



*Embracing Challenges*

ANNUAL REPORT 2011

Tosoh Corporation and consolidated subsidiaries  
Fiscal year ended March 31, 2011

**TOSOH CORPORATION**

# Annual Report 2011



## Embracing challenges... And helping others face theirs.

Tosoh embraces the challenges of generating products and technologies that become woven into the fabric of daily life—and that help others face their challenges.

### In 2011...

We regained our balance after several challenging years, posting growth in sales and profits. We also made progress in establishing a structure capable of growth in any business climate and in solidifying our ability to contribute to industrial and social progress, to the resolution of our sustainable growth issues, and to our employees' empowerment.

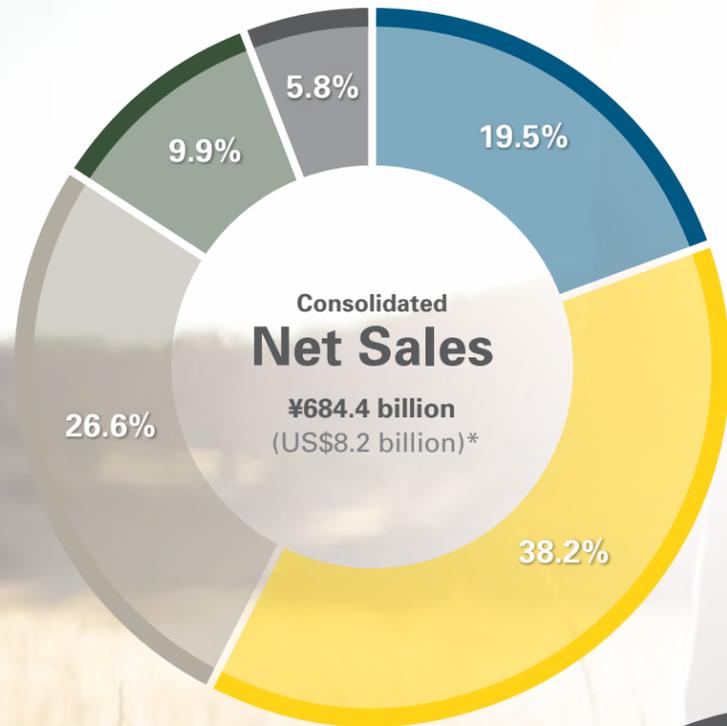
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#### Forward-looking statements

This annual report contains estimates, projections, and other forward-looking statements, which are subject to unforeseeable risks and uncertainties. Readers should understand that Tosoh's business and financial results could differ significantly from management's estimates and projections.

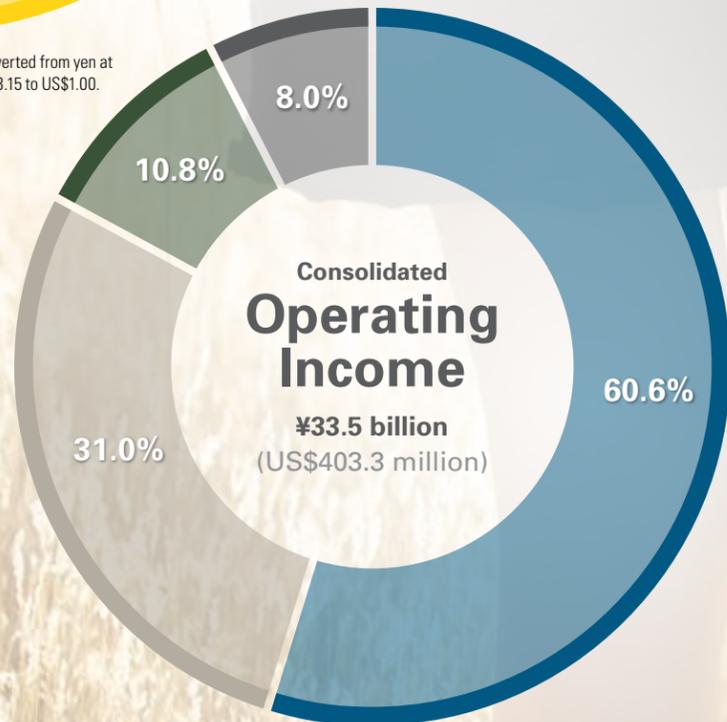
# The Basics



**US\$8 billion** in sales  
**1,500** products\*  
**11,000** people  
**133** companies  
**19** countries

\*Includes product grades from Tosoh Corporation and does not include parts that go into diagnostic systems.

\*US dollars are here and elsewhere in this report converted from yen at the exchange rate prevailing on March 31, 2011, of ¥83.15 to US\$1.00.



Note: The Chlor-alkali Group (yellow) posted an operating loss and is therefore not represented in the above graph.

### Specialty Group

- Organic Chemicals
- Advanced Materials
- Bioscience

### Chlor-alkali Group

- Basic Chemicals
- Methylene Diphenyl Diisocyanate
- Cement

### Petrochemical Group

- Olefins
- Polymers

### Engineering Group

- Water Treatment

### Other

- Analytical Services
- Information Technology
- Personnel Management
- Logistics

Tosoh Corporation is the parent company of a Japanese chemical and specialty products and materials group that comprises 133 companies worldwide and a multiethnic workforce of more than 11,000 people. In fiscal 2011, the Tosoh Group generated net sales in excess of US\$8 billion.

The parent company was established in 1935 and is listed on the First Section of the Tokyo Stock Exchange. In the 76 years that we have been in business, we have built balanced product lines of commodity chemicals for industry and of specialty products and materials for high-technology and niche markets.

Tosoh's principal markets include the chemical and petrochemical, construction, automotive, consumer electronics, information technology, bioscience, and environmental markets.

**Tosoh, in short, is a global chemical company that supplies manufacturers with the materials they need to produce the things that make modern life all that it is and everything it can be.**



# The Locations



From its manufacturing bases in Japan, Tosoh is becoming a supply hub of special and commodities products for the world. That hub is bolstered by production, sales, R&D, and other operations elsewhere in Asia and in Europe and North America.

- ### North America
- 1 Tosoh America, Inc.
  - 1 Tosoh USA, Inc.
  - 1 Tosoh SMD, Inc.
  - 2 Tosoh Bioscience LLC
  - 3 Tosoh SGM USA, Inc.
  - 4 Tosoh Specialty Chemicals USA, Inc.
  - 5 Tosoh Quartz, Inc.
  - 6 Tosoh Bioscience, Inc.

- ### Europe
- 7 Tosoh Europe N.V.
  - 8 Tosoh Bioscience GmbH
  - 9 Tosoh Bioscience Ltd.
  - 10 Tosoh Bioscience, A.G.
  - 11 Tosoh Bioscience SRL
  - 12 Tosoh Quartz, Inc.
  - 13 Tosoh Europe B.V.
  - 13 Delamine B.V.
  - 14 Tosoh Hellas A.I.C.

- ### Asia
- 15 Tosoh (Shanghai) Co., Ltd.
  - 15 Nippon Polyurethane (Shanghai) Co., Ltd.
  - 15 Tosoh Bioscience Shanghai Co., Ltd.
  - 15 Tosoh SMD Shanghai Co., Ltd.
  - 16 Organo (Suzhou) Water Treatment Co., Ltd.
  - 17 Nippon Polyurethane (Ruian) Co., Ltd.
  - 18 Tosoh (Guangzhou) Chemical Industries, Inc.
  - 18 Tosoh Logistics Warehouse Co., Ltd.
  - 19 Tosoh SMD Korea, Ltd.
  - 20 Tosoh SMD Taiwan, Ltd.
  - 20 Tosoh Quartz Co., Ltd.
  - 21 Organo Technology Co., Ltd.
  - 22 Tosoh Polyvin Corporation
  - 22 Mabuhay Vinyl Corporation
  - 23 Philippine Resins Industries, Inc.
  - 24 Organo (Asia) Sdn. Bhd.
  - 25 Tosoh Asia Pte. Ltd.
  - 26 P.T. Standard Toyo Polymer

- ### Japan
- 27 Headquarters
  - 27 Tokyo Research Center
  - 28 Nanyo Complex
  - 28 Nanyo Research Laboratory
  - 28 Technology Center
  - 28 Yamaguchi Regional Office
  - 29 Yokkaichi Complex
  - 29 Yokkaichi Research Laboratory
  - 30 Fukuoka Regional Office
  - 31 Sendai Regional Office
  - 32 Nagoya Regional Office
  - 33 Osaka Regional Office

## Operations spanning three continents

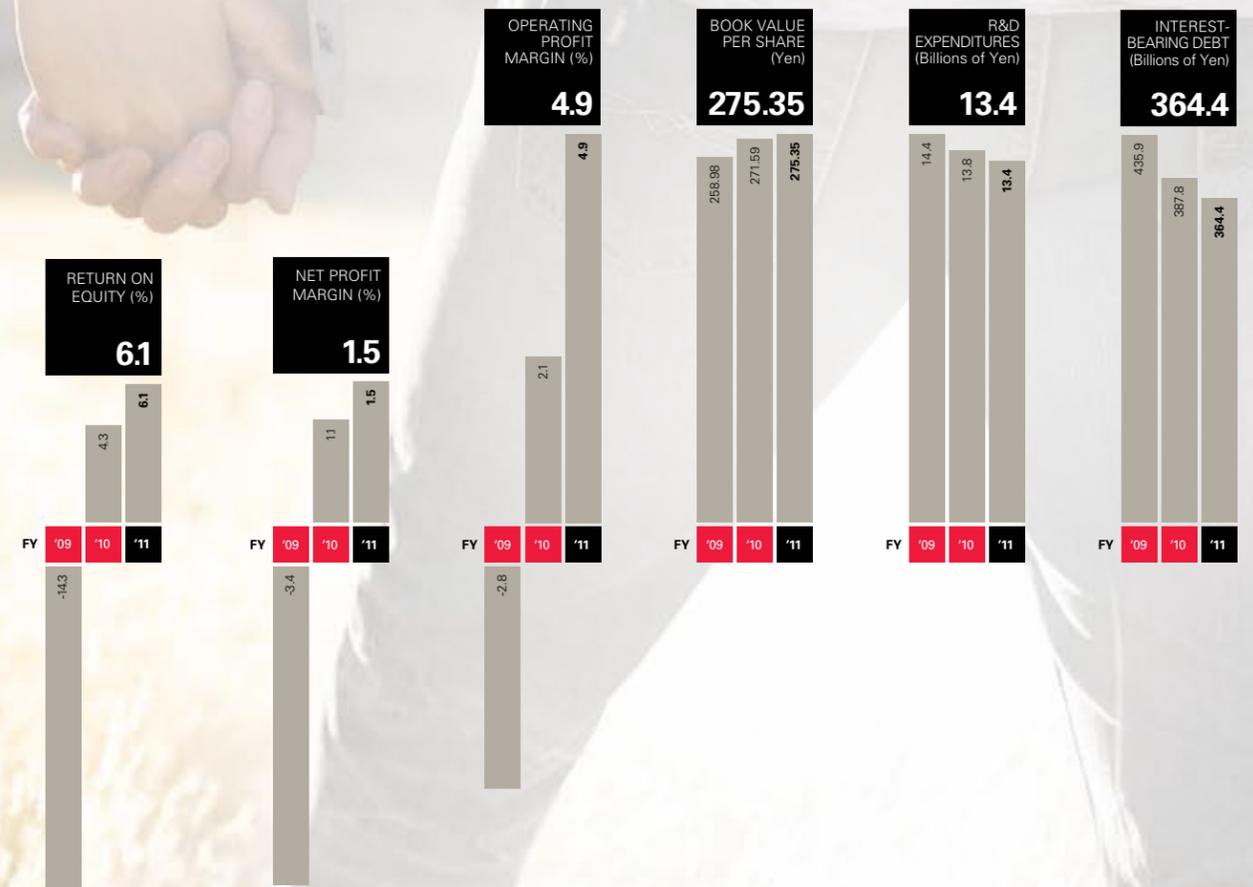
Tosoh first ventured overseas more than 40 years ago, establishing a presence in the United States in the early 1960s. Today, the Tosoh Group boasts a global network that generates 37.9% of Tosoh's sales outside Japan.

**The Tosoh Group consists of 133 companies:** the parent company, 112 subsidiaries, and 20 affiliates.

# The Results: For Fiscal 2011

## Financial highlights of fiscal 2011

Tosoh posted a solid recovery in fiscal year 2011, generating net sales of ¥684.4 billion (US\$8.2 billion) and bringing profit back on track. Operating income soared 157.0%, while net income jumped 45.4%.





# Strategic Challenges and Successes

## FISCAL 2011 SUMMARY:

- **Consolidated net sales** moved up 8.9%, and **consolidated net income** jumped 45.4%.
- **Consolidated subsidiaries' profitability** improved substantially.
- **Specialty operations** achieved strong profits.
- **Great East Japan Earthquake** had a minor impact on business.

## Rising to the Challenge

“Embracing Challenges” sums up not only the fiscal year under review but also our history and our people. Over the last decade, we have strategically focused on establishing a company that could remain profitable under the severest conditions. Overcoming the global financial crisis that erupted in 2008, we have faced those conditions, and I am happy to report that our structure and strategy are sound.

That is largely owing to our efforts over the past more than three decades to grow our specialties into focused businesses that serve niche markets worldwide. Our strategy is balancing commodities and specialties to create a business structure that emphasizes profitability as well as

“ Tosoh continued to work to capitalize on the massive growth potential of markets elsewhere in Asia.”

growth. At the end of fiscal 2011, we are well positioned in our markets to go the extra mile and drive Tosoh to the next stage.

## Reviewing the Year

Tosoh's consolidated performance recovered solidly in fiscal 2011 as the company continued to tackle outstanding issues. Net sales expanded 8.9% over fiscal 2010 net sales, to ¥684.4 billion (US\$8.2 billion). Profitability also rose, back toward our 5% standard. And operating income surged 157.0%, to ¥33.5 billion (US\$403.3 million), while net income gained 45.4%, to reach ¥10.0 billion (US\$120.4 million).

Driven mostly by Asian markets, the global growth that began in fiscal 2010 continued in fiscal 2011. Japan's economy regained momentum, with corporate profits and personal consumption trending upward. Tosoh, meanwhile, saw its product prices begin catching up with raw material cost increases because of heightened demand.

Although we achieved growth, there are still profitability hurdles at some of the parent company's subsidiaries.

We are pleased to report that a recovery in profitability at Nippon Polyurethane Industry Co., Ltd. (NPU), is under way and that we foresee continued, substantial gains in fiscal 2012. Resurgent global methylene diphenyl diisocyanate (MDI) markets contributed significantly to reviving NPU's and Tosoh's business performances in fiscal 2011.

We had to address the potential for heightened competition in the global market for petrochemicals that might occur with the imminent entrance of considerable new production capacity, particularly from the Middle East. All the while, Tosoh continued to work to capitalize on the massive growth potential of markets elsewhere in Asia.

