



Corporate Social Responsibility

# CSR Report 2014

Toward Becoming a Company that Creates“**Inspiration**”

## 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, 2014)

President: Ikuo Akutsu

Number of employees: 1,576 (Consolidated / As of March 31, 2014)

Net sales: ¥75,269 million (Consolidated / Fiscal year ended March 31, 2014)

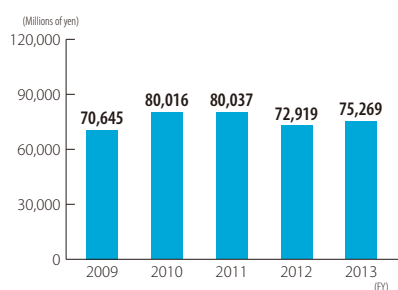
Business offices and sites: Japan: 8 / Overseas: 10

Corporate group: Subsidiaries: 4 / Overseas subsidiaries: 6

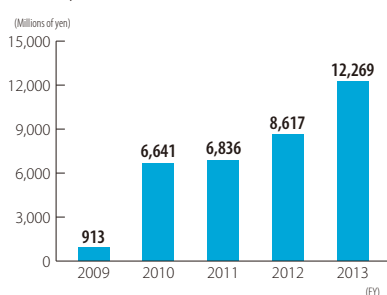
Businesses: Manufacture and sales of manufacturing materials, mainly photoresists and high purity chemicals for photolithography process of semiconductor and liquid crystal display, processing equipment for semiconductor and liquid crystal display manufacturing, and inorganic and organic chemicals

## Financial Highlights (Consolidated)

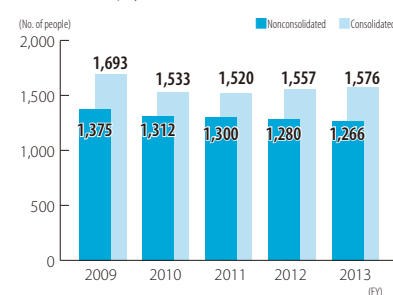
### Net sales



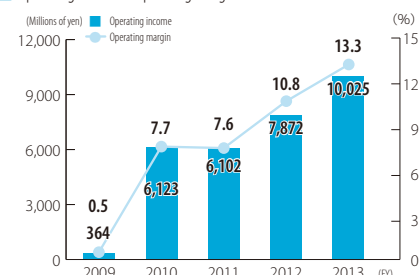
### Ordinary income



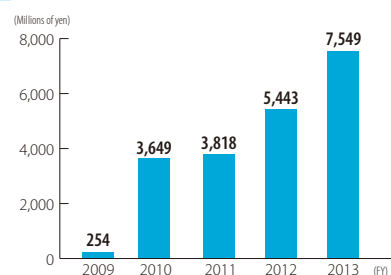
### Number of employees (consolidated/non-consolidated)



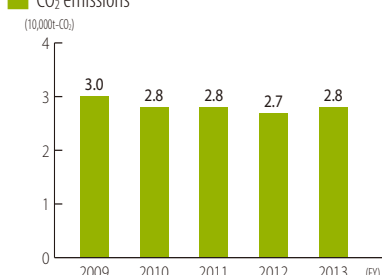
### Operating income / Operating margin



### Net income



### CO<sub>2</sub> emissions



## business

	Semiconductor Manufacturing Field	LCD Manufacturing Field	Other Fields	Main Products
Material Business	Semiconductor Manufacturing Materials			Photoresists, Materials for planarizing insulation and interlayer insulating film, photolithography materials, etc.
	Semiconductor Packaging / Packaging Materials			Photoresists for semiconductor (CSP/Bump), photoresists for Through Silicon Via (TSV), photolithography materials, etc.
			MEMS Manufacturing Materials	Photoresists for MEM, photolithography materials, etc.
	Image Sensor Manufacturing Materials			Photoresists for image sensors (micro lens)
		Display Manufacturing Materials		Materials for liquid crystal display (LCD) materials, photoresists for organic EL display (OLED), photolithography materials, etc.
			Solar Panels Manufacturing Materials	Silicon solar Panels manufacturing materials, compound-based solar Panels manufacturing materials, etc.
			Chemicals Field	Inorganic chemicals, organic chemicals
Equipment Business	Semiconductor Manufacturing Equipment			Through Silicon Via (TSV) equipment, spin coater (coating machines), developing machines, etc.
		Display Manufacturing Equipment		Non-spin coater (coating applicator), developing equipment, etc.
			Solar Panels Manufacturing Equipment	Coating machines, etc.

## Editorial Policy – What We Wish to Communicate Through This Report

The TOK Group aims to create a sustainable society and shared value through its corporate activities.

The CSR Report 2014 has been drawn up to disclose information pertaining to the various activities undertaken by the Group in fiscal 2013 that we consider to have been especially important, and is positioned as a valuable tool for communicating with our stakeholders. In the fiscal year under review, we present special features about the high purity and microprocessing technologies we have developed since the Company was founded and the conditions in the “monozukuri” sites so that our readers can better understand our “contribution to society utilizing our technological capabilities.” We welcome feedback from our readers as we constantly strive to further improve our initiatives and reporting.

### 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, 2014) 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 2013 (April 1, 2013 to March 31, 2014), but also contains some information about activities conducted in fiscal 2014.

### Reference Guidelines

Environmental Reporting Guidelines 2012, published by the Ministry of the Environment  
Sustainability Reporting Guidelines G3.1, published by the Global Reporting Initiative (GRI)  
ISO 26000: 2010 – Guidance on Social Responsibility, released by the Japanese Standards Association

Date of issue: June 2014

Date of next issue: June 2015 (tentative)

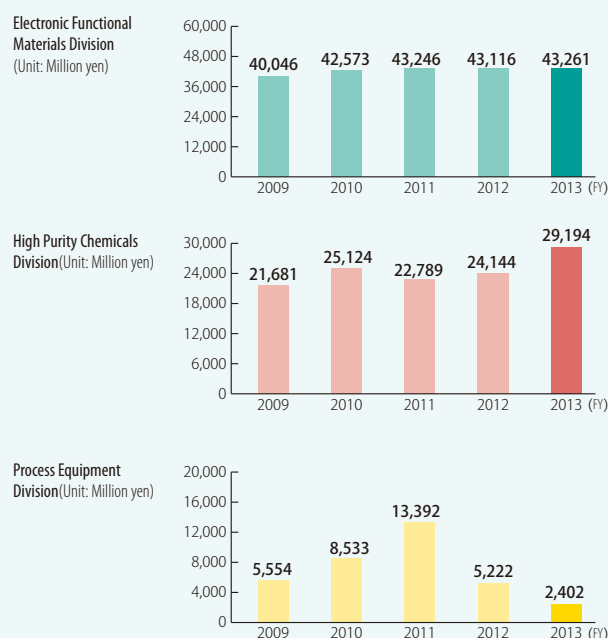
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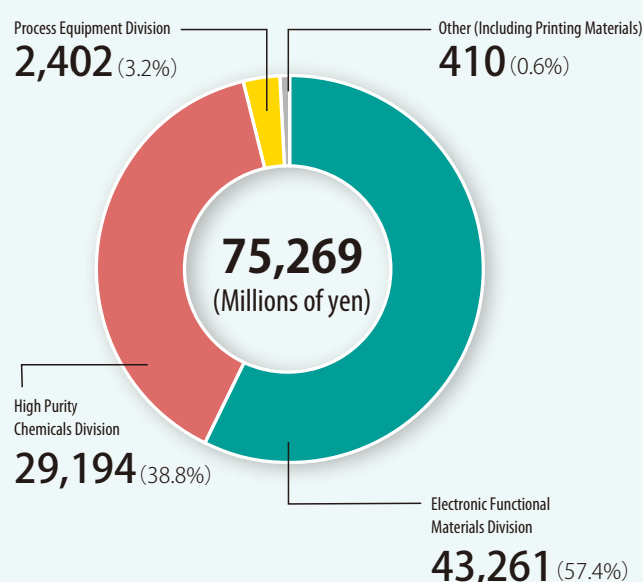
TOK's CSR website

<http://www.tok.co.jp/eng/csr>

### Net Sales by Division



### Net Sales by Business Segment (Fiscal 2013)



Figures in the brackets ( ) indicate percentage of net sales for the business segment.

2

7

4

3

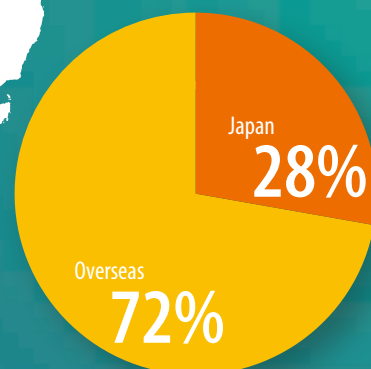
5

6

Ratio of overseas sales

# tok's Business Hubs and Business Activities

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



## 1 TOKYO OHKA KOGYO AMERICA, INC.

### Business

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.



## 5 TOK ADVANCED MATERIALS CO., LTD.

### Business

TOK ADVANCED MATERIALS CO., LTD. develops, manufactures, and sells photoresists for semiconductors, and sells high purity chemicals related to photolithography for semiconductors.



## 2 TOKYO OHKA KOGYO EUROPE B.V.

### Business

TOKYO OHKA KOGYO EUROPE B.V. is engaged in the sale of photoresists for semiconductors and high purity chemicals related to photolithography for semiconductors.



## 6 TOKYO OHKA KOGYO CO., LTD. Singapore Office

### Business

The Singapore Office collects and supplies information about user needs in the semiconductor and LCD display fields in Singapore and Malaysia.



## 3 TOK TAIWAN CO., LTD.

### Business

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.



## 7 TOKYO OHKA KOGYO CO., LTD. Shanghai Representative Office

### Business

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.



## 4 CHANG CHUN TOK (CHANGSHU) CO., LTD.

### Business

CHANG CHUN TOK (CHANGSHU) CO., LTD. manufactures and sells high purity chemicals related to photolithography for the production of semiconductors and flat-screen displays.



① TOKYO OHKA KOGYO AMERICA, INC. Headquarters/Oregon Plant  
4600 N.W. Brookwood Parkway, Hillsboro Oregon 97124, U.S.A.  
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<http://www.tokamerica.com>

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

● Texas Sales Office  
1701 W. Northwest Hwy. Suite 100 Grapevine, Texas 76051, U.S.A.  
TEL.+1-817-329-5011 FAX.+1-817-329-5012

② TOKYO OHKA KOGYO EUROPE B.V. Headquarters  
Databankweg 12, 3821AL Amersfoort, The NETHERLANDS  
TEL.+31-33-4543522 FAX.+31-33-4519646 <http://www.tok-europe.eu>

③ TOK TAIWAN CO., LTD. Headquarters  
10F., No.675, Jingguo Road Sec.1, Hsinchu City 30059, TAIWAN  
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● Miaoli Plant  
No.252, Wunshan, 21st Neighborhood,  
Wunsheng Village, Miaoli City 36061, TAIWAN  
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④ CHANG CHUN TOK CO., LTD. Headquarters/Changshu Plant  
#1106, Diplomatic Center Building, 1376-1,  
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8 Shenton Way, #14-01A, SINGAPORE  
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⑦ TOKYO OHKA KOGYO CO., LTD. Shanghai Representative Office  
1511, China Merchants Tower, 161 Lu Jia Zui East Road,  
Pu Dong Xin Qu, Shanghai 200120, CHINA  
TEL.+86-21-5840-8800 FAX.+86-21-5840-888



## 1 TOKYO OHKA KOGYO CO., LTD. (Headquarters)



## 2 Sagami Operation Center (Includes Sagami Plant)



### Business

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.

## 3 Shonan Operation Center



### Business

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.

## 4 Koriyama Plant



### Business

The Koriyama Plant is engaged in the production of semiconductor photoresists and related high purity chemicals.

## 5 Utsunomiya Plant



### Business

The Utsunomiya Plant is engaged in the production of photoresists for semiconductors and LCD displays.

## 6 Kumagaya Plant



### Business

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

## 7 Gotemba Plant



### Business

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

## 8 Aso Plant



### Business

The Aso Plant is engaged in the production of photoresists for LCD displays and related high purity chemicals.

### ①Headquarters

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

### ②Sagami Operation Center / Sagami Plant

1590 Tabata, Samukawa-machi, Koza-gun, Kanagawa 253-0114

### ③Shonan Operation Center

7-8-16 Ichinomiya, Samukawa-machi, Koza-gun, Kanagawa 253-0111

### ④Koriyama Plant

1-23 Machiikedai, Koriyama-shi, Fukushima 963-0215

### ⑤Utsunomiya Plant

21-5 Kiyohara Kogyo Danchi, Utsunomiya-shi, Tochigi 321-3231

### ⑥Kumagaya Plant

823-8 Kamibayashi, Miizugahara, Kumagaya-shi, Saitama 360-0844

### ⑦Gotemba Plant

1-1 Komakado, Gotemba-shi, Shizuoka 412-0038

### ⑧Aso Plant

4454-1 Miyaji, Ichinomiya-machi, Aso-shi, Kumamoto 869-2612





**Through “inspiration,”  
we aim to become a  
corporate group that is  
trusted around the world.**

President & Chief Executive Officer

**Ikuo Akutsu**

## Looking back at fiscal 2013

As we approach the 80th year of our foundation, the TOK Group has established as its “ideal company image for 2020” a management vision “Aim to be a globally trusted corporate group by inspiring customers with high value-added products that have satisfying features, low cost and superior quality” and started the three-year “TOK Medium-Term Plan 2015” in 2013. In this medium-term plan, we have made “Build close relationship with regional users,” “Reform business portfolios” and “Develop global personnel” the three pillars of the company-wide strategy, and we are aiming to enhance the corporate value of the Group overall while contributing to society.

The Group is endeavoring to develop further cutting-edge microprocessing technologies for semiconductor manufacturing, led by our flagship photoresists which have a top class market share in Japan. Our basic initiatives in line with the medium-term plan include the establishment in South Korea in August 2012 of TOK Advanced Materials Co., Ltd. (TOKAM), which is equipped with integrated development, manufacturing, and sales structures, and our efforts to develop products that will form the foundation of new businesses in the field of renewable energy, optoelectronics and other fields. Furthermore, we have started new education systems to focus our energies on developing personnel that can show their full potential in a context of increasing globalization.

## Creating “high value-added monozukuri” that can share “inspiration”

In order to meet expanding demand for the cap lights used in mines, TOK became the first company in Japan to begin domestic production of high purity caustic potash, a raw material in the alkaline batteries used as a power source for the cap lights. Ever since that time we have been heirs to the aims of our founder to “create distinctive products that cannot be easily imitated by other companies,” “build our business around high purity products” and “develop advanced technological capabilities,” and we have worked hard on “high value-added monozukuri” as a materials manufacturer that supports the (final) products of customers behind the scenes.

The history of the “monozukuri of TOK” is a history in which we have pooled our talents and overcome high hurdles in order to meet the expectation that “TOK will be capable of creating this technology even though no-one else has done it yet,” and shared “inspiration” with our customers each time. Based on our belief that the products that were created (or differentiated) through our outstanding “monozukuri” inspire a variety of people, we have incorporated the word “inspiration” in the management vision of the medium-term plan.

We give a detailed explanation of the unique “monozukuri” history of the Company in the special feature article “The evolution of TOK microprocessing technologies (p17).” As the heirs to that DNA, we will strongly share the values of “creating products that will not lose to anyone else, and are of even better quality, faster than anyone else” while working hard on “high value-added monozukuri” that entails the three elements of “performance, costs, and quality.”

## Using the progress of globalization as a good opportunity to increase our own potential

Due to the rapid expansion of the Asian markets, our sales to overseas markets have grown, and the overseas sales ratio of the Company has finally exceeded 70%.

We think that full-scale globalization will continue as we promote the regional-based strategy, company-wide strategy in the medium-term plan, for example by starting operations at the new company in South Korea.

In this context, in fiscal 2013 the headquarters hired new employees with foreign nationalities from China, South Korea, Vietnam, and other countries. The Company has also established “Develop global personnel” as a company-wide strategy, so from fiscal 2013 it has put in place and focused its energies on the TOK Global Personnel Development Program. However, it should go without saying that globalization is not a problem that is faced by only some of the employees, such as employees posted overseas and employees with foreign nationalities. The progress of globalization simultaneously entails the expansion of corporate social responsibility (CSR) to human rights and diversity, compliance, supply chain management from raw materials procurement to manufacturing and distribution, consideration for the environment, information security, business continuity plans (BCPs) and so on. We understand these kinds of changes in the environment to be good opportunities to increase our own potential, and all of the employees in the group have to work with an awareness of these problems in order to turn “minus” factors into “plus” factors and enhance the positive impact of “plus” factors, so that we can improve our overall corporate value.

