



TOSOH

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# 2016 CORPORATE SOCIAL RESPONSIBILITY REPORT

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**TOSOH CORPORATION**



TOSOH



Tosoh strives to reliably and safely supply products and services that benefit society.

CORPORATE PHILOSOPHY  
Contribute to  
bettering society  
through the  
chemistry of  
innovation

## BASIC PRINCIPLES ON ENVIRONMENT, SAFETY, AND HEALTH

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Tosoh is aware in all of its business operations that the protection of the environment, safety, and health are paramount management priorities. Management works tirelessly to ensure that Tosoh contributes to the development of society through innovation in chemicals that leads to its provision of products and services that earn customer satisfaction for, among other things, their preservation of the environment, safety, and health.

### **ACTION POLICIES**

#### **1. Fundamental Approach**

- Promote an awareness of the need for legal and regulatory compliance and for personal responsibility
- Set targets, draft action plans, and execute initiatives that evoke the participation of all
- Reflect audit results in future action plans

#### **2. Environmental Protection Initiatives**

- Conserve energy and resources through the maximum utilization of minimal resources
- Reduce emissions and waste through improved manufacturing processes and operational management

#### **3. Safety Assurance Initiatives**

- Prevent accidents and respond to disasters through facility safety management
- Manage emergency response capabilities through safety and disaster drills
- Eliminate accidents and minimize the effects of disasters through case study analyses

#### **4. Product-Related Environmental and Safety Assurance Initiatives**

- Design products and develop manufacturing processes in line with environmental, safety, and health considerations
- Undertake prior assessments before developing products and processes
- Ensure product safety through total quality management

#### **5. Communication Initiatives**

- Provide information on product and chemical safety management
- Boost public trust through dialogue about business activities

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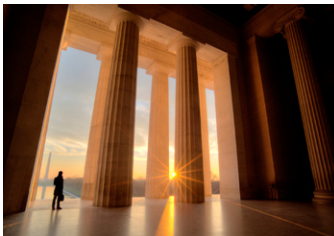
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**2016 Corporate Social Responsibility Report Outline:** Tosoh has followed the *G4 Sustainability Reporting Guidelines* of the Global Reporting Initiative and the *2012 Environmental Reporting Guidelines* of Japan's Ministry of the Environment in producing this report.

Period covered: April 2015 to March 2016 (a portion of the information also refers to fiscal 2017, beginning April 2016).

Published: August 2016 (previously published: August 2015; next planned publication: July 2017).

Scope: Unless otherwise indicated, the information in this report refers only to the parent company, Tosoh Corporation. The group company input and output data on page 30 is for all 19 of the Tosoh Group's wholly owned domestic manufacturing subsidiaries listed below.

Asia Industry Co., Ltd.  
Tosoh AIA, Inc.  
Tosoh SGM Corporation  
Tosoh F-Tech, Inc.  
Tosoh Quartz Corporation  
Tosoh Silica Corporation  
Tosoh Speciality Materials Corporation  
Tosoh Zeolum, Inc.  
Tosoh Ceramics Co., Ltd.  
Tosoh Hi-Tec, Inc.

Tosoh Hyuga Corporation  
Tosoh Finechem Corporation  
Tosoh Organic Chemical Co., Ltd.  
Tohoku Tosoh Chemical Co., Ltd.  
Toyo Polymer Co., Ltd.  
Nippon Miractran Co., Ltd.  
Hokuetsu Kasei Co., Ltd.  
Rinkagaku Kogyo Co., Ltd.  
Lonseal Corporation

# *Management*

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## PRESIDENT'S MESSAGE

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It is our aim to continually improve our safety record while striving to expand and enhance the profitability of our business



**Toshinori Yamamoto**  
President

**Knowledge and effort are helping us make steady progress in implementing our three-year plan**

Our basic Responsible Care (RC) policy in fiscal 2016 was to ensure highly focused, safe workplaces and to heighten the performance of our RC program. We saw improvements in our safety record during the year under review as a result of our safety activities, but unfortunately we were unable to achieve our goal of zero accidents and zero lost work-time incidents. It is our aim to continually improve our safety record while striving to expand and enhance the profitability of our business.

**Transitioning to Corporate Social Responsibility Reporting**

In fiscal 1997, Tosoh began publishing RC reports to communicate its commitment to Responsible Care throughout the life cycle of its products. Our focus was on health, safety, and environmental considerations.

More recently, we have shifted that focus to the development of a governance system committed to optimizing our working conditions and workplace environments and to involvement with our local communities and other stakeholders. We are therefore replacing our RC reporting for fiscal 2016 with corporate social responsibility (CSR) reporting to better convey our activities in these areas.

## PRESIDENT'S MESSAGE

We have also, for the first time in 30 years, drafted a medium-term business plan, chiefly in response to Japan's Corporate Governance Code, which came into effect during our fiscal 2015. And in the context of introducing our CSR reporting, I also want to take the opportunity to present that 3-year plan.

#### **Striving for a Year of Greater Growth**

We are determined in the year ahead to implement our 3-year, medium-term business plan and to achieve its goals. Fiscal 2017 will be a year of greater advancements for Tosoh as it evolves further into a company with both strong commodity and strong specialty product lines.

We maintain a high operating capacity at those of our plants that produce long-lasting commodity products. But to continue to grow, we believe that it is necessary to augment plant production capacity, with new plant construction if need be; to increase the cost-competitiveness of our products; and to release increasingly high-value-added products.

Although we enjoy widespread market recognition for the functionality of our specialty products, we are also moving to realize a specialty business structure that is resilient to external factors. We are engaged in research and development (R&D) initiatives to produce technologies that meet our customers' needs fully and quickly. This sees us bringing to market high-value-added and entirely new products.

#### **Moving toward the Elimination of Accidents and Industrial Disasters**

In November 2011, Tosoh experienced a major explosion and fire that resulted in tragedy. We resolved then to never allow such an accident to occur again, and over the past three years we have invested ¥10 billion to improve the condition of our plants. It is gratifying to see the fruits of our investments and efforts—our safety record is improving.

Going forward, we will convey technical skills to, provide training for, and encourage higher levels of awareness among our employees with regard to safety. We will, in short, continue to improve our workplaces. In fiscal 2017, visits will be made to the control rooms of the plants at our Nanyo and Yokkaichi Complexes in an ongoing effort to look for ways to ensure that our plant environments allow for work to be carried out in the calm, methodical manner required for safe operations.

Efforts and gains in safety at parent company operations notwithstanding, unfortunately there has been no reduction in industrial accidents at Tosoh Group companies. Employees there are no less important than employees at the parent company. So we will take every opportunity to ensure that the safety policies applied at the parent are likewise implemented at all group companies. Our goal, of course, is to eliminate accidents and disasters throughout the Tosoh Group.

#### **Becoming a Company that People Trust**

Realizing that goal will ultimately help us achieve our mission of being viewed by all as a reliable manufacturer of products that are safe and that contribute to society. That mission in mind, we are working diligently at our production bases to earn the confidence of the surrounding communities. Tosoh will continue to seek the trust of its stakeholders in its R&D, its manufacturing, its quality assurance, its logistics, and its products. And as always we look forward to your ongoing support and encouragement.



## MESSAGE FROM THE CHAIRMAN OF THE RC COMMITTEE

Our safety efforts have begun to yield results, indicating that we are on the road to improvement



**Keiichiro Nishizawa**

Director, Executive Vice President,  
Tosoh Corporation Chairman, RC Committee

Our safety initiatives are beginning to bear fruit. We will build on these results while maintaining stable business operations.

At Tosoh, we engage in Responsible Care (RC) activities based on the RC activity guidelines discussed and decided by the RC Committee and on policies that we've devised in line with the needs of our business and research facilities. Implemented RC activities are monitored by our business facility managers and the RC Committee chair. Responses to issues that emerge in the course of oversight are included in the activity guidelines for the following year through a PDCA (plan-do-check-adjust) cycle. In this way, we strive to ensure peace of mind for all through safe operations.

Our safety record with regard to disaster prevention and occupational safety and health has unfortunately been such that we have not met our goal of zero incidents. But our safety efforts have begun to yield results, indicating that we are on the road to improvement. I believe, though, that continued gains in this regard make it vital that we carry out increasingly focused safety activities.

Environmentally, our operations have been without significant issues. Our acquisition, however, of Nippon Polyurethane Industry Co., Ltd., in October 2014 makes it necessary for us to proceed with our plans to reduce our atmospheric emissions of materials listed in Japan's Pollutant Release and Transfer Register (PRTR).

There is similarly a greater need than ever before for us to assure product quality given the extent to which the mainstay of our business has shifted toward raw materials for specialty products. We need to prioritize tasks in our quality assurance system and even to rebuild that system to suit the changing structure of our business.

My wish is for Tosoh to engage in RC activities that recognize the importance of working hand in hand with everyone who handles Tosoh products and with our customers and the communities where our production facilities are located.



# *Responsible Care Activities*

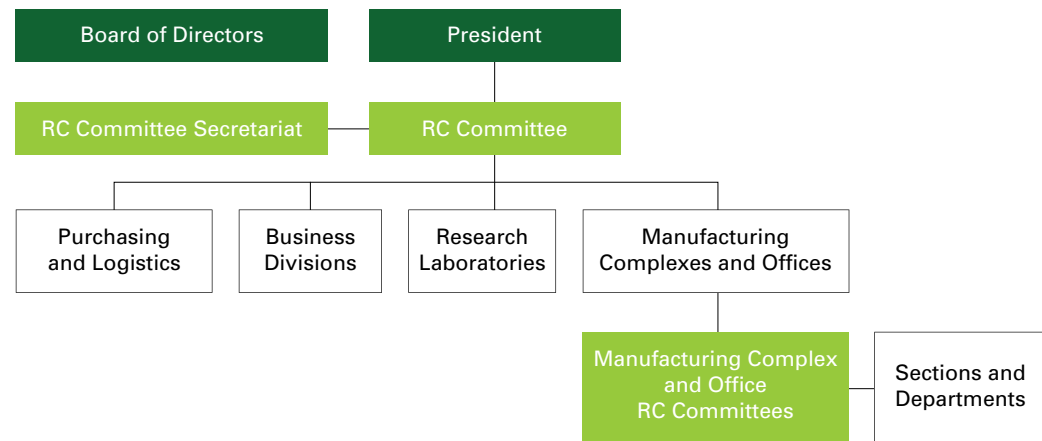
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## Responsible Care Activities RC Promotion Structure

Tosoh's RC Committee consists of a committee chair—typically the manager in charge of the company's Environment, Safety and Quality Control Division—and committee members from among the general managers of Tosoh's Purchasing and Logistics Division, Corporate R&D, business divisions, and manufacturing complexes and offices.