## Restoring Profitability through Specialties

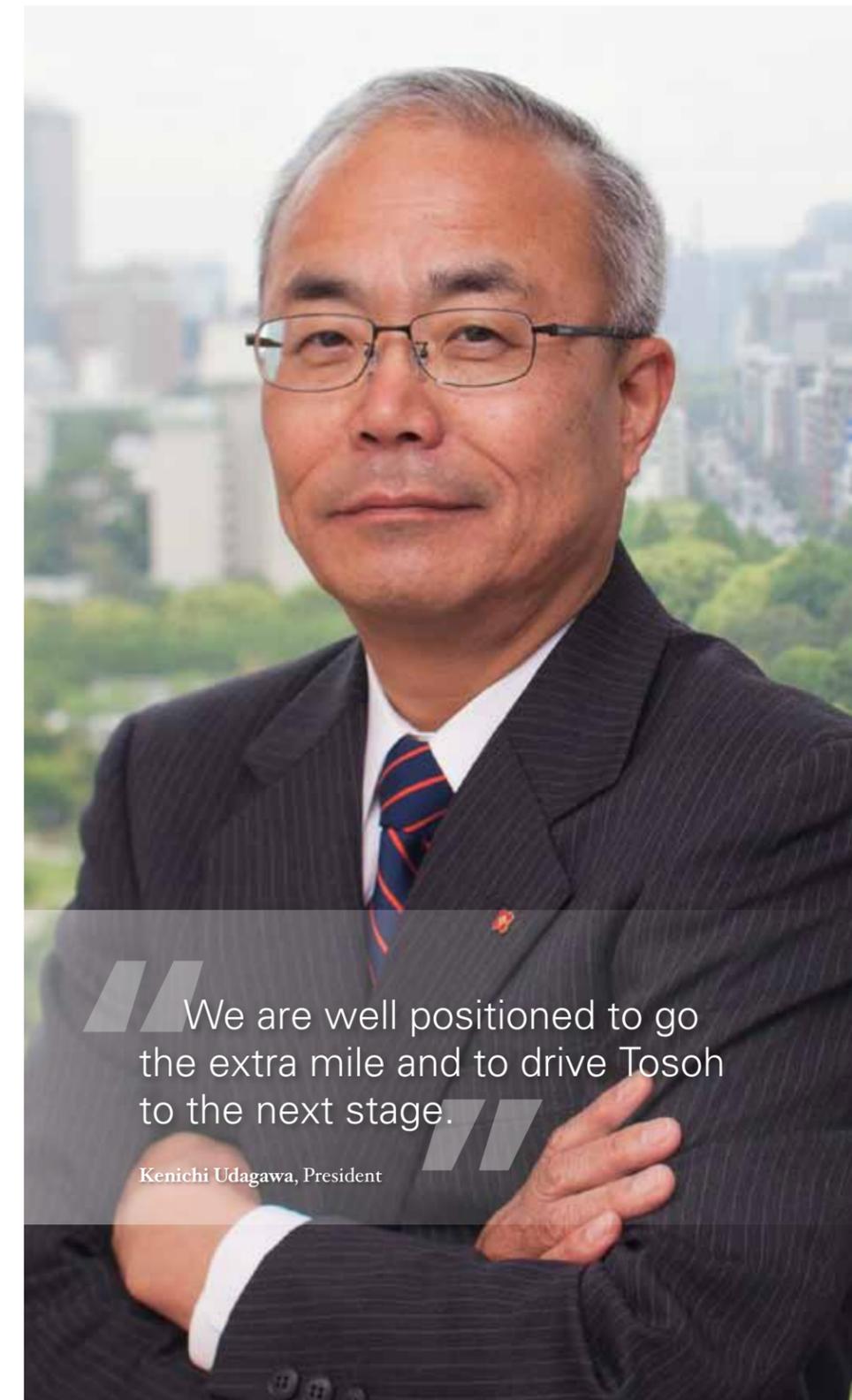
Strong management, ongoing cost-cutting programs, and recoveries in markets have helped Tosoh make progress. In a year that proved to be challenging for our basic chemical commodities sector, specialty profits are what kept the company on course.

Our specialty operations comprise biosciences, organic chemicals, and advanced materials. In fiscal 2011, those operations generated consolidated operating income of ¥20.3 billion (US\$244.4 million)—60.6% of consolidated corporate operating income.

The electronic materials produced by our specialty operations are highly reputed. We supply them to world-leading semiconductor and flat-panel display manufacturers and makers of equipment for those industries. Recently, we established Tosoh SMD Shanghai Company, Ltd., to produce thin film deposition materials in China. Tosoh SMD Shanghai expands our global electronic materials production capacity and enables us to capture a greater share of China's growth while better serving Chinese customers.

Our opening of Tosoh Bioscience Shanghai Co., Ltd., in fiscal 2011 likewise expands and improves our bioscience operations in Asia and increases our local bioscience operations in China. To further meet demand, Tosoh has constructed a third production line for its popular bioscience automated immunoassay (AIA) analyzers in Japan. We also will double our Japanese production capacity for our separation media by spring 2012.

We have, meanwhile, broadened our fine chemicals portfolio with the commercialization of new products for organic light-emitting diode (OLED) displays. Tosoh is also Asia's leading manufacturer of ethyleneamines and



“ We are well positioned to go the extra mile and to drive Tosoh to the next stage.”

Kenichi Udagawa, President

// We are leveraging our geographical location to become a fully integrated supply hub for Asia. //

to meet heightened demand, we are boosting our production capacity in two stages. Fiscal 2012 will see us capable of manufacturing 89,000 metric tons of ethyleamine annually.

To maintain momentum, increase market presence, and assure customers of stable supply, we have for two years pursued selective capital investment estimated at ¥35 billion to raise our specialty production capacity.

### Continuing to Prepare for Challenges and Opportunities

Large-capacity petrochemical plants in the Middle East did not completely come onstream in fiscal 2011 as anticipated. Tosoh nevertheless continued preparing for an inevitable increase in competition domestically and globally. We are differentiating our products and, to reduce costs, diversifying our cracking operation feedstocks.

Our high-density polyethylene (HDPE) will be most affected when the Middle Eastern plants become operational. So we have introduced and are developing value-added HDPE grades readily

distinguishable in most markets. We also are specializing our low-density polyethylene (LDPE), targeting, for example, food product laminates and medical applications.

In addition to preparing for market changes, our petrochemical operations are capitalizing on opportunities. Tosoh is well positioned in ethylene vinyl acetate (EVA), especially in the high-grade EVA required by the upward-trending solar cell industry. Globally, chlorosulphonated polyethylene (CSM) is in short supply, and we are benefiting as the world's top CSM manufacturer. Tosoh more than doubled its annual CSM production capacity in fiscal 2011 and expects CSM operations to contribute strongly to its performance in fiscal 2012.

### Becoming a Fully Integrated Supply Hub for Asia

We are leveraging our geographical location to become a fully integrated supply hub for Asia. This entails fine-tuning our commodities operations, which boast the largest vinyl isocyanate chain of its kind, to supply chlor-alkali products to Asia's growing markets.

We supply the vinyl chloride monomer (VCM) that we manufacture in Japan to our polyvinyl chloride (PVC) operations throughout Asia. Those operations encompass 1.1 million metric tons of PVC annually from companies in Japan, China, Indonesia, and the Philippines. PVC demand is rising, so we may increase production at Tosoh (Guangzhou) Chemical Industries, Inc.

Adding NPU's MDI to our fully integrated operations offers multiple benefits. It positions us in the high-growth MDI market and, indirectly, in the polyurethane market. It also has synergies for our chlor-alkali operations.

Tosoh's efforts in Asia extend beyond chlor-alkali and petrochemicals. Our specialty products also are establishing themselves in the region. And our new Engineering Group is preparing to furnish the rapidly modernizing areas of Asia with water treatment facilities, through Organo Corporation, its water treatment specialist subsidiary.

### Offering Solutions to Global Challenges

Tosoh is helping to meet pressing environmental, power generation, medical, pharmaceutical, water purification, soil remediation, and other needs by bringing innovative products to market. We contribute to reducing pollution and global warming with automotive catalytic converter materials, heavy metal chelating agents, and water treatment and soil remediation systems.

Hybrid and electric vehicles are a fast-growing automotive sector driving lithium-ion battery demand. Safety and cost advantages make lithium manganese oxide (LMO), of which electrolytic manganese dioxide (EMD) is a component, ideal for lithium-ion battery cathodes. Tosoh is the world's principal EMD producer for dry cell batteries and is heightening the supply of raw materials for EMD to underpin the hybrid and electric vehicle market.

Several Tosoh products are similarly helping to develop the world's solar cell market. We are commercializing physical vapor deposition (PVD) materials for the transparent electrode layer on a solar cell that substantially increase solar energy conversion efficiency. Tosoh also is among the world's few manufacturers of the EVA grades required for solar cell encapsulant film.

Tosoh, moreover, contributes to improving global health care. Our products figure in managing infectious and aging-associated diseases, including cardiovascular diseases, cancer, and diabetes. We put cutting-edge diagnostics, such as AIA systems and genetic testing devices, into caregivers' and researchers' hands. And through R&D, we seek to raise accessibility to lifesaving technologies with newer, easier-to-use devices while also contributing to drug discovery. Our Toyopearl separation media is extensively used in the rapidly globalizing biopharmaceutical industry.

### Great East Japan Earthquake

Fiscal 2011 will likely be remembered for the Great East Japan Earthquake, which struck in the year's final month. In its aftermath, Tosoh considers itself fortunate overall. Our core production facilities are in areas of Japan unaffected by the quake and tsunami.

We did not, however, escape unscathed. Tosoh is deeply saddened that so many of its employees suffered personal losses. We are tremendously heartened, though,

by the effort and dedication of the Tosoh Group in Japan and abroad to help our employees and their families recover from this historic tragedy.

### Outlook

Tosoh's outlook for fiscal 2012 is positive. Asian markets will again spur world economic expansion, and Tosoh will again benefit. Challenges remain. But we are confident of further progress in profitability in fiscal 2012. Tempered by a corporate vision of Tosoh as an essential contributor to people's daily lives and to industry, we embrace challenge as a force propelling us ahead.

We thank our many friends and stakeholders for their support throughout fiscal 2011, especially in the dark days of March. And we ask for your continued backing in fiscal year 2012.



Kenichi Udagawa, President

# Serving on the front line of medical challenges

## Health Challenge

*“One of my patients was diagnosed with type 1 diabetes three years ago. Her condition deteriorated soon after diagnosis, but with regular checks and modern medicine we are able to keep her in a very stable condition.”*

Tosoh technology enables the health care industry around the world to take up the challenge of providing more people with access to prompt and effective health care. Our automated immunoassay (AIA) analyzers and reagents support the rapid diagnosis and monitoring of cardiovascular ailments and diabetes. We produce genetic testing diagnostic equipment that offers quick screening for infectious diseases. Our high-performance liquid chromatography (HPLC) systems and separation media are popularly used in clinical testing, research, and drug purification.

# Offering solutions to mankind's ecological challenges

## Environmental Challenge

*Everyone is able to do their part in reducing environmental emissions, and we feel we made the right choice when we decided to purchase our hybrid car. I'm always conscious of my purchases and their impact on the environment, so lately I have been choosing more environmentally friendly items.*

Global warming and pollution issues tell us that a greater percentage of our ballooning energy needs must be met with "green" solutions. Tosoh is hard at work on the commercialization of materials for lithium manganese oxide (LMO), one of the most promising materials for the cathodes of next-generation lithium-ion batteries. We are making an even larger contribution to the environment by playing a role in the evolution of solar cells.

Providing the innovations that  
make life worth the challenge

## Lifestyle Challenge

*I'm constantly juggling a lot of things in my life, and from my family to my small import business things get pretty busy! Modern life electronics make such a big difference in helping me not only to stay organized but also to take a break with some light entertainment while I'm commuting on the tube.*

Keeping pace with the rapid progress in integration and in micro-level miniaturization in the electronics industry is exciting. Manufacturers come to Tosoh for ever-higher quality and precision in such products and materials as silica glass substrates and photomasks. We develop deposition materials to form the thin films used in the complex circuitry that gives special properties to products. Among our latest endeavors are materials for touch panels and organic light-emitting diode (OLED) panels and displays.

# Rising to the Challenge

In a year that saw the company recover solidly, we rose to the challenge by...

...using the **Specialty Group** to hedge profitability against the cyclical nature of Tosoh's commodity operations.

**Susumu Kadowaki**  
Director,  
Group Vice President,  
Specialty Group

...achieving **growth** in our two key groups, the Chlor-alkali and Petrochemical Groups.

**Keiichi Ohtagaki**  
Vice President,  
Tosoh Corporation

...continuing to break **technological ground** to further the presence in established markets and to gain a place in emerging markets for our Specialty Group products.

**Yasuyuki Koie**  
Managing Director,  
President,  
Specialty Group and  
Engineering Group

...cutting the **Petrochemical Group's production costs** and moving its products upstream to remain competitive.

**Sukehiro Itoh**  
Director,  
Group Vice President,  
Petrochemical Group

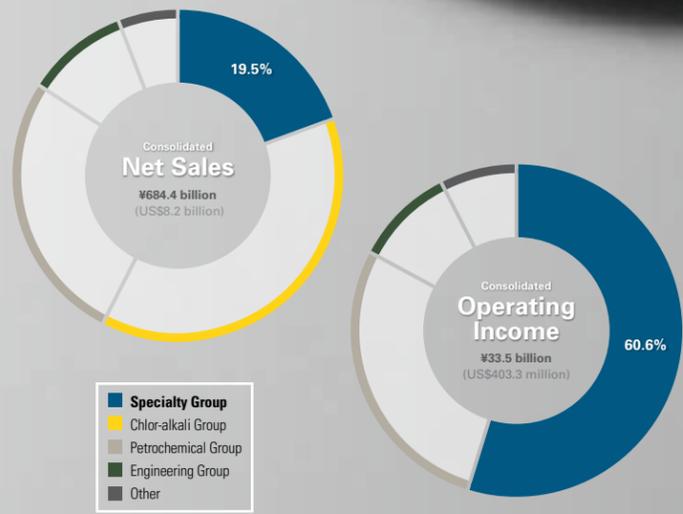
...ensuring that the **Chlor-alkali Group** took complete advantage of having the largest fully integrated manufacturing capacities of their kind for chemical commodities in Asia.

**Toshinori Yamamoto**  
Managing Director,  
President,  
Chlor-alkali Group and  
Petrochemical Group

# Rising to the Challenge: Specialty Group



“ The group boasts a wide-ranging portfolio of bioscience, organic chemical, and advanced material products that are typically strongly positioned and highly profitable in their markets. ”



## FISCAL 2011 SUMMARY:

- **Net sales** rose 14.0%, to ¥133.5 billion (US\$1.6 billion).
- **Operating income** was ¥20.3 billion (US\$244.5 million), 60.6% of consolidated operating income.
- **Reorganization** transferred MDI operations out of Specialty Group.
- **Further expansion** of ethyleneamine production capacity is planned.

The Specialty Group is the driving force for growth and change at Tosoh through its promotion of product advances among diverse customers. The group boasts a wide-ranging portfolio of bioscience, organic chemical, and advanced material products that are typically strongly positioned and highly profitable in their markets. These are high-value-added products for well-established and for growing niche markets, and they serve to hedge profitability against the cyclical nature of Tosoh's commodity operations.

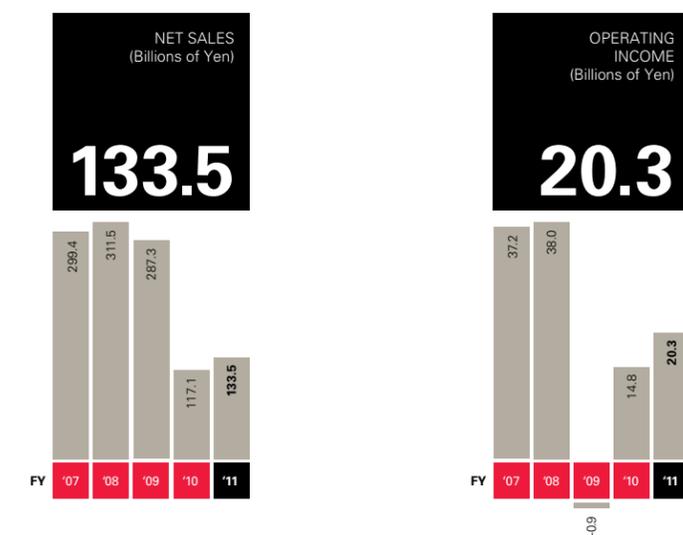
The Specialty Group's development of these and related products and of advanced technology, moreover, serves to map out new markets. A vast array and number of global clients in high-tech industries ranging from pharmaceuticals and health care to semiconductors, consumer electronics, and automobiles depend on the ability of the group to supply them with its sophisticated, specialized product offerings. And within that clientele are emerging businesses whose success hinges on the Specialty Group's ongoing development of offerings to meet their evolving needs.

## Origins of Tosoh's Specialty Group Coincide with Globalization

The start of Tosoh's globalization in the 1960s also marked the beginning of what would become the company's Specialty Group. Like all commodity chemicals manufacturers, Tosoh faced the perennial challenge of cyclicity caused by the continuous leapfrogging of demand and capacity. So the company launched a lineup of specialty products that also allowed it to tap growing markets for such products worldwide and thereby offset the cyclicity of its commodity operations.

That process continued in earnest in the 1970s with Tosoh's establishment of operations overseas. It matured in the 1980s as Tosoh undertook investments and mergers and acquisitions to increase the scope of its specialties business. In the 1990s, the company strengthened and expanded its Specialty Group operations with an eye specifically on the budding Asian market.

The Specialty Group today contributes to progress in numerous countries with products for customers in the semiconductor, consumer electronics, pharmaceutical, bioscience, automotive, and health care industries. Its challenge is



Note: In this report, calculations for fiscal years 2010 and 2011 were adjusted to reflect the reorganization that went into effect at the beginning of fiscal 2011. Previous-year (fiscal 2007–2009) calculations are based on the organization of the company at that time.

to continue to break technological ground to further the presence of its products in existing markets and to gain a place for its products in emerging markets. In so doing, the group maintains its prominence within Tosoh as an important hedge against the cyclical nature of Tosoh's commodities products.