## Together with society

The business environment in the semiconductor industry is changing at a bewildering pace, including rapid technological innovations and increasingly cutthroat competition. My favorite turn of phrase is “kanken nigan” from “The Book of Five Rings” by Musashi Miyamoto, which means “You must not only see the objects that are visible in front of your eyes; you must also have insight into the essential nature of things hidden on the other side of the visible objects.” In order to take actions based on correct judgments without being overly distracted only by short-term changes, it is essential to collect a variety of opinions and information from a wide range of sources. This also applies to the globalization of the Company, and in parallel with active improvements that enable us to pre-empt changes in the environment, we will create open communication channels within the group, and put in place an in-house structure that enables us to create a sense of unity in TOK on a global level, while continuing to develop workplaces that can motivate our workers.

Furthermore, we will diligently work on the CSR of the Company with a similar attitude, listening to the opinions of a wide range of stakeholders while working toward the realization of a sustainable society by fostering a corporate culture of “being able to share inspiration” together with society.

# tok's Management Principles and CSR

TOK is committed to working hand-in-hand with our stakeholders to create social values that can contribute to the realization of a sustainable society, based on our four management principles.

## TOK Group's 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**

## Aiming to put our management principles into practice through CSR

Based on the principles of its foundation, the TOK Group has established the four management principles of "Continue efforts to enhance our technology," "Raise the quality levels of our products," "Contribute to society," and "Create a frank and open-minded business culture." Based on the core principle of "enhancing the unique technological capabilities of the Company and making a contribution to society through our core business," we are "making sure that we do not neglect consideration for the profits of our stakeholders at all times across all of our corporate activities" and fostering "a frank and open-minded business culture that can motivate our workers" while contributing to the realization of a sustainable society.

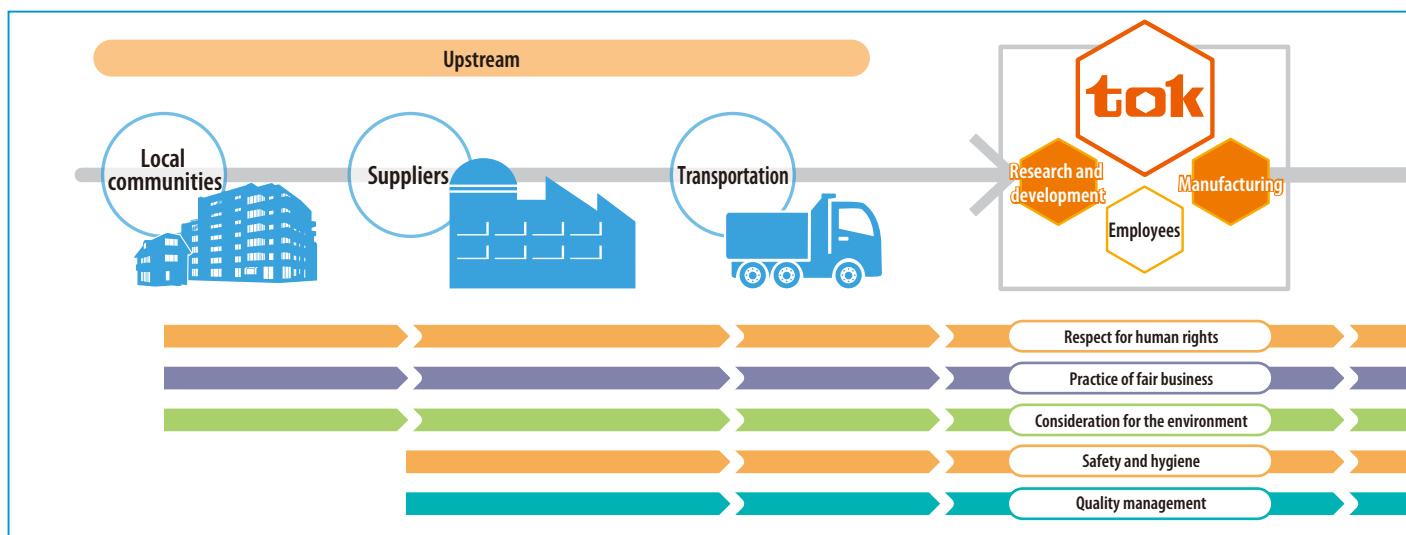
## We aim to create shared social values with our stakeholders by optimizing our value-chain management

We believe that the creation of social values that can only be generated by the TOK Group, in fields where we can best apply our unique character, is the most effective way in which we can contribute to society. TOK's basic CSR stance is to create shared social values with our stakeholders and enhance our corporate value at the same time. To that end, we study our entire value-chain and evaluate our position (or scope of influence) within this value-chain, and strive to carry out unique corporate activities that also take into consideration the needs of our customers and of the society as a whole.

For instance, with regard to our suppliers, which are part of the "upstream" in the value-chain, one of the important management strategies is to ensure that we maintain our competitive edge by securing "superior" suppliers that can provide quality materials with a high cost performance. At the same time, gaining a clear understanding of the risks associated with suppliers, such as serious compliance violations, is just as important an issue in CSR management.

The TOK Group is committed to creating values that are useful to society by optimizing value-chain management, including for issues such as human rights and conservation of the environment. This involves eliminating "minus" factors and amplifying "plus" factors.

### TOK's value-chain management





## Overview and initiatives of the “TOK Medium-Term Plan 2015”

We believe that CSR consists of initiatives to create common values (= “inspiration”) in a win-win relationship between the Company and our stakeholders. The “TOK Medium-Term Plan 2015” includes extremely important measures for enhancing our “monozukuri” capabilities through strengthening our profitability and other aspects of our business infrastructure, and creating greater social values with respect to our various stakeholders, including our employees.

### 1. Management Vision

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

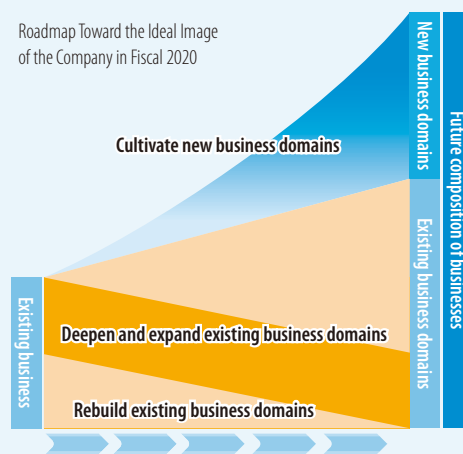
### 2. Goals

- ① To build a company-wide system aimed at establishing ourselves in new business fields at an early stage.
- ② To deepen, expand, and rebuild our existing businesses in the four core business fields: semiconductor business, LCD business, solar cell business, and process equipment business.

### 3. Company-wide Strategy

- ① **Build close relationships with regional users**  
Build close relationships with users worldwide by creating mechanisms that identify a greater number of needs while rapidly providing products and services that satisfy users.
- ② **Reform business portfolios**  
Reform business portfolios by cultivating new business domains and increasing the ratio of high-value-added products.
- ③ **Develop global personnel**  
Formulate and implement programs that develop personnel able to perform on the global stage.

Roadmap Toward the Ideal Image of the Company in Fiscal 2020



### State of progress - fiscal 2013 initiatives

#### ① Build close relationship with regional users

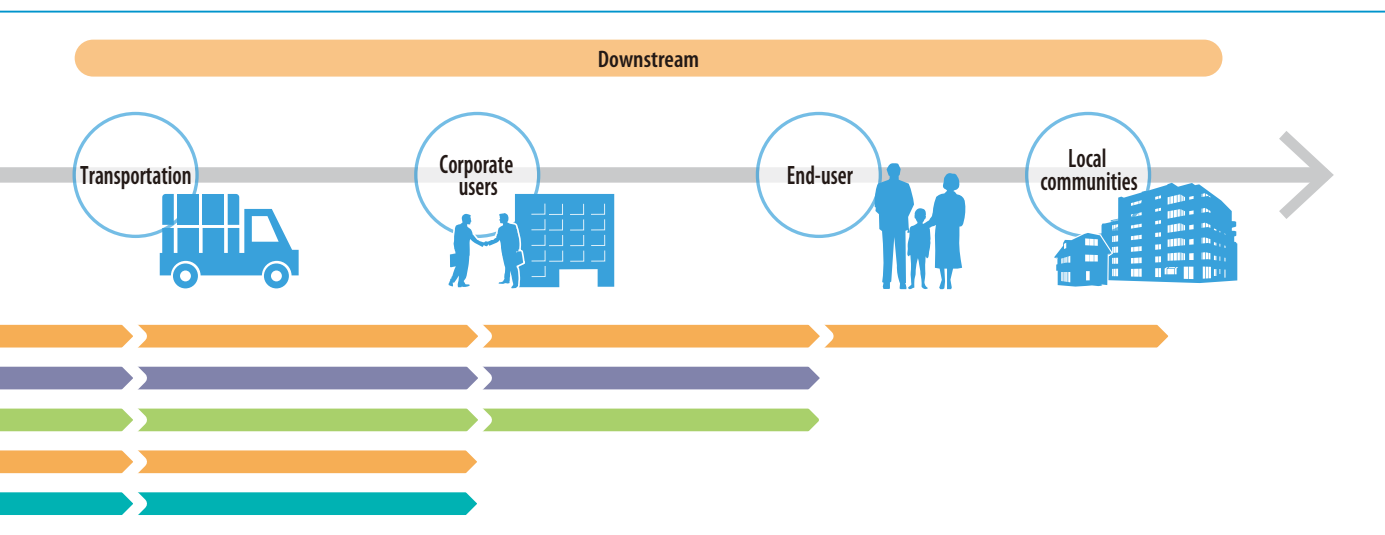
TOK Advanced Materials Co., Ltd. (TOKAM), which was established in Incheon Metropolitan City in South Korea, commenced its sales and development activities in fiscal 2013 and has put in place a production structure aimed at the stable mass production of advanced materials. In state-of-the-art semiconductor processing, it is constructing a robust business infrastructure and is expanding its share of the cutting-edge photoresists market and realizing further benefits.

#### ② Reform business portfolios

We are aiming to expand the business areas of the Company through multifaceted development of the core technologies of the Company and the utilization of collaboration and alliances with external organizations such as research labs at universities. In fiscal 2013, the Group made capital investments worth ¥14.6 billion and spent ¥6.4 billion on research and development, but going forward we will actively tackle the development of products that will provide the foundation for new businesses in the field of “rechargeable batteries,” “optoelectronics,” “life sciences,” and “renewable energy” in particular, in which sustained growth is expected.

#### ③ Develop global personnel

In fiscal 2013, we introduced the TOK Global Personnel Development Program, which is aiming to build up our corporate strength by working to create and develop competent personnel in order to meet the demands of a diversifying external environment.



# 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.

### Directors and the Board of Directors

The Board of Directors comprises seven directors, including one outside director\*.

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 one outside director with an 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.

### Officers and the Committee of Officers

We have fourteen 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 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.

### 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 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.

### Internal Auditing Division

We have set up the Internal Auditing Division, under the direct control of the President, composing of five staff members\*. In addition to the standard audits of business operations, this division provides suggestions, proposals and advice for continuous improvements by undertaking evaluations of the effectiveness of internal controls on financial reporting.

\*Number as of June 26, 2014

WEB

Corporate Governance

<http://www.tok.co.jp/eng/company/governance/corporate-governance.html>

## Remuneration for directors and auditors, or the policies and methods of deciding on the computation methods for officers' remuneration

The payment of remuneration to TOK directors and auditors is aimed at enhancing corporate value by improving business results, and seeks to meet the expectations of all stakeholders, including our shareholders. At the same time, we are focused on maintaining sound management that complies with laws and regulations. To that end, we have laid out the following policies for remunerating directors and auditors.

### Directors' Remuneration

Company directors' remuneration consists of fixed-salary basic remuneration, bonus payment and stock options (subscription warrants). The fixed-salary basic remuneration is decided and paid out based on specific standards established by the company's Board of Directors, and lies within the remuneration framework approved at the General Meeting of Shareholders. The bonus payment is company performance-related remuneration, with the amount being based on the company's fiscal year results. Within the remuneration framework approved at the General Meeting of Shareholders, the Board of Directors discusses both the performance of the Company and the individual to decide if a bonus is appropriate and if so, the amount. The purposes of the stock options (subscription warrants) are for the directors to share the advantages and risks of stock price fluctuations with all of the shareholders, to further increase directors' motivation toward increasing the share price and improving the Company's long-term results and corporate value, and also to boost their morale. Directors receive subscription warrants following discussions in the Board of Directors to decide on the appropriate number of rights to be allocated to each director within the remuneration framework approved at the General Meeting of Shareholders. Outside directors do not receive stock options (subscription warrants).

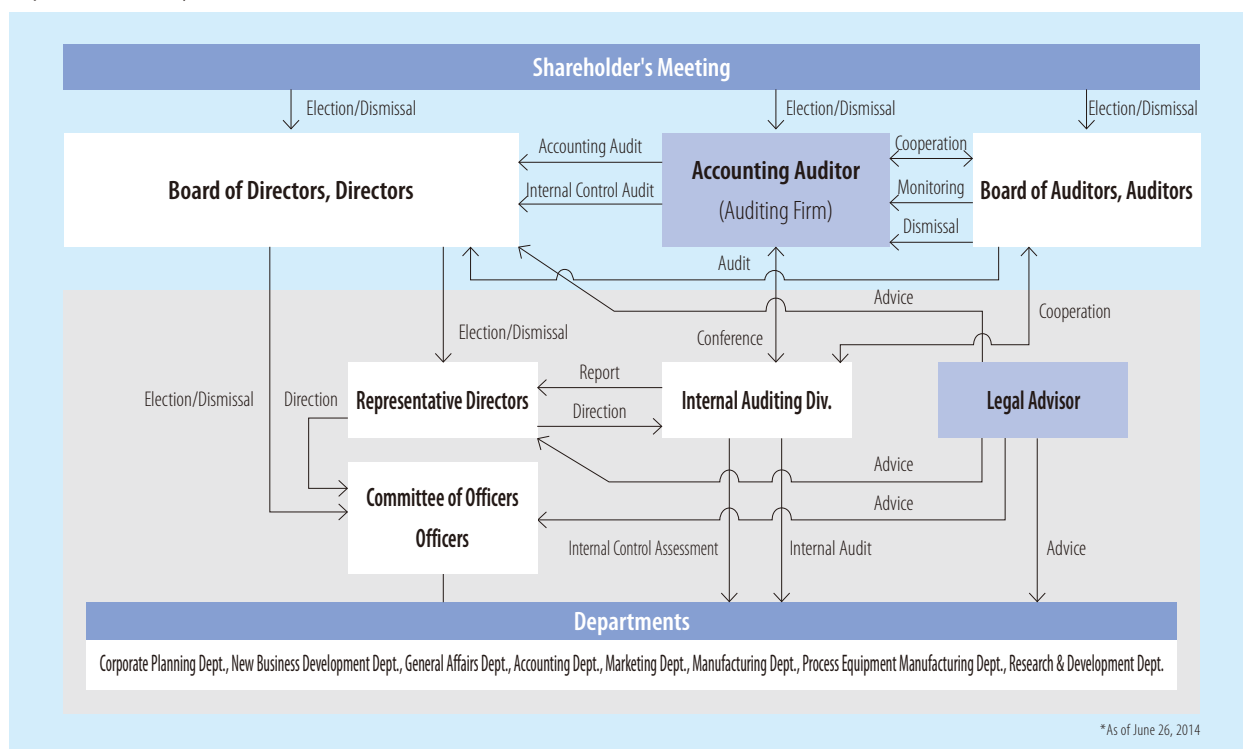
### Auditors' Remuneration

Auditors are responsible for supervising and auditing the execution of responsibilities by the directors, in a position that is independent of the Board of Directors. They receive only a fixed-salary basic remuneration, which is decided on and paid out following discussions among the auditors, within the remuneration framework approved at the General Meeting of Shareholders.