The committee's audit team, which includes the RC committee chair and secretariat, discusses issues for years subsequent to the year under way and selects the parties to be audited based on RC activity results from previous years. Proposed policies are then deliberated by the RC Committee, which submits a report to the president. Final decisions regarding policies are made by the company's Board of Directors. Each business group, production facility, and so on will then make its own determination on detailed action plans based on policy guidelines determined at the corporate level.



RC ACTIVITY RESULTS AND GOALS

Despite our safety efforts, one accident and six incidents resulting in lost work time occurred in fiscal 2016. It is urgent that we work to stop both and achieve our goal of zero such occurrences. Equally urgent is the need for us to investigate and prevent the repeat of some of the logistics incidents that we experienced in fiscal 2016.

	Fiscal 2016 Activity Results	Fiscal 2017 Activities
	<p><b>Priorities: Ensuring that all Tosoh Group employees are safe in their performance of basic functions through the continued, group-wide promotion of RC activities (Realizing a workplace where communication begins with greeting people.)</b></p>	<p><b>Priorities: Establish and maintain a state of vigilance in the workplace and build on an RC performance that has started bearing fruit</b></p>
<p><b>Safety and Disaster Prevention and Occupational Safety and Health</b></p>	<p>I. Goals of zero lost work-time incidents and zero accidents and of participation by all employees in safety and security activities</p> <p>A. Eliminating accidents and work-related injuries</p> <p style="padding-left: 20px;">Accidents<sup>1</sup>: One accident prevented the achievement of our goal of eliminating incidents and thereby work-related injuries</p> <p>B. Pursuing specific activities</p> <ol style="list-style-type: none"> <li>1. Ensuring that all employees are aware of basic safety procedures</li> <li>2. Promoting human resources training, including through training and revised manuals that include “know-why” information</li> <li>3. Promoting unscheduled risk assessments<sup>2</sup></li> <li>4. Eliminating similar accidents and disasters, using the Accident and Disaster Information Database</li> <li>5. Promoting measures to prevent problems caused by faulty facilities and construction management</li> </ol> <p>II. Actions to prepare for earthquake and tsunami disasters</p> <p>A. Striving for high-pressure gas facility earthquake resistance, including promoting the implementation of design improvements</p> <p>B. Studying measures for improving the earthquake resistance of key buildings</p>	<p>Basic policies for maintaining safety</p> <p>Initiation of unscheduled risk assessments</p> <p>Fiscal 2017 RC activity policies</p> <p>I. Aim for a record of zero lost work-time incidents and accidents and for the participation of all employees in safety and security activities</p> <p style="padding-left: 20px;">Promote unscheduled risk assessments, improve training, and enhance support for group companies</p> <p>II. Promote actions to respond to earthquake and tsunami disasters (ongoing)</p> <p>III. Create a pleasant workplace and maintain and improve the workplace environment, focusing on amended laws and new regulations for chemical substances</p> <p>IV. Attend to high-pressure gas recertification of the Yokkaichi Complex in November 2016</p>
<p><b>Environmental Conservation</b></p>	<p>I. Air and wastewater control</p> <p>A. Achieving full compliance with mandated regulatory levels and voluntary control levels</p> <p>B. Complying with the Minamata Convention on Mercury, including supporting Nanyo Complex site analyses by Ministry of the Environment contractors and providing voluntary analytical data to that ministry</p> <p>II. PRTR-designated substances<sup>3</sup>: Achieved fiscal 2016 emissions target of 586.3 metric tons a year</p> <p>III. Industrial waste for final disposal: Achieved final reduction disposal target, of 1,768 metric tons a year</p> <p>IV. Equipment containing PCBs<sup>4</sup>: Decided to dispose of small equipment containing low concentrations of PCBs</p>	<p>I. Strive for greater air and wastewater control</p> <p>A. Comply with mandated regulatory levels and voluntary control levels at our business units (ongoing)</p> <p>B. Comply with the Minamata Convention on Mercury, focusing on regulatory trends in atmospheric mercury emissions</p> <p>II. Meet PRTR substances fiscal 2017 emissions target of 574.9 metric tons per year</p> <p>III. Maintain fiscal 2016 industrial waste for final disposal reduction target of 1,768 metric tons per year</p> <p>IV. Pursue the systematic disposal of equipment containing PCBs</p>
<p><b>Chemical and Product Safety</b></p>	<p>Domestic and foreign chemical substances regulations compliance (registration and filings)</p>	<p>Comply with domestic and foreign chemical substances regulations</p> <p>A. Strengthen the monitoring of regulatory revisions and consider the introduction of a chemical substances control system</p> <p>B. Promote internal training and strengthen the response to overseas regulations, in the US, China, Southeast Asia</p>



Fiscal 2016 Activity Results	Fiscal 2017 Activities
<p><b>Quality Assurance and Pharmaceuticals</b></p> <ul style="list-style-type: none"> <li>I. Quality assurance system inspection and strengthening: 48 product complaints, compared with 47 the previous year</li> <li>II. Product safety examinations: 46</li> <li>III. New management system for manufacturing and selling pharmaceuticals, in vitro diagnostic pharmaceuticals, and medical devices                             <ul style="list-style-type: none"> <li>Strengthened through training and pharmaceutical auditing under the amended Pharmaceutical Affairs Law and ISO 13485 and by complying with administrative inspections of the manufacture and sale of in vitro diagnostic pharmaceuticals</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>I. Inspect and strengthen the quality assurance system                             <ul style="list-style-type: none"> <li>Build a new quality assurance system</li> </ul> </li> <li>II. Conduct product safety examinations (ongoing)</li> <li>III. Strengthen the new management system for the manufacture and sale of pharmaceuticals, in vitro diagnostic pharmaceuticals, and medical devices (ongoing)</li> </ul>
<p><b>Logistics Safety</b></p> <ul style="list-style-type: none"> <li>Logistics incidents and complaints                             <ul style="list-style-type: none"> <li>Incidents and complaints numbered 25, missing the target of 20 but improving on the previous year's 38 as a result of training and auditing</li> </ul> </li> </ul>	<p>Achieve targets for reducing logistics incidents and complaints, aiming for under 20 incidents (50 ppm<sup>5</sup>)—under 100 ppm for small deliveries—and zero accidents</p>
<p><b>Public Dialogue</b></p> <ul style="list-style-type: none"> <li>I. Responsible Care Report                             <ul style="list-style-type: none"> <li>Published <i>2015 Responsible Care Report</i> in August 2015 and held public meetings to create broader awareness of corporate social responsibility activities</li> </ul> </li> <li>II. Local community interactions                             <ul style="list-style-type: none"> <li>Participated in discussions with local communities, provided tours to local neighborhood councils, reported on RC activities to Japan Chemical Industry Association, participated in public disaster prevention symposia, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>I. Produce Corporate Responsible Care (CSR) Report                             <ul style="list-style-type: none"> <li>A. Publish in July 2017 and plan report presentations and CSR seminars led by external instructors</li> <li>B. Raise awareness of CSR activities among group companies</li> </ul> </li> <li>II. Encourage interactions with local communities, participating in discussions with local communities, providing tours to local neighborhood councils, and participating in public disaster prevention symposia, etc.</li> </ul>

1. Accidents include the occurrence, at specific businesses, of fires, explosions, or spills of oil or other hazardous substances. According to the 1975 Petroleum Complex Disaster Prevention Act, abnormal incident reports must be issued promptly to the fire department and other authorities.
2. Risk assessments involve estimating the level of potential risk at planning stages and prior to activity implementation and deciding whether or not the risk in implementing the activity is acceptable.
3. PRTR (Pollutant Release and Transfer Register)-designated substances must be registered, with the registration providing information on amounts transferred and released on the basis of laws concerning the assessment of the environmental release of specific chemical substances and the promotion of improving the control of said substances harmful to humans and to ecosystems compared with amounts of such substances commonly found in the environment.
4. PCBs, or polychlorinated biphenyls, must cease in their entirety to be used worldwide by 2025 and be completely and appropriately disposed of by 2028.
5. ppm, or parts per million, is calculated as the number of accidents ÷ the number of shipments × 1 million.

# *Safety*

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## AIMING FOR EVER GREATER SAFETY

Despite safety reform activities to achieve zero lost work-time incidents and zero accidents, one accident and six incidents causing lost work time occurred in fiscal year 2016.

## Eliminating Industrial Accidents

The Action Plan for Industrial Safety, a trade organization initiative aimed at preventing industrial accidents, was enacted by the Japan Petrochemical Industry Association in July 2013. The plan contains guidelines that members should implement. Tosoh is implementing initiatives to ensure safe operations, taking into account its incidents to date and five items listed in the guidelines.

### 1 Commitment to Industrial Safety by Company Managers

The message from our president on topics such as basic safety, the environment, health principles, safety reform policies, and our vow to uphold safety gives us an opportunity to directly transmit information from the highest level to our employees. We are also engaging stakeholders regarding our commitment to sustaining and boosting safety.

Our allocation of resources toward becoming a safer company includes regularly acquiring talent, enhancing training and drills, increasing expenditures on facility safety, and providing budgetary authority to production facilities to rapidly achieve stable and safe production.

### 2 Establishment of Goals for Industrial Safety

Our expectations of our safety reform activities are no accidents and no incidents causing lost work time.\*

\*Accidents refers to "abnormal conditions" as described in the Act on the Prevention of Disasters in Petroleum Industrial Complexes and Other Petroleum Facilities and corresponding incidents (outside industrial complexes).

	Fiscal 2015	Fiscal 2016
Accidents	2	1
Lost work-time incidents	9	6

### 3 Consolidation of a Policy Execution Plan for Industrial Safety

RC policies and activities include

- rigorous basic safety training;
- strengthening and enhancing plant technology and safety education, including know-why procedures;
- rigorously ensuring the safety of nonregular work;
- initiatives for eliminating incidents and work-related accidents; and
- initiatives for preventing problems arising from facility administration.

Specifically, we will

- hold hazard-prediction training with outside instructors and rollouts on-site;
- improve disaster drills,

### 4 Investigation and Evaluation of Goal Achievement and Policy Execution

emergency reporting drills, and first-responder capabilities with the cooperation and participation of local communities;

- reflect know-why information in operation manuals;
- utilize simulators and hands-on learning devices;
- explore the use of the what-if method for risk assessment in times of irregularity;
- build and utilize a company-wide incident and accident database;
- conduct case study research on incidents for the purpose of utilizing the resulting information in talent cultivation; and
- review facility safety plans, increase expenditures, and more.

Our investigations disclosed one accident and six incidents—two involving Tosoh employees and four involving employees of partner companies—leading to lost work-time. Although this prevented us from reaching our target of zero lost work-time incidents and accidents, we could see that our reduction efforts are bearing fruit. We moved from two accidents in the previous year to one in fiscal 2016.