### Organic Chemicals

Organic chemicals have a wide range of applications in pharmaceuticals, agrochemicals, electronics, organometallic catalysts, urethane polymers, specialty coatings, and elsewhere. Tosoh holds the top share of the Asian market for ethyleneamines and significant shares of the Japanese market for its bromine, flame retardants, and industrial cleaning solvents. The challenge in organic

chemicals is to maintain strong or dominant positions in selective markets by continually shifting toward more competitive, or high-grade, products.

#### Ethyleneamines and their derivatives

Ethyleneamines are widely used building blocks in chemical synthesis. They and their derivatives have diverse industrial applications, such as in epoxy hardeners, wet-strength resins for paper, chelates, and pharmaceutical and agrochemical intermediates. Ethyleneamines are produced from ethylene dichloride (EDC), ammonia, and caustic soda.

Tosoh has leveraged its position as Japan's largest producer of EDC and caustic soda. The company is a leading supplier

of ethyleneamines in Asia and globally and has steadily built its position in this important product line around the world. In 1976, Tosoh established Delamine B.V., a joint venture company, with Akzo Nobel, in the Netherlands. Today, Delamine is the world's biggest single-line, EDC-based ethyleneamine company. It exports ethyleneamines to over 50 countries. When capacity increases come onstream at Tosoh in fiscal 2012, the Tosoh Group is poised to become one of the largest producers of ethyleneamines in the world.

Tosoh's strength in ethyleneamines stems from a combination of technological expertise and cost competitiveness. It produces the raw materials that it requires for making ethyleneamines. Those advantages have made Tosoh the leading

supplier in Japan of heavy metal chelates and ethyleneamine derivatives, which are in demand for their environmental properties and cost competitiveness.

Elsewhere in Asia, Tosoh holds major shares of the markets for bulk ethylenediamine (EDA) and for high molecular weight amines, such as diethylenetriamine (DETA) and triethylenetetramine (TETA). Other of Tosoh's products popular in Japan and overseas are triethylenediamine (TEDA) and Toyocat catalysts for polyurethane production.

Demand for ethyleneamine derivatives is growing firmly around the world, particularly in Asia. So Tosoh is aggressively developing markets for its polyurethane catalysts and heavy metal chelates and for its new amine derivatives. The company also is responding to growing concern over amine emissions from polyurethane foam. We are developing emission-free reactive amine catalysts to replace the amine-based catalysts used by the automobile and other industries.

#### Bromine and brominated derivatives

Tosoh is Japan's sole producer of bromine and is strengthening its position in bromine and its related compounds throughout Asia. The company gains a major advantage

in its business from the bromine recycling system at its Nanyo Complex. The system recycles bromine from industrial waste generated by the complex's facilities and by third-party sources.

Utilizing its proprietary bromination technology, the company taps the abundant supply of hydrogen bromine and bromine from its vinyl chain operations to produce a wide variety of derivatives. They include, for example, styrene derivatives, such as sodium p-styrenesulfonate (NaSS). Tosoh's NaSS in particular boasts a dominant share of the global market for dye enhancers for acrylic fibers and for reactive emulsifiers. In other areas, Tosoh's bromine-based Flamecut flame retardants transform regular plastics into heat- and flame-resistant plastics.

#### Eco-business

Establishing an Eco-business Department within the Organic Chemicals Division has enabled Tosoh to build a strong lineup of environmental products. The department mainly produces chelating agents and hydrocarbon-based cleaning solvents.

The Eco-business Department's environmentally friendly solvents meet a variety of cleaning needs, and its chelating agents remove heavy

Demand for ethyleneamine derivatives is growing firmly around the world, particularly in Asia.

metals from various stages of industrial processes and from incinerator waste. Chelating agent TS-300, for example, sharply reduces the volume of lead, cadmium, mercury, and copper generated during the removal of heavy metals from the fly and combustion ash produced in the trash incineration process. Other of the department's agents are effective in removing volatile organic compounds (VOCs) from soil and wastewater.

#### Organic electroluminescence materials

Tosoh launched a new business in organic chemicals in fiscal 2011 with its start up of sales of electroluminescence (EL) materials in the first half of the year. EL materials comprise electron-hole transport materials made from amine chemical compounds.

Other manufacturers preceded Tosoh into the market for EL materials. But our materials provide competitive advantages. They are exceptionally bright, long-lived, durable, and low in energy requirements.



**Organic light-emitting diodes (OLEDs)** are the newest technology in the display market. This technology offers superior viewing angles, color representation, and signal response in addition to extremely low power consumption. Tosoh produces the high-efficiency electron-hole transport materials used in these displays using patented technology.

Tosoh is a leading global supplier of advanced materials for consumer electronics and for an array of industrial and high-tech products.

Tosoh has begun its EL business with the production of EL materials for digital signs and for lighting. The goal is to further advance our EL-related technologies to move into the rapidly expanding market for organic EL panels. Those panels find application in displays for mobile phones, televisions, and cameras.

#### Advanced Materials

The Advanced Materials Division was established within the Specialty Group in June 2010. It combines the former Electronics Materials (thin film and quartz) and the Specialty Materials (zirconia and zeolites and electrolytic manganese dioxide) Divisions. That strategic integration seeks to capitalize on Tosoh's strengths in advanced inorganic materials through more focused management and development.

Tosoh is a leading global supplier of advanced materials for consumer

electronics and for an array of industrial and high-tech products. Our zirconia powders, zeolites, electrolytic manganese dioxide (EMD), sputtering targets, and quartz and quartzware products enjoy a strong reputation around the world. And the high-tech and niche markets in which these products find application offer ample room for growth. Our product development and marketing strategies concentrate on markets where we have a clear competitive edge.

#### Zirconia and zeolites

Tosoh is the world's leading supplier of zirconia. This yttria-stabilized ceramic offers the functionality of conventional ceramics but lacks their brittleness and is commonly referred to as ceramic steel.

Zirconia's properties have made it a standard material for fiber-optic connectors. Its superior functionality powers a constant stream of new applications in fuel cell components, automobile oxygen sensors, dental applications, and other products. Working hand in hand with customers to develop applications for zirconia, Tosoh has expanded its lineup for this versatile ceramic to include powdered and even colored grades, compounds, and machined components.

Tosoh's synthetic zeolite products feature superior catalytic and adsorbent properties. Its HSZ (high-silica zeolite) series boasts high thermal and acid stability and is a core catalyst product line that has helped Tosoh to expand its position in specialty materials globally. The series' products are popular as petroleum-refining catalysts for hydrocracking, isomerization, and dewaxing; as petrochemical catalysts for alkylation and isomerization; as removers of VOCs; and as cleaners of hydrocarbons in automobile exhaust.

Our Zeolum line of zeolites features molecular sieves of varying grades. Each has strong specific adsorption properties suitable for drying, purifying, and separating a wide variety of feedstocks. For example, Zeolum NSA, the lithium LSX-type zeolite that we recently introduced, utilizes heightened aluminum content to achieve high nitrogen adsorption. This makes Zeolum NSA especially suitable for use in oxygen pressure swing adsorption (PSA) systems. The company strives to develop products that meet all of its customers' adsorption, separation, and purification requirements.

#### Electrolytic manganese dioxide

EMD is a basic raw material used in the manufacture of primary batteries and of cathodes for secondary, or rechargeable,



**Electrolytic manganese dioxide (EMD)** is indispensable in the cathode mixture of high-performance dry batteries. As a pioneer and global leader of the EMD industry, Tosoh supplies EMD for 30% of the world's dry cell batteries.

batteries. As the world's largest producer of EMD for batteries, Tosoh is committed to maintaining sufficient manufacturing capacity to meet the demand in the market. Tosoh develops EMD-related technologies at its Nanyo Research Laboratory in Nanyo, Japan, and transfers those new technologies to its production facilities in Japan and Greece.

The growing popularity of electric and hybrid vehicles is driving the call for lithium-ion batteries. Significant advantages in safety and cost make lithium manganese oxide (LMO) one of the most promising materials for lithium-ion battery cathodes, and EMD is a component of LMO. To relieve the pressure on EMD supply, Tosoh is moving quickly to increase its supply of raw materials for electric and hybrid vehicle

applications from its manufacturing facilities in Japan and Greece.

#### Thin film materials and quartz

Tosoh's operations in thin film materials, quartz, and fabricated quartzware enable the technologies of the future. On the high-tech frontier, Tosoh is constantly developing new products and solutions to pass on to the world's high-growth semiconductor, flat-panel display (FPD), photovoltaic (PV), and materials markets.

The company's thin film materials lineup, which consists primarily of sputtering targets, includes many products used by semiconductor, FPD, and PV fabrication facilities. Similarly, its integrated quartz, or silica glass, business supplies photomasks, substrates, and other parts and materials to the world's major

semiconductor and optical markets and to many niche markets.

Tosoh has an integrated chain of electronic materials manufacturing and marketing bases in Japan, Taiwan, South Korea, Singapore, China, the United States, and the countries of the European Union. This supply and customer services network ensures that the company's products meet customer specifications and delivery needs globally. The network also serves to strengthen Tosoh's ties with the world's leading semiconductor, FPD, and PV makers. Those relationships enable the company to work with customers on next-generation products.

Tosoh is aggressively investing in high-growth electronic materials. It is developing technologies for such next-



**Zirconia** is also known as ceramic steel. Because of its wide range of superior properties, manufacturers are increasingly using zirconia in machine and electronic parts and high-tech applications. Tosoh is a pioneer in the development of yttria-stabilized zirconia and has become the world's major supplier of high purity zirconia.

generation products as 22-nanometer node-level IC chips and large FPDs. It also is focusing on products for space optics, energy conservation, and quartz microchips for biomedical applications that are unaffected by the semiconductor cycle. In addition, Tosoh is investing in the development of an oversized quartz ingot for ultralarge FPDs, the commercialization of chemical vapor deposition (CVD) products for semiconductor applications, and the development of cylindrical target materials for use in transparent electrodes for FPDs and in photovoltaic power generation systems for supply to the rapidly expanding solar energy market.

### Bioscience

Tosoh is a world leader in high-performance liquid chromatography (HPLC) systems, analytical columns, and separation media. We also furnish sophisticated diagnostic systems that enable quick and accurate results. Tosoh, in fact, is among a handful of companies worldwide developing, manufacturing, selling, and providing customer support and maintenance services for instruments, analytical columns, separation media, and diagnostic reagents.

Tosoh's diagnostic systems feature advanced immunoassay technologies that support the rapid diagnosis of such life-threatening diseases as diabetes, certain cancers, and microbial infections. They also feature integrated essential hardware

and software and uncompromising value through global customer support that includes ensuring the ready availability of the systems' consumable items.

We have positioned our bioscience product lines in markets globally through multifaceted strategies. Using internal growth, acquisitions, and strategic alliances, we have established a worldwide sales and service network and acquired access to cutting-edge technologies in fields such as genetic diagnostics. Our bioscience network spans Japan, Europe, and the United States and is expanding into China, India, and other Asian markets. It serves four global markets: separation products, clinical HPLC systems, immunoassay systems, and molecular testing.

Supporting the diagnosis and treatment of diabetes mellitus is a major goal of Tosoh's bioscience operations.

In Japan, Tosoh is the top supplier of analytical columns based on sales of its TSK gel HPLC analytical columns, which are also popular worldwide. We have succeeded in building a dominant position in the competitive domestic market for gel permeation chromatography (GPC) and for ion chromatography (IC) products and are extending sales of our GPC products overseas.

Strong global demand has long driven growth in sales of Tosoh's Toyopearl separation media. Leading biopharmaceutical companies in the United States and Europe are long-term Toyopearl customers.

The growing market worldwide for our automated immunoassay (AIA) analyzers is rooted in our proprietary technology. Our freeze-drying technology has facilitated our production of sophisticated, fast, easy-to-use, highly

sensitive, and extremely precise analyzers that are in demand.

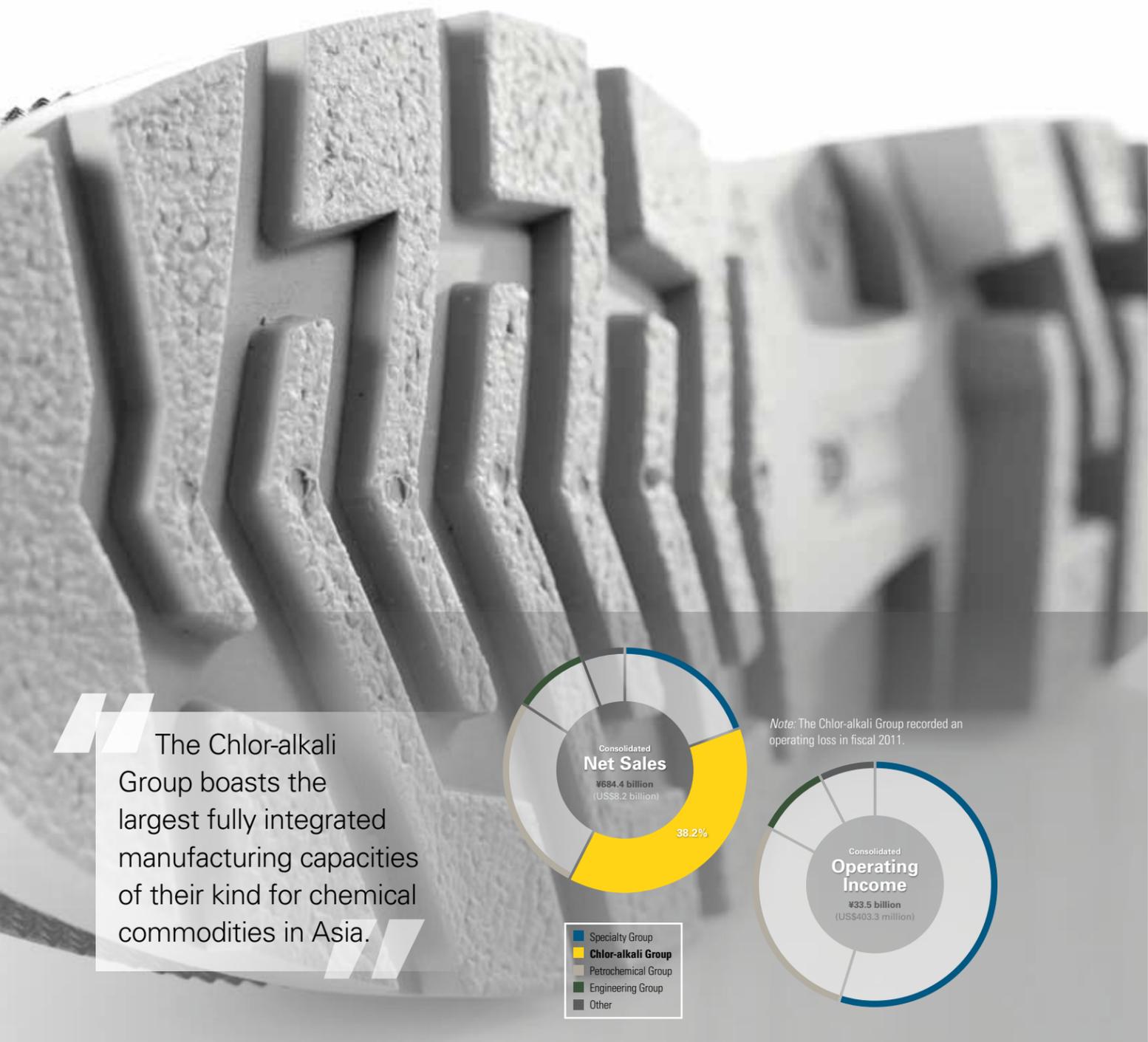
Supporting the treatment of diabetes mellitus is a major goal of Tosoh's bioscience operations. Reflecting this commitment, Tosoh has become a global leader in the automated glycosylated hemoglobin (GHb) analyzer market. These analyzers measure the level of blood sugar over a few months. We are focused on building a customer base for our latest HLC-723G8GHb analyzer and its requisite consumables.

Tosoh in the meantime has launched a compact TRCRapid-160 real-time fluorescence monitoring system and a transcription reverse transcription concerted reaction (TRC) reagent in the nucleic-acid amplification testing (NAT) market. The introduction of these products is helping to develop the market for genetic diagnosis. We have also introduced a product that tests for food poisoning and a reagent to test for bacteria that cause tuberculosis.