Position	Number of eligible directors and auditors	Total remuneration(Million yen)
<b>Directors</b>	9	232
<b>Auditors</b>	5	45
<b>Total</b>	14	278

- Note**
1. The above includes the remuneration for two directors and one auditor who resigned at the closing of the 83rd General Meeting of Shareholders.
  2. The amounts paid to the directors do not include the part paid to directors as their employee salary and employee bonus when they also hold the position of employee.
  3. The amounts paid to the directors include the ¥16 million provision for officer bonuses for the seven directors (including one outside director) in the fiscal year under review.
  4. The amounts paid to the directors include the ¥8 million recorded in expenses for the fiscal year under review for the subscription warrants allocated as stock option remuneration to the six directors excluding the outside director.
  5. Of the above amounts paid, the total amount of remuneration, etc. paid to the one outside director and four outside auditors is ¥31 million.

## Corporate Governance System

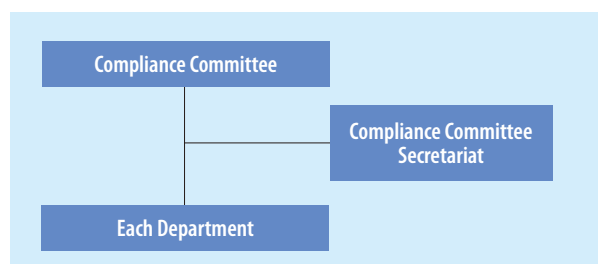


## Strengthening the Compliance System

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.

### 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. A Compliance Standards of Conduct Handbook has also been produced and distributed to all employees as part of our efforts to ensure thorough dissemination and awareness throughout the company.



### Internal Reporting System

Our internal reporting 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 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.

### 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 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.

### 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 anti-social elements, and the appropriate response when 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

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.

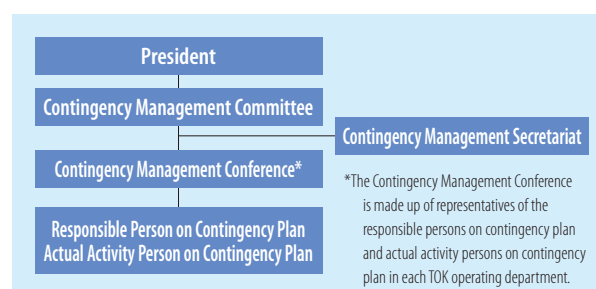
### Contingency Management

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 cross-departmental 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

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.



## 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 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.

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

## Information Management Initiatives

In recent years, the global environment surrounding information management has undergone major changes, including the frequent occurrence of serious incidents and court cases related to information leakages. For the Group the leakage of information assets greatly damages the competitive advantage we have built up over time and could even become a situation that threatens the survival of the Company.

When developing corporate activities, information management is an important business management issue from the two perspectives of “enhancing corporate value” and “fulfilling social responsibility.” Last year the Group revised its Information Management Policies and the executives and all of the other employees have been taking organized measures through the Information Management Committee to strengthen the Group’s information management structure in accordance with the revised policies.

WEB

Information Management Policies

<http://www.tok.co.jp/eng/company/governance/information-management.html>

## Information Management Policies

### [Preamble and scope of application]

THE TOKYO OHKA KOGYO CO., LTD. Group (the corporate group comprised of TOKYO OHKA KOGYO CO., LTD. and its subsidiaries, hereinafter referred to as the “TOK Group”) have positioned risk management related to information assets as an important business management issue for realizing corporate social responsibility, and are taking a range of measures in accordance with the following policies.

### [Definition, protection, and effective utilization of information assets]

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

### [Organizational structure and organized activities]

② The TOK Group has established an Information Management Committee and will continue to build, maintain, and promote an information assets management structure for the overall group.

### [Completeness, confidentiality, and availability]

③ The TOK Group will implement appropriate management through a range of human, physical, organizational and IT-based measures in order to prevent leakage, falsification, theft, destruction, etc. of the information assets held by the TOK Group.

### [Education]

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, etc.

### [Incident response]

⑤ In the case that accidents, etc. related to information security occur, the TOK Group will endeavor to minimize the damage from the accidents, etc. and implement measures to prevent their recurrence.

### [Audits and continuous improvement]

⑥ The TOK Group will implement regular audits and make continuous improvements as a part of its management of information assets.

Based on these policies, the Group is working on the following matters.

1. Appropriate protection and management of information assets.
2. Enhance and expand the human, physical, organizational and IT-based information security operating structure.
3. Awareness raising and educational activities.
4. Responses to minimize harm in the case that an information leakage occurs.
5. Establishment of an auditing structure, etc.

## Voice

### Thorough implementation of information management: aiming to build a robust information management structure

Two years ago, the Company established the Information Management Committee chaired by the manager of the General Affairs Department and meetings of the committee are held every quarter. This committee is holding consultations about issues such as “protection of commercial secrets and technical information,” “revision of in-house rules,” “education,” and “overhaul of IT and physical security,” which are currently being discussed throughout Japan and is working toward the strengthening of the information management structure from a variety of perspectives.

“Information management” does not directly lead to profits, but building an information management structure in the Company leads to the reduction of losses caused by leakages or the unauthorized use of information.

In the global market, “information management” is essential for winning the trust of business partners and enhancing our corporate competitiveness, so we intend to work hard to build a robust management structure.

**Tatsuya Hashiguchi**

Head of the Information Management Committee Secretariat



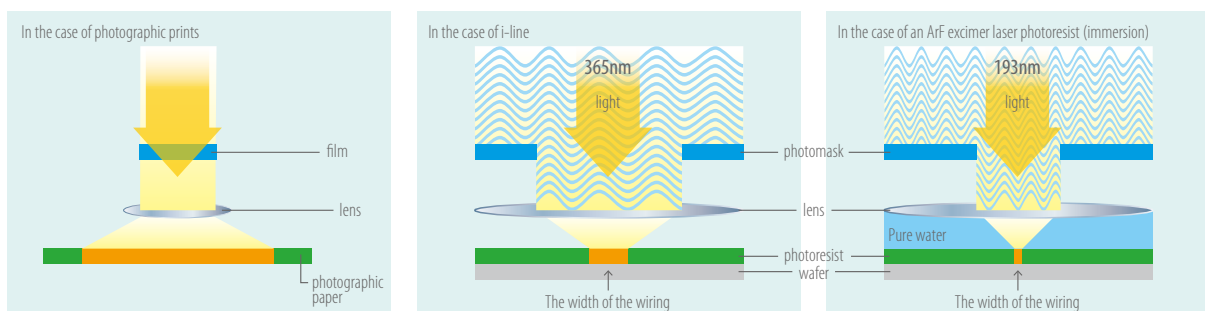


# What is photolithography, the core technology of TOK?

The basic principle of the technology called photolithography related to the manufacturing of semiconductor devices is the same as taking a picture of a subject with a camera (= transcribing the image to the photosensitizing agent of the film) and printing the exposed film on photographic paper. In the case of the print of a photograph, a lens is used to expand an image burned onto the original plate (the exposed film) whereas with the manufacturing of semiconductor devices a lens is used to shrink the design blueprint drawn on the original plate (the photomask). Reproducing majestic scenery in a small film through the lens of a camera is precisely the principle of photolithography itself.

The photoresist is equivalent to the photosensitizing agent used in this film and photographic paper. A variety of circuits are etched on the wafer, which is equivalent to the film and photographic paper, to create LSIs and other semiconductor devices. This is the microprocessing technology of TOK that we have developed over many years at the cutting edge of our industry.

## Mechanism of the exposure equipment

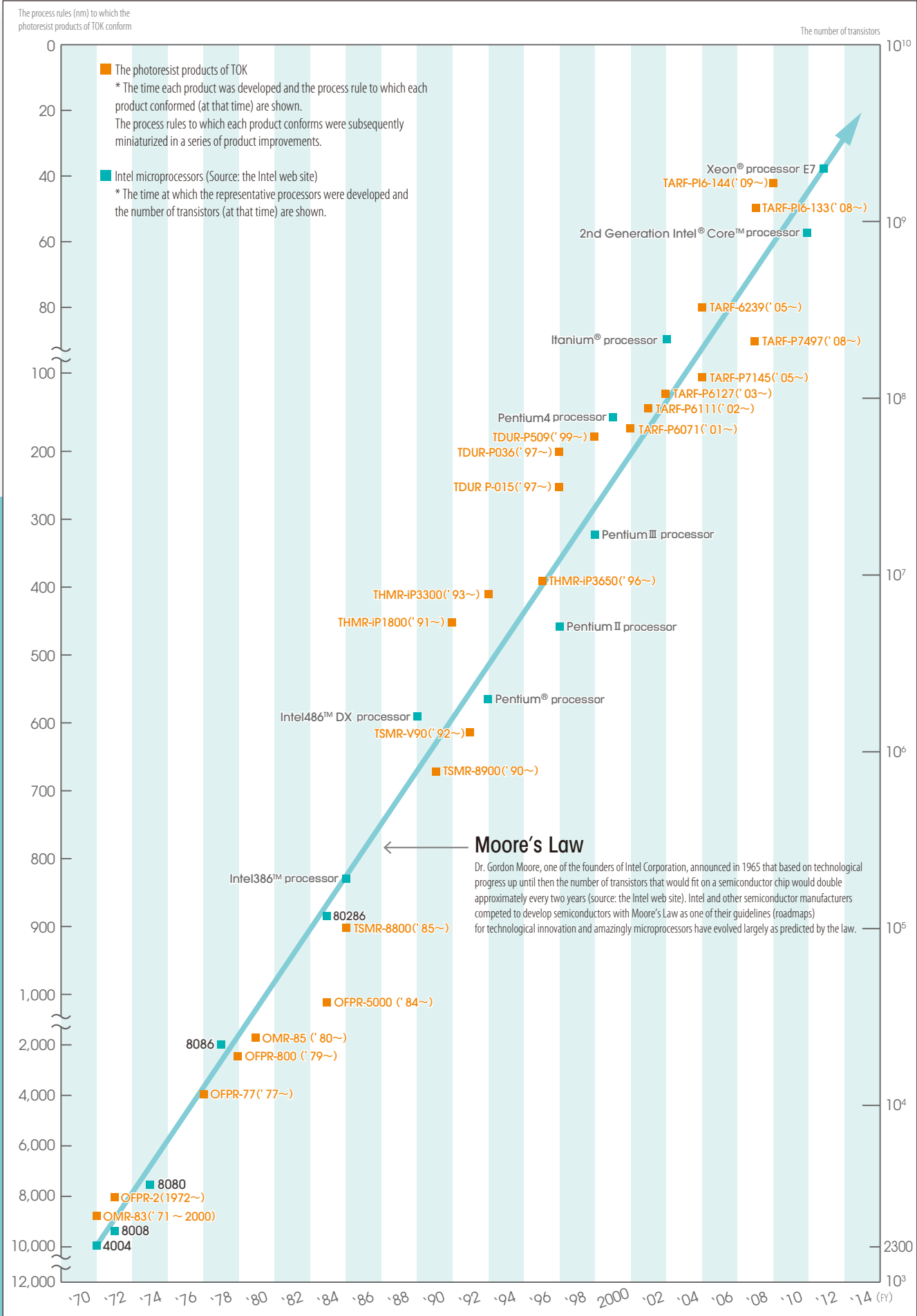


The light source used for the exposure

We can conclude that the high-level integration of semiconductor devices is the result of the progress of optical lithography, including photoresists. The miniaturization of optical lithography (improving the resolution of exposure equipment) has been realized to date by shortening the wavelength of light sources that are used, including g-line (436nm), i-line (365nm), the KrF excimer laser (248nm), and the ArF excimer laser (193nm).

The evolution of microprocessors and the photoresist products of TOK

The microprocessing technologies of TOK that provide photoresists and other materials that are essential to semiconductor manufacturing have achieved progress that has kept pace with Moore's Law. In this figure, we present the correlation between the photoresist products of the Company and the evolution of Intel Corporation's microprocessors as a representative example of product development in line with Moore's Law.



# What is **photolithography**, the core technology of TOK?

The advantages offered to semiconductors by miniaturization using photolithography include the following:

- 1. When the circuit becomes narrower, the speed of operation becomes faster**
- 2. Power consumption is reduced**
- 3. Manufacturing costs per function are reduced**
- 4. The degree of freedom in circuit design increases**
- 5. It is possible to increase the number of transistors in one chip, enabling greater functionality**

\* Greater functionality: "parallelization and concurrent execution of processing," "complex information processing," "handling greater amounts of data" and so on

In other words, we can conclude that the development of the semiconductor technologies that brought about the miniaturization and high performance of today's computers and other IT devices such as mobile phones and tablet devices was realized due to the fact that two technological elements - complex circuit design and the advanced microprocessing technologies that make the designs possible - fit together very well. It is often said that there is a limit to further miniaturization of the process rule, but the further progress of IT technologies, including in the medicine, welfare and environmental fields, is a social issue that is essential for the realization of a sustainable society. As a behind-the-scenes architect holding an important key to semiconductor manufacturing processes, going forward the Company will contribute to society by continuing to challenge itself to achieve further technological innovations together with semiconductor manufacturers, our customers.

## An Overview of the Photolithography Process

(The Use of Photoresists in the Semiconductor Manufacturing Process)

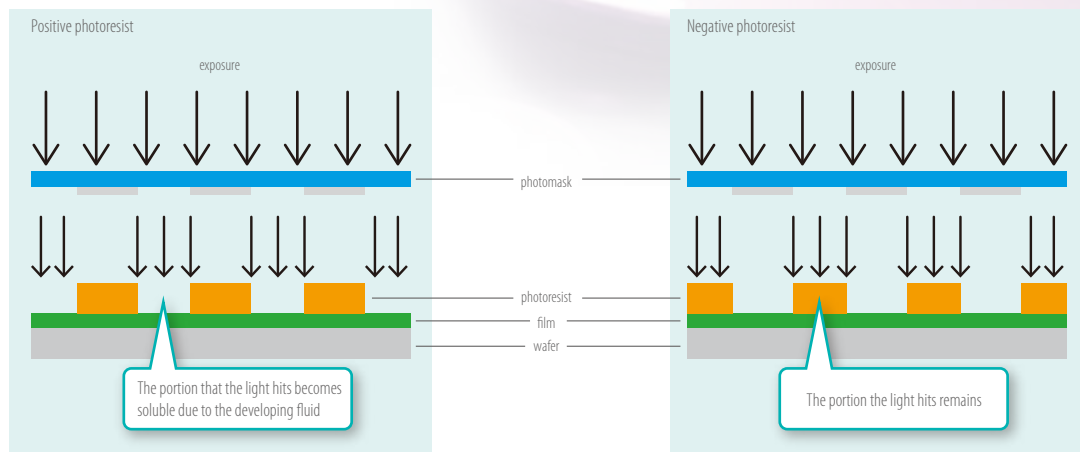




## Negative and positive photoresists

Positive photoresist: a type of photoresist in which the portion of the photoresist that is exposed to light becomes soluble when the photoresist is developed.

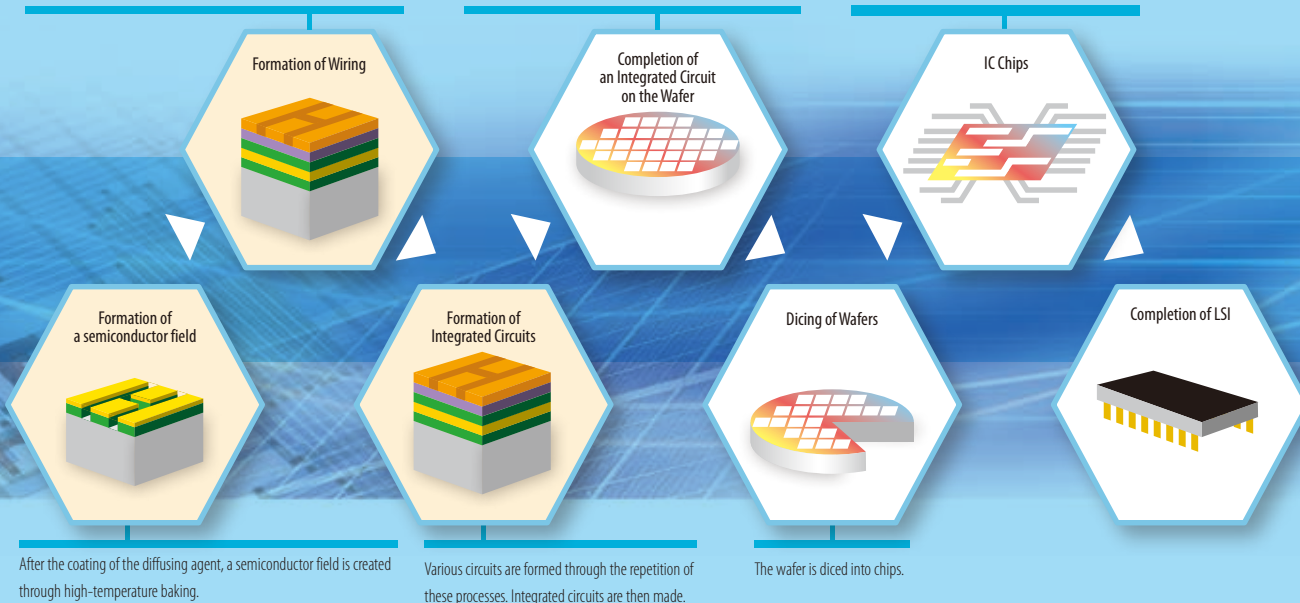
Negative photoresist: a type of photoresist in which the portion of the photoresist that is exposed to light remains when the photoresist is developed.