### 5 Implementation of Independent Safety Activities

We conduct adverse-event risk assessments to strengthen our responses as part of our commitment to the externally mandated RC initiative. In addition, we promote our own, internally generated safety initiatives. We issue commendations, for example, from the Japan Petrochemical Industry Association and other external bodies to those of our facilities with strong safety performance records. We also hold seminars featuring outside academic experts, whose presentations help foster a culture of safety.

## PREPARING FOR A MAJOR EARTHQUAKE

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The 2011 Great East Japan Earthquake has prompted discussions by the Japan Central Disaster Management Council and other organizations on how to react to major earthquakes even in areas where such events rarely occur. Discussions in March and August 2012 focused on a model assuming a major Nankai Trough earthquake and resulted in new hypotheses on earthquakes and tsunamis. Taking these hypotheses into account, Yamaguchi Prefecture and Mie Prefecture, home to our Nanyo and Yokkaichi Complexes, respectively, released detailed tsunami flooding scenario charts in December 2013 and March 2014, respectively.

Both complexes are ensuring their conformity with the various laws, including the Fire Services Act, the High-Pressure Gas Safety Act, the Building Standards Act, and so on. They also have put in place a standard protocol for executing safe shutdowns in the event of detecting an earthquake of a given magnitude. Some of the complexes' facilities, such as power generation, are excluded from this protocol for reasons of safety.

Protecting human life is our priority in our earthquake countermeasures. To that end, we are exploring necessary responses, including but not limited to

executing general earthquake disaster drills; installing more web-based monitoring cameras for better understanding the situation inside facilities during a crisis; pushing for crucial buildings—especially those with employees inside—to be made earthquake resistant through inspection and renovation; developing countermeasures and evacuation procedures based on hypotheses for earthquake-caused liquefaction or tsunami-caused flooding; and stockpiling food and water for employees unable to return to their homes.

### **ACTION STATUS REGARDING THE FIRE SERVICES ACT**

We are working in steps to refit all applicable equipment by the specified deadline to conform with 1977's revised earthquake-proofing standards and, following the 2003 Hokkaido earthquake, 2005's enhanced standards for hazardous material tanks.



# *Environment & Society*

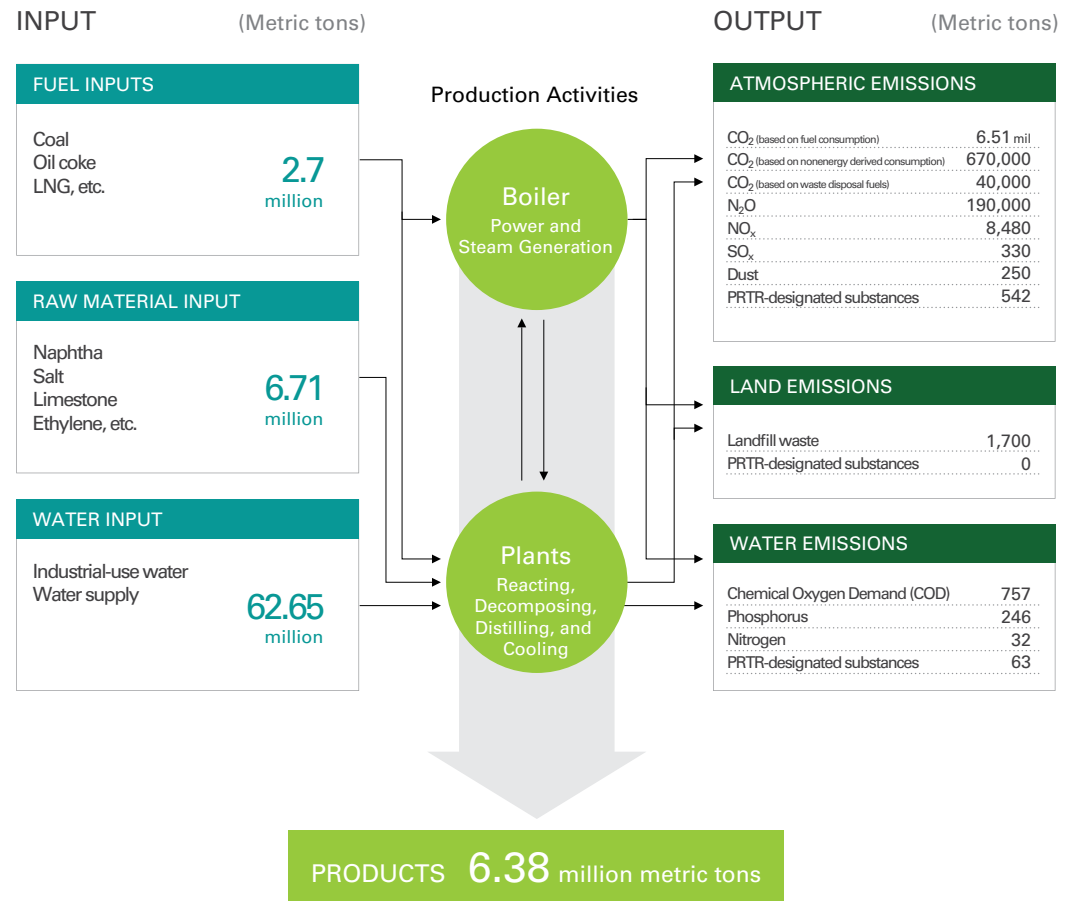
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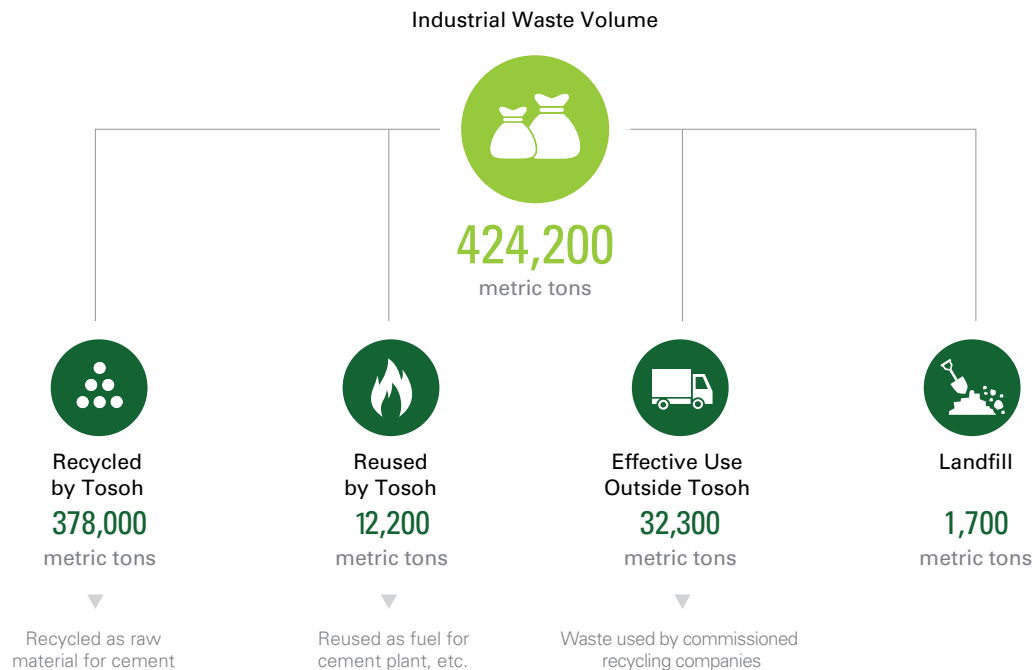


## INPUT AND OUTPUT

At Tosoh, we react, decompose, and distill raw materials to manufacture our products. We use the steam from boilers as a heat source for reacting and decomposing, and we use the electricity generated by boilers to operate equipment. To reduce reaction heat, we use industrial-use water and seawater.

In the manufacturing process, we manage the balance between fuel input and the resulting power generation and product output at each plant. We also manage emissions of substances affecting the air, water, and land to limit the burden placed on the environment.





## EFFECTIVE UTILIZATION OF RESOURCES

Industrial waste produced by our in-house power generators, including coal ash, is almost wholly recycled at company facilities, such as at our cement factories. The Nanyo Complex reuses or reprocesses almost all of the industrial waste it produces and, furthermore, brings in industrial and general waste from outside the company for use as fuel in its cement plant.

The final disposal volumes for fiscal year 2016 constituted 0.4% of the industry waste generated by Tosoh. Our aim is the ever more effective use of finite resources.

### USING INDUSTRIAL WASTE MORE EFFECTIVELY WITHIN THE COMPANY AND SHOULDERING THE RESPONSIBILITY OF BUILDING A MORE ENVIRONMENTALLY FRIENDLY SOCIETY

We reduced our volume of industrial waste that could not be recycled in fiscal 2016 to 1,700 metric tons. This was an improvement on the target of 1,800 metric tons, which was based on the Keidanren (Japan Business Federation) guideline seeking a reduction to 65% of the 1990 volume.

The Nanyo Complex cement plant has always been used to process local waste, and in fiscal 2016 we continued looking in earnest at a local production for local consumption model whereby plastic waste generated at our Shunan plant can be recycled into fuel locally. We have conducted past plant tests of this model and will continue to do so in the year ahead. In this way, we continue to contribute to the community and to increase our specialization in these kinds of fields. In doing so, we will be able to reduce the increasing amount of waste produced from operations. We will also continue to examine ways to increase the efficiencies of the cement plant, with the end goal of achieving minimal final disposal volumes.

## ENVIRONMENTAL ACCOUNTING

Tosoh's environmental accounting initiatives seek to better quantify the investments and expenses involved in environmental conservation. In fiscal 2016, our investment figures were down ¥7.66 billion, to ¥1.40 billion, compared with the previous year.

Scope: Nanyo Complex, Yokkaichi Complex, Tokyo Research Center, Polyurethane Research Laboratory

Target Period: April 1, 2015–March 31, 2016

For the most part, our figures follow the *Environmental Accounting Guidelines* of Japan's Ministry of the Environment. Some figures, however, are unspecified by said guidelines and are aggregated based on in-house rationale.

### Safety Investment (Hundreds of millions of yen)

For improved safety, we revised the fundamental policies of our facility safety plan in fiscal 2015, greatly boosting facility refit expenses for fiscal 2015 and fiscal 2016 compared with fiscal 2014.