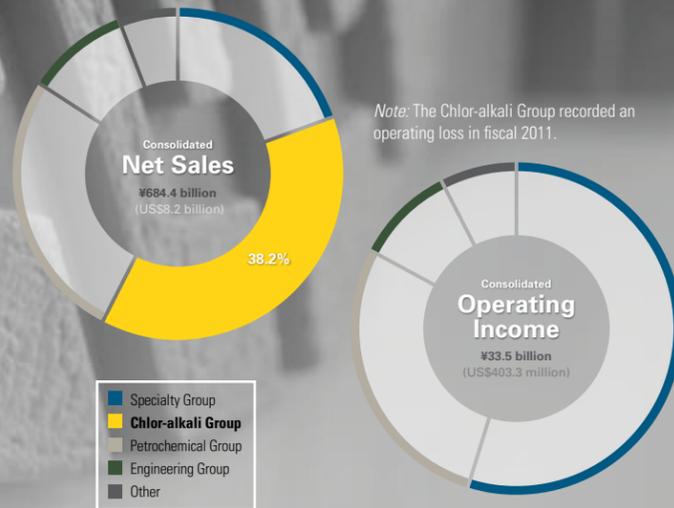
We develop improved models of our core GPC and IC systems on an ongoing basis. To promote AIA sales growth, we have added cardiac markers and new testing categories and reagents with improved

functionality. We have also introduced large, midsize, and compact analyzers. NAT work within Tosoh focuses on developing increasingly automated monitoring systems and on positioning the company as a leading authority in this new field.

# Rising to the Challenge: Chlor-alkali Group



The Chlor-alkali Group boasts the largest fully integrated manufacturing capacities of their kind for chemical commodities in Asia.



## FISCAL 2011 SUMMARY:

- **Achieved 4.0% growth** in net sales, to ¥261.6 billion (US\$3.1 billion).
- **Recorded operating loss** of ¥3.5 billion (US\$41.9 million).
- **Gained MDI operations** under reorganization.
- **Witnessed NPU's performance** improve substantially.

## A Key Role in Providing People with Life's Essentials

Tosoh's Chlor-alkali Group supplies global industry with the raw materials for the many products of a modern lifestyle. Manufacturers around the world depend on Tosoh and its Chlor-alkali Group to provide their production lines with stable supplies of those raw materials.

Fortunately, the Chlor-alkali Group boasts the largest fully integrated manufacturing capacities of their kind for chemical

commodities in Asia. As such, it is able to offer stable supplies of commodities to world markets and to Tosoh's various operations. The group's major challenge is to keep costs down while carefully managing market movements.

The Chlor-alkali Group's operations thrive on the synergies afforded by Tosoh's vinyl isocyanate chain. Its operations exemplify the cooperation among companies inside and outside the Tosoh Group that bolsters the company's competitiveness and makes it a valued

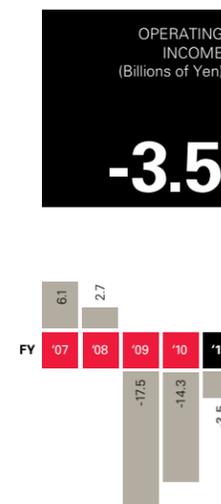
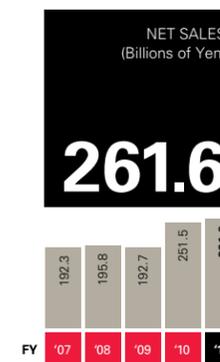
partner of industry. Various Tosoh Group companies and their suppliers work together to make and to provide the Chlor-alkali Group's products to growing markets in Asia and beyond.

## Tosoh's Origins Rooted in Supporting Industry and Social Progress

Tosoh traces its beginnings in 1935 to the operations that today make up its Chlor-alkali Group. From the start, one of Tosoh's roles has been to provide the building blocks for industry.

The company's operations began with the construction of Japan's first factory for extracting bromine from seawater and of an electrolysis plant to supply chlorine. After World War II, Tosoh initiated cement operations that contributed to the rebuilding of the country's infrastructure. Those operations made efficient use of waste products from the company's ammonia-method soda and electrolysis production processes.

Today, recycling continues to play a prominent role in the Chlor-alkali Group's operations. The fully integrated nature of the group's vinyl isocyanate chain, which fuels many of Tosoh's



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commodity and specialty businesses and acts as a production hub of the products of those businesses for the rapidly expanding markets of Asia, readily facilitates recycling.

#### Basic Chemicals

The basic chemicals that fuel the commodity and specialty businesses arise from an integrated process that begins with the electrolysis of salt to obtain chlorine and caustic soda. This reaction is the basis for the manufacturing of five principal chlor-alkali products: caustic soda; vinyl chloride monomer (VCM); polyvinyl chloride (PVC) resins; calcium hypochlorite; and sodium bicarbonate.

Caustic soda, or sodium hydroxide, is used in producing sodium compounds, such

as sodium bicarbonate, or baking soda. It also finds application in the manufacture of rayon, pulp and paper, alumina, soaps and detergents, textiles, and vegetable oils. Tosoh employs its bipolar ion-exchange membrane technology (BiTAC) in combination with the economies of scale afforded by its operational infrastructure and expansive operations to supply the vital basic chemical caustic soda competitively to the Asian market.

VCM is a colorless gas and a building block for PVC, which is used in pipes and other building materials. Tosoh accounts for more than 40% of Japan's VCM production and is the domestic leader in PVC resins, accounting for one-fourth of the national output.

Under the brand name Niclon, Tosoh also markets calcium hypochlorite in Japan. Niclon is used for sterilizing and disinfecting swimming pools and drinking water. In addition, it is used in sewage treatment systems. The company's sodium bicarbonate, meanwhile, is widely used in food products, animal feeds, bath additives, and pharmaceuticals.

#### Methylene diphenyl diisocyanate

MDI, or methylene diphenyl diisocyanate, occupies a unique position among Tosoh's product lines and is of considerable significance for the company's commodity and specialty operations. This isocyanate is both a raw material for polyurethane and a fine chemical with an array of uses in organic synthesis. It also has marketing synergies with Tosoh's diverse product lines,



**Caustic soda**, or sodium hydroxide (NaOH), is a strong chemical base used in industrial processes. It is also the source of Tosoh's name. The company was founded as Toyo Soda Manufacturing Co., Ltd., in 1935. Caustic soda is produced in the first step of Tosoh's vinyl isocyanate chain: the electrolysis of a sodium chloride (salt) solution.

Tosoh accounts for more than 40% of Japan's VCM production and is the domestic leader in PVC resins, accounting for one-fourth of the national output.

including organic synthesis compounds, polyurethane catalysts, and specialty polymers. MDI is used to produce a variety of products, including thermal insulation for buildings and equipment; cushioning and paneling for automobiles; and packaging, sealants, and sporting goods.

Tosoh recognized the growing importance of MDI and its possible synergies with the company's vinyl chain in the mid-2000s. Between 2004 and 2005, the company added production facilities for aniline and carbon monoxide, two raw materials for MDI. The company also increased its equity stake in MDI and polyurethane maker Nippon Polyurethane Industry Co., Ltd. (NPU), to 51%, in 2006. These measures effectively converted Tosoh's vinyl chain to a vinyl isocyanate chain.

Our chlor-alkali and MDI operations are among the most integrated of the vinyl isocyanate chain. When demand for MDI and polyurethanes increases, NPU buys more raw materials from the vinyl chain operations. Projections show that demand for MDI is growing 10% annually in Asia, so this multiplier will become an ever more important driver of growth for Tosoh.

Other interconnections include the supply by the vinyl chain operations of chlorine for the production of isocyanates by the isocyanate chain. The hydrogen chloride produced, in turn, by the isocyanate chain operations is furnished to the vinyl chain operations where it is used to convert EDC to VCM.

In fiscal 2011, Tosoh brought all of its chlor-alkali operations under one roof. NPU's MDI business was moved from the Specialty Group to the Chlor-alkali Group.

#### Cement

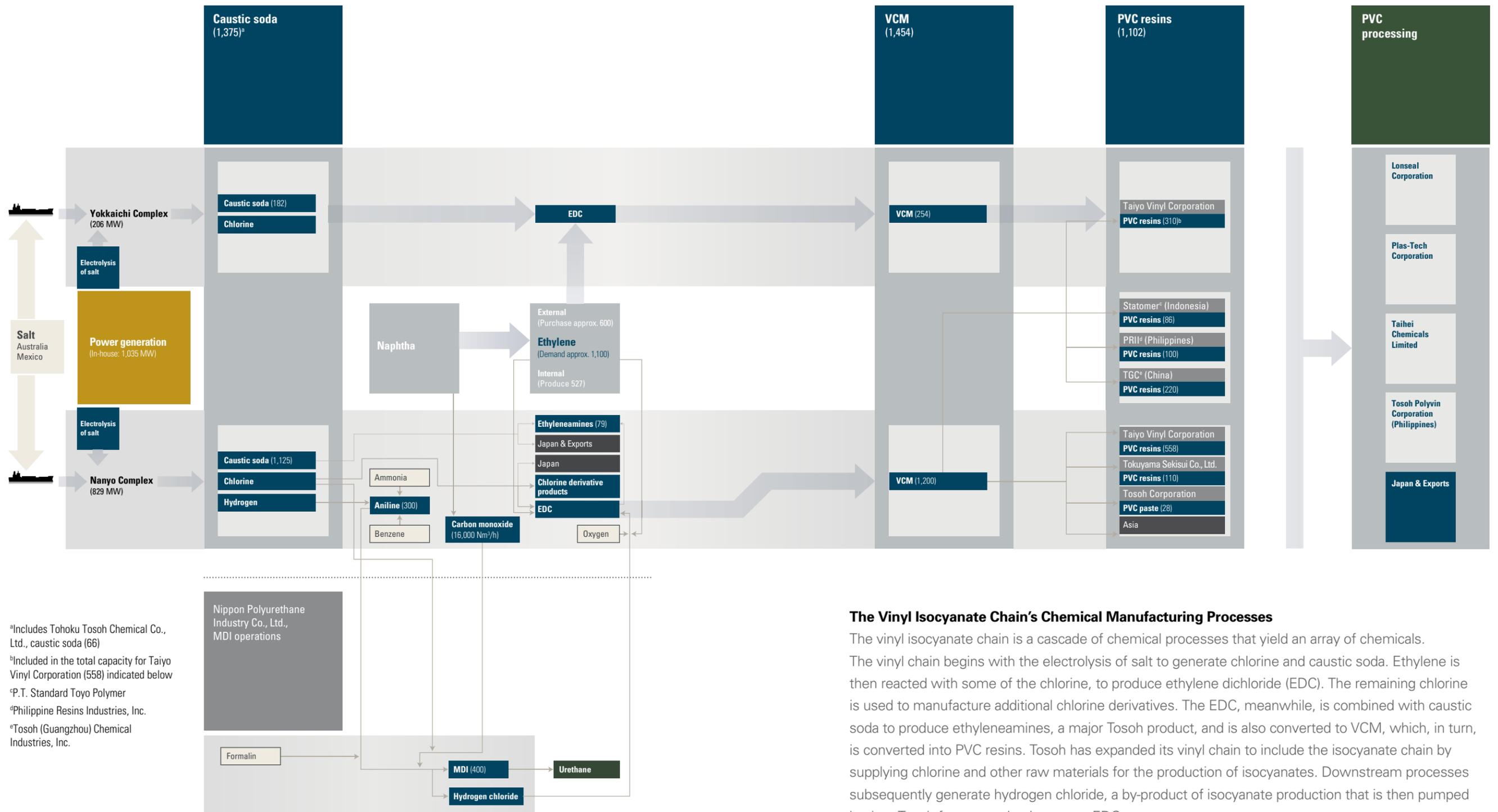
Tosoh began producing cement, the basic ingredient in concrete, as a means to recycle by-products from its other operations. The company makes three types of cement: ordinary portland cement, portland fly ash cement, and portland blast-furnace slag cement. Our cement plant is located at the Nanyo Complex, and all of the cement produced there is sold

to Taiheiyo Cement Corporation, Japan's largest cement manufacturer.

Tosoh adds coal ash, a by-product of electrical power generation, and slag, emitted by blast furnaces, to its cement mixture to enhance certain of its cement's properties, such as strength and water resistance. Cement production, therefore, helps the company process waste and by-products from its other operations, giving it an important role in Tosoh's overall value chain.

**TOSOH FULLY INTEGRATED VINYL ISOCYANATE CHAIN**

As of July 2011  
Units: 1,000 metric tons



<sup>a</sup>Includes Tohoku Tosoh Chemical Co., Ltd., caustic soda (66)  
<sup>b</sup>Included in the total capacity for Taiyo Vinyl Corporation (558) indicated below  
<sup>c</sup>P.T. Standard Toyo Polymer  
<sup>d</sup>Philippine Resins Industries, Inc.  
<sup>e</sup>Tosoh (Guangzhou) Chemical Industries, Inc.

Nippon Polyurethane Industry Co., Ltd., MDI operations

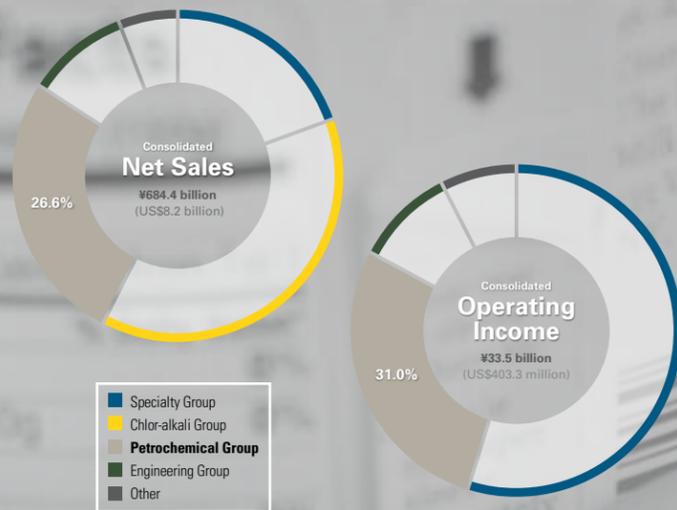
**The Vinyl Isocyanate Chain's Chemical Manufacturing Processes**

The vinyl isocyanate chain is a cascade of chemical processes that yield an array of chemicals. The vinyl chain begins with the electrolysis of salt to generate chlorine and caustic soda. Ethylene is then reacted with some of the chlorine, to produce ethylene dichloride (EDC). The remaining chlorine is used to manufacture additional chlorine derivatives. The EDC, meanwhile, is combined with caustic soda to produce ethyleneamines, a major Tosoh product, and is also converted to VCM, which, in turn, is converted into PVC resins. Tosoh has expanded its vinyl chain to include the isocyanate chain by supplying chlorine and other raw materials for the production of isocyanates. Downstream processes subsequently generate hydrogen chloride, a by-product of isocyanate production that is then pumped back to Tosoh for processing into more EDC.

# Rising to the Challenge: Petrochemical Group



High-performance laminates for photovoltaic cells and popular specialty items balance Tosoh's more traditional petrochemical product lines.



## FISCAL 2011 SUMMARY:

- **Net sales** rose 12.0%, to ¥181.9 billion (US\$2.2 billion).
- **Operating income** totaled ¥10.3 billion (US\$124.9 million), accounting for 31.0% of consolidated operating income.
- **CSM production** capacity doubled, to 8,500 metric tons.
- **New Middle Eastern** petrochemical plants pose concern.

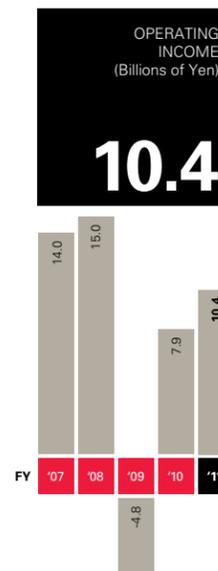
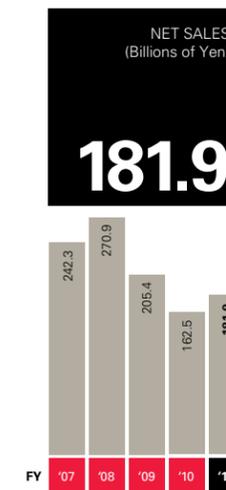
## Staying Competitive by Constantly Adjusting to Market Challenges

Amid constantly increasing global petrochemical production capacity, Tosoh's Petrochemical Group remains competitive by cutting its production costs and moving its products upstream. The group's enabling of its facilities to use different feedstock lowers expenses and helps to hedge the risk of price fluctuations.