Processing is carried out, including the coating of photoresists, exposure, development, and etching, and the formation of aluminum and copper wiring.

Circuits are laid closely on the wafers that were created through the microprocessing technology.

Each piece of diced wafer is what we know as an IC chip.



## Process rule (line width of the circuit)

The process rule of the 4004, the world's first CPU which was announced by Intel Corporation in the United States in 1971, is 10μm (micrometers). The process rule of the Haswell CPU that Intel commenced shipping in 2013 is 22nm (nanometers).

Over these forty-something years, the process rule has shrunk by a factor of approximately 454 to 1, and the number of transistors formed has increased by approximately 600,000 times.

\*The diameter of a human hair is approximately 90μm. The 22nm process rule is equivalent to drawing 4,090 lines on the cross-section of a sliced hair.



The width of the wiring is the process rule.

# The evolution of TOK microprocessing technologies

The evolution of TOK microprocessing technologies can be said to be the history of the Company meticulously focusing on “high purity” and, in the “pioneering spirit” of “challenging ourselves to do things that no-one else in the world has done,” constantly pursuing cutting-edge technologies at the highest level in the world since the time of the Company’s founding.

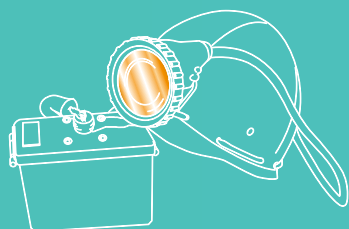
From pure chemicals to fine chemicals

## We cultivate advanced technological capabilities and offer highly pure and unique products



- **1936: The TOKYO OHKA RESEARCH LABORATORY was established and manufacturing and sales of high purity caustic potash commenced**

In 1934 Shigemasa Mukai, the founder of the Company, successfully used mercury electrolysis process to refine the high purity caustic potash (potassium hydroxide) used in the electrolytic solution of the alkaline storage batteries that are the power source for safety lights for use in mines (cap lights: the lights attached to the helmets of the miners). He foresaw the future expansion of applications and demand and believed that outstanding safe and portable products to replace conventional sulfuric acid batteries would bring about significant benefits for work inside mines which entails high danger. The domestically-produced high purity caustic potash that he commercialized after the six-year development period gained a better reputation than the imported products that had been used until then and became widely used in Japan. In 1936 Mukai established the TOKYO OHKA RESEARCH LABORATORY, the predecessor of the Company, from his strong desire to “challenge himself to develop products that entail difficulties but are useful to society and are not offered by other companies.”



Founder Shigemasa Mukai

- **1940: Reorganized as TOKYO OHKA KOGYO CO., LTD.**

We have inherited the basic stances at the time of the founding of the Company, “create distinctive products that cannot be easily imitated by other companies,” “build our business around high purity products” and “develop advanced technological capabilities” as the foundation of the Company to the present day.



The Kawasaki Plant, the company headquarters in 1959



An article reporting the development of the “high purity caustic potash” of the Company which was recognized as the highest quality in the world (Nikkan Kogyo Shimbun dated February 10, 1964)

- **1945: We contributed to the post-war recovery as the only domestic manufacturer of the electrolytic solution used in safety lights for mines**

The coal industry was made a pillar of the post-war recovery, and therefore the Company, which was the only domestic manufacturer of the electrolytic solution used in safety lights for mines, became a Ministry of Commerce and Industry-designated business, was given priority for being supplied with electricity, and expanded production.

1936

1940

1943

1945

- **1943: Chlorinated naphthalene became the first patent for the Company. We took this opportunity to further develop technologies for the effective utilization of chlorine, a by-product of electrolytic solution manufacturing.**



Through joint research with the Government Chemical Industrial Research Institute, Tokyo, the Company obtained the exclusive license for polyvinyl cinnamate (product name: TPR) which was outstanding in terms of performance and costs, and commenced manufacturing of the product.

Using a world class high purity cinnamic acid, the company initially developed TPR as a photosensitizing agent for printing, but from around 1965, along with the spread of electronic calculators, there was a dramatic expansion in demand for the product as a photoresist used in a new packaging technology enabling the miniaturization of printed substrates (the through hole plating method).



## Entry into the Printing Materials field

In 1965 we developed the alkaline development type photosensitizer Photozol, the first ever photosensitizer designed for use in positive type photograph printmaking, and the high-speed zinc-plate corrosion additives Newfinesol.

Through joint development, we were the first company in Japan to commercialize the photoresist and additives used in a new printmaking method (Zinc PS plate) which replaced the zinc etching method which was facing concerns about harm to health and impact on the environment. In 1968, we commenced manufacturing and sales of the first aluminum PS plate in Japan coated with Almax – Positive, a photosensitizer for use with aluminum PS plates developed in-house.

In 1981, we met a request for development of polymer printing plates from a leading newspaper company by commencing development of Rigilon POP, which achieved a plate life of over 800,000 copies, higher than the zincotype method for which replacement was necessary every 50,000 to 60,000 copies. We subsequently received a flood of orders not only from the newspaper companies in Japan but also from overseas, so in 1983 we established an exclusive plant for manufacturing photopolymer printing plates in Yamanashi Prefecture.

In order to focus our energies on the electronics field, we transferred the Printing Materials businesses to another company in 2011, but we have strongly inherited the “pioneering spirit” and world-leading technological capabilities we cultivated in this field as valuable assets of the Company.

- **1955: We achieved domestic production of the Ohkaseal (potassium silicate) used in the manufacturing of cathode-ray tubes for television. The cost reductions contributed to the explosive spread of television.**

The reduction in manufacturing costs was considered to be the key to the widespread adoption of television after the commencement of broadcasting in 1953. The Company responded to an approach from the Japanese Electronic Machinery Promotion Society by achieving domestic production of potassium silicate (used in phosphor bonding materials), which was entirely sourced from overseas at that time, thus contributing to the reduction of costs. “Challenging ourselves to create technologies that did not exist in Japan yet” provided the opportunity for the Company to develop into a sophisticated company and at the same time formed the foundation for the unique research and development stance of the Company which thinks that “the development of technologies that are truly useful for the development of society is a challenge that will also lead to the improvement of our profitability in the future.”



- **February 1953: Television broadcasts commence**

- **1968: Development of natural rubber photoresist OMR-81 for use in semiconductor microprocessing**

Responding to the calls from manufacturers wanting refined KMER (cyclized rubber photoresists) that offer stable quality instead of foreign products with variable quality, we were able to create the necessary product in a short period from the commencement of the development. This was because we had already established the basic technologies for cyclized rubber. Production was unable to keep pace with the rapid growth in demand, so in 1970 we built an exclusive plant in the Sagami Plant. We were highly acclaimed because we worked hard to accurately ascertain and rapidly respond to user needs using a structure that integrated the three elements of development, manufacturing, and sales. For example, we deployed, from the beginning, engineers possessing specialist knowledge from the manufacturing sites as sales staff (sales engineers). Therefore we became widely known as “photoresist TOK,” and although we entered the market late, the Company was able to establish a reliable foothold in the semiconductor industry in a short period of time.

1948

1955

1965

1968

- **1948: We commenced production of high purity potassium carbonate and in a short period of time captured more than 90% of the domestic market share. Together with high purity caustic potash, we now had a foundation for the establishment of pure chemical technologies.**

# The evolution of TOK microprocessing technologies

From fine chemicals to super fine chemicals

## Making further contributions to society as a top runner in microprocessing technologies

In the field of the photoresist-related products essential to semiconductor manufacturing, we have developed cutting-edge microprocessing technologies and have quickly developed and provided products that can meet increasingly sophisticated user needs as the function of semiconductor devices gets highly advanced.



Zero Newton® bonding machines TWM series

### ● 1969: Development of Stripping Solution 501 for use in negative photoresists

We developed a stripping solution used to strip off negative photoresists such as OMR. Responding to strong environmental regulations from 1970 onwards, in 1974 and 1976 we manufactured and sold an improved product which does not contain persistent substances in its composition. In 1974, we began domestic production of a stripping solution for use with positive photoresists that does not contain chlorinated solvent or phenol. Subsequently we expanded our product line-up to include products that do not contain carcinogens and water-based photoresists.

### ● 1971: Development of synthetic rubber photoresist OMR-83

We began the first domestic production of photoresists made from synthetic rubber, which has fewer impurities than natural rubber. It steadily expanded its market share as the mainstream photoresist essential for LSI circuit manufacturing.

### ● 1972: Development of positive photoresist OFPR-2 for use in IC manufacturing

We utilized the know-how we had accumulated of positive photoresists for use in printing to begin the first domestic production of positive photoresists with outstanding resolution, to meet the need for further miniaturization of integrated circuits.

### Development of the Equipment Division

Following the announcement of the OFPR-800, in 1980 we develop a fully-enclosed, automatic film developing machine for use with photoresists that was compatible with high resolution positive photoresists like the OFPR-800. For this, we utilized our know-how regarding photoresists and the precision processing technologies we had developed through plasma device making, etc., to meet the need for more advanced and automated manufacturing processes resulting from the miniaturization of integrated circuits.

In 1971, the Company successfully completed trial production of the first domestically-produced plasma dry ashing and stripping machine. In 1977, the Company developed the first machine in the OAPM-300 series of fully automatic sheet plasma etching machines, which would go on to become a huge hit series later, after receiving the subsidy from the then Ministry of International Trade and Industry for research and development of important technologies. In this way, we launched the Equipment Division from the early stage, and as a part of our so-called M&E (Materials and Equipment) strategy we also carried out the development of manufacturing equipment that could bring out to the maximum extent the performance of our semiconductor materials made in-house.

### ● 1979: Development of high sensitivity photoresist OFPR-800 for use in projection exposure

In 1977, the era of very-large-scale integrated circuits began with the appearance of 64K DRAM, and we developed OFPR-800 after receiving requests from domestic manufacturers considering the adoption of "projection exposure" that could handle circuit design that further raised the integration density of devices (on 1 chip). The high performance of the product was well received and it became the industry standard "positive photoresist for use in g-line" as "a product for use in 64K DRAM manufacturing."

### ● 1975: Development of non-metal developing fluid NMD-3

We also commenced development of a developing fluid at the same time as the positive photoresist. The 2.38% the Company established for the NMD-3 became the global standard concentration.

1969

1971

1972

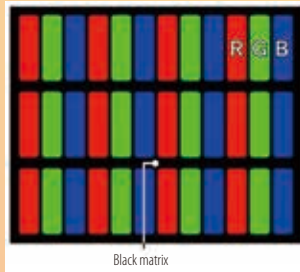
1975

1979

## Development of liquid crystal related photoresists

In 1991, we developed the TFR-B2 photoresist for use in thin-film transistors (TFTs). In the same year, we also developed the pigment dispersion-type photoresist CFPR for use in color filters (LCDs) in order to respond to the rapid adoption of color LCDs resulting from the increase in the size and quality of the screens.

The CFPR BK series (1995~) are photoresists which are colored black using pigments, and are used to form a black matrix for improving the contrast of LCD images. Demand for the Company's black photoresists has expanded because they are highly trusted overall – the advantages of a high light-blocking effect and high sensitivity, as well as their outstanding quality stability.



The black matrix is the black grid surrounding the three color filter colors of red (R), green (G), and blue (B) and it improves the contrast of the image.

## Challenging ourselves to develop new technologies aimed at further miniaturization - research and development of cutting-edge photoresists

The optical lithography technology which has supported semiconductor manufacturing with increasingly high-level integration has achieved miniaturization by shortening the exposure wavelength. Currently ArF (with a wavelength 193nm) lithography technologies are used in mass production, but the next generation technologies aimed at further miniaturization are expected to include EUV lithography technologies using EUV (extreme ultraviolet: wavelength 13.5nm), nanoimprint technologies that are expected to reduce process costs, and DSA (directed self-assembly) technologies.

The Company will utilize the know-how it has cultivated to date to work on the research and development of cutting-edge photoresists in order to realize ultra-microprocessing technologies that target the 10nm range.

### 1995: Development of the TDUR-P series of positive, chemically-amplified photoresists for use in KrF lithography

From 1993, we began the development of positive chemically-amplified photoresists using technology licensed to us by IBM Corporation. It was adopted by a large number of semiconductor manufacturers as the first positive chemically-amplified photoresist for 0.35-0.3μm processes. The TDUR P-015 developed in 1997 (which realized 0.25μm) became the standard product used throughout the world.

### 2001: Development of the permanent photoresist TMMR for use in MEMS

Since 2001, we have been developing and providing photoresists for use in the manufacturing of MEMS (microelectromechanical systems) that integrate sensors and actuators, etc. onto silicon substrates. The technologies in the semiconductor manufacturing field have been applied to MEMS, but the materials and equipment for use in manufacturing MEMS have many needs that are different from semiconductor manufacturing. Therefore, we are providing advanced materials and equipment solutions, including a diverse range of photoresists and also coating applicators that enable highly uniform photoresist coating at several 100μm, etc.

### 2001: Development of the TARF-P series of photoresists for use in ArF excimer lasers

We developed and commercialized the TARF-P series of photoresists which handle next generation lithography "ArF excimer laser (wavelength 193nm)" instead of the "KrF excimer laser (with a wavelength of 248nm)". The TARF-P series, which was designed to target processes under 130nm, enables miniaturization down to nearly 20nm.

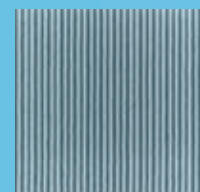
### 2013: Development of a photoresist for use in double patterning (SADP\*)

There are high expectations of double patterning (hereinafter referred to as "DP") technologies as new technologies for the 20-10nm era of photolithography. These DP technologies, however, face the problems of complicated processes (steps) resulting in longer processing time. With the aim of simplifying the processes and shortening the processing time, we are focusing on SADP technology, one of the DP technologies, and working on joint development with Tokyo Electron Limited.

In the research stage, we succeeded in forming an 11nm circuit in SAQP\*2 which enables more miniaturization than SADP.

\*1 SADP: Spacer Aligned Double Patterning

\*2 SAQP: Space Aligned Quadruple Patterning



11nmhp formed using SAQP

1995

2001

2013

### 2009: Development of EPLUS® diffusing agent, a material used for the manufacturing of crystalline silicon solar cells

We started the EPLUS® series based on technologies we cultivated in the photoresist field. We are aiming for further reduction of the environmental impact and technological innovation by developing and supplying materials and manufacturing processes in the "Energy," "Ecology" and "Environment" fields in combination with exclusive manufacturing equipment.





## Special Feature 2: Pursuit of customer satisfaction

# Initiatives of the Koriyama Plant as it aims for “high quality monozukuri”



The Koriyama Plant located in the West No. 2 industrial park in the suburbs of Koriyama City in Fukushima Prefecture is a photoresist production plant on a large 165,764m<sup>2</sup> site. Since it commenced operations in 1994 as the second plant after the Gotemba Plant producing positive photoresists for use in i-line, it has fulfilled an important role as a flagship plant for producing cutting-edge photoresists and the related chemicals. More specifically, its products include KrF excimer laser positive and negative photoresists, ArF excimer laser positive photoresists, and other photoresists with which technological innovations have taken place together with the progress in miniaturization.

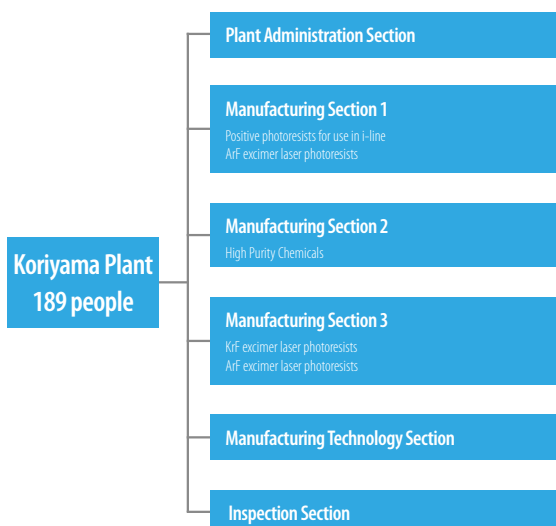
In order to provide optimal photoresists to customers, it is necessary to put in place a production structure that can meet the demands of customers after sufficiently ascertaining user needs and also the manufacturing processes of the customers, such as exposure equipment, that are an important factor together with the photoresists.