	Investment Amount		
	FY 14	FY 15	FY 16
Facility Renewal	9.7	34.0	37.1
Improving Workplace Environment and Safety	1.8	5.4	1.8
Natural Disaster Countermeasures, including Earthquakes	3.7	1.0	1.9
Other	0.4	1.7	2.4
<b>Total</b>	<b>15.6</b>	<b>42.1</b>	<b>43.2</b>

### Environmental Conservation Cost (Hundreds of millions of yen)

Classification	Major initiatives	Investments <sup>1</sup>		Expenses <sup>2</sup>	
		FY 14	FY 15	FY 16	FY 16
Business Area Cost		8.5	89.5	12.3	113.5
Public Hazard Prevention Cost	Exhaust gas and wastewater treatment	6.9	77.4	7.2	66.0
Global Environmental Conservation	Power and fuel reduction	1.0	3.0	3.6	19.5
Resource Circulation Cost	Raw material and waste product recovery	0.6	9.1	1.5	28.0
Administration Cost	Environmental management, environmental impact assessment, environmental report publishing, environmental load monitoring	0.5	0.9	0.2	5.4
R&D Cost	Environmental load reduction technology and environmentally conscious product development	0.1	0.2	1.2	19.6
Social Activity Cost	Association membership fees, replanting and beautification, community environmental support	0.0	0.0	0.0	0.2
Other		0.0	0.0	0.0	0.8
<b>Total</b>		<b>9.1</b>	<b>90.6</b>	<b>13.7</b>	<b>139.5</b>

1. Facility investment and other expenditures used for environmental conservation
2. Expenses, including variable and labor costs, used for environmental conservation

### Economic Benefit (Hundreds of millions of yen)

		FY 14	FY 15	FY 16
Revenue	Revenue from contract and sale of waste for recycling and from unusable products	5.4	5.6	5.8
Expense Savings	Energy Conservation	24.7	25.8	28.3
	Resource Conservation	27.3	26.0	32.2
<b>Total</b>		<b>57.4</b>	<b>57.4</b>	<b>66.3</b>

## ENSURING PRODUCT SAFETY AND BOOSTING CUSTOMER CONFIDENCE

Among the raw materials and products that we handle are chemicals regulated under the Fire Services Act and the Poisonous and Deleterious Substances Control Law. Ensuring safety is essential in all facets of our work, from research and development to manufacturing and shipping. Meticulous inspections required by the key RC aims of chemical and product safety, quality assurance, and logistical safety at the research and development through commercialization stages ensure the safety of our customers and our employees and boost society's confidence in our operations.

### ENSURING CHEMICAL SAFETY

Tosoh complies with domestic and foreign regulations, assesses product safety, and provides product information to customers in its efforts to ensure the safe handling of its chemical products.

### OVERALL INITIATIVES

◆ In accordance with the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals, Tosoh provides safety data sheets (SDS) and labels with its products that contain crucial information for their handling. Tosoh complies with JISZ7253:2012 with regard to safety data sheets.

◆ Tosoh submits notifications, registrations, and applications in compliance with such Japanese laws as the Chemical Substance Control Law, the Industrial Safety and Health Law, and the Pharmaceuticals and Medical Device Act.

◆ Tosoh complies with such foreign regulations pertaining to chemicals as Europe's Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

◆ Tosoh participates in the voluntary Japan Initiative of Product Stewardship (JIPS), an organization promoted by the Japan Chemical Industry Association that exists to minimize the effects of chemicals on health and the environment. Tosoh continues to evaluate and publish product risk information for public view.



**R&D INITIATIVES****Ensuring Product Safety**

Tosoh's development of new products may involve the first-time handling of compounds or chemicals. The company has for this reason established Product Safety Review Regulations to maintain the safety of its workers and customers from raw material to finished product. During the development and prior to the release of a new product, a Product Safety Review Committee of R&D, manufacturing, quality assurance, and sales personnel audits the product's quality and intended use, methods of manufacture and shipping, and conformity with laws and regulations.

**MANUFACTURING INITIATIVES****Safe Operation**

Tosoh regularly conducts disaster drills at its Nanyo and Yokkaichi Complexes and all its plants in preparation for any emergency. In addition, facility managers conduct monthly inspections of all manufacturing sections to improve disaster prevention and safety and to protect the health of employees. The Tosoh Group's Environment, Safety and Quality Control Division has constructed an incident and injury information communication system by which to utilize and relay information gleaned from the disaster drills, the monthly inspections, and actual incidents to prevent and deal with disasters and incidents.

**QUALITY ASSURANCE INITIATIVES****Product Safety and Confidence**

As an indication to our customers that they can use our products confident in their safety, we have acquired ISO 9001 certification at our Nanyo and Yokkaichi Complexes. This is the International Organization for Standardization (ISO)'s recognition that we have in place a comprehensive quality management system (QMS) at each of those complexes.

We also, moreover, are certified under Japan's Pharmaceutical and Medical Device Act to manufacture and sell products such as in vitro diagnostic agents and medical devices. Tosoh boasts a production system and QMS in this regard that accord with Japanese Ministry of Health, Labor and Welfare ordinances.

In addition, Tosoh holds ISO 13485 certification. This supplement to ISO 9001 signifies our compliance with international guidelines regarding medical devices. It specifies that Tosoh's operations are in accordance with global expectations regarding risk management, the health of key personnel, cleanliness, product contamination, and all aspects related to the manufacturing and provision of safe, functional medical devices.

**LOGISTICS INITIATIVES****Safe Product Delivery**

A large part of Tosoh's RC mission is to safely deliver its products to its customers. In fulfilling this mission, we partner with Tosoh Logistics Corporation, our principal logistics contractor, and regularly meet with shipping companies to, among other things, conduct training on handling chemical products, including drills for emergency contingencies. In addition, as a way to maintain and improve our logistics administration we have formed a Logistics RC Promotion Committee composed of personnel from Tosoh Group logistics departments and logistics firms. It is tasked with investigating problems and sharing information in the interest of preventing disasters.

Tosoh Logistics, meanwhile, works directly with Tosoh's plants and logistics and quality control departments to break down the causes for complaints, incidents, and near misses and to patrol loading zones and audit shipping companies, packaging manufacturers, and flexible container cleaning firms. In this way, Tosoh Logistics contributes to gathering and disseminating information with which to prevent logistics-related problems.

As part of its mandate with us, Tosoh Logistics holds expert lectures to raise safety awareness within the shipping companies that we use. It also hands out commendations to our top-rated shippers, including land and sea freight firms, at its yearly safety convention.



## MAKING A WORKPLACE WHERE THE WORK IS MEANINGFUL

Tosoh's HR system is designed to train and make the best use of employees. The objective is to foster the development of people who engage in their work with a passionate sense of ownership. To that end, we systematically implement a wide variety of systems of instruction and training that enable our personnel to draw on innate abilities. We strive for an environment where each member of a diverse workforce functions with a sense of purpose and accomplishment. We especially encourage employees to maintain a good work-life balance.

### WORK REFORM

Since April 2015, Tosoh has been moving forward with a work reform program intended to reduce overly long working hours and raise productivity. This will increase job satisfaction and awareness among our employees, and the continuation of this beneficial cycle will lead to the sustained development of our company.

### IT-BASED BUSINESS EFFICIENCY INITIATIVES

Tosoh is improving its business efficiency through the widespread yet tailored implementation of information technology. The company's IT implementation takes into account the characteristics and needs of each workplace. Overall, however, we are promoting online conferencing to reduce transportation time and cost and moving to paperless communication in an effort to establish an increasingly efficient and effective work style unrestricted by time or location.

### PROMOTING THE EMPLOYMENT AND ACTIVE ENGAGEMENT OF DIVERSE PERSONNEL

To ensure continuity in the transmission of knowledge and skills, we are inviting our retirees to return to the workplace. Abundant hands-on experience makes these re-employed veteran workers ideal training specialists. In their every interaction with younger employees, they convey technical know-how to the next generation.

We are also further diversifying our workforce. We are expanding our employment of disabled people in accordance with the legally specified employment rate of 2.0%. And, as part of our policy of spurring HR development overseas, we are hiring an increasing number of foreign employees.

In addition, we are increasing our number of female employees. We've hired 72 women in the past five years, such that female employees account for 9% of our staff. Our hiring policy follows the Law Regarding Promoting the Participation of Women in the Workplace (Act Promoting Women's Participation and Advancement in the Workplace). But our HR efforts in this regard go beyond merely expanding our job categories and hiring more women. We encourage our female employees to participate actively in the workplace and to aspire to management positions.

### Company Employee-Related Data

(parent company only)

	FY 14	FY 15	FY 16
Regular employees <sup>1</sup>	2,548 (203)	3,048 (262)	3,057 (272)
New employees <sup>1</sup>	148 (16)	164 (19)	154 (15)
Disabled person employment rate	63 (1.66%)	73 (1.67%)	81 (1.85%)
Employees with foreign citizenship	4	5	10
Number of re-employed workers	239	250	262
Average age of regular employees <sup>2</sup>	40.0	39.1	38.6
Average years of continuous service <sup>2</sup>	18.4	17.4	16.9
Job turnover <sup>3</sup>	0.86%	0.33%	0.46%

1. Figures in parentheses ( ) refer to numbers of women

2. Not including re-employed or part-time company employees

3. Employee turnover during each fiscal year, not including workers who have reached retirement age



## MAKING A WORKPLACE WHERE THE WORK IS MEANINGFUL

### ENHANCING A WORK-LIFE BALANCE

We support a work-life balance. To this end, we have in place various allowances for child-rearing and caregiving, including leave for both. We also reduce workloads for our employees from pregnancy through child-raising.

To ensure that all employees are aware of what we offer them to achieve a work-life balance, we've published a guidebook. It introduces our approaches to pregnancy, childbirth, and child-rearing, including financial assistance and required procedures.

We are also helping our employees take annual paid vacations. We've instituted our Refreshment Support Vacation System, which advocates for employees taking at least five consecutive day vacations yearly. In fiscal 2016, the rate at which employees took paid vacations reached 76.5%. We will continue with our policy of creating an environment where we can work with enthusiasm while valuing the diverse lifestyles of every employee.

### MATERNITY, PATERNITY, AND CHILD-REARING LEAVE

Expectant mothers at Tosoh may reduce their working hours before the start of the statutory maternity leave at six weeks before giving birth. Tosoh's maternal care extends one year beyond giving birth, considerably longer than the statutory requirement. Tosoh also offers non-statutory paternal leave of three days, taken consecutively or individually, within 14 days of the birth and, for men and women, of five days' child-

rearing leave, to be taken consecutively within eight weeks after the birth. Tosoh's family-friendly practices encompass child care leave, accumulated vacation, late-hour work exemptions, and work hour reductions that apply equally to male and female employees who are raising young children.