In addition, the Petrochemical Group has diversified its product lines. High-performance laminates for photovoltaic cells and popular specialty items balance Tosoh's more traditional product lines for medicines, clothing, television and radio components, automobile parts, building materials, food packaging, paints, and more.

The Petrochemical Group is at the heart of Tosoh's operations. It supplies roughly half of the ethylene Tosoh requires for its

vinyl isocyanate chain and polyethylene operations. The group's challenge is to provide the approximately 500,000 metric tons of ethylene that it manufactures in-house annually at a cost that keeps other petrochemicals competitive in the market. It is rising to that challenge in part through flexible feedstock strategies. The Petrochemical Group purchases from third parties an amount of ethylene more than it produces. A secondary challenge for the group is to manage its product mix to take advantage of or to compensate for continually changing market demand.



## Providing Industry with an Extensive Portfolio of Building Blocks

Tosoh began diversifying into petrochemicals in the late 1950s. The product line was a good fit with the company's other operations and with its mission to support the manufacturing industry and thereby fuel progress. We did not, however, enter the petrochemical market full scale until 1964 and the height of Japan's era of high economic growth.

It was in 1964 when one of our joint ventures began producing EDC, the main precursor for VCM. The wisdom of adding these building blocks of

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modern industry is obvious today. The Petrochemical Group accounts for around one-fourth of Tosoh's net sales and for one-third of its operating profit.

### Olefins

Olefins are basic chemicals that Tosoh and its customers use to create a vast array of products, from automotive additives to flavors and fragrances. Tosoh has used its olefins feedstock to become an integrated manufacturer of hydrocarbon-based products and their derivatives. Major products in this category include ethylene, propylene, and cumene.

Ethylene is the precursor of polyethylene, from which springs the array of polymer products manufactured by Tosoh. Propylene is the precursor of polypropylene, a polymer that Tosoh applies broadly in such

industries as packaging, textile, and medical equipment. And cumene is generally converted to phenol, a key ingredient for Tosoh's manufacture of phenolic resins, polycarbonate resins, and epoxy resins.

Olefin operations at Tosoh also include aromatic compounds. Benzene, for example, is a raw material for the cumene and aniline used in the Chlor-alkali Group's MDI operations to manufacture polyurethane.

Since petrochemical manufacturing is primarily dependent on naphtha, the upswing in oil prices poses a challenge to operational stability. The Petrochemical Group's response has been to implement a feedstock diversification strategy. That strategy includes reducing production costs by employing heavier naphtha grades, improving the recovery efficiency

CSM is in short supply worldwide, and Tosoh is the global leader in CSM production.

for spent C4 and C5 fractions, and shifting to butane and propane to enhance the flexibility of feedstock selection.

### Polymers

Plastics are pervasive in modern living, and Tosoh's polymer products are used in wide-ranging products manufactured by a spectrum of industries. They have application in everything from food packaging to agriculture, engineering, and distribution.

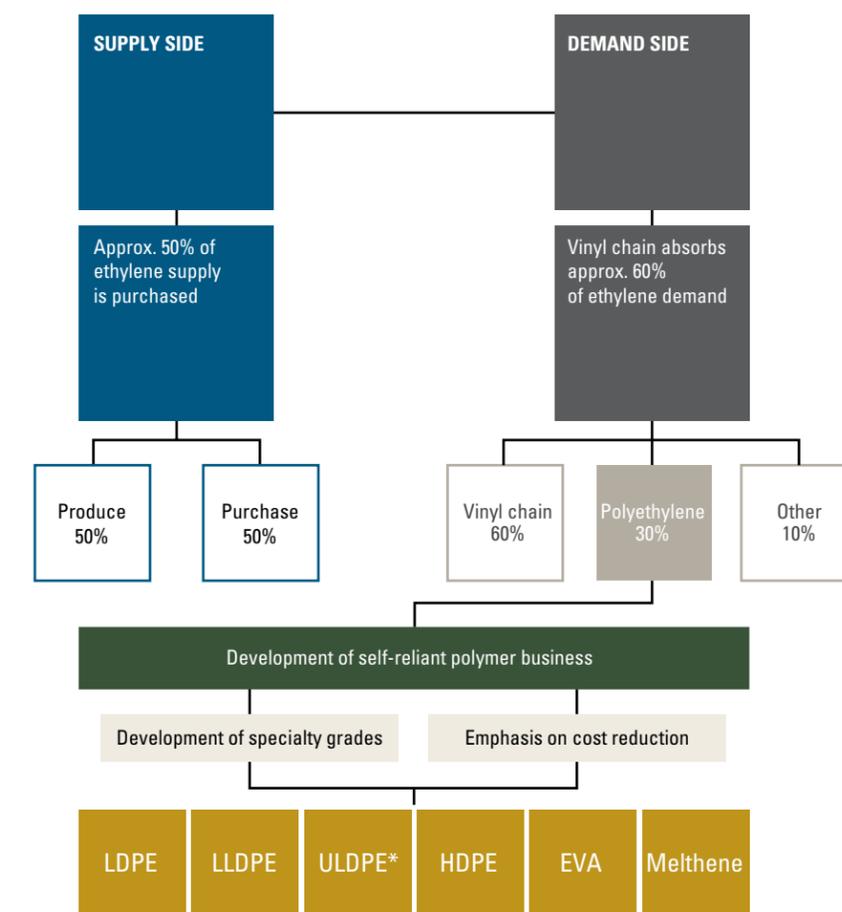
Our polyethylene lineup includes ethylene vinyl acetate (EVA); low-density

polyethylene (LDPE); linear low-density polyethylene (LLDPE); high-density polyethylene (HDPE); and functional polymers, including chloroprene rubber, adhesive polymers, and engineering plastic resins. We adapt product specifications to meet the needs of our customers for application in consumer and industrial products. As a result, different grades of EVA are used in everything from solar cells to shoe soles. LDPE goes into heavy-duty bags and agricultural film. And HDPE is found in injection moldings and fishing net filament.

A standout in Tosoh's polymer lineup is chlorosulphonated polyethylene (CSM) rubber. Highly durable, CSM is used extensively in automotive hoses, industrial rollers, electric power lines, high-performance adhesives, escalator handrails, leisure boats, and many other products. CSM, however, is in short supply worldwide, and Tosoh, as the global leader in CSM production, launched a new production line in fiscal 2011 that more than doubled its production capacity.

Among other notable polymer products, an engineering plastic, polyphenylene sulfide (PPS), is also in great demand. It is especially valued by automotive manufacturers, which utilize PPS to make their vehicles lighter and more fuel efficient.

### ETHYLENE OPERATIONS



\*Ultralow density polyethylene

Ethylene is a basic raw material used in Tosoh's vinyl chain in the processes for producing VCM and PVC and for its polymers business. Because it produces half of its production needs, Tosoh has a buffer against rising ethylene market prices. On the other hand, it must keep its production costs under control to ensure the competitiveness of its upstream products.

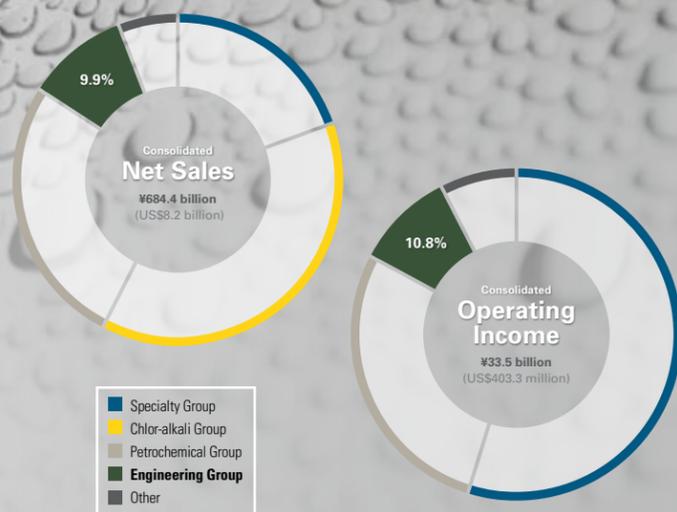


**Ethylene vinyl acetate copolymer (EVA)** is a soft and flexible polymer that can be processed like other thermoplastics. It is popularly used as a hot melt adhesive and as foam rubber. Recently, it has gained significant attention for its application in encapsulant films in the rapidly growing solar cell market.

# Rising to the Challenge: Engineering Group



The Engineering Group is primarily environment oriented and includes the water treatment, soil purification and remediation, and construction operations of consolidated subsidiaries.



## FISCAL 2011 SUMMARY:

- **Net sales** recovered 14.7%, to ¥67.7 billion (US\$814.2 million).
- **Operating income** amounted to ¥3.6 billion (US\$43.6 million), accounting for 10.8% of consolidated operating income.
- **Engineering Group** was established in fiscal year 2011 and combines businesses of several subsidiaries.
- **Organo Corporation** continues to target overseas opportunities for growth.

Effective June 29, 2010, Tosoh moved the water treatment business of its subsidiary Organo Corporation to its newly established Engineering Group. The soil purification and remediation operations of Eco-Techno Corporation and the construction operations of Tohoku Denki Tekko Co., Ltd., all of which formerly were under the Service Group, also have been transferred to the Engineering Group.

## Water Treatment

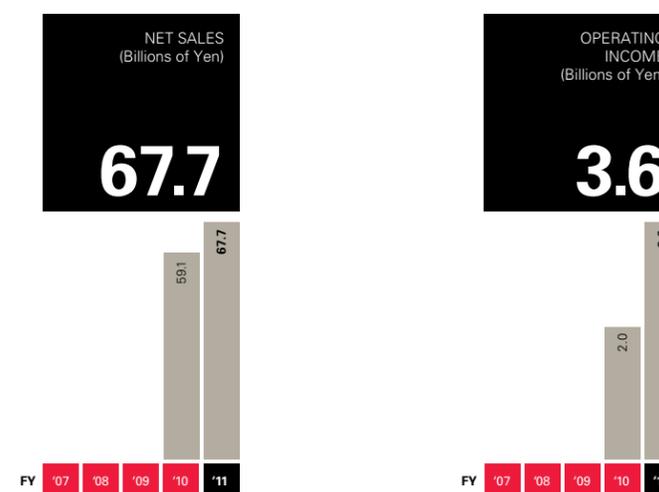
Tosoh subsidiary Organo Corporation is a leader in water treatment and pure generation technologies and systems for industry. Its water treatment systems for industry and for municipal waterworks and sewage treatment plants and its soil remediation technologies are considered to be among the best globally.

Organo's businesses, however, face many challenges in Japan's maturing market.

Capital investment has been weak in the public sector in Japan for many years, and Organo's high-tech business is susceptible to electronics industry business cycles. Fortunately, a huge potential market for Organo's products and services exists elsewhere in Asia. The subsidiary is steadily gaining ground in the public and private sectors of many Asian countries that will experience rapid infrastructure growth over the next few decades.

The history of Organo is the history of water purification in Japan. The subsidiary began operations in 1946 by marketing Japan's first ion-exchange water distillation system. Over the years, Organo has been an important contributor to progress in industry and the daily lives of people through its water treatment systems and products for municipal waterworks and sewage treatment plants, oil refineries, and the electric power, pharmaceuticals, food processing, and IT and electronics industries. Tosoh Corporation acquired equity in Organo in 1955 and retains a 41.20% interest in the company.

Organo's operations are built around two business segments: water treatment engineering and functional products. The water treatment business is further



Note: In this report, calculations for fiscal years 2010 and 2011 were adjusted to reflect the reorganization that went into effect at the beginning of fiscal 2011. Previous-year (fiscal 2007–2009) figures for the Engineering Group were not calculated.

divided into the plant and solution businesses. The plant business markets water treatment systems, while the solution business maintains and manages delivered systems. The functional product business sells consumables, such as standard products, chemicals, and food processing materials.

Ultrapure water systems feature some of Organo's most advanced technologies. These systems are essential for the cleaning of semiconductor devices and LC panels, the production of pharmaceuticals, the safeguarding of generation systems at thermal and nuclear power stations, and the analysis

of trace substances. Organo's San Kan Oh multifunctional water system series for cleaning semiconductors and LC panels was awarded the top Excellent Environmental Equipment Award by the Japanese Ministry of Economy, Trade and Industry in 2007.

In 2010, Organo Corporation began the full-scale commercialization of two series of ion-exchange resins that it has developed to provide superultrapure water for use in the electronics industry. The miniaturization of semiconductors has boosted demand for the type of resins represented by the subsidiary's new Amberlyst Dry and Orlite DS series,

which are used chiefly to remove ionic substances from fluid.

Organo was the first company in Japan to develop a system for removing organic chlorine compounds from groundwater. The subsidiary also is committed to advancing its soil remediation technology.

To sell and service the technologies and systems that it has furnished to its Japanese customers, Organo has established a strong network of maintenance and sales subsidiaries in Japan. It is building a similar network throughout the rest of Asia. Organo, meanwhile, has six production bases:

three in Japan and one in each of Malaysia, Taiwan, and China.

Water treatment is one of the Tosoh eco-friendly businesses included in the Responsible Care section of this report.

#### Other Operations

Tohoku Denki Tekko is a Tosoh Group construction company. To ensure cost efficiency for the Tosoh Group, however, Tohoku Denki Tekko must compete with non-group companies to win orders from the group.

Eco-Techno is another Tosoh Group member and provides soil purification and remediation. Its particular competency is in soil surveys and analyses. Bringing Organo and Eco-Techno together in the Engineering Group will raise their collaboration in and the technological level of their eco-businesses.

“ Organo has six production bases: three in Japan and one in each of Malaysia, Taiwan, and China. ”

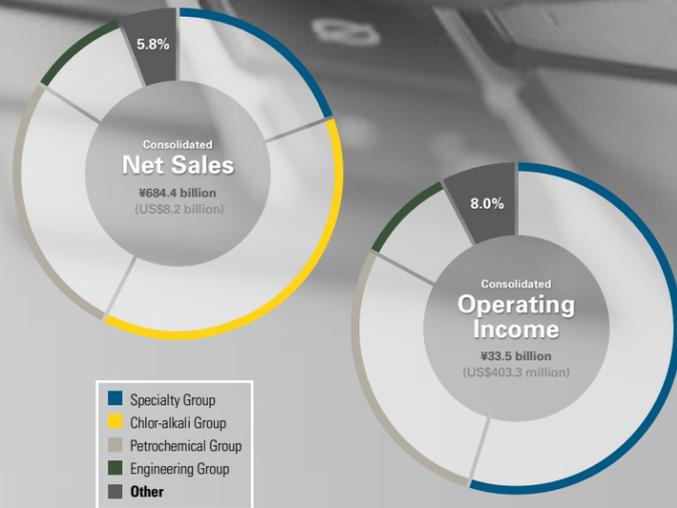
**Water treatment** is as old as civilization, reflecting its importance to non-nomadic life. Ancient Greek and Sanskrit writings dating back to 2000 BC outline water treatments, and methods of purifying water have been found in the tombs of Egyptian pharaohs. Organo continues the tradition in modern times and has been offering water treatment technologies for over 60 years.



# Rising to the Challenge: Other



Tosoh's other businesses handle facility engineering, construction, maintenance, expansion, upgrading and administrative services, personnel training, information technology (IT) support, and more.



## FISCAL 2011 SUMMARY:

- **Net sales** climbed 2.7%, to ¥39.6 billion (US\$476.6 million).
- **Operating income** increased to ¥2.7 billion (US\$32.2 million), accounting for 8.0% of consolidated operating income.
- **Eco-Techno Corporation and Tohoku Denki Tekko Co., Ltd.**, were transferred to the Engineering Group.
- **Other businesses** focused on increasing sales to non-Group companies.

## Ensuring Seamless Interaction between Company and Customer

The task of Tosoh's other businesses is to fill the gap between the company and its customers. That's an important challenge, because a business's ability to perform at peak, including ensuring timely delivery and cost advantage, requires myriad support services. It also requires the timely provision of those services—transporting goods and analyzing organic and inorganic

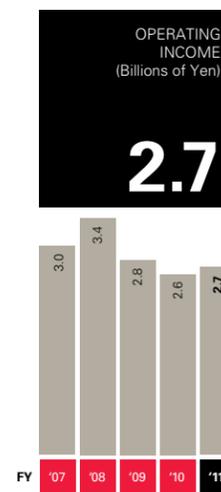
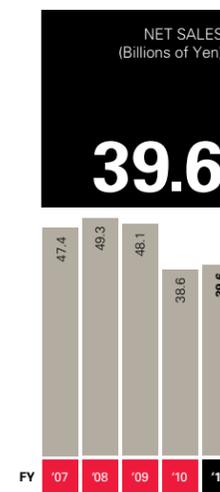
chemicals, polymers, and electronic materials—to the company's different businesses and to their customers.