This time we will introduce a part of quality maintenance and improvement initiatives continuously being carried out by the Koriyama Plant in order to meet customer needs for further miniaturization and higher quality, as an example related to the “pursuit of customer satisfaction” in TOK. (In this Special Feature, we will introduce the example in a report format based on interviews we conducted at the Plant.)

### The evolution of the Koriyama Plant

- February 1994 ● Koriyama Plant opened
- Plant producing positive photoresists for use in i-line completed
- April 1995 ● Plant producing auxiliary chemicals for use in semiconductors completed
- December 1997 ● Plant producing KrF excimer laser positive and negative photoresists in i-line completed
- January 1998 ● ISO9002 certification obtained
- November 1999 ● ISO14001 certification obtained
- March 2002 ● The K-2 building for KrF excimer laser steppers (research building 2) completed
- ISO9001 certification obtained (year 2000 standards)
- October 2004 ● Production of ArF excimer laser positive photoresists commenced
- August 2009 ● Switched to ISO-9001:2008
- October 2011 ● Building that manufactures immersion ArF excimer laser photoresists completed

### Organization



\*As of May 14, 2014

- i Promote optimization of the production structure pursuing profitability and rationality through efficient execution of operations.**
- ii Aim to enhance organizational strength in order to stabilize and improve productivity and quality.**
- iii Foster an organizational culture of monozukuri rooted in innovation and ingenuity by improving and enhancing the performance of individuals, and reduce losses due to defects.**
- iv Reduce CO<sub>2</sub> emissions and waste by promoting energy-saving activities and the 3Rs. Eradicate fires, workplace accidents, and environmental accidents.**

At the Koriyama Plant, at the beginning of the fiscal year, four goals are set in a form that is based on the medium-term plan and follows the fiscal year plan of the Manufacturing Department, and each department plans and executes basic initiatives for each goal. We are working hard to achieve our goals by implementing a business management plan based on a top-down approach while also introducing a bottom-up management style enabling each department to utilize its own unique “innovation and ingenuity.”

The state of progress toward achievement of the goals in each department is reported in the middle and at the end of the year. Furthermore, we have established

the organization-wide Standard Cost Committee, Quality Management Committee, Safety and Health Committee, and the Environmental and Energy-Saving Committee respectively for each of the important business management issues including performance management, quality, safety, the environment. Through the PDCA cycle we are implementing initiatives to make continuous improvements from the perspective of the overall Koriyama Plant. In each department, the leaders designated for each business management issue aim to achieve the goals together with the cooperating members of the departments.

## Encourage individual “realizations” and aim for an overall “bottom-up” approach

Of the fiscal 2013 goals, (i) (ii) and (iv) have been continued from earlier years, and they are natural corporate efforts that should be made by a manufacturing plant utilizing advanced technologies and a plant that handles dangerous materials. However, goal (iii) “Foster an organizational culture of monozukuri rooted in innovation and ingenuity by improving and enhancing the performance of individuals, and reduce losses due to defects” is in line with the policy of the Manufacturing Department to act in accordance with the stance of the top management to focus more energy on actively “visualizing” personnel development going forward, and was established as a fiscal year goal from the previous fiscal year.

“I believe that we should not implement monozukuri that relies entirely on manuals but rather we must develop people who are capable of implementing “monozukuri” while thoroughly understanding the meaning of the processes they are personally involved in at the worker level in each site. “Monozukuri rooted in innovation and ingenuity” is probably close to the image of returning to the style of “monozukuri” when the manufacturing industry of Japan was strong; however I am not seeking craftsmanship. What I ask of them firstly is that they can “correctly” recreate the “mechanism that can be reliably made by 100 people if there are 100 working staff” created by the Manufacturing Technologies Section, etc.”

However, we cannot expect to write such manuals that anticipate every possible situation and cover all the “correct approaches” with detailed explanations, and there are areas which we must leave to the common sense of the workers at the sites. For this, of course, it is necessary to ensure that the workers correctly understand the meaning of the processes through education. For example, the plant General Manager Yoshinori Matsumura says that even when we work on “Thorough elimination of contamination (p23)” we should not push that on people from above; education that encourages “realizations” is necessary.

“A ‘clean room’ is not a room that is clean but rather a room that must be made clean at all times. For example, if the worker correctly understands the meaning of clean room, then the worker will become able to ‘realize’ even very minor matters such as ‘it is not written in the manual but does that mean it is ok to bring something like this into the room?’ and ‘perhaps it is better to enter the room in this way?’ with the correct problem

awareness. If the worker correctly understands the meaning of ‘dust emissions,’ then the worker will probably point out issues such as ‘will clicking a three-color ballpoint pen at the site lead to dust emissions?’ This means that ensuring that the workers have this kind of problem awareness at all times will result in the maintenance and improvement of quality.” General Manager of the Manufacturing Technologies Section, Kazuyuki Nitta, also points out the necessity of this “bottom-up” approach from the position of “communicating” the correct knowledge.

“Even if the ‘mechanisms of monozukuri’ including equipment and technological capabilities are perfect, if monozukuri is not implemented together with the employees in charge at the manufacturing sites, we will not be able to realize higher quality products. In order to achieve that, we technical staff members who create the ‘mechanisms’ must also carefully polish our ‘skill at communicating’ meaning of the processes and the work to the people at the sites and ‘skill at being understood.’ At the Koriyama Plant, we are focusing our energies on education that leads to a bottom-up approach and therefore we ourselves are implementing ‘presentation training’ for the purpose of improving our communication ability.”



Kazuyuki Nitta

Manager of the Manufacturing Technologies Section



## Special Feature 2: Pursuit of customer satisfaction

# Initiatives of the Koriyama Plant as it aims for “high quality monozukuri”

### The “monozukuri culture of innovation and ingenuity” that has started to grow in each department

Waiting for benefits to gradually emerge through down-to-earth educational activities including external training and OJT requires time and perseverance, but motivation will improve if the efforts made based on the new knowledge and skills thereby acquired lead to some positive results. Plant General Manager Yoshinori Matsumura says “perhaps it is true that the ‘organizational culture of monozukuri rooted in innovation and ingenuity’ begins there.”

For example, regarding overall fiscal 2013 goal (iii) “Reduce losses due to defects,” the Manufacturing Section 3 has adopted the slogan of “reduce the occurrence of abnormalities and the amount of waste,” and based on this slogan has decided to establish and work on the departmental goals of (i) work error reduction, (ii) SPC and non-conformance reduction, (iii) enhancement of 5S activities, (iv) promotion of equipment FMEA, and (v) implementation of education. Regarding “(iv) promotion of equipment FMEA,” a variety of positive outcomes have been announced in the “Equipment Management: Departmental Report.”

### Examples of voluntary “improvement” initiatives in Manufacturing Section 3 (From the “Equipment Management: Departmental Report”)



### Maintaining and improving quality is a fight against “contamination”

There are a variety of factors that influence the quality of photoresists, but the commingling of impurities such as dirt (contamination) is a particularly important factor involved in the production of defective goods. It is possible to prevent contamination

and improve the level of cleanliness, and TOK will realize the provision of high purity products that can handle not only the current 10nm range processes but also future micro processes. The Koriyama Plant has set up a clean room and is conducting its production activities based on a stringent dust prevention structure.



Automated manufacturing equipment

The above examples of initiatives are a part of the content of the report, but we can conclude that “challenging ourselves to perform repair operations,” etc. are the outcomes of new initiatives started in order to improve “realizations” that “detect risk.”

“Twenty years have passed since the Koriyama Plant commenced operations, so there is partially dilapidated equipment, and basically the plant is outsourcing regular equipment inspections and repairs. However, we have started an initiative under which we attend the work by the contractors and learn ‘what kinds of inspections and repairs they are carrying out, using what kinds of procedures’ and develop that information for our own manual. The contractors probably don’t like that though (laughs). It is an experiment we started because we thought that ‘perhaps we should deepen our knowledge of the equipment in order to avoid risks.’ The initiatives of the Manufacturing Section 3 that we have presented as examples are extremely outstanding, so when I suggested to the head of the department that it would be a good idea to give them the fiscal 2013 ‘Plant General Manager Prize,’ I was told ‘the initiative is still under way and we will produce even better results next year, so I would like you to wait a little longer’ (laughs).”

The outcome of the initiatives was also manifest in the form of a reduction in repair costs, further improving the motivation of Manufacturing Section 3.

### Initiatives of the Koriyama Plant as it aims for “high quality monozukuri”

colleagues who have mastered certain skills and know-how serve as the instructors, and a coaching style of “straightforward teaching about difficult matters in one’s own words” has become well established.

The plant general manager states that “Achieving ‘zero’ errors when minor errors are also counted is really close to impossible. Despite this, at the Koriyama Plant, going forward we will not give up aiming to handle work errors that are directly connected to quality in the same way as the zero fires and zero accidents approach.” In response to the manager’s statement, General Manager Kazuyuki Nitta ended the present interview by noting that “Not giving up” has also become the culture of the Koriyama Plant, hasn’t it?”

A man with dark hair, wearing a blue flight suit with a patch on the sleeve, is sitting at a desk. He is looking off to the side with a thoughtful expression. His hands are resting on a book or papers on the desk. The background is a solid light blue.

**Akihiro Suzuki**  
Manager of the Plant Administration Section

# Pursuit of Customer Satisfaction

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.

## 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, in order 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 so as to ensure stable manufacturing processes.

TOK has also introduced MES\* in order to further improve quality and process management at the Koriyama Plant, a mass production plant for our advanced photoresists. This system has provided an environment for efficiently manufacturing high-quality products and promoting continuous improvement in quality.

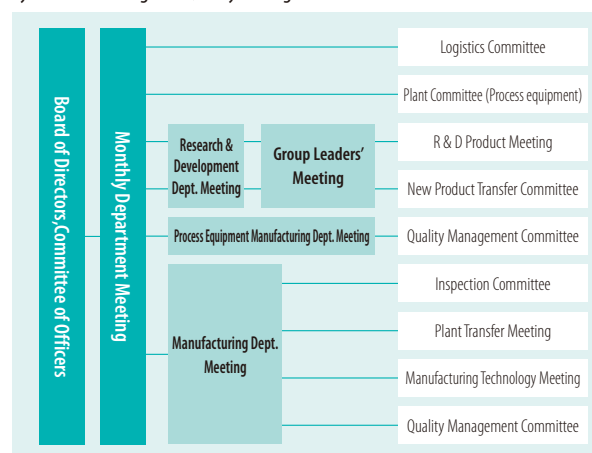
Each plant (except for TOK Advanced Materials Co., Ltd.) has acquired ISO9001 certification (the international standard for quality management systems), and the entire company is working together to implement initiatives for quality management under systems in which all departments participate by periodically conducting various types of meetings to communicate and exchange ideas regarding the

effectiveness of our quality management systems.

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

\*MES: Manufacturing Execution System. This system provides information in order to manage and optimize production activities from the time orders for products are placed until completion.

### System of Meetings for Quality Management



## 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 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.

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

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



## Quality policy

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

**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.

## TOPICS

### Pursuit of customer satisfaction

Efforts of the TOK group which provides products that can inspire its customers have been highly evaluated by various customers, such as in the form of awards and other prizes. With this encouragement, we will further develop technologies and improve the quality in the years ahead.

In the fiscal year under review, we were conferred a variety of awards from companies. Most importantly we were conferred the Best Partner Award by Samsung Electronics Co., Ltd. (South Korea), a global semiconductor manufacturer. We were also conferred the Best Supplier Award by Advanced Semiconductor Engineering, Inc. (Taiwan), a global semiconductor assembly manufacturer, and other awards.



Best Partner Award trophy



Best Supplier Award trophy

### External awards

### Completion of the Incheon Plant of TOK Advanced Materials Co., Ltd. (TOKAM) which is partly responsible for the regional-based strategy

In October 2013, the Incheon Plant under construction in Incheon Metropolitan City in South Korea was completed.

The miniaturization of semiconductors has entered the 20nm generation and is now facing an incomparably greater variety of technical issues than before, so in order to solve these issues, it is even more necessary than before for semiconductor manufacturers, materials manufacturers, and equipment manufacturers to work together. In working to solve these kinds of issues, TOK considers the "regional-based strategy" to tackle the issues more flexibly and more quickly in close proximity to the customers to be a pillar of its business management strategy, and as a part of that strategy, it established TOKAM which has in place integrated development, manufacturing and sales structures.

TOKAM, which has installed advanced evaluation equipment and adopted the cutting-edge technologies cultivated by TOK to date, is expected to be partly responsible for the BCP and global strategy of TOK based on a more stringent information management structure, and to function as an important supply base within South Korea and to overseas destinations.

### Regional-based strategy



Ceremony for the completion



Shipping ceremony

# 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.

## Human Rights Initiatives

### 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. 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 qualifications. 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 to respond to complaints and carry out improvements.

In 2008, Professor John Ruggie from Harvard University drew up the “Ruggie Framework” (“Protect, Respect, and Remedy” Framework for Business and Human Rights) in his role as the UN Secretary-General’s Special Representative. In the framework, he pointed out that all business activities may have an impact on human rights, and that business enterprises should recognize that they have an obligation to comply with all human rights. In light of this, the TOK Group aims to further strengthen our monitoring functions against serious human rights violation, including poor working environment and child labor issues, in our supply chain within the Group and in Japan, as well as overseas as we expand our businesses beyond the shores of Japan.

### Measures Against Harassment

In order to prevent and deal with sexual harassment, we educate all employees on how to prevent sexual harassment.

We have also drawn up regulations in the form of “Detailed rules concerning sexual harassment,” which clarifies contact points and procedures for handling such incidents. We have also drawn up “Detailed rules concerning power harassment,” which similarly clarifies contact points and procedures for handling power harassment incidents.

### Human Resources Policy

TOK has established a consistent policy of regarding human resources as the asset of the company since our establishment. We view all employees as valuable assets, and have stipulated the following items in line with this belief.

- **Never forget that business always starts with “people”.**
- **Any discrimination within company and among employees is strictly prohibited.**
- **Full compliance with applicable laws and regulations, as well as fair and equal compensation.**
- **Educate personal and promote creativity to become a company that develops innovative technologies.**
- **Personnel systems based upon performance, emphasizing and ensuring transparency.**

### Building Good Labor Relations

The Tokyo Ohka Kogyo Labor Union was formed in 1976. The Company has a union shop agreement with the labor union.

The Company and the labor union have established a good relationship from the start, maintaining the principle of “Labor-Management Cooperation.” We hold a central labor-management meeting every two months to discuss the operational environment and other labor-management issues.

#### Holding of a “Conversation with the president”

One of the initiatives in the medium-term plan is to “boost the morale of employees” and we are planning and implementing a variety of activities to achieve this.

As a part of these efforts, we established forums for direct dialogue centered on the young employees working hard in the plants, and since 2013, we have been holding the dialogues mainly in the plants with the objectives of making the employees aware once again of the relationship between the road that the company must travel along and their daily operations, raising their awareness of their work, and improving the sense of unity in the company.





## Initiatives for Fair Working Conditions (Decent Work)

### Employment Situation (As of March 31, 2014)

Employee composition Non-consolidated

	Number of people	Average age	Average length of service (No. of years)
Male	1,142	41.7	18.6
Female	121	34.1	12.2
Total or average	1,263	41.0	18.0

\*The number of people excludes contract workers (69 people), seconded employees from other companies (4 people), and local employees at overseas subsidiaries (5 people). It includes 70 expatriates.

#### Number of employees at the overseas subsidiaries

TOKYO OHKA KOGYO AMERICA, INC.	107
TOKYO OHKA KOGYO EUROPE B.V.	10
TOK TAIWAN CO., LTD.	62
CHANG CHUN TOK CO., LTD.	17
TOK ADVANCED MATERIALS CO., LTD.	79
Total	275

#### 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.

As of the end of March 2013, the number of rehired employees was 42, reaching a total of 136.

### Creating a Workplace Environment that is Easy to Work in

#### Work-Life Balance Initiatives

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.