### TRAINING AND LEARNING AT TOSOH

#### HR development

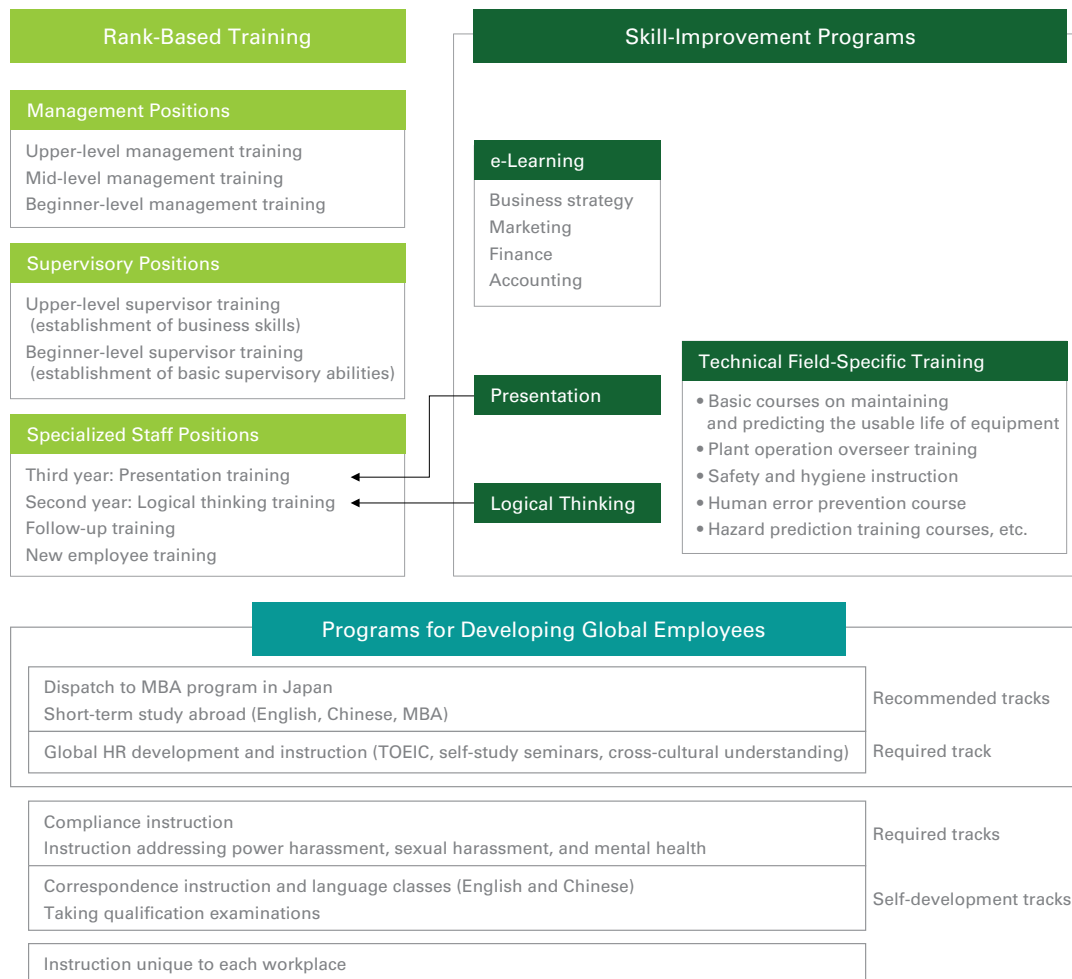
In addition to on-the-job instruction, Tosoh is building an HR development system that helps young employees learn basic life skills. We are also developing key personnel (see the diagram on the next page). Tosoh's rank-based training begins with new employees and progresses all the way up to managerial positions. We provide various other kinds of training as well, including basic skill improvement, global HR development, and compliance instruction. We are continually expanding our employees' opportunities for instruction and learning.

### Work-Life Balance-Related Data

	FY 14	FY 15	FY 16
Women's child care leave recipients (new) and percentage taken/returned to work	6 Leave taken: 100% Returned: 100%	8 Leave taken: 100% Returned: 100%	9 Leave taken: 100% Returned: 100%
Men's child care leave recipients	18 Leave taken: 20%	30 Leave taken: 29%	29 Leave taken: 26%
New recipients of child-rearing reduced-hour workload	8	19	7
Caregiving leave recipients	1 (1)	1 (1)	2 (2)
Figures in parentheses ( ) are the number of men			
Average annual paid vacation taken (percentage)*	14.7 days (80.3%)	13.42 days (74.1%)	14.02 days (76.5%)

\*From July 16 of the previous year through July 15 of the current year

## MAKING A WORKPLACE WHERE THE WORK IS MEANINGFUL



## HUMAN RESOURCE DEVELOPMENT

Tosoh encourages training and learning. New employees are given thorough and supportive introductory and follow-up training. Thereafter, Tosoh provides systematic training for specialized, supervisory, and management positions to develop employee confidence and ability for the responsibilities at hand.

The company offers skill-improvement programs that can be taken at any time during a Tosoh employee's career. Subjects such as strategy, marketing, finance, accounting, presentation skills, and logical thinking are provided through e-learning. Field-oriented instruction is provided in such technical subjects as plant operation, plant supervision, and safety and hygiene.

All employees are required to undertake two global HR development programs. One covers the Test of English for International Communication (TOEIC) and cross-cultural understanding. And the other centers on compliance, including instilling an awareness of power and sexual harassment, mental health, and other workplace behavior issues.

Employees are also encouraged to take correspondence courses and language classes (English and Chinese) and examinations. Particularly talented employees may be enrolled in an MBA program in Japan or sent abroad for a short-term MBA, Chinese, or English program of study.

## HEALTH PROMOTION ACTIVITIES

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At our Nanyo and Yokkaichi Complexes, we are devising instructions that reflect the views of the people who work there as a means of achieving safe, stable, and efficient operations.

We also train our manufacturing section chiefs to engage in direct dialogue with the company president and to encourage the communication of issues between top-level managers and on-the-ground workers. As well, we provide ongoing practical courses using simulators and hands-on training equipment to continually improve the technical skills of operators.

We revise our instructions and training as necessary. But in all that we do we emphasize awareness and good behavior in the workplace.

### HEALTH PROMOTION ACTIVITIES

We are developing an array of activities to support the physical and mental well-being of our employees.

Our health promotion activities, which treat physical fitness, good lifestyle habits, and mental health as the three pillars of well-being, are planned annually and independently by each plant's Health Promotion Committee. Health consultations are arranged with nurses and health outreach workers, and health-related lectures and other events are organized. There are also employee-run walking events and other participatory programs.

We seek the preservation and improvement of employee health and the promotion and maintenance of comfortable workplaces and work environments. Our mental health programs for employees of all levels play a large part in this, and we are moving forward with the implementation of a stress evaluation system.

### NANYO COMPLEX HEALTH PROMOTION ACTIVITIES

We have various initiatives at our Nanyo Complex to encourage health awareness in our employees. Among them is the Let's Eat Vegetables! program, which aims to deepen employees' understanding of a healthy diet, especially with respect to consuming vegetables. We hold workshops on diet improvement, evaluate and update our cafeteria menus, and introduce other initiatives. We have, for instance, instituted "5 A Day," the Japanese Ministry of Health, Labor and Welfare's program of maintaining a recommended daily intake of 350 grams of vegetables by keeping a record of vegetable intake for each meal.

As of fiscal 2016, we are also holding Health-Level Contest team competitions that foster an organizational, rather than just an individual, approach to health. Competitions are held between workplaces and involve such health-related indicators as smoking rate and periodic health examination results.

### YOKKAICHI COMPLEX HEALTH PROMOTION ACTIVITIES

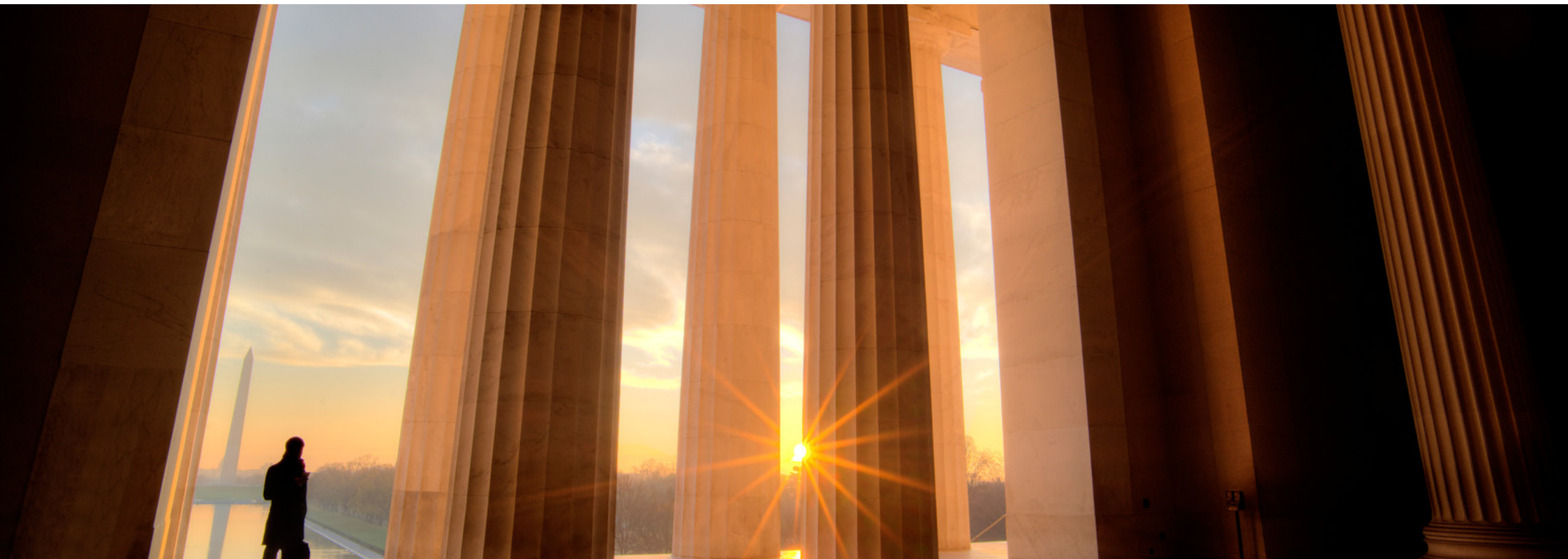
At our Yokkaichi Complex, we are establishing an environment where employees reflect on health and engage in self-motivated health promotion.

Until recently, our activities focused on specific themes, such as dietary education and responsible drinking. But participation was low, at around 10%, because interest in health topics varies widely from person to person. So in fiscal 2016, we launched a program of health goals whereby employees pursue individual preferences. Approximately 40% of Yokkaichi Complex employees took part, and response to the program overall was favorable. Participants stated that they were motivated to achieve their individually set health goals because of workplace encouragement.

We will continue to cultivate workplace environments that encourage an increasing number of employees to participate in health promotion and healthy living and working.