Tosoh's other businesses thus are constantly on call. They handle facility engineering, construction, maintenance, expansion, upgrading and administrative services, personnel training, information technology (IT) support, and more.

Tosoh is encouraging the evolution of each of its other businesses from a cost

center to a profit center. Their collective performance evidences the effectiveness of this approach.

In the early days of Tosoh's history, the company dealt with trading and construction companies that were somewhat related to yet outside its core operations. Over the years, Tosoh's founding or merger and acquisition of subsidiaries to support various operations have propelled these other businesses into prominence within Tosoh. In its support of all of Tosoh's operations, they have become a competitive advantage.



## Strategic Move Ensures Cost-effectiveness

In April 2000, Tosoh spun off its information processing, analytical chemistry, and administrative operations into separate companies. This move was designed to improve Tosoh's consolidated performance and to enable the service-related companies to compete head to head with external suppliers by setting prices according to market rates. The process keeps Tosoh competitive and customers satisfied.

Today, that same cost-effective process applies to all of Tosoh's logistics,

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# Our R&D Commitment

Tosoh is building a logistics network to bolster its growing presence in China and elsewhere in Asia.

construction, engineering support, and related services. In Japan, other business also includes cost-effective financial services.

## Chemical Analysis

Chemical analysis operations provide Tosoh Group companies worldwide with a range of sophisticated services specializing in organic, inorganic, and polymer chemistry and in electronic materials. These services support Tosoh's product and application development efforts, ultimately benefiting customers.

## Information Systems

The importance of consistency in information and information systems cannot be underestimated in today's fast-moving markets. In-house operations develop and maintain IT solutions across the Tosoh Group and at client companies.

The company's information systems business maintain more than 300 servers, nearly 7,000 personal computers, and around 200 networks

across 47 companies. That work spans administrative and factory operation systems. Information systems also has developed and introduced an enterprise resource planning system that allows Tosoh management to assess the performance of Tosoh Group members quickly and easily.

## Human Resources and General Administration

Tosoh believes that its people are its strength and takes a hands-on approach to keeping its people happy. It has established other businesses to handle personnel management, employee benefit administration, and human resource training. Those operations focus on developing social services that support employees.

## Logistics

The efficiency required of Tosoh and other manufacturers in today's competitive world makes logistics a major consideration in any purchasing decision. Tosoh's logistics operations are responsible for ensuring that supplies and products reach their destinations intact and on time.

Maintaining transportation equipment, optimizing shipping schedules, and facilitating communications with bulk

terminals and internal customers are a crucial part of these activities. And the efficiency of our logistics operations has helped Tosoh gain ISO 9001 certification for the quality control systems at its 13 sites in Japan—another important consideration in purchasing decisions.

The company is working to build a similarly competitive logistics network in China. That will bolster Tosoh's growing presence in China and elsewhere in Asia.

New and improved technologies and products are the lifeblood of Tosoh's continued evolution. An R&D team of about 900 people is constantly at work on product and technology improvements and on laying the groundwork for future business. In fiscal 2011, we funded that team's R&D efforts to the tune of ¥13.4 billion (US\$161.2 million).

Through R&D, we aim to strengthen our core businesses and to enhance our ability to generate tomorrow's products today. That involves our own R&D programs and joint research with external research facilities, at universities and other educational institutions and at public research laboratories. Internally, we encourage collaboration to maximize organizational resources and generate synergies. Our research staff works closely with our business groups and divisions, and the flow of personnel between our research

We aim to strengthen our core businesses and to enhance our ability to generate tomorrow's products today.

facilities and our operations promotes close cooperation and idea sharing.

Various committees oversee distinct research themes and drive the commercialization of emergent products and technologies. To ensure balanced oversight, representatives from our business units, laboratories, and strategy divisions sit on these committees. The committees determine the most promising strategies for Tosoh's businesses while considering the Tosoh Group's social responsibilities and environmental policies.

## Organizational Structure

Six facilities in Japan drive our R&D activities. They include the Tokyo Research Center, the Yokkaichi Research Laboratory, the Nanyo Research Laboratory, the Technology Center, the R&D Center of our subsidiary Organo Corporation, and the Central Research Laboratory of our subsidiary Nippon Polyurethane Industry (NPU).

The Tokyo Research Center focuses on advanced materials for electronics, health care, and other leading-edge sectors. Researchers at the Yokkaichi Research Laboratory concentrate on petrochemicals and specialty polymers. At the Nanyo Research Laboratory, researchers develop specialty technologies for applications in

environmental protection and in inorganic, organic, and elastomeric materials. NPU's Central Research Laboratory undertakes research in urethane raw materials in our chlor-alkali operations, while Organo's R&D Center is responsible for research on the water treatment and related technologies of our engineering operations.

Our Technology Center, meanwhile, contributes engineering expertise to transform R&D ideas into production technologies and is responsible for designing production facilities for those technologies.

Complementing the six facilities that are the mainstays of R&D at Tosoh are specialized development and technology teams and departments for bioscience-related products and other operations in the Specialty Group.

## R&D Emphasis by Product Group

### Specialty Group

**R&D expenditures in fiscal 2011: ¥6.8 billion (US\$81.8 million)**

**Electronics:** silica glass, materials for organic light-emitting diodes, chemical vapor deposition and atomic layer deposition precursors for semiconductor devices, transparent conductive materials

**Bioscience:** immunoassay equipment and reagents, high-performance liquid chromatography diagnostic systems, genetic diagnostic equipment and reagents, high-performance separation media for pharmaceutical and medical analyses

**Environmental protection:** zeolites for automotive catalytic converters, chelating agents for removing heavy metals from water, materials for removing pollutants from soil

Through its functional materials R&D, Tosoh seeks to contribute to the development of products to meet society's most pressing needs in health care and environmental stewardship and more.

Tosoh is contributing to the development of the photovoltaic cell market and is in the process of commercializing two types of physical vapor deposition (PVD) materials for the transparent electrode layer on a photovoltaic cell. Our zinc aluminum oxide (ZAO) product is for thin film silicon photovoltaic cells, and our indium tin oxide (ITO) product is for copper indium gallium selenide (CIGS) photovoltaic cells. Both products substantially increase the efficiency of photovoltaic energy conversion.

Recently, we announced our development of new transparent conducting oxide (TCO) sputtering targets. Our enhanced ITO and zinc aluminum oxide (ZAO)

TCO targets achieve higher photovoltaic cell efficiency than standard targets. The rapid development of the photovoltaic cell market, however, is increasing the cost of ITO materials. As a result, we are investigating lower-cost alternatives for use in photovoltaic cells.

Tosoh is also contributing to the evolution of the organic light-emitting diode (OLED) displays that are becoming the world standard for their high performance and energy conservation. We produce the high-efficiency electron hole transport materials used in OLED displays using a patented palladium alkylphosphine catalyst-based technology.

In addition, our R&D personnel are working on energy and environmental conservation solutions. A project team is investigating materials for use in the next generation of batteries for hybrid and electric vehicles. R&D personnel also continue to develop eco-products that improve Tosoh's heavy metal chelating and soil-remediation agents.

The global health care industry, meanwhile, faces old and new challenges. In developing countries, the priority is typically on controlling infectious diseases. In developed countries, the concern is primarily diseases such as cardiovascular diseases, cancer, and diabetes. Tosoh's R&D of medical diagnostic systems supports the accurate and rapid diagnosis and effective

treatment of such ailments and helps to raise the level of health care globally.

Cutting-edge technologies characterize Tosoh's medical diagnostic systems. The Tokyo Research Center, for example, designs diagnostic and particularly genetic testing tools based on genetic analysis and genetic engineering technologies. Our systems thus also contribute to research on the frontiers of medical science and drug discovery.

#### Chlor-alkali Group

**R&D expenditures in fiscal 2011: ¥2.6 billion (US\$31.3 million)**

**Vinyl isocyanate chain process technologies:** energy-saving cathodes for electrolyzing salt, improved methods for producing aniline, other such technologies

Tosoh's innovation in electrolysis and other technologies strengthens the vinyl isocyanate chain that is the core of the company's business in basic chemicals.

Tosoh's n-BiTAC bipolar ion-exchange membrane electrolyzer cells are the first step in the integrated operations of the company's vinyl isocyanate chain. They are the best of their kind in electrical efficiency, at eight kiloamperes per square meter, and support a 5% reduction in power consumption compared with conventional cells. Tosoh R&D, meanwhile, continues to develop and test cathodes that likewise

conserve power in the vinyl isocyanate chain's electrolysis of salt.

Tosoh and its subsidiary NPU collaborate in R&D to improve the vinyl isocyanate chain's production processes. They also cooperate in developing applications for polyurethane foam and other urethane-based products.

#### Petrochemical Group

**R&D expenditures in fiscal 2011: ¥2.2 billion (US\$26.5 million)**

**Polyethylene:** high-performance materials for laminates and food packaging, including high melt strength polyethylene—with molding-grade applications in development—and ethylene vinyl acetate film for encapsulating photovoltaic cells, quality improvements in production processes, increased transparency in film

R&D in petrochemicals at Tosoh focuses on improving and developing polymers and related technologies.

Tosoh's development and improvement program for commodity polyethylenes aims to differentiate its products in the market through added value. Our new and better grades of foams, laminates, food product packaging, and other applications contribute to our sales of petrochemicals. We also continue to develop new applications for our high melt elasticity

polyethylenes. Our goal is to expand their use in the automotive, packaging, and construction materials industries.

Another area of focus is photovoltaic cells. We are developing resins for this growing market, with an emphasis on high-performance ethylene vinyl acetate (EVA) sealing film. Tosoh is one of only a few companies worldwide making grades of EVA suitable for the encapsulant film of photovoltaic cells.

We also are developing polyphenylene sulfide (PPS) resins with superior metal bonding and high thermal conductivity characteristics. Tosoh has had good success in introducing metal adhesion PPS resins for the electronics industry. We also have commercialized several high heat conductivity grades of PPS resin.

Our R&D in chloroprene rubber is centered on reengineering our manufacturing processes to expand production. Similarly, we are working to improve our production processes for chlorosulphonated polyethylene (CSM) rubber. We also are developing new grades of CSM.

Petrochemical-related R&D programs are in addition tasked with discovering new applications for PVC paste besides its use in wallpaper and flooring materials. We also are aggressively developing new polymer materials for use in optical

materials for LCDs and in substrate materials for flexible displays.

#### Engineering Group

**R&D expenditures in fiscal 2011: ¥1.8 billion (US\$21.6 million)**

**Water treatment technologies:** ultrapure water production, purified water production, filtration, wastewater treatment, valuable resource recovery, waste reduction, groundwater treatment, ion-exchange membranes

**Soil treatment technologies:** soil remediation

The R&D Center of our subsidiary Organo Corporation focuses on developing technologies related to water or wastewater treatment, soil remediation, and fuel cells and other energy-related technologies.

Advances in electronic technologies have raised the bar on water purity for cleaning semiconductors, liquid crystal panels, and many other electronic components to the level of super-ultrapurity.

# Tosoh's Technology Contributes to the Environmental Age

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Tosoh believes that chemistry will contribute significantly to resolving sustainability issues worldwide. We are dedicated to improving the quality of life through environmental preservation, to ensuring the safety and health of our employees and society, and to achieving economic progress. Our principal activities regarding sustainability are organized around our Responsible Care program, which has been in place officially since 1995. We invite you to take a close look at Tosoh's corporate social responsibility initiatives and their results.

As a small step toward conserving resources, and because our operations continue to expand year by year, we have decided to release a larger proportion of our corporate information on the Internet. The Tosoh corporate website is in the process of being updated, but we expect the entire Responsible Care report online by the end of calendar year 2011. Our report on our Responsible Care activities for fiscal 2011 covers the period from April 1, 2010, to March 31, 2011.

[MORE AT WWW.TOSOH.COM](http://www.tosoh.com)

## Special Feature

### Effectively Using Natural Resources to Achieve a Recycling Society

Utilizing its scale and technology, Tosoh's Nanyo Complex makes a major contribution to achieving a recycling society. It collects waste produced on location and from households and other companies in the area and recycles it into new products.

#### Changing Refuse into Raw Materials and Fuel

The Nanyo Complex's cement plant processes approximately 350,000 metric tons of refuse annually for use as raw material for cement. This includes such waste and by-products as household garbage, used tires, and industrial waste. The industrial waste comes from the operations of the Nanyo Complex and other companies.

The raw material for cement is incinerated in a kiln at the high temperature of approximately 1,500°C to break down all toxins. This allows a wide range of materials to be substituted in producing raw material or fuel. The kiln also has a chlor-bypass system which enables the processing of even waste with high concentrations of chloride. The bypass system removes gases and cleans chloride compounds adhered to the dust in those gases.

Tosoh recycles bromine and chlorine for use as raw materials or other applications. The Nanyo Complex has facilities for recovering chlorine and bromine from its own and externally sourced production effluents. It also has facilities to process salt by-products from ethyleneamine

production and refine them into high-purity sodium chloride.

#### Strong collaboration in recycling

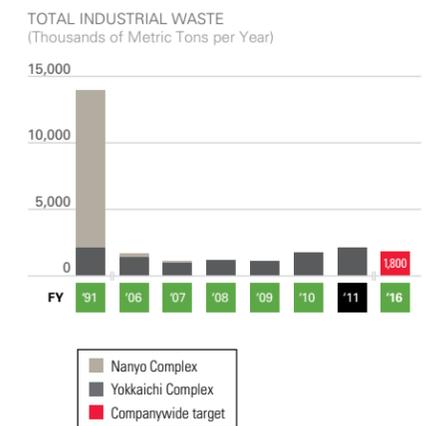
The Shunan City Recycling Plaza began operation in Yamaguchi Prefecture in April 2011 and is nicknamed Pegasus. It supplies the nearby Nanyo Complex with semi-processed plastic waste collected from households for use as fuel in Tosoh's cement plant.

It also is the scene of joint research by the city and Tosoh aimed at reducing the amount of coal used by Tosoh's operations and the amount of carbon dioxide those operations emit. Another research theme centers on extending the useful life of landfill sites.

Shunan City, meanwhile, has also long supplied the Nanyo Complex with the refuse-derived fuel (RDF) made at its Shunan Fuel Conversion Facility, otherwise known as Phoenix. Such cooperative measures aid Tosoh in its continued efforts to contribute to achieving a recycling society.

By recycling waste at its cement plant and implementing other measures,

Tosoh pushed its total annual amount of industrial waste generated to 2,100 metric tons in fiscal 2011. This represents an 85% decline from the 14,000 metric tons produced in fiscal 1991. Our next target is to reduce our total annual industrial waste generated to less than 1,800 metric tons by the end of fiscal 2016.



## Eco-products and Technologies

The Tosoh Group strives to lessen the adverse impact of its operations on and to maximize its positive contributions to the environment. Our efforts at Tosoh include the development of products and technologies that contribute significantly to global environmental preservation.

Plastic window sash contributes to an environmentally friendly and comfortable home life.

Environmental issues and rising energy costs increasingly require that people implement energy conservation measures in their homes. Amid this trend, the spotlight is on the plastic sash for the high-energy conservation benefits of its heat conduction properties.

Plastic conducts 1/1000th of the heat transmitted by aluminum. Since windows are the main area of heat inflow and outflow in a house, installing plastic sashes yields great benefits. Insulation and heat-barrier performance improves, enabling families to enjoy cooler summers and warmer winters inside their homes and declining air-conditioning and heating costs. Additional benefits include soundproofing and dampening and the prevention of condensation on windows in winter. When renovating, moreover, house owners can keep their existing windows, simply installing an inner plastic sash and window set to suit the refurbishment.



Tosoh is Japan's largest supplier of polyvinyl chloride, a product that conserves resources and minimizes environmental impact. Our vinyl chloride resin is a strong, easy-to-work-with material that neither rusts nor decays. As such, it is used globally in building materials, including in pipes, wallpaper, and window sashes, and in various household goods and medical products. Its widespread use contributes to significant reductions in carbon dioxide (CO<sub>2</sub>) emissions. As can be seen in the graphs below, the amount of CO<sub>2</sub> released during the manufacture of plastic sashes is much lower than aluminum. Plastic sashes also provide savings in heating and cooling costs.