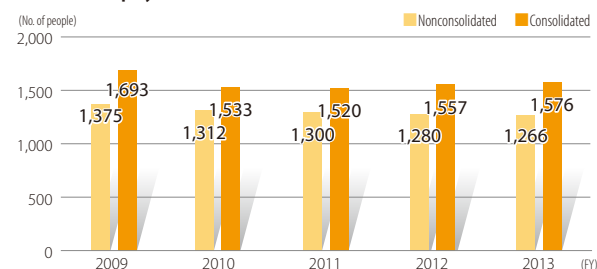
#### Childcare Leave System

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.

As of the end of March 2013, a total of 69 employees were using the childcare leave system, 33 employees applied to reduce their working hours and 43 employees were using the flextime scheme for child care.

We have also set up a range of leave systems such as the "family nursing care leave" and "charitable activity leave," as well as vacation leave systems such as "bonemarrow donor leave" and "sick/injured child-care leave."

#### Number of employees

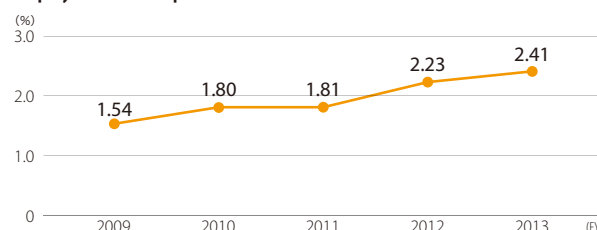


\*For both the nonconsolidated and consolidated basis, the number of employees does not include employees seconded from the TOK Group to other companies.

#### Employment of Persons with Disabilities

Our employment rate for persons with disabilities as at the end of fiscal 2013 was 2.41% (the legal rate of employment is above 2.0%). Going forward, we will continue to advance the employment of persons with disabilities.

#### Employment rate of persons with disabilities



#### 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.

## Human Resource Initiatives

### 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 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.

### 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 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 qualification 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.

### 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 2013, seven employees were inducted into the Specialist Development System.

### Global Personnel Development

In order to develop personnel that can succeed on the global stage, the Company forms programs for employees from the time that they join the company, in order to work hard on personnel development from an early stage.

We define personnel to be employees who are capable of bearing risk themselves and fully utilizing their abilities whether in Japan or overseas, in all kinds of business situations, so in order to nurture personnel who can succeed on the world stage from the time they join the company, we are implementing education that focuses on cross-cultural understanding, teamwork, the ability to communicate logically, and independence.

## Voice

### Establishment of the TOK Global Personnel Development Program

We established the TOK Global Personnel Development Program as part of the strategy “Develop global personnel,” one of the company-wide strategies established in the “TOK Medium-Term Plan 2015.” This personnel development program has the objective of cultivating the five personnel requirements required by the Company (the creativity and independence to create one’s own work and vision, rapid responses, tough mental strength, communication ability, and specialist abilities).

I believe that gaining the ability through this personnel development program to understand and accept the differences between oneself and others, hold one’s own unique skills that are inferior to no-one else’s, and cooperate with others to achieve the work in diverse labor environments can become a major driver of the global growth of the company.

**Yosuke Yamashita**  
General Manager of the Personnel Division



## Safety and Health Initiatives

### Occupational Safety and Health

#### Prevention of Workplace Accidents

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.

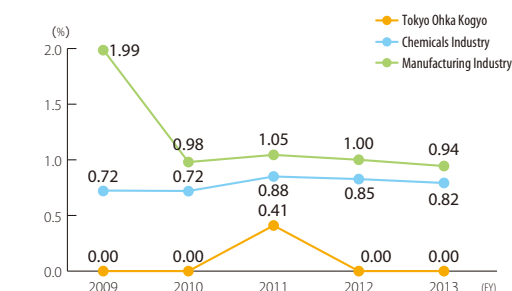
There were no lost time incidents in fiscal 2013. We will continue to make concerted, company-wide efforts to prevent workplace accidents, in order to achieve our goals of "zero accidents" as well as "zero accident risks."

#### 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.

Frequency of Workplace Accidents\*

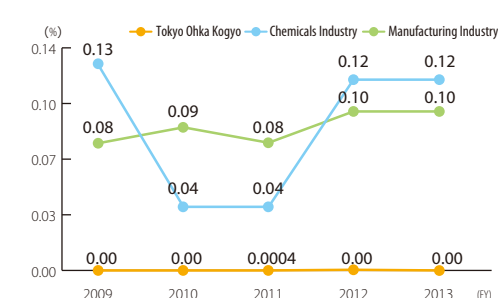


\*Frequency of workplace accidents: Refers to the frequency of accidents based on the number of casualties arising from workplace accidents per 1 million actual working hours.

● Frequency of workplace accidents = (No. of casualties due to workplace accidents / Total number of actual working hours) × 1,000,000

The number of casualties due to workplace accidents refers to the number of casualties leading to more than one day of suspended operation.

Severity Rate of Workplace Accidents



\*Severity rate: Refers to the severity of accidents based on the number of days of lost time per 1,000 actual working hours.

● Severity rate = (Total number of days of lost time / Total number of actual working hours) × 1,000

The total number of days of lost time refers to the total number of days of lost time for the casualties of the workplace accidents. Total number of days of lost time is computed as follows:

Fatality: 7,500 days / Permanent and complete industrial disability: No. of days for grades 1 to 3 of disability grade (7,500 days)

Permanent and partial industrial disability: No. of days for grades 4 to 14 of disability grades (50 to 5,500 days depending on grade)

Temporary disability: No. of calendar days of suspended operation × 300/365

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

WEB

Relationship with Employees

<http://www.tok.co.jp/eng/csr/employees/conditions.html>

## Voice

### TOK as seen through my eyes

For me, as someone who was hired mid-career and particular as a foreign national, the wonderful qualities of TOK are its inclusiveness and equality.

I wish to do my work without being distinguished from Japanese people. Due to differences in our cultural background and ways of thinking, fitting into a new environment cannot be achieved easily, but after I joined TOK, it did not take much time for me to feel that I belonged here. When I am working, the people around me carefully tell me about the rules of the Company and the business practices of Japan, and so on. I have been moved by the workplace atmosphere of hospitality in which people actively accept foreign nationals and the cultures of their countries.

For example, people ask me in detail about practices and market conditions in China. Rather than the attitude of "he is a foreign national so we won't let him do this and we won't let him do that," I have received equal treatment to Japanese people regardless of my nationality, including training, correspondence education. Due to that inclusiveness and equality, I have gained a sense of belonging to the company.

In the context of this kind of corporate culture, I have been given a place in which I can fully utilize my own abilities, making my self-actualization possible.

Yan Dong

Marketing Section, PV Marketing Division



# A Good Corporate Citizen

We are engaged in various social contribution activities, including efforts to interact and communicate with local communities where our offices are located, taking part in volunteer activities, and providing support for educational initiatives.

## Contribution to Local Communities

Offices and Sites	Main Activity Implemented	Offices and Sites	Main Activity Implemented
Sagami Operation Center	The 27th Noryosai	Kumagaya Plant	"Zero Garbage" Campaign
Shonan Operation Center	Clean-up activities	Gotemba Plant	Red Cross blood donation campaigns
Koriyama Plant	Noryosai within the premises of No. 2 industrial park	Aso Plant	Sensuikyo Gorge cleaning activities
Utsunomiya Plant	Red Cross blood donation campaigns	Headquarters	Donations toward 35th Nakahara "Yume" Citizens' Festival

Tombo-Ike Observation Tour



We held an observation tour of the Tombo-Ike (dragonfly pond), located at the biotope in our Gotemba Plant. Children and their families from the local community participated in this activity.

Blood Donation Campaigns



Blood donation campaigns are carried out once or twice a year at each of our offices. In fiscal 2013 as well, a large number of employees were generous blood donors in these donation drives.

Organizing Festivals / Events



In August 2013, we held the 27th Noryosai (summer festival) on the premises of the company housing and dormitory for single employees, which are attached to the Shonan Operation Center.

### Regional contribution activities in overseas bases

#### Participation in a cleanup event at a local sanctuary

At TOKYO OHKA KOGYO AMERICA, INC. (Oregon Plant), the employees and their families participate in the local cleanup event held by Hillsboro City in Oregon State every year. The Jackson Bottom Wetlands Preserve is a large sanctuary surrounded by fir trees and ash woods, home to a wide variety of plants and animals including deer, eagles, waterside beavers, ducks and herons, and visited by many people including local children and students, researchers, and bird-watchers. In fiscal 2013, many of the employees and their families once again participated in events aimed at the conservation of this biodiversity, and together with local volunteers, they worked hard on cleaning activities such as collecting trash, clearing underbrush and the restoration of structures and vegetation.



## Contribution Toward Improvements and Development of Science and Technology

### Tokyo Ohka Foundation for The Promotion of Science and Technology

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.

In fiscal 2013, the Foundation provided a total of ¥25.00 million in grants to 55 projects. From its founding till the end of March 2014, the Foundation had provided an accumulated total of ¥521.99 million in grants to 720 projects. Please visit the Foundation's website for details about the grants and projects.

Website of the Tokyo Ohka Foundation for The Promotion of Science and Technology <http://www.tok-foundation.or.jp>









FY2013 (24rd) Mukai Prize Award Ceremony

# 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.

## Results of Responsible Care (RC) Activities in Fiscal 2013

The following is a report of the main environmental initiatives that we undertook in fiscal 2013 and the results of these activities, which we implemented with the aim of reducing the environmental burden arising from our corporate activities.

Items	Goals	Results
 <b>Environment Management System</b>	Establishment and continuous improvements of the environmental management system	<ul style="list-style-type: none"> <li>● All the facilities in Japan continued to undergo assessment and audits after receiving ISO14001 certification for the fifth time</li> <li>● All manufacturing sites of our overseas subsidiaries maintained ISO14001 certification</li> </ul>
 <b>Energy Conservation</b>	Reduce the amount of energy used (basic unit index) by 10 points by 2020, based on a crude oil equivalent and taking the index for fiscal 2009 as 100.	<ul style="list-style-type: none"> <li>● Established a Central Committee on Energy Saving and implemented systematic activities on a company-wide basis</li> <li>● The amount of energy used in our manufacturing processes was reduced by by four points, or by nine points in base units</li> </ul>
 <b>Industrial Waste</b>	By fiscal 2015, reduce the amount of industrial waste* generated by 10 points (basic unit index), taking the index for fiscal 2010 as 100.	<ul style="list-style-type: none"> <li>● Reduced the absolute volume of industrial waste generated through the manufacturing processes by 14 points (basic unit index)</li> </ul>
 <b>Chemical Substances</b>	Properly manage chemicals and reduce risks associated with harmful chemical substances.	<ul style="list-style-type: none"> <li>● Revision and application of the Standards on Chemical Substances Management</li> <li>● Application of the Chemicals and PRTR Management Systems</li> </ul>
 <b>Environmental Accidents</b>	Maintain the perfect record of “zero” industrial accidents that affect external parties	<ul style="list-style-type: none"> <li>● Had “0” environmental accidents</li> <li>● Conducted environmental accident response drills at nine offices/sites</li> </ul>
 <b>Environmental Communication</b>	<ul style="list-style-type: none"> <li>● Proactive disclosure of information</li> <li>● Release of CSR Report</li> </ul>	<ul style="list-style-type: none"> <li>● June 2013 Published and released the CSR Report 2013, and also released detailed information on the company's website</li> </ul>

\* From fiscal 2013, in order to make the degree of achievement of the medium- to long-term goals related to the reduction of industrial waste easier to understand, 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.

### Medium- to Long-term Goals

Energy Consumption	Industrial Waste
We are putting effort into energy conservation activities in order to achieve the goal of reducing the amount of energy used by 10 points (1 point per year) by fiscal 2020, based on a crude oil equivalent and taking the index for fiscal 2009 as the base unit.	We are committed to reducing the amount of industrial waste generated, and our goal is to reduce this amount by 10 points (2 points per year) by fiscal 2015, taking the index for 2010 as the base unit.

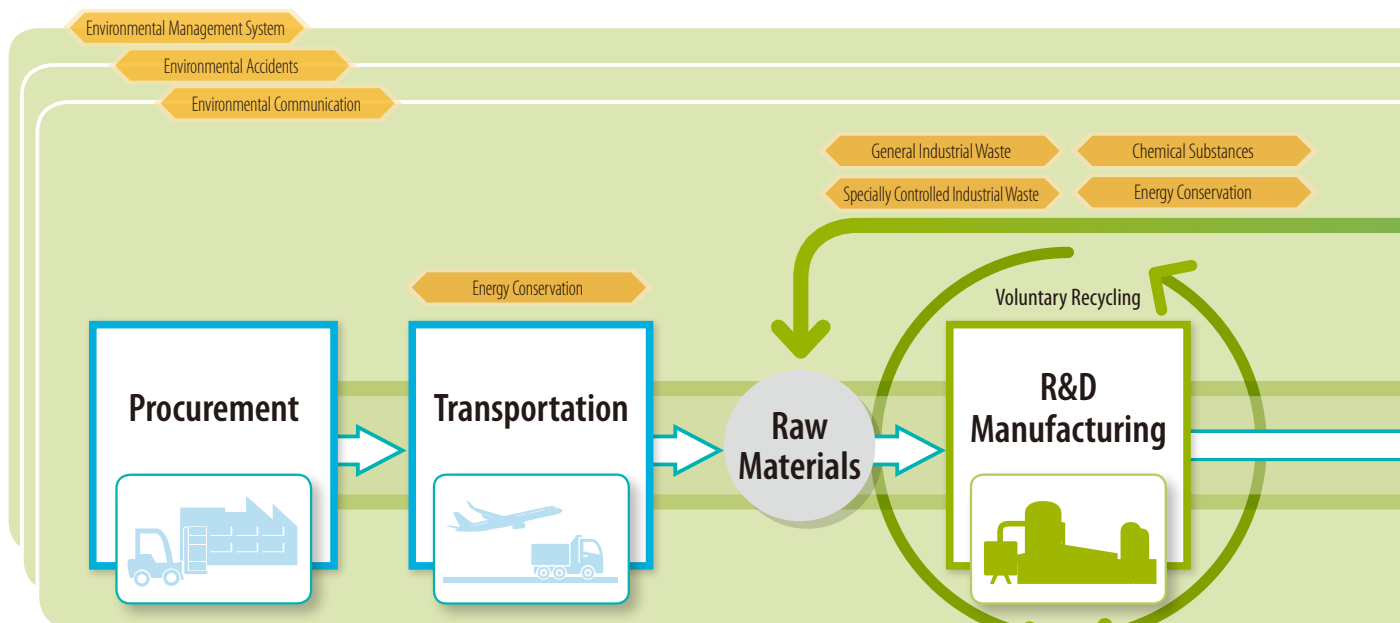


# Reduction in Environmental Burden from our Corporate Activities

## 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.



## Input

Total energy consumed	15,234kL crude oil equivalent
Electric power	40,810,000 kWh (10,278kL crude oil equivalent)
Petroleum (heavy oil)	2,260kL (2,280kL crude oil equivalent)
Gas	2,190,000m <sup>3</sup> (2,540kL crude oil equivalent)
Used water	429,000 m <sup>3</sup>
Chemical substances (Class 1 Designated Chemical Substances under the PRTR Law)	1,500t

## Output

CO <sub>2</sub>	28,000t-CO <sub>2</sub>
SO <sub>x</sub>	3.4t
BOD	0.4t
General administrative waste	141t (Recycling rate: 78%)
industrial waste	General industrial waste
	1,484t (Recycling rate: 36%)
industrial waste	Specially controlled industrial waste
	3,289t (Recycling rate: 33%)

\*Sulfur oxides (SO<sub>x</sub>): Produced from the combustion of fossil fuels containing sulfur. These are considered to be the causative substances of acid rain.