# *Corporate Governance*

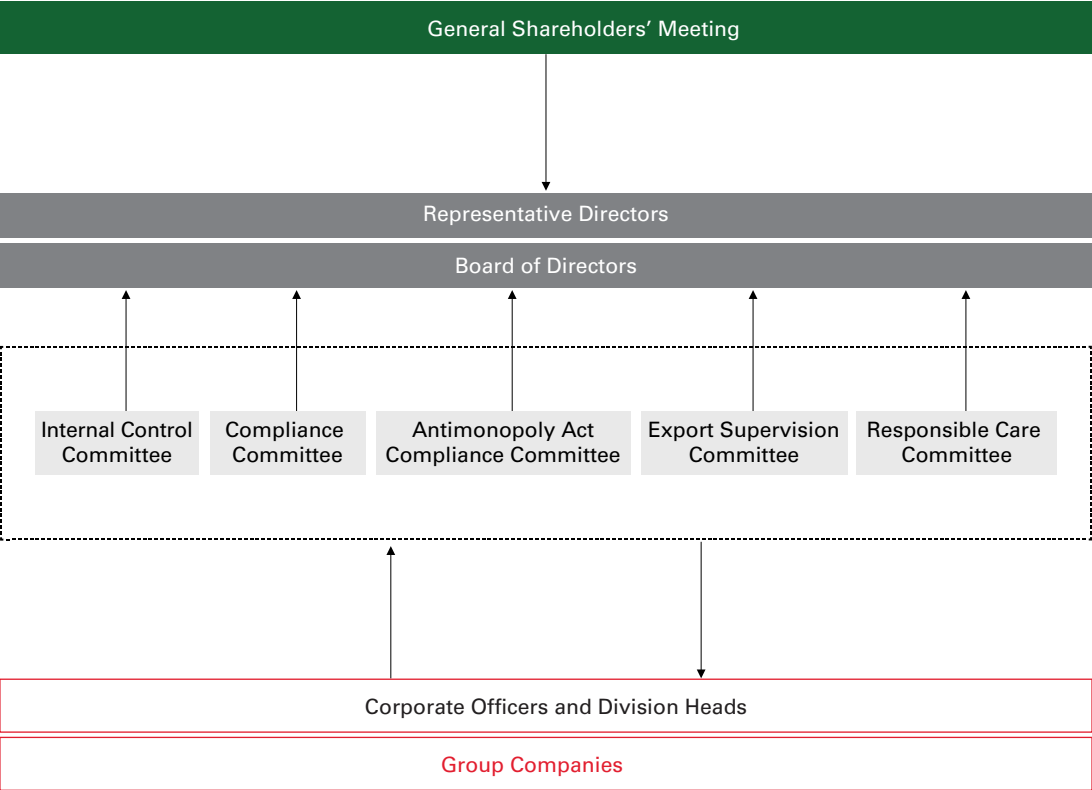
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### GAINING SOCIETY'S TRUST

**Corporate Governance**

Much of Tosoh's added value comes by way of an efficient, fair, transparent, and robust organizational structure capable of responding rapidly to changes in the company's business environment. We have established five committees consisting of directors and managers from across the organization: the Internal Control, Compliance, Antimonopoly Act Compliance, Export Supervision, and RC Committees. Each enacts measures to earn for Tosoh the trust of society.



**ANTIMONOPOLY ACT COMPLIANCE COMMITTEE**

The Antimonopoly Act Compliance Committee meets when necessary to debate and determine the measures necessary for Tosoh's compliance with Japan's Antimonopoly Act. It then prepares internal regulations and manuals based on its determinations. The company's Legal Office serves as the committee's secretariat and confers with Tosoh's sales divisions on changes in sales prices, checks the records of meetings with other firms in Tosoh's industry, and holds hearings on Tosoh's bids for government contracts.

The Antimonopoly Act Compliance Committee holds yearly seminars to enhance employees' understanding of the Antimonopoly Act and of the Act against Delay in Payment of Subcontract Proceeds, Etc., to Subcontractors (the Subcontract Act). The committee also holds a biannual Overseas Legal Risk Seminar for staff on overseas assignments and for staffers at corporate headquarters who need educating on laws applicable overseas.

**EXPORT SUPERVISION COMMITTEE**

The Export Supervision Committee likewise meets when necessary to debate and determine measures necessary for export control and compliance with Japan's Foreign Exchange and Foreign Trade Act. It then prepares internal regulations and manuals based on its determinations.

The committee defines export administrative procedures applicable to list and catchall controls, forming the system by which Tosoh's exporting divisions manage their operations. It also holds yearly seminars on compliance with relevant laws for export managers.

**INTERNAL CONTROL COMMITTEE**

The Internal Control Committee maintains and improves internal controls. This includes internal controls for compliance with corporate law and internal control report systems aligned with the financial reporting regulations stipulated in Japan's Financial Instruments and Exchange Act.

This committee meets at least four times a year and designs yearly assessments for its internal financial reporting controls. It checks the effectiveness of those assessments based on evaluations by Tosoh's auditing team. And it makes its internal control reports available to the public.

In the previous fiscal year, Tosoh undertook a fundamental review of its internal control system. This has resulted in a clarified legal compliance system from a business management standpoint, including clarifying actions to be taken with regard to group companies. It has also clarified our management of various risks. Our revised internal control system policy is available via the Tosoh website.

Tosoh is also working, meanwhile, to enhance its compliance education, a component of its rank-based training. As well, we are focusing on activities to boost a group-wide awareness of internal controls.

**COMPLIANCE COMMITTEE**

Our Compliance Committee meets at least twice a year to sculpt our compliance structure and design guidelines therefor. It also develops and executes compliance-related training and audits the progress of these initiatives. In April 2014, it revised its compliance guidelines, expanding their scope to all Tosoh Group employees and directors.

The new Tosoh Group Code of Conduct has been issued in Japanese, English, and Chinese and is available in other local languages upon translation. The new code aims to promote and deepen group-wide compliance. To increase compliance among its domestic companies, Tosoh holds a yearly group compliance conference.

The Compliance Committee has additionally established a compliance hotline that allows anonymous internal reporting. The committee, moreover, engages with employees to educate and learn from them. It sends out news and quizzes on compliance topics, executes surveys on a yearly basis, and reflects employees' opinions and levels of awareness in its future activities. The committee strives to heighten employees' awareness of and desire to act on compliance.

**Tosoh Group Compliance Action Guidelines**

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**Fundamental Policies:** Each of us will comply with all laws, internal regulations, and social mores that pertain to our business.

**1**

**Build a workplace where each employee can realize his or her potential**

Compliance with laws, employment regulations, and social norms, including prohibiting discrimination and harassment, respecting human rights, establishing a healthy work environment, and more

**2**

**Live up to the expectations of shareholders and the trust of customers and partners**

Prohibition of bribery and corruption, including complying with Japan's import-export laws and Antimonopoly Act and related laws, forbidding and severing ties to antisocial elements, disallowing insider trading, and more

**3**

**Contribute to the healthy development of society**

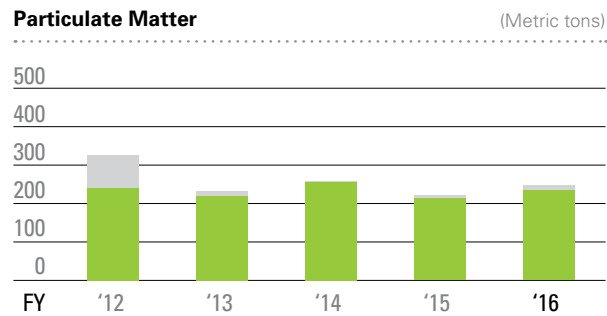
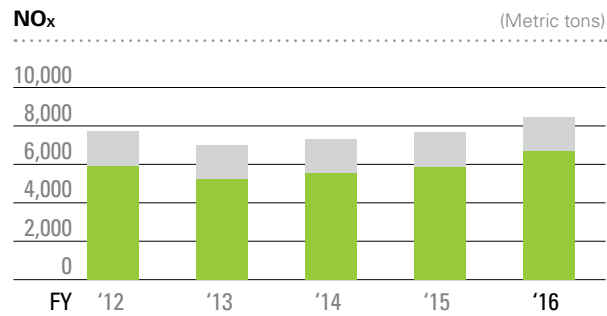
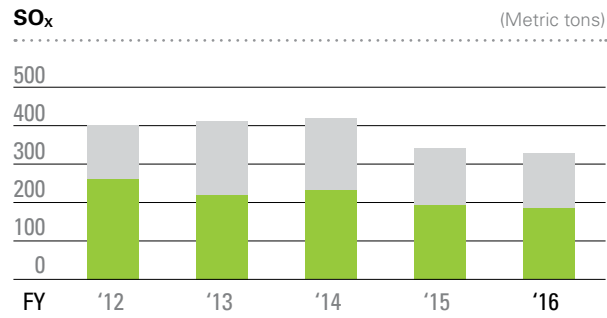
Preservation and protection of the environment, including maintaining a healthy and safe workplace and ensuring consciousness at a high level of the need for social responsibility



# *Key Data & References*

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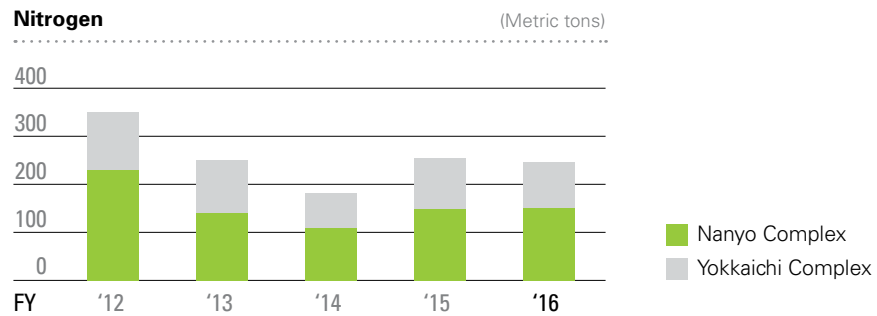
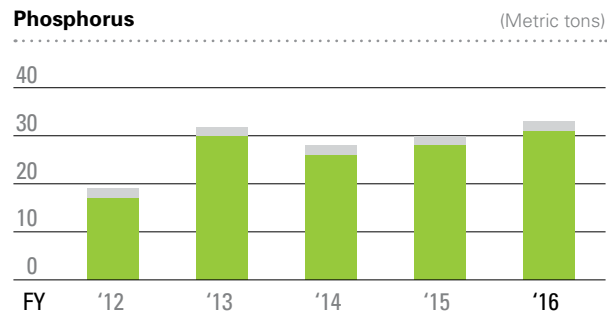
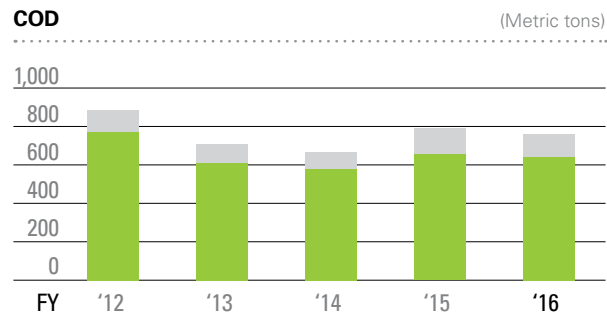


■ Nanyo Complex  
 ■ Yokkaichi Complex

## ENVIRONMENTAL CONSERVATION

### PRESERVATION OF THE ATMOSPHERE

Our fuel-burning boilers and furnaces release smoke containing SO<sub>x</sub> (sulfur oxide), NO<sub>x</sub> (nitrogen oxide), and particulate matter into the atmosphere. Tosoh, however, meets all Japanese and local government emission standards. What is more, Tosoh has set in-house emission targets that exceed any demanded by outside parties.