### ENERGY-EFFICIENT PLASTIC SASHES (STAND-ALONE HOUSING)



- 1) Japan nationwide average insulated house (1980 Energy Saving Standard)
- 2) Heat pump style air conditioner set at 27°C in the summer and 19°C in the winter only when present in room
- 3) Electricity cost ¥23/kWh

Source: Department of Architecture, Faculty of Engineering, Tokyo University

Solar cells capture and channel solar energy and are among Tosoh's eco-products that show promise of significant growth.

Solar cells can be roughly divided into two types: crystalline silicon based and thin film based. Tosoh Group products are utilized as raw materials in or during the production process for both types of solar cells.

### Solar cell-grade diethylzinc

Diethylzinc is used as a zinc precursor for deposition of zinc oxide layers which are drawing the attention of the solar cell industry for their application in manufacturing transparent electrodes in thin film solar cells. The formation of a zinc oxide layer using diethylzinc takes place at temperatures below 200°C. At this low temperature, damage to the layer is minimal. In addition, production costs are lowered because the texture can be structured at the same time as the layer.

### EVA interlayer film for solar cells

Ethylene vinyl acetate (EVA) copolymer is widely used as an interlayer film for solar cells. It has become the material of choice in the industry because of its durability, high transmission of the complete light spectrum, flexibility, moisture proofing, and superior adherence to silicon cells and to glass surfaces.

### Quartz glass

Quartz glass is used in the formation of the electrical power generation layer of thin film solar cells because of its



Back-shielding films in solar cells contain Tosoh's ethylene vinyl acetate (EVA) copolymer, which remains elastic at low temperatures but resists flexing and environmental stress cracking.

resistance to chemicals, its durability, and its other special properties. It is also employed in the production of crystalline silicon solar cells. A low level of impurities makes quartz glass ideal for the crystalline silicon layer that acts as the substrate and the absorption layer for the solar cell.

### ITO and AZO sputtering targets

Indium tin oxide (ITO) and aluminum-doped zinc oxide (AZO) sputtering targets are used as materials for producing

transparent electrodes in solar cells. Tosoh offers special grades with enhanced heat resistance, moisture proofing, and other properties that contribute to the more efficient use of sunlight, resulting in higher conversion efficiency. ITO targets are also employed in the manufacture of organic electroluminescent (EL) displays and panels.

Displays and panels are, thanks in part to Tosoh's eco-products, undergoing a revolution that sees them consume little electricity and offer long service life and thereby contribute to energy and resource savings.

Tosoh quartz and targets also used in LC displays

Tosoh's quartz and sputtering targets find application in liquid crystal (LC) displays and panels in addition to solar cells. Quartz serves as the substrate for the photomask used when producing color filters and array substrates. And sputtering targets are employed in the formation of transparent electrodes for color filters and array substrates in LC displays and panels.

Organic EL electron transport materials and organic EL hole transport materials

Organic EL displays and panels feature superior characteristics to other displays and panels. They are ultrathin, have no need of backlights, and consume little power. Tosoh's EL hole transport material is produced using a method of low-temperature synthesis that minimizes waste.

Polyphenylene sulfide resin

Polyphenylene sulfide (PPS) resin is notable for its strong adherence to metals. As a result, it is preferred for use in battery covers and the housings of such products as smartphones and mobile phones.



Organic EL displays find widespread use in modern televisions, lighting, portable electronic devices, and more. Because they do not need backlighting, they consume fewer resources than liquid crystal panels. The electron transport materials developed by Tosoh are used in Organic EL displays.

Silica for battery separators

Used in battery separators, silica improves the performance of rechargeable lithium-ion batteries. It therefore finds preferred application in smartphones, mobile phones, and personal computers.

Tosoh quartz finds application in liquid crystal (LC) displays and panels in addition to solar cells.

Automobiles have long benefited from Tosoh products that make transportation greener, and Tosoh is moving quickly to supply electrolytic manganese dioxide (EMD) for the hybrid automobile market.

Electrolytic manganese dioxide

Rechargeable lithium-ion batteries are expected to become mainstream in electric, hybrid, plug-in hybrid, and other eco-vehicles. The lithium manganese oxide (LMO) used for their cathodes demonstrates superb safety because of its stable chemical structure. EMD is one of the raw materials used in producing LMO.

Silica for battery separators

Wet-type silica is employed in the separators of automobile batteries. The silica contributes to improved battery performance.

Silica for energy-saving tires

Energy-saving tires have been in the spotlight even more since the January 2010 start to a new labeling system for the fuel consumption performance of tires in Japan. Adding silica to tires reduces the tires' rolling resistance on pavement. This improves automobile fuel consumption as much as 6%.

Zeolites for cleaning the environment

Zeolites contribute to cleaning the environment in a broad range of applications. In catalytic converters, they remove toxic substances, such as carbon monoxide and nitrogen oxides, from automobile emissions. They also



Tosoh yttria-stabilized zirconia (YSZ) is typically applied in solid oxide fuel cells and in automobile oxygen sensors, where it helps to limit vehicle exhaust gases and to increase fuel economy.

filter volatile organic compound (VOC) gases from work environments and gas emissions from semiconductor factories.

Yttria-stabilized zirconia

Zirconia is utilized in sensors, fuel cells, and other components that assist in reducing exhaust emissions and improving fuel consumption.

PPS resin for hybrid vehicles

PPS resin has strong insulation and heat and chemical resistance properties.

Consequently, it is used in the housings of the condenser in hybrid vehicles.

[MORE AT WWW.TOSOH.COM](http://www.tosoh.com)

For a more comprehensive listing of Tosoh eco-products and technologies, visit us on the web.

## Responsible Care Activities

Tosoh fulfills its social responsibility as a chemical manufacturer by placing top priority on the protection of the environment, on operating safety, and on the health of its employees and the public at large.

The global chemical industry conducts a voluntary initiative called Responsible Care (RC) that aims to improve the performance of chemical companies in relation to the environment, safety, and health. Tosoh has been involved in this initiative since 1995, when it became a founding member of the Japan Responsible Care Council (JRCC).\*

The environment, safety, and health are top management priorities at Tosoh. As far back as 1992, the company drafted its own *Basic Environmental Principles and Environment, Safety, and Health Implementation Guidelines*. It has subsequently, in 1999, revised and combined those separate documents into one: *Basic Principles of the Environment, Safety, and Health and Implementation Guidelines*. Based on that document, each of Tosoh's departments formulate their own RC action plan.

 MORE AT [HTTP://WWW.NIKKAKYO.ORG/ORGANIZATIONS/JRCC/INDEX.HTML](http://www.nikkakyo.org/organizations/jrcc/index.html)

\*At April 1, 2011, there were 94 members of the JRCC. Globally, the RC program has spread to the chemical industries of 54 countries.

### Overview

#### Environmental preservation

Our efforts on behalf of the environment focus on reducing our per unit energy consumption and our quantity of industrial waste against historical benchmarks. Equally vital are our efforts to lower our discharge of materials designated under Japan's Pollutant Release and Transfer Register (PRTR) Law within specific timeframes.

It was among our goals to lower our per unit energy consumption 20% in fiscal year 2011 compared with fiscal 1991. For various reasons, we did not meet this goal in fiscal 2011, realizing instead only a 13.4% improvement. We now aim to achieve the 20% mark in fiscal 2013.

We also targeted a more than 89% reduction from fiscal 1991 in the quantity of our industrial waste, to under 1,500 metric tons, in fiscal 2011. We came close to achieving this goal, registering an 85%, or 2,100-metric-ton, improvement. Our new target is a more than 65% improvement compared with fiscal 2001, to less than 1,800 metric tons, in fiscal 2016.

Our goal for decreasing our discharge of materials cited under Japan's PRTR Law

is a discharge of less than 330 metric tons in fiscal 2013. Revisions to the PRTR Law prior to fiscal 2011, however, increased the number of designated substances from 354 to 462. An additional revision to the law in fiscal 2011 means that the number of substances that require notification by Tosoh has risen from 58 to 72. Our discharge of PRTR-designated materials was 440 metric tons in fiscal 2011.

#### Safety and disaster prevention

Preventing accidents is a pillar of Responsible Care. In fiscal 2011, the parent company reported five operating incidents considered abnormal under Japan's act for preventing disasters at petrochemical complexes and other facilities. Two more such incidents were reported by Tosoh Group companies in Japan. The parent company also reported one incident related to Japan's High-Pressure Gas Safety Act.

Two lost-time incidents were reported by the parent company in fiscal 2011 and seven were reported by parent-company affiliates. Tosoh Group companies registered seven incidents, and their affiliates recorded five incidents.

Strengthening the safety assurance systems at its facilities in compliance with legal

The environment, safety, and health are top management priorities at Tosoh.

regulations is a priority for Tosoh. In fiscal 2011, Tosoh Group companies in the Nanyo and Yokkaichi Districts continued their safety and disaster-prevention programs. Group companies elsewhere, in Toyama and Miyazaki Prefectures, held information exchange events for safety officers under Tosoh head office leadership.

Voluntary safety initiatives included the Nanyo Complex's continuing Risk and Crisis Management (RCM) Project. The Yokkaichi Complex, meanwhile, continued its overall safety inspection and other programs.

The certification process under the High-Pressure Gas Safety Act and the Industrial Safety and Health Act was ongoing at Tosoh during fiscal 2011. That process compelled Tosoh production facilities to increase the effectiveness of their safety management systems, particularly the check aspect of their plan-do-check-act (PDCA) cycle. In addition, Tosoh reinforced the uniform plant safety evaluation system introduced in fiscal 2010 for all factory departments.

#### Chemical and product safety

Enhancing chemical and product safety is a foremost aim at Tosoh. In this regard, we

generate and manage material safety data sheets (MSDS) in compliance with the Globally Harmonized System (GHS) of Classification and Labeling for each country.

In fiscal 2011, we completed the notification of our compliance with the Classification, Labeling, and Packaging (CLP) Regulation for chemical substances being exported to the European Union. We also completed drafting the MSDS for China.

Tosoh similarly undertakes scientific risk assessment and reporting in compliance with the High Production Volume (HPV) Chemicals initiative. We also are registering substances designated by Europe's Registration, Evaluation, Authorization, and Restriction of Chemicals, or REACH, regulation.

During fiscal 2011, we completed the REACH registration of all substances listed under the first-phase deadline of November 30, 2010. We have begun work on the list of the second-phase deadline set for 2013. In fiscal 2012, we will ensure our compliance with the revisions to Japan's Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture.

#### Quality assurance

Our efforts to enhance our quality management of specialty products included inspections in fiscal 2011 of our quality management systems for organic EL materials. We also strengthened our quality management for our production and sale of pharmaceuticals and medical equipment.

Unfortunately, however, we experienced recalls in our in vitro diagnostics product operations and repair incidents in our medical equipment operations during fiscal 2011. In fiscal year 2012, we will take steps to reduce our logistics-related claims and to reinforce the quality management of our pharmaceutical-related operations.

#### Logistical safety

Securely transporting and storing chemical products is of enormous concern to Tosoh. We are, therefore, constantly reviewing and researching containerization to prevent problems. In fiscal 2011, we also reviewed our compliance with legal requirements for transporting hazardous materials on bulk carriers. And we continued our efforts to strengthen our bromine transport safety measures.

#### Dialogue with the public

Communicating with the communities where we live and work, in Japan and worldwide, allows us to demystify the far-reaching operations and responsibilities of a modern chemical company. In fiscal 2011, we participated in events with and reported to the local communities in the vicinity of our operations.

 MORE AT [WWW.TOSOH.COM](http://WWW.TOSOH.COM)

RC basic principles  
RC management  
RC promotion system  
RC activity categories  
The PDCA cycle

## Environment

Implementing strategies to combat global warming ensures a smaller footprint through examining manufacturing processes and applying life cycle assessment strategies.

Our target was to lower our per unit energy consumption below 80% in fiscal year 2011 compared with fiscal 1991. Although various energy efficiency improvements were made at each plant, we did not meet this goal in fiscal 2011, realizing instead only an improvement to 86.6%. Calculated in terms of CO<sub>2</sub> released from primary fuel consumption, our greenhouse gas emissions amounted to 690 metric tons. We are working to achieve a per unit energy consumption below the 80% mark in fiscal 2013.

### Energy efficiency

Tosoh is continuously improving the energy efficiency of its manufacturing processes. A Tosoh strength is its self-generation of energy using coal-fired power plants equipped with high-efficiency turbines. Those turbines, in combination with the heat energy from a portion of the steam generated by the boilers, supply the energy for and facilitate its balanced distribution across our manufacturing facilities.

### In-house power plant

State-of-the-art boiler no. 6 at the no. 2 power plant for the co-firing of woody biomass is a Nanyo Complex asset that supplies power and steam to production plants. The complex operates boilers enabling the mixed combustion of coal and woody biomass, and the no. 6 boiler boasts a high-efficiency 220,000 kW

power generating unit. Tosoh, meanwhile, has stopped using low-efficiency power generating units, and that and its use of the no. 6 boiler has helped it achieve around a 19% reduction in energy consumption.

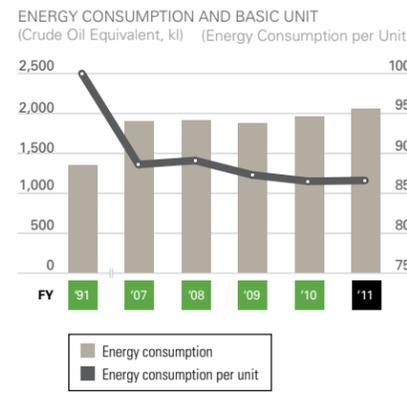
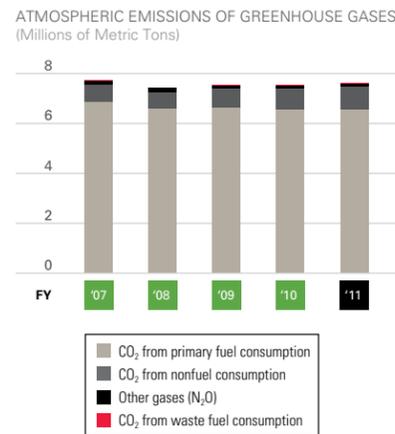
### Electrolysis plants

Conventional electrolysis plants consist of electrolyzers that require enormous amounts of electricity. Electrolysis plants at Tosoh, however, are a demonstration of energy saving in action. We've almost doubled production in our electrolysis plants since 1990, and yet we've still managed to reduce their energy calorie units, fully 9%. The n-BiTAC electrolyzers we developed with Chlorine Engineers Co., Ltd., draw 9% fewer calorie units than

conventional electrolyzers and are popular among electrolysis plant operators in North America, Europe, and Asia.

[MORE AT WWW.TOSOH.COM](http://www.tosoh.com)

Vinyl Chloride Monomer Plant Conservation and Logistics



Initiatives to reduce emissions lessen the impact of chemical substances through a consistent approach.

### Emissions

Tosoh is implementing various measures to reduce its emissions of substances covered by Japan's Pollutant Release and Transfer Register (PRTR) Law. The company set a target to lower those emissions from 2,800 metric tons at the end of fiscal 1996 to less than 360 metric tons by fiscal year-end 2010. We only achieved a reduction to 470 metric tons in fiscal 2010. Mainly through the completion of environmental facilities for, among other substances, ethylenediamine, chloroethylene, and high-density polyethylene, we achieved our target, albeit a year late, with a reduction in emissions to 250 metric tons in fiscal 2011.

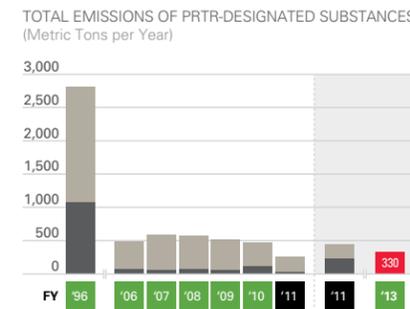
Revisions to the PRTR Law prior to fiscal 2011, however, increased the number of designated substances from 354 to 462. An additional revision to the law in fiscal 2011 means that the number of substances that require notification by Tosoh has risen from 58 to 72. Our discharge of PRTR-designated materials was 440 metric tons in fiscal 2011. As such, we have set a new reduced emissions target for fiscal 2013 of less than 330 metric tons (see Total Emissions graph below). We are also working to reduce our emissions of VOCs.