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

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Data on environmental impact by site for fiscal 2013

[http://www.tok.co.jp/eng/csr/env-activity/load\\_data.html](http://www.tok.co.jp/eng/csr/env-activity/load_data.html)

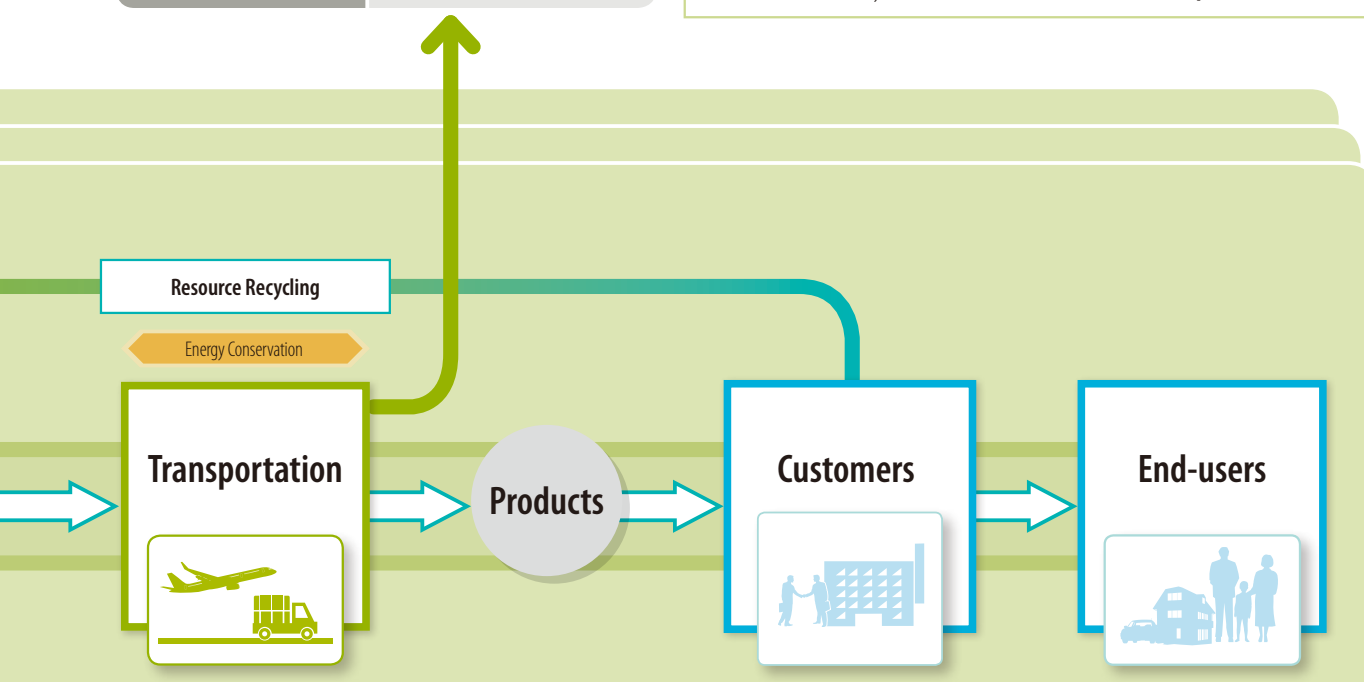


## Emissions from Transportation

Transportation volume	23.53 million ton-kilometer
Energy consumed	1,096kL crude oil equivalent
CO <sub>2</sub> emissions	2,913t-CO <sub>2</sub>

### Responsible Care (RC)

Responsible Care (RC) activities are voluntary activities by chemical manufacturers to ensure "environmental conservation, safety and health" in all processes from the development to the manufacturing, transportation, use and final disposal of chemical substances, publish the outcomes of the activities, and carry out dialogues and communication with society.



## Environmental Accounting\*

TOK has been using environmental accounting since fiscal 2000. This allows the Company to conduct environmental management while monitoring the expenses and effects of environmental programs. In fiscal 2013, environmental conservation expenses totaled ¥446 million, mainly for the prevention of pollution and recycling of resources.

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

Category		Key Initiatives	Investment	Cost
Business area cost	Pollution prevention cost	Air, water and other pollution prevention equipment and its renewal, operation, maintenance and management	7	104
	Global environmental conservation cost	Energy conservation activities	40	18
	Resource circulation cost	Waste processing	20	221
Upstream/Downstream cost		Green purchasing, collection of used products	0	6
Administration cost		Approach to environmental management system	0	71
R&D cost		Research and development related to environmental conservation (equipment and products for reducing environmental impact)	0	22
Social activity cost		Cleanup activities around the production plants	0	1
Environmental remediation cost			0	0
Total			68	446

### 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.

Effects		Amount
Revenue	Gains on the sale of recycled products	14
Cost savings	Reduction in disposal costs through reduction in the volume of waste	26
Total		40

\*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 yen 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 quality 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.

WEB

Environmental Management System

[http://www.tok.co.jp/eng/csr/env-activity/s\\_management.html](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.

WEB

The TOK Environmental Policy

<http://www.tok.co.jp/eng/csr/env-activity/policy.html>

### Compliance with Laws and Environmental 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 complied 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 by the sections responsible.

The Revised Water Pollution Control Law took effect in fiscal 2012. A new application system for the designated facilities for the storage of hazardous

substances was established, and hazardous substances were added to the list. TOK carried out renewed inspection of facilities erected at each of its production sites, and submitted applications for the relevant facilities.

In fiscal 2013, as a result of monitoring and measurement activities, it was found that we had not exceeded any emission standards. We have also never been penalized through fines, nor been involved in any environment-related lawsuits, for the violation of environmental laws and regulations.

## 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 and the company

as a 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.

## 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.

### 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 2013, 211 employees attended the briefing sessions.

In addition to these training programs, we also conduct environment training and lectures on chemicals, which correspond with the needs and situation at each office and site.

### 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 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.



Disaster Prevention Training (Headquarters)



Emergency Response Training (Utsunomiya Plant)

## Responding to Inquiries from Neighboring Residents

In fiscal 2013, we did not receive any inquiries, such as environment-related complaints, from neighboring residents.



## Initiatives to Reduce Environmental Burden



### Reducing Energy Consumption\*

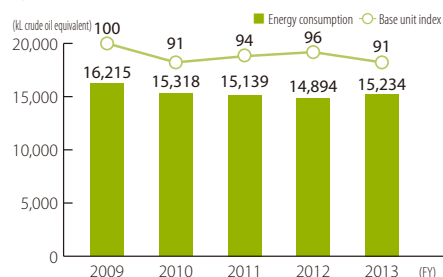
We are working to reduce our environmental impact through a number of initiatives. These include improving our product manufacturing processes, increasing the efficiency of our work, and overhauling our facility operation methods. When it comes to facilities, we are also upgrading to highly efficient equipment, installing additional inverters on our current facilities, and changing our lighting over to LED lamps.

Thanks to these efforts, our energy consumption for electricity, heavy oil, city gas, and other forms of energy in fiscal 2013 was 6 points lower than in fiscal 2009, amounting to 15,234kL on a crude oil equivalent. The figure, which takes factors such as sales, total floor area, and total number of working hours into consideration and has a close relationship to energy use, rose 10 points compared to the previous fiscal year, but consumption only rose 3 points compared to the previous fiscal year. This was partly due to the results of energy saving activities at each of our sites and the results of concentrating production sites.

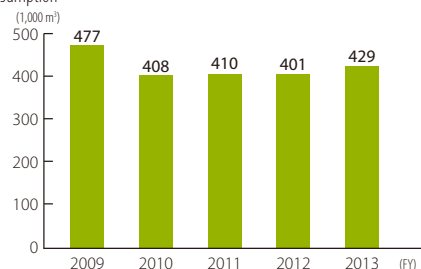
Our base unit index (using fiscal 2009 as 100) reached 91 points, an improvement of 5 points compared to the previous fiscal year.

\*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.  
\*There was an error in the amount of energy use for fiscal 2012 so we have revised that figure.

Energy Consumption



Used Water Consumption



### Emissions to the Atmosphere

We are working to reduce emissions of greenhouse gases\* by improving our product manufacturing processes and through the proper 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 to minimize emissions into the atmosphere.

Our emissions of CO<sub>2</sub> in relation to our business activities in fiscal 2012 came out to about largely the same as in the previous fiscal year. Furthermore, as a result of an increase in the consumption of petroleum (heavy oil), SOx emissions were about 3.4 tons, even higher than in the previous fiscal year.

\*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.

Changes in the Volume of Emissions into the Atmosphere (Converted from Energy Consumption)

CO<sub>2</sub> emissions



\*The CO<sub>2</sub> 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 activities.

SOx emissions



### Measures Involving Ozone-Depleting Substances

Chlorofluorocarbons (CFC\*) such as CFC-11 and CFC-12, which are harmful to the Earth's ozone layer, are used primarily at TOK as coolants in refrigerators and freezers.

We also use halogenated hydrocarbon, another ozone-depleting substance, in some fire fighting systems. All equipment using these ozone-depleting substances is inspected at regular intervals and managed and discarded as stipulated by law, using a checklist.

\*CFC: An abbreviation for chlorofluorocarbon. Specified CFCs are particularly harmful to the Earth's ozone layer.

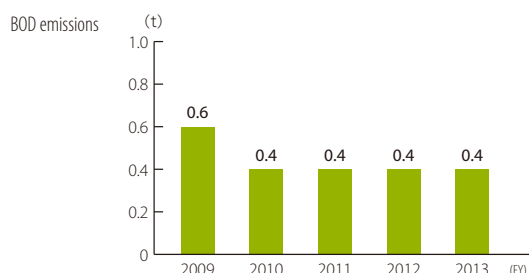
## Emissions to Water

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. As a result of these activities, BOD emissions in the water discharged into public waters for fiscal 2013 were estimated to be approximately 0.4t. This was the same level as in fiscal 2012. We will continue to maintain and manage wastewater treatment facilities to achieve further reductions in discharges of BOD.

## Dealing with Soil Contamination

In 2011, we also monitored the groundwater at the former site of the Ikuno Plant (Asago, Hyogo Prefecture. Shut down in 2010.), which had been designated as an Area for which changes to Form or Nature Require Notification, etc. under the Soil Contamination Countermeasures Act, and found that the groundwater was satisfactory based on environmental standards.

Volume of Emissions to Water

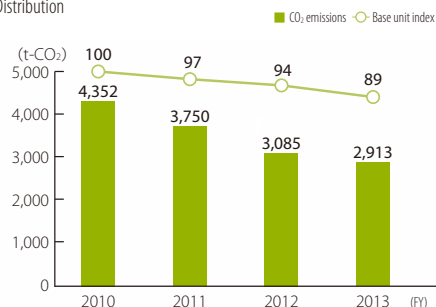


## Environmental Measures During Distribution

### “Green” Logistics

In fiscal 2013, the transportation volume was almost the same as in the previous fiscal year. Due to the fact that we used larger vehicles for transportation and improved our transportation efficiency, the base unit improved 5 points from the previous fiscal year. Going forward, we will reduce our fuel consumption through proactive efforts for a modal shift\* over to railroad container transport and by improving our cargo loading ratio, while also enhancing monitoring. Our aim in this is to reduce our base unit by an annual rate of 1 point.

Emissions in Distribution



### Progress in Use of Eco-Friendly, Low-Emission Vehicles

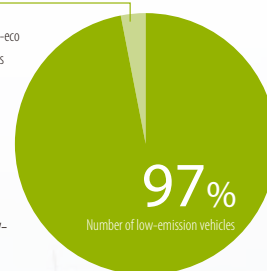
TOK owns a fleet of 36 motor vehicles (including by lease). As of the end of May 2014, 97% of these vehicles use hybrid engines and other means to reduce emissions and protect the environment.

### 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.

3%  
Number of non-eco friendly vehicles

Rate of adoption of low-emission vehicles



### Working to maintain biodiversity

The mass consumption of natural resources and energy and the greenhouse gas emissions through businesses activities are causing climate change and the destruction of the environment, and are threatening biodiversity. The Company is reducing the consumption of natural resources and energy as much as possible through energy saving activities and waste reduction activities. We removed chemical substances that have a negative impact on the ecosystem from the gas emitted from our offices and sites and the plant wastewater, using appropriate cleansing equipment. Although only minor initiatives, the employees also continuously engage in cleanup activities, carry out illegal dumping patrols in collaboration with regional organizations, in order to look after the nature in the immediate vicinity of the offices and sites.



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



### Promoting 3R activities (Reduce, Reuse, Recycle) aimed at zero emissions

We are tackling activities to ensure that natural resources are used more effectively by reducing the volume of waste generated and increasing the amount of waste that is recycled. Going forward, we will promote a reduction in the amount of landfill disposal after intermediate treatment and aim to realize zero emissions“minimizing the amount of direct landfill disposal and landfill disposal after intermediate treatment of all unwanted substances including those generated in our businesses activities.”

#### Reduce\*<sup>1</sup>

All TOK manufacturing bases are engaged in many activities to reduce energy consumption and waste materials generated by production processes as much as possible. There are many initiatives aimed at reducing the volume of waste materials. Major programs include installing wastewater treatment facilities to process effluents internally; sorting waste materials to transform materials into items of value; and reducing the generation of waste materials by improving production processes.

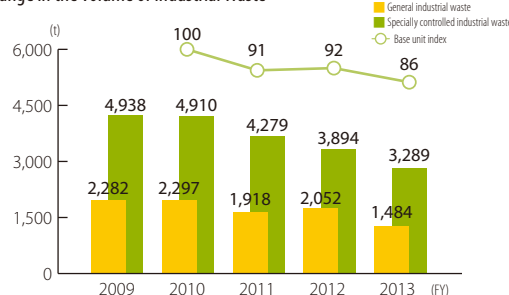
In fiscal 2011, we established a new goal of achieving a 10-point reduction by fiscal 2015, as compared to fiscal 2010 (base unit). As a result of our initiatives to reduce the amount of waste material generated, with regard to the volume of industrial waste in all our bases in Japan for fiscal 2013, the amount of both general industrial waste and specially controlled industrial waste fell year-on-year. Comparing the base unit index that takes production volume into consideration, the amount of waste generated through the production processes in fiscal 2013 was 14 points lower than that in fiscal 2010 for industrial waste.

At this point in time, the goal of a 10 point reduction in the base unit by fiscal 2015 has been achieved, but taking into consideration the possibility of a fluctuation in the base unit due to fluctuations in the items produced and changes in production volume, among other factors, we will continue to work toward the medium- to long-term target figures for reduction in industrial waste.

#### Reuse\*<sup>2</sup>

Products incorporating organic solvents have been placed in stainless steel containers since the late 1970s. This allows empty containers to be returned to TOK for reuse. In addition, some products are transported using tanker trucks. We are also beginning to use reusable containers for some photoresist products, chiefly those used in the manufacture of LCD panels.

#### Change in the Volume of Industrial Waste



\* The base unit index is calculated after adding general industrial waste and specially controlled industrial waste.

\*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.

\* 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.

#### Recycle\*<sup>3</sup>

We are conducting a variety of recycling programs in order to utilize the Earth's limited volume of resources effectively. We take thorough steps to separate garbage properly, conduct a 3R campaign, review methods for disposing of these materials and take other steps to cut the final volume of industrial waste.

\*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.

## Voice

### The progress of the "TOK Medium-Term Plan 2015:" Overview of activities and developments as we approach the new fiscal year

Under the medium-term plan for the environment, we have promoted responsible care activities aimed at energy saving, reducing the risk of workplace accidents and environmental accidents, and reducing industrial waste.

Regarding energy saving, the improvements to the insulation of the steam piping and the redesign of the drain trap implemented at the Sagami Operation Center have greatly contributed to reducing thermal energy. Regarding workplace accidents and environmental accidents, we have achieved a large reduction compared to the previous fiscal year by promoting risk assessment activities, strengthening the management of protective equipment, among others. We have greatly reduced the amount of industrial waste by taking measures such as shifting to products that generate little waste. In the coming fiscal year, we will promote responsible care activities centered on effective energy saving investments such as advanced heat insulating materials, strengthening risk reduction activities using risk assessments, and 3R activities based on revising waste processing methods.

**Jun Iwasa**

Director, Officer, Department Manager, Manufacturing Dept.

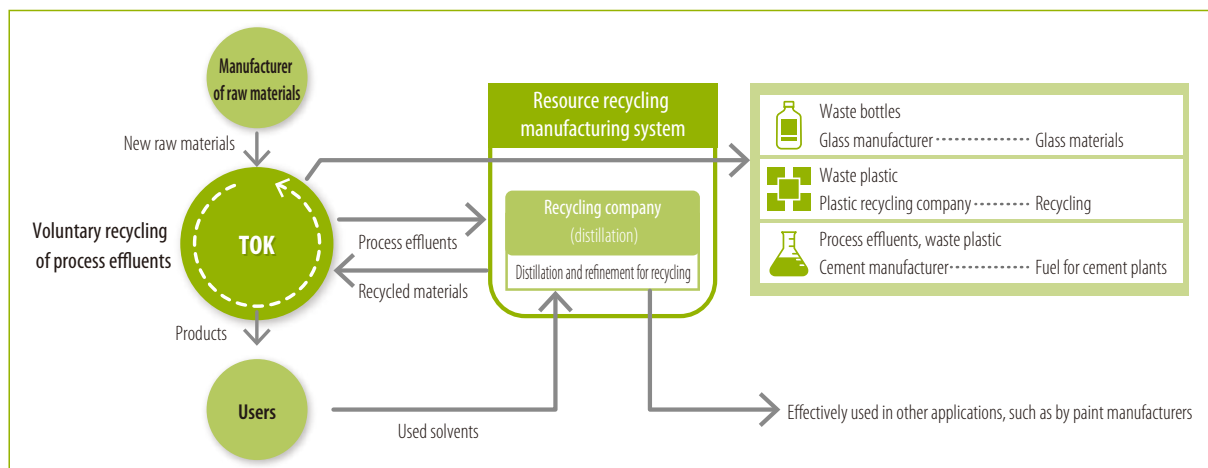


## Recycling of Used Products and Effluents from Production Processes

We recover organic solvents (process effluents) used during manufacturing processes and perform on-site refinement so these chemicals can be reused for the same processes.