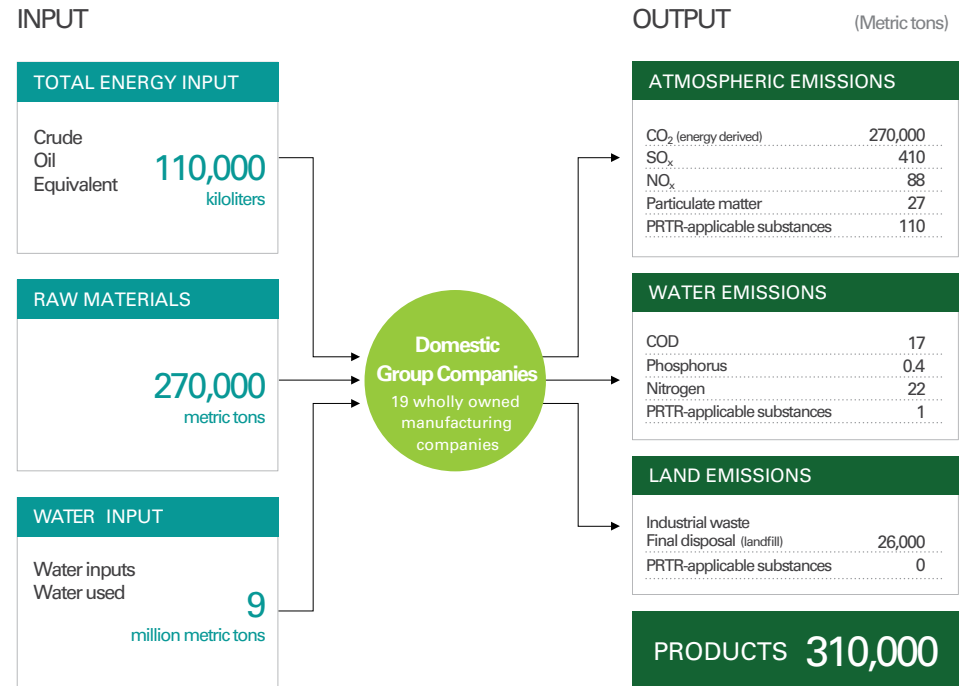
### WATER PRESERVATION

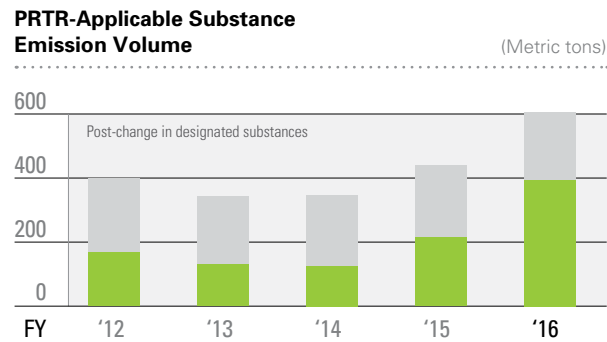
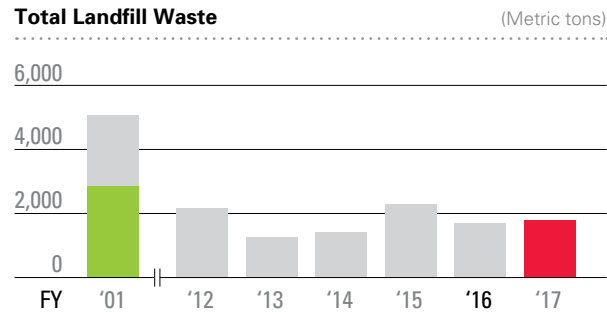
We release industrial-use water used for cooling and other purposes into waterways. But our standards for discharged water are beyond anything required by law or agreed to with local communities. Emission values in fiscal 2016 did not exceed outside authorities' regulations.

**ISO Certification Status**

Company Name	Target Branch	ISO 14001	ISO 9001	ISO 13485
Tosoh Corporation	Nanyo Complex	1998	1993	
	Yokkaichi Complex	1999	1995	
	Bioscience Division		2002	2002
Asia Industry Co., Ltd.			1998	
Tosoh ALA, Inc.			1995	2002
Tosoh SGM Corporation		2002	1998	
Tosoh F-Tech, Inc.		2003	1998	
Tosoh Quartz Corporation	Yamagata	2004	1994	
	Yonezawa	2004	2002	
	Sakata	2004	1994	
Tosoh Silica Corporation		2002	1999	
Tosoh Speciality Materials Corporation		2001	1995	
Tosoh Zeolum, Inc.			1995	
Tosoh Hi-Tech, Inc.			2002	2002
Tosoh Hyuga Corporation		2003	1994	
Tosoh Finechem Corporation		2002	1993	
Tosoh Organic Chemical Co., Ltd.		1998	1993	
Tohoku Tosoh Chemical Co., Ltd.		2011	1995	
Nippon Mirastran Co., Ltd.		2005	1999	
Hokuetsu Kasei Co., Ltd.			2013	
Rinkagaku Kogyo Co., Ltd.		2004	1997	
Lonseal Corporation			2013	
Tosoh Ceramics Co., Ltd.				2014
Seiwakouki, Co., Ltd.			2004	

**Group Company Input and Output**





- Nanyo Complex
- Yokkaichi Complex
- Company-wide target for fiscal 2017

**INDUSTRIAL WASTE FINAL DISPOSAL**

Having achieved our industrial waste final disposal target in fiscal 2016, we are setting goals for further improvement in fiscal 2017. We are pushing forward with discussions on how to best utilize industrial waste as a resource in seeking to achieve our RC targets in fiscal 2017.

**PRTR-APPLICABLE SUBSTANCE EMISSION TRANSFER VOLUMES**

To reduce the burden posed by chemical substances on the environment, Tosoh endeavors to manage its emissions of Class 1 chemical substances under the Pollutant Release and Transfer Register (PRTR) Law. Our merger with NPU in October 2014 added 163 metric tons of emissions to our annual emissions, raising our total yearly emissions to 604 metric tons.

## Volume of Emissions and Displacement of PRTR-Applicable Materials

(Metric tons)

## Nanyo Complex

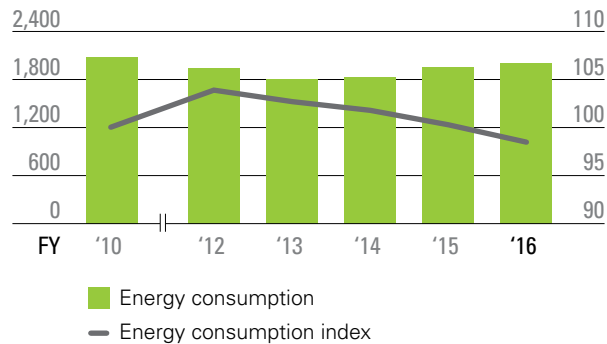
Material Name	Atmospheric Emissions	Water Emissions	Land Emissions	Landfill Disposal Volume	Total Volume of Operating Center Internal Emissions	Volume Displaced to Sewage	Volume Displaced Outside Operating Centers
Chlorobenzene	245.6	0.4	0.0	0.0	246.0	0.0	28.7
Vinyl chloride	39.6	2.2	0.0	0.0	41.8	0.0	0.0
Chloroform	8.9	7.7	0.0	0.0	16.6	0.0	0.0
1,2-dichloroethane	13.8	1.4	0.0	0.0	15.2	0.0	39.6
Ethylenediamine	2.9	10.5	0.0	0.0	13.4	0.0	0.0
Vinyl acetate	3.7	3.0	0.0	0.0	6.7	0.0	0.0
1,4-dioxane	5.2	0.7	0.0	0.0	5.9	0.0	47.8
1,1,2-trichloroethane	5.3	0.5	0.0	0.0	5.8	0.0	29.2
Toluene	5.6	0.0	0.0	0.0	5.6	0.0	0.5
O-dichlorobenzene	4.4	0.0	0.0	0.0	4.4	0.0	27.0
Methacrylic acid	0.0	4.2	0.0	0.0	4.2	0.0	0.0
Water-soluble zinc compounds	0.0	4.1	0.0	0.0	4.1	0.0	0.0
Triethylenetetramine	0.0	3.6	0.0	0.0	3.6	0.0	0.0
1,3-butadiene	1.7	1.6	0.0	0.0	3.3	0.0	0.0
N-alkylbenzenesulfonic acid and its salts	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Styrene	1.5	0.8	0.0	0.0	2.3	0.0	0.0
Tetraethylenepentamine	0.0	1.6	0.0	0.0	1.6	0.0	0.0
N-hexane	1.0	0.0	0.0	0.0	1.0	0.0	0.1
Dioxins (mg-TEQ)	28.0	227.2	0.0	0.0	255.2	0.0	0.0
Other substances	7.9	1.5	0.0	0.0	9.4	0.0	951.2

## Yokkaichi Complex

Material Name	Atmospheric Emissions	Water Emissions	Land Emissions	Landfill Disposal Volume	Total Volume of Operating Center Internal Emissions	Volume Displaced to Sewage	Volume Displaced Outside Operating Centers
N-hexane	157.1	0.4	0.0	0.0	157.5	0.0	13.2
Triethylamine	0.0	10.2	0.0	0.0	10.2	0.0	0.0
Cumene and isopropylbenzene	9.9	0.0	0.0	0.0	9.9	0.0	1.2
1,2-dichloroethane (EDC)	9.0	0.0	0.0	0.0	9.0	0.0	1.2
Chloroethylene (VCM)	5.0	0.0	0.0	0.0	5.0	0.0	0.0
Xylene	4.7	0.0	0.0	0.0	4.7	0.0	8.0
Vinyl acetate	3.0	0.7	0.0	0.0	3.7	0.0	0.7
Water-soluble zinc compounds	0.0	3.6	0.0	0.0	3.6	0.0	0.0
Toluene	2.4	0.0	0.0	0.0	2.4	0.0	0.2
BHT	1.9	0.0	0.0	0.0	1.9	0.0	0.0
Dioxins (mg-TEQ)	2.4	3.2	0.0	0.0	5.6	0.0	0.0
Other substances	2.3	0.1	0.0	0.0	2.4	0.0	41.3

### Energy Used • Energy Consumption Index

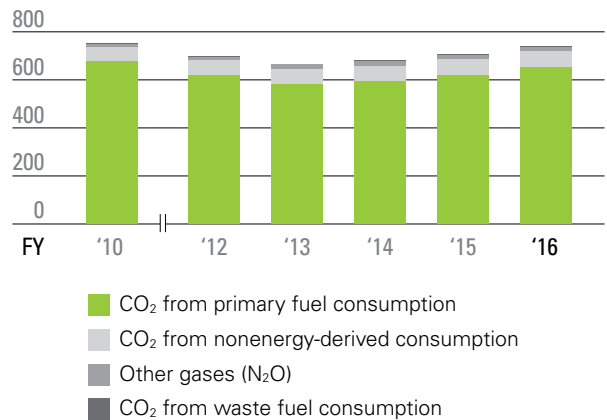
(Crude oil equivalent, millions of liters) (Energy consumption per unit, %)



Values for the crude oil equivalent of energy used and for the energy consumption index versus fiscal 2010 are calculated using the method stipulated by Japan's Act on the Rational Use of Energy. Figures for fiscal 2015 take into account energy consumed in October and thereafter with regard to the NPU merger.

