	Creation of a Recycling-Based Society: Initiatives to Achieve Zero Emissions(P47-48)
EN3	Energy consumption within the organization	OPesults of Responsible Care (RC) Activities in Fiscal 2016(P40) OEnvironmental Performance(P41-42) Ohitiatives to Reduce Environmental Burden(P45-46) Reducing Environmental Burden at Overseas Manufacturing Sites(P52)
EN5 EN6	Energy intensity Reduction of energy consumption	Results of Responsible Care (RC) Activities in Fiscal 2016(P40)
Aspe	ct: Water	
EN8	Total water withdrawal by source	CInitiatives to Reduce Environmental Burden(P45-46)
EN15	CL: EMISSIONS Direct greenhouse gas (GHG) emissions (Scope 1)	Environmental Performance(P41-42)
EN19 EN120	Reduction of greenhouse gas (GHG) emissions	Initiatives to Reduce Environmental Burden(P45-46)
EN21	NOx, SOx and other significant air emissions	Initiatives to Reduce Environmental Burden(P45-46) Appropriate Management of Chamical Substances(P40)
Aspe	ect: Effluents and Waste	
EN22	Total water discharge by quality and discharge destination	◇Initiatives to Reduce Environmental Burden(P45-46)
EN23	Total weight of waste by type and disposal method	Results of Responsible Care (RC) Activities in Fiscal 2016(P40) Environmental Performance(P41-42) Creation of a Recycling-Based Society: Initiatives to Achieve Zero Emissions(P47-48)
Aspe	ct:Products and Services	1
EN33	impacts in the supply chain and actions taken	Human Rights Initiatives and Initiatives for Fair Working Conditions(P32)
Aspe	ct:Employment	1
LA4	including whether these are specified in collective agreements	Human Rights Initiatives and Initiatives for Fair Working Conditions(P32)
Aspe	ct:Occupational Safety and Health	1
LA6	Type of injury, rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities by region and by gender	Occupational Safety and Health Initiatives(P51)
Aspe	ct:Labor-management relations	
LA/	Workers with high incidence or high risk of diseases related to their occupation	Occupational Safety and Health Initiatives(P51)
I A R	Health and safety topics covered in formal agreements	Alluman Bightr Initiatives and Initiatives for Exis Merking Conditions (027)
Acor	with trade unions	
Aspe	Programs for skills management and lifelong learning that support the continued	Alluman Perceurse Initiations(022)
	employability of employees and assist them in managing career endings	(muman nesource mitatives(rsz)
LA12 Aspe	according to gende, age group, minority group membership, and other indicators of diversity cct: Supplier Assessment for Labor Practices	Human Rights Initiatives and Initiatives for Fair Working Conditions(P32)
LA15	Significant actual and potential negative impacts for	Human Rights Initiatives and Initiatives for Fair Working Conditions(P32)
Hum	an rights	
Aspe	ct: Investment	
HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	Human Rights Initiatives and Initiatives for Fair Working Conditions(P32)
Aspe	ct: Supplier Human Rights Assessment	1
HR11	impacts in the supply chain and actions taken	Human Rights Initiatives and Initiatives for Fair Working Conditions(P32)
Socie	ety .ct: Local Communities	
502	Operations with significant actual and potential	CEnvironmental Initiatives(P39-52)
Asne	negative impacts on local communities ct: Anti-corruption	
SO4	Communication and training on policies and procedures	♦ Strengthening the Compliance System(P21)
Aspe	ct: Supplier Assessment for Impacts on Society	•
SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken	Human Rights Initiatives and Initiatives for Fair Working Conditions(P32)
Prod	uct Responsibility	
Aspe	ct: Product and Service Labeling	
PR3	type or product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	Appropriate Management of Chemical Substances(P49-50)