The graphs below and on the next page detail our progress in curtailing atmospheric emissions of sulfur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), and dust. Reducing our

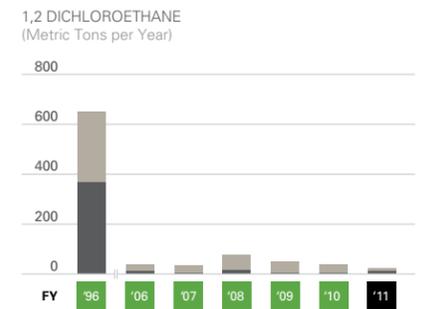
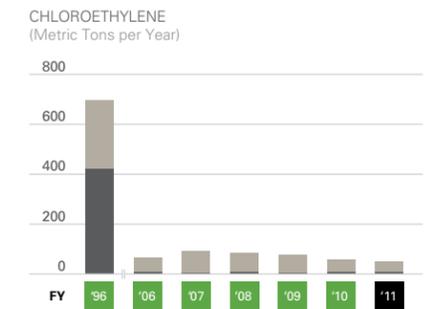
output of those substances is important and we continue working to further curtail those emissions. We also take the initiative in keeping our emissions of waterborne pollutants well below the levels mandated by Japan's Water Pollution Control Law.

[MORE AT WWW.TOSOH.COM](http://www.tosoh.com)

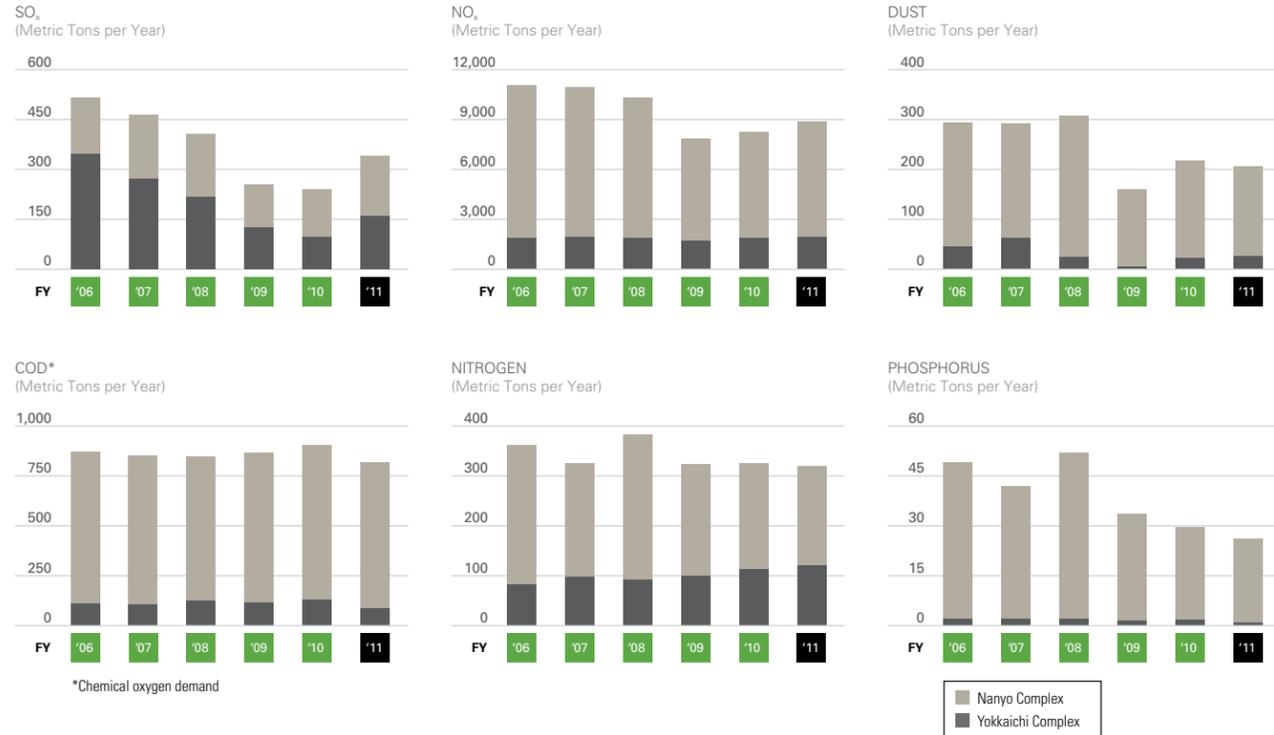
Tosoh is continuously improving the energy efficiency of its manufacturing processes.



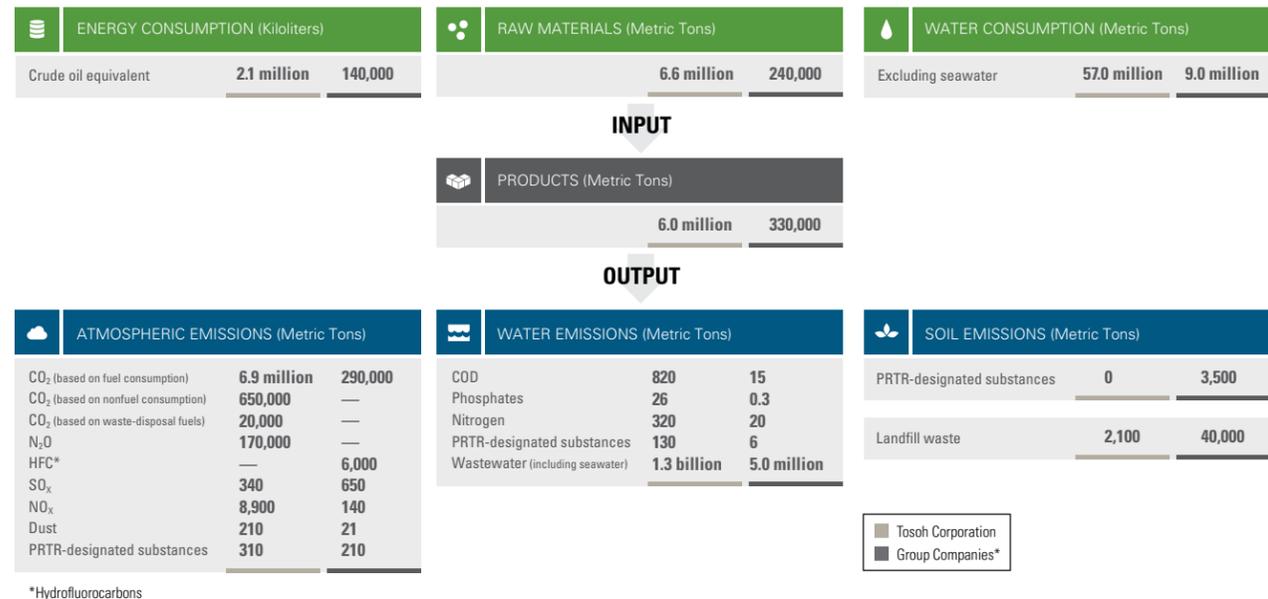
Note: The gray region in the graph above represents emissions after revisions to the PRTR law.



Legend:  
 ■ Nanyo Complex  
 ■ Yokkaichi Complex  
 ■ Companywide target



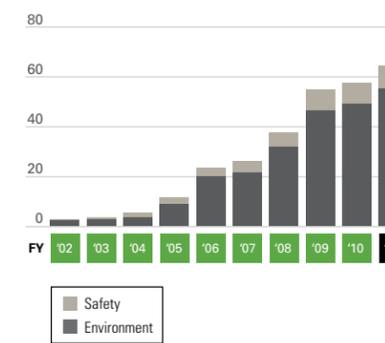
Input and output evaluates the impact, cost, and sustainable progress of our manufacturing sites.



ENVIRONMENTAL PROTECTION COSTS

		Capital spending		Current expenditures	
		FY 2011	FY 2010	10-year total (FY 2002–FY 2011)	FY 2011
Costs within business area		6.1	2.3	52.9	13.5
Pollution prevention	Exhaust gas and wastewater treatment	5.2	1.5	32.8	7.7
Global environmental protection	Electric power and fuel-reduction measures	0.7	0.4	9.6	2.6
Resource recycling	Raw material and waste product recovery	0.2	0.4	10.5	3.2
Administration	Environmental management, impact assessment, environmental report publishing, environmental load auditing	0.0	0.0	0.4	0.7
Research and development	Environmental load-reduction technology and environmental product development	0.1	0.1	2.0	2.3
Social activities	Association fees, planting, community contributions	0.0	0.0	0.0	0.2
Other	—	0.0	0.0	0.0	0.1
<b>Total</b>		<b>6.2</b>	<b>2.5</b>	<b>55.3</b>	<b>16.7</b>

CUMULATIVE INVESTMENT IN ENVIRONMENT AND SAFETY (Billions of Yen)



ECONOMIC BENEFITS (Billions of Yen)

		FY 2011	FY 2010
Income	Contract recycling of industrial waste from outside Tosoh and sale of nonconforming products	0.6	0.5
Cost savings	Energy conservation	2.4	2.4
	Cost reductions in waste treatment through resource conservation and recycling	4.7	4.3
<b>Total</b>		<b>7.7</b>	<b>7.1</b>

COST-BENEFIT ACCOUNTING FOR ENVIRONMENTAL PROTECTION

We undertake environmental cost-benefit accounting in accordance with the 2005 edition of the *Environmental Accounting Guidelines* established by Japan's Ministry of the Environment. In regard to items not covered by those guidelines, we employ our own assumptions in making calculations. The results presented here are for the Nanyo Complex, the Nanyo Research Laboratory, the Technology Center, the Yokkaichi Complex, the Yokkaichi Research Laboratory, the Tokyo Research Center, the Tokyo Research Laboratory, and our Tokyo corporate headquarters.

Group Companies\*

- Tosoh SGM Corporation
- Tosoh Hyuga Corporation
- Tosoh Speciality Materials Corporation
- Tosoh Finechem Corporation
- Tosoh Quartz Corporation
- Tosoh Silica Corporation
- Tosoh F-Tech, Inc.
- Tosoh Organic Chemicals Co., Ltd.
- Tosoh AIA, Inc.
- Tosoh Zeolum, Inc.
- Tosoh Hi-Tec, Inc.
- Tohoku Tosoh Chemical Co., Ltd.
- Rinkagaku Kogyo Co., Ltd.
- Tosoh Ceramics Co., Ltd.
- Toyo Polymer Co., Ltd.
- Hokutsu Kasei Co., Ltd.
- Lensor Co., Ltd.

## Safety

Plant safety begins and ends with people, such that each employee can make a difference.

### Protecting people and plants

Tosoh's approach to safety revolves around a proactive, groupwide culture that promotes personal responsibility in observing laws and ordinances. That approach also encompasses measurable plans that guide everyone's actions, the careful management of facilities to prevent accidents and disasters, education and training in emergency systems and safety related technologies, the elimination of accidents and disasters through meticulous analysis, the building of trust through openness and dialogue with the community, and checks and balances designed to improve subsequent action plans.

### Occupational health and safety

Tosoh strives to prevent accidents and lost-time incidents by implementing an occupational safety and health management system (OSHMS), which includes the risk assessment of processes and facilities and the analysis of close-call incidents. Our safety assurance activities were strengthened in fiscal 2011 with an examination chiefly of the initiatives and conditions of the production divisions in the Nanyo Complex by independent Risk and Crisis Management (RCM) project teams. Other such efforts focused on the Yokkaichi Complex. Meetings to exchange information on safety-related matters were held for four group companies in the Toyama region and for two in the Miyazaki

region to bolster safety throughout our organization in fiscal 2011.

Despite these efforts, the number of incidents in fiscal 2011 increased compared with the previous fiscal year. Two lost-time incidents were reported by the parent company in fiscal 2011 and seven were reported by parent-company affiliates. Tosoh, therefore, continues to make improvements toward eliminating accidents and lost-time incidents.

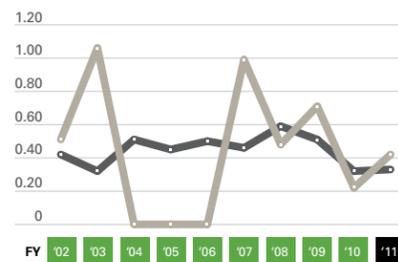
To raise safety awareness among workers and to reduce occupational accidents, Tosoh maintains a database of accidents, occupational injuries, and close calls from inside and outside the group. Reporting and sharing experiences of close calls and analyzing the data yield valuable insights into ways to prevent similar incidents and to execute safety measures.

[MORE AT WWW.TOSOH.COM](http://www.tosoh.com)

- Disaster Prevention Policies and Activities
- High-Pressure Gas Control Self-Inspection Certification System
- Plant Safety Management System
- Risk Management Methods
- Close-Call Analysis
- Employee Health Initiatives and Objectives

### NUMBER AND SEVERITY OF OCCUPATIONAL INJURIES

COMPARATIVE OCCURRENCE RATES



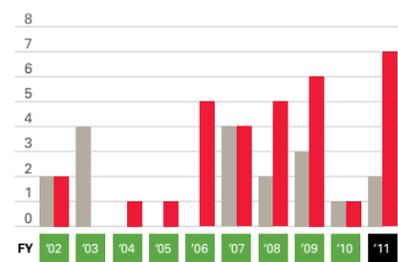
**Occurrence rate** = (number of injuries and deaths / total work hours) x 1,000,000

COMPARATIVE SEVERITY RATES



**Severity rate** = (number of lost workdays / total work hours) x 1,000

NUMBER OF INDUSTRIAL ACCIDENTS RESULTING IN LOST WORKDAYS (Number of Incidents)



Legend:  
 ■ Tosoh employees  
 ■ Eight JICA industrial sectors  
 ■ Contractor company employees

Chemical and product safety is assured through strict compliance and optimal management.

### Promoting Product Safety

#### Participating in Global Initiatives

The 2002 World Summit on Sustainable Development, held in Johannesburg, set goals for minimizing the environmental and health impact of chemical products and their manufacturing by 2020. That summit led to the establishment in 2006 of the Strategic Approach to International Chemicals Management as a policy framework for promoting chemical safety worldwide.

Tosoh is a signatory to the Japan Chemical Industry Association's declaration of support for the Responsible Care Global Charter promulgated by the International Council of Chemical Associations (ICCA) in connection with that framework. Through this charter and the execution of the Global Product Strategy (GPS), our entire supply chain and management of chemicals are being strengthened.

#### Activities in Japan

The Japan Challenge Program is a government-industry collaboration launched in 2005. Tosoh works with that program to collect data on and evaluate substances to promote chemical safety.

The Japan Chemical Industry Association, meanwhile, is developing a Japanese version of the GPS initiative in which

Tosoh is engaged. Tosoh has participated in the development of what is known as the Japan Initiative of Product Stewardship (JIPS) from the outset to strengthen product safety domestically.

#### Undertaking Initiatives to Remain Compliant

##### Notification and Registering of Chemical Substances

Tosoh complies with revisions to Japan's Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture. The revision in fiscal 2011 requires annual notification be made by manufacturers of new chemical substances as well as those already in use. This is applicable when both the old and new substances are manufactured and transported above a set amount. Tosoh is therefore working with its business units to confirm manufactured and transported volumes as well as applications.

We also are registering substances designated by Europe's Registration, Evaluation, Authorization, and Restriction of Chemicals, or REACH, regulation. During fiscal 2011, we completed the registration of all substances listed under the first-phase deadline of November 30, 2010. We have begun work on the list of the second-phase deadline, set for May of 2013.

#### Analysis and Labeling

Enhancing chemical and product safety is a foremost aim at Tosoh. In this regard, we generate and manage material safety data sheets (MSDS) and labeling in compliance with the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals. In fiscal 2011, we completed the notification of our compliance with the Classification, Labeling, and Packaging (CLP) Regulation for chemical substances being exported to the European Union.

We also are completing GHS-related activities for designated substances for China and for Korea and Singapore. We completed these activities by the deadlines and will continue to act accordingly as the anticipated introduction of GHS takes place in other countries.

[MORE AT WWW.TOSOH.COM](http://www.tosoh.com)

- Product Safety Fundamental Policy and Quality Assurance
- Screening Process Management System
- Green Purchasing
- Quality Assurance

## Society

Tosoh strives to be a part of the community.

### Japan

Public-interest activities in Japan include year-round plant tours at our Nanyo and Yokkaichi Complexes that are fun and educational for school classes and other groups. We lend our support, meanwhile, to community activities, such as sporting events and festivals. And we participate regularly in community forums where company representatives field questions and comments about the company's operations and undertake follow-up countermeasures as warranted. That includes participating in community dialogue meetings convened under the auspices of the Japan Responsible Care Council. Employees at several Tosoh plants in Japan, frequently joined by family members, participate in neighborhood cleanups and watershed maintenance activities.

### Tosoh Group Community Activities