### Greenhouse Gas Emissions

(Millions of metric tons)



We calculated our energy-derived CO<sub>2</sub> emissions using the Mandatory Greenhouse Gas Accounting and Reporting System, which is based on Japan's Act on the Promotion of Global Warming Countermeasures. Values from fiscal 2010 through the first half of fiscal 2015 include emissions from NPU.

### COMBATING GLOBAL WARMING

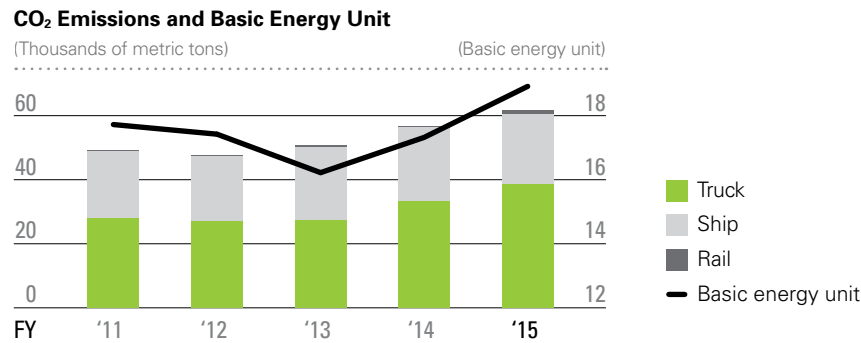
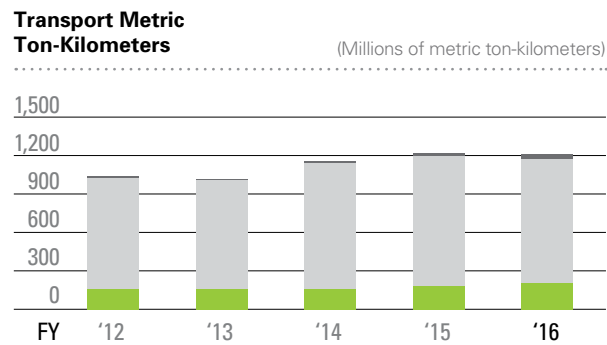
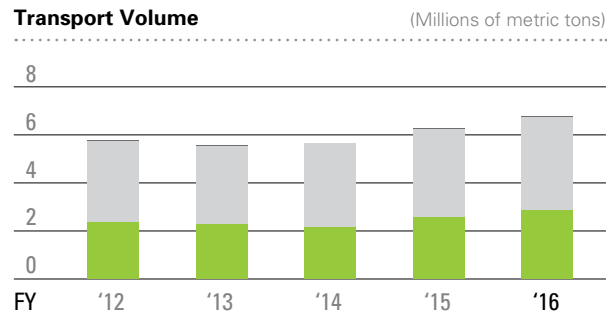
Our energy consumption index in fiscal 2016 was 98.5%, compared with the index in fiscal 2009, and represented a 1.8% improvement over fiscal 2015. The improvement is primarily due to increased production at the Nanyo and Yokkaichi Complexes.

Energy consumption benefited in fiscal 2016 from production increases for vinyl chloride monomer that we completed at the Nanyo Complex in the second half of fiscal 2015. Fiscal 2016 production increases at the Nanyo Complex for caustic soda and for urethane-based products likewise resulted in improvements in our per unit energy consumption. Similar per unit energy consumption benefits were achieved at the Yokkaichi Complex because of increases to caustic soda production and the introduction of an advanced control system at the ethylene plant there.

Heightened production, however, increased our emissions of energy-derived CO<sub>2</sub> greenhouse gases by approximately 300,000 metric tons year on year, for total emissions of approximately 6.5 million metric tons in fiscal 2016. Our main energy-conservation investment aimed at reducing CO<sub>2</sub> emissions went for the conversion to energy-saving electrolysis facilities, which lowered our energy-derived CO<sub>2</sub> greenhouse gas emissions 13,000 metric tons. An additional 8,000-metric-ton reduction was attributed to the advanced control system at the Yokkaichi Complex's ethylene plant.

Tosoh participates in the Japan Chemical Industry Association's Action Plan for a Low-Carbon Society. We continue to strive, therefore, to reduce our energy consumption and greenhouse gas emissions through green initiatives.





**ENVIRONMENTAL MEASURES IN LOGISTICS**

Our transport metric ton-kilometers (tkm) increased 8.0% or 6.79 million tons year on year in fiscal 2016, to 1.212 billion metric ton-kilometers because of our merger with NPU<sup>1</sup>. That overall represented a year-on-year decrease of 0.2%.

Our energy use per metric ton-kilometer went from 17.3 in fiscal 2015 to 18.92 in fiscal 2016, and this represented an increase (poorer performance) of 9.0% from the previous year<sup>2</sup>.

Also attributed to the merger with NPU was a decrease in our sea freight ratio, from 83.2% to 79.7%.

Sea freight constitutes a large portion of Tosoh's shipping, and we continue to hold informational meetings with sea freight companies on the subject of reducing energy use and CO<sub>2</sub> emissions. Tosoh continues its efforts to reduce its CO<sub>2</sub> emissions from transport.

1. Transport metric tkm = metric tons shipped x kilometers shipped

2. Energy use per metric tkm = crude oil energy consumption equivalent (kl) ÷ transport metric tkm millions

**HEAD OFFICE**

Tosoh Corporation  
3-8-2, Shiba  
Minato-ku, Tokyo 105-8623  
Japan

For further information, please contact  
International Corporate Development  
Tel: +81 (3) 5427 5118  
Fax: +81 (3) 5427 5198  
info@tosoh.com www.tosoh.com

**DATE OF INCORPORATION**

February 11, 1935

**PAID-IN CAPITAL**

¥55.2 billion

**NUMBER OF EMPLOYEES**

12,037

**INDEPENDENT AUDITORS**

KPMG AZSA LLC

As of March 31, 2016

**COMMON STOCK**

Authorized: 1,800,000,000 shares  
Issued: 650,161,912 shares

**NUMBER OF SHAREHOLDERS**

34,274

**STOCK EXCHANGE LISTING**

Tokyo Stock Exchange  
Ticker Symbol: JP: 4042

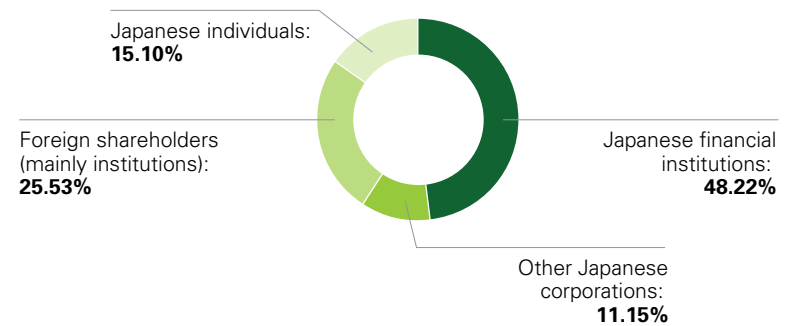
**TRANSFER AGENT FOR SHARES**

Sumitomo Mitsui Trust Bank, Ltd.  
2-8-4, Izumi  
Suginami-ku, Tokyo 168-0063  
Japan

**LARGEST SHAREHOLDERS**

	Shares held (Thousands of shares)	Percent of total
The Master Trust Bank of Japan, Ltd. (Trust Account)	43,503	6.70
Japan Trustee Services Bank, Ltd. (Trust Account)	37,924	5.84
Mizuho Bank, Ltd.	22,057	3.40
Mitsui Sumitomo Insurance Company, Limited	16,559	2.55
Sumitomo Mitsui Trust Bank, Limited	15,004	2.31
Nippon Life Insurance Company	13,366	2.06
The Norinchukin Bank	12,985	2.00
The Yamaguchi Bank, Ltd.	9,944	1.53
Tosoh Kyowa Association	9,935	1.53
JP Morgan Chase Bank	9,156	1.41

**STOCK HELD BY INVESTOR TYPE**



**President**

**Corporate Services**

- Auditing
- China Operations
- Corporate Communications
- Corporate Control and Accounting
- Corporate Secretariat
- Corporate Strategy
- Environment, Safety and Quality Control
- Finance
- General Affairs
- Human Resources
- International Corporate Development
- IT Strategy
- Legal and Patents
- Production and Technology Planning
- Purchasing and Logistics
- Research and Development Planning

**Business Divisions**

- Advanced Materials**  
Administration, planning and business development, electronic materials, battery materials, ceramics and zeolites
- Bioscience**  
Planning and business development, sales, research and development, customer service, separation media production
- Cement**  
Planning and coordination
- Chlor-alkali**  
Planning and coordination, chloralkali sales and marketing
- Olefins**  
Sales and marketing
- Organic Chemicals**  
Planning and business development, amines, bromine and flame retardants, eco-business
- Polymers**  
Planning and coordination, polyethylenes, high-performance polymers
- Urethane**  
Planning and business development, isocyanates, functional urethanes

**Corporate R&D**

- Advanced Materials Research Laboratory
- Functional Polymers Research Laboratory
- Inorganic Materials Research Laboratory
- Life Science Research Laboratory
- Organic Materials Research Laboratory
- Polymer Materials Research Laboratory
- Polyurethane Research Laboratory
- Technology Center

**Manufacturing**

- Nanyo Complex
- Yokkaichi Complex

**Sales and Regional Offices**

- Fukuoka Regional Office
- Nagoya Regional Office
- Osaka Regional Office
- Sendai Regional Office
- Yamaguchi Sales Office

As of June 29, 2016



**TOSOH**

**TOSOH CORPORATION**

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