These and other activities allow us to reduce the volume of industrial waste materials. When materials cannot be reused at a plant, we send them to recycling companies, where they undergo distillation and other processes for recovery and

eventual reuse. In cases where recovery using distillation is not possible, used solvents are reused as a resource, such as for fuel at cement plants, and in other ways. TOK is also making efforts to promote the use of waste plastics as a raw material for plastic reclamation companies and used bottles as a raw material for glass manufacturing companies.



### Collaboration with Recycling Companies

In carrying out resource recycling activities, it is vital to have the cooperation of external recycling companies. To TOK, recycling companies play an important role as our partner in environmental conservation initiatives, in such areas as collecting industrial effluent and used solvents, and delivering raw materials. One of the ways in which resource is recycled is the separation of industrial effluent and used solvents into solvents and impurities, and reusing the solvents as new products.

## Voice

Contributing to environmental conservation: as a company involved in environmental creation we are “making the best use of limited resources”

Daiseiki is running a recycling business in which the company recovers and processes the industrial waste emitted by its customers into regenerated fuel, specialty fuel, etc. depending on the constituents and characteristics of the waste.

In recent years, recovery treatment has been technically difficult in some cases due to the development of a wide variety of chemicals and increasingly complex manufacturing processes. However, if no-one treats the waste, it will just continue to pile up. We will fully utilize the know-how we have cultivated over many years based on the theme of “making the best use of limited resources” in order to provide services that keep up with the treatment of industrial waste which changes daily.

Waste comes in all colors, shapes and sizes and its properties also vary depending on the chemicals and production methods being used. The waste generated by TOK also included chemicals for which recovery treatment is difficult because when it contains water, resin reacts to it and it turns into gel. However, we examined the treatment method and were able to solve the issues without any trouble. In the industrial waste industry, there are frequent accidents caused by chemical reactions, so we take particular care when handling chemical wastes among other wastes. Furthermore, sorting by the customers is extremely important for preventing accidents in advance. Regarding this point, TOK is carefully sorting its waste which is a big help to us.

**Daiseiki Co., Ltd.**

(Left) **Yoshizawa**

Deputy General Manager and Factory General Manager of Kanto Works

(Right) **Isomura**

Chief Engineer in Production Technology Section, Production Department of Kanto Works

The important point when treating waste is prior information. In particular, in the case that there has been a change to the production processes or chemicals used, if you inform us in advance of the details of the changes, we can appropriately treat even items that we could not pick up as they were. By doing so, we are able to utilize a lot of waste once again as limited resources. We cannot monitor the details of the production processes of our customers. Therefore, we believe that when a process or a chemical changes, if we can anticipate the final disposal of waste and accordingly make changes to the treatment method, there will be advantages for both our customers and our company.

Going forward we intend to hold further exchanges of views with TOK and work hard to build a resources-recycling society based on the theme of “making the best use of limited resources.”



## Appropriate Management of Chemical Substances



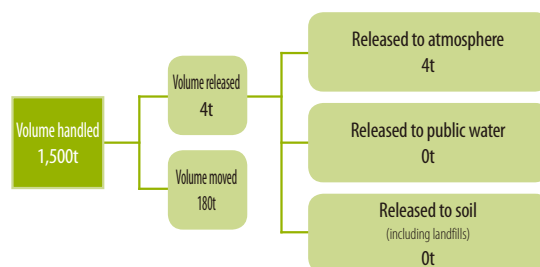
In order to properly manage the chemical substances that are used in the manufacturing processes for products, we take a multifaceted approach. This involves not only utilizing systems that compute the amount of usage and emissions, but also other steps such as conducting checks during the procurement 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 2013, TOK handled 39 of the PRTR Law's 462 Class I Designated Chemical Substances. TOK handled 1,500 tons of these Class I chemicals during the fiscal year and released an estimated 4 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.

#### Movement of Chemical Substances Covered by the PRTR Law (Fiscal 2013)



#### WEB

List of substances covered by the PRTR law

[http://www.tok.co.jp/eng/csr/env-activity/load\\_data.html](http://www.tok.co.jp/eng/csr/env-activity/load_data.html)

### Chemical Substance Management at the Raw Materials Procurement Stage

In recent years, the management of chemical substances appears to be becoming more stringent globally in terms of chemical-related regulations worldwide. This is apparent in examples such as the adoption of Agenda 21 at the 1992 Rio Summit, the agreement on the WSSD2020 goal at the 2002 Johannesburg Summit, the agreement on the SAICM (Strategic Approach to International Chemicals Management) at the 2006 International Conference on Chemicals Management, and furthermore, the convention of the United Nations Conference on Sustainable Development (Rio+20) in June 2012.

In order to reduce the environmental burden and damage caused by our activities beginning with the raw materials procurement stage, we enacted the TOK Standards on Chemical Substances Management in January 2005 that stipulated chemicals that

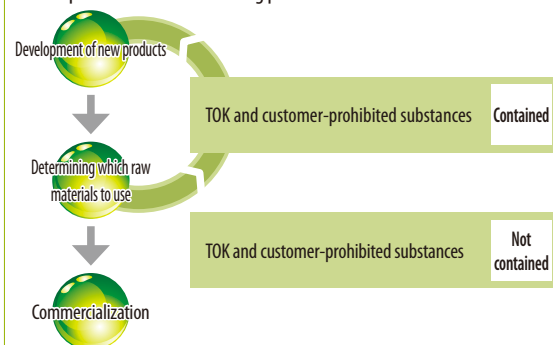
should be prohibited or managed. Furthermore, in the wake of the enactment of and alterations to chemical regulations in various countries, such as the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (Chemical Evaluation Act) and REACH\*, we revised our Standards on Chemical Substances Management, and released the TOK Standards on Chemical Substances Management (6th Edition) in April 2013. We will strive to continue to revise these standards as appropriate in the future based upon trends in chemical regulations in Japan and overseas, and take proactive steps in the management of chemical substances.

\*1. 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.

### Prescreening for Harmful Substances Before Using Raw Materials for a Newly Developed Product (Screening for Harmful Substances 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, 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.

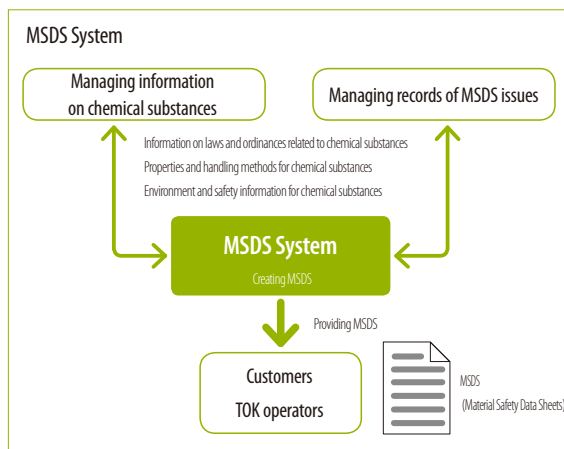
#### Conceptual chart of the screening process for hazardous chemicals



### 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 (MSDS), 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 MSDS 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 MSDS 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 MSDS and labels that correspond to the respective languages of our export counterpart countries, as well as suited to the timeframe for the entering into force of GHS in our export counterpart countries.



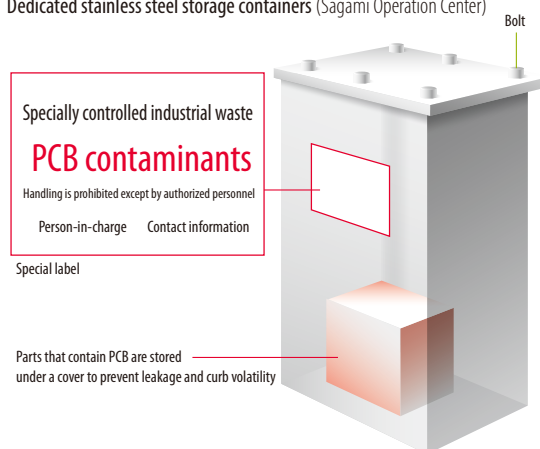
\*GHS: Abbreviation for Globally Harmonized System of Classification and Labeling of Chemicals. This is an initiative that categorizes chemicals by hazardousness according to certain standards and displays this in an easy-to-understand manner through the use of pictorial indications and other similar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

### Management of PCB\* and Waste Materials Containing PCB

At the Sagami Operation Center, the Shonan Operation Center, the Utsunomiya Plant, and the former Chitose SP, waste materials containing PCB are stored under strict control. As a result of inspections conducted on electrical substation facilities at all business sites in Japan, it was revealed that the Sagami Operation Center, the Shonan Operation Center and the Utsunomiya Plant are using equipment that use insulating oil containing minute amounts of PCB. We have clearly indicated that this equipment contains PCB, and are managing their use. In addition, the proper notices have been submitted to relevant governmental bodies.

A treatment structure certified by a government cabinet minister is being established for low-concentration PCB waste, and we plan to properly treat the PCB waste stored under strict control in the former Chitose SP as soon as the preparations are completed. We also plan to treat the electrical substation facilities containing PCB that are used at the other three sites and the PCB waste stored under strict control at those sites within the period of time stipulated by the law.

#### Dedicated stainless steel storage containers (Sagami Operation Center)



\*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.

## Third-Party Opinions

### Third-Party Opinions

As in the previous year, I have been given the opportunity to read this report.

I think this year's report includes good special features about the history of the world-class, cutting-edge technologies that TOK has constantly pursued to date and the actual monozukuri sites, etc., which enable the reader to understand TOK from a perspective close to that of the employees and learn the views of the TOK employees. I was reminded once again that TOK's stance with respect to monozukuri has been inherited down the years from the principles of the founder, and that the company's current position is due to that fact.

A response to globalization has become necessary and essential in order to prevail against the increasingly tough international competition resulting from the rapid recent progress of globalization. As can be understood from this year's report, it is apparent that TOK has taken even more initiatives in accordance with globalization than in the previous fiscal year. For example, it has commenced operations at its South Korean subsidiary and introduced the global personnel development program. I feel that in this kind of

### Atsushi Fukuda

Professor, Dean of the College of  
Economics Kanto Gakuin University



environment it is not sufficient to disclose only the domestic figures. I hope that TOK will further expand the scope of its information disclosure to the entire TOK Group, by including the overseas subsidiaries in the environmental data.

Finally, I hope to see the company contribute to the realization of a sustainable society, and take on initiatives with a distinct "TOK character," by utilizing the advanced technological capabilities that TOK has cultivated since its founding to provide products that give inspiration to all of its stakeholders.

### On Receiving Third-Party Opinions

This year, we have once again had the pleasure of having our CSR report evaluated, and of receiving valuable comments on the report. I would like to express my sincere gratitude. In this report, we have included special features discussing the transitions in our microprocessing technologies since the time of the founding of the Company and describing the Koriyama Plant, a "monozukuri" site, in order to communicate the stance of the Group with respect to "monozukuri" to all our various stakeholders. More than previously, we focused on writing an "approachable CSR report" and took care to produce a report that was easier to read and understand.

Regarding Professor Fukuda's comments on expanding the scope of information disclosure, the Company is committed to fulfilling its responsibilities as a company running its businesses globally. The Company is steadily working to solve the issues by globally implementing initiatives based on responsible care, a characteristic approach of

### Naoya Katsumata

Manager, Production  
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manufacturers that handle chemicals, from the collection of information about overseas subsidiaries to the management of chemicals and solving safety and health problems.

Going forward, we remain dedicated to putting into practice the four company principles that we have inherited from the time of our founding and continuing to work on high value-added "monozukuri." By doing so, we will continue to push toward the realization of a sustainable society so that we can continue to win the trust of all our stakeholders.

### Request for Information

Through the Eco Hotline, our CSR Report has been made available at libraries, universities, and other facilities throughout Japan. You may also submit a request for a copy of the CSR Report directly from the company, through the following URL.

<http://www.ecohotline.com>



# GRI Content Index

This Report covers items that are considered to be important on a priority basis, and do not encompass all indicators. Due to space limitations, indicators that are not considered relevant, or which have not been included in this Report, have been excluded from this Content Index. Some indicators have also been paraphrased or consolidated. Please refer to the website for a detailed Content Index.

Indicator	Page and Relevant Materials
<b>1. Strategy and Analysis</b>	
1.1	Statement from the most senior decision-maker of the organization about the compatibility of the sustainability to the organization, and the strategy ◇ Message from the President (P5-6)
1.2	Description of key impacts, risks, and opportunities. ◇ TOK's Management Principles and CSR (P7-8) ◇ Environmental Initiatives (P32)
<b>2. Organizational Profile</b>	
2.1-2.9	Organizational profile, products and services, markets, operational structure, scale of organization, changes, etc. ◇ Corporate Data (P1) ◇ TOK's Technologies and Business Fields (P1-2) ◇ TOK's Business Hubs and Business Activities (P3-4) ◇ Financial Statements
2.10	Awards received in the reporting period. ◇ Pursuit of Customer Satisfaction (P26)
<b>3. Report Parameters</b>	
<b>Profile of the Report</b>	
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<b>Scope and Boundaries of the Report</b>	
3.5	Process for defining report content ◇ Editorial Policy (P2) ◇ TOK's Management Principles and CSR (P7-8)
3.6-3.7	Boundaries of the report, specific limitations on the scope or boundaries of the report ◇ Editorial Policy (P2) ◇ TOK's Management Principles and CSR (P7-8)
3.9	Data measurement techniques and the bases of calculations ◇ Explanation of calculation method and basis where necessary
<b>GRI Content Index</b>	
3.12	Table identifying the location of the Standard Disclosures in the report. ◇ GRI Content Index (P44)
<b>Assurance</b>	
3.13	Policy and current practice with regard to seeking external assurance for the report. ◇ Third-Party Opinions (P43)
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4.1-4.3	Governance structure, composition and compensation for the highest governance body, etc. ◇ Corporate Governance System (P9-10) ◇ Financial Statements
4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body. ◇ Corporate Governance System (P9-10) ◇ Strengthening the Compliance System (P11) ◇ Human Rights Initiatives (P27) ◇ Financial Statements
4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives, and the organization's performance. ◇ Corporate Governance System (P9-10)
4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided. ◇ Corporate Governance System (P9-10)
4.8	Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation. ◇ TOK's Management Principles and CSR (P7-8) ◇ Environmental Management (P35-42)
4.9	Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles. ◇ Corporate Governance System (P9-10)
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance. ◇ Corporate Governance System (P9-10) ◇ Financial Statements
<b>Commitment to External Initiatives</b>	
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization. ◇ Ensuring sound business management ◇ Environmental Management (P39)
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4.16	Approaches to stakeholder engagement. ◇ Collaboration with Recycling Companies (P40) ◇ A Good Corporate Citizen (P31)
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Indicator	Page and Relevant Materials
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<b>Aspect: Biodiversity</b>	
EN 13-14	Habitats protected or restored; strategies, etc. for managing impacts on biodiversity ◇ Initiatives to Reduce Environmental Burden (P37-38)
<b>Aspect: Emissions, Effluence and Waste</b>	
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EN19	Emissions of ozone-depleting substances by weight. ◇ Initiatives to Reduce Environmental Burden (P37-38)
EN20	NOx, SOx, and other significant air emissions by type and weight. ◇ Initiatives to Reduce Environmental Burden (P37-38)
EN21	Total water discharge by quality and destination. ◇ Initiatives to Reduce Environmental Burden (P37-38)
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EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation. ◇ Appropriate Management of Chemical Substances (P41-42)
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<b>Aspect: Occupational Health and Safety</b>	
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LA8	Education, training, counseling, prevention, and risk-control programs in place to assist employees, their families, or community members regarding serious diseases. ◇ Initiatives for Fair Working Conditions (Decent Work) (P28)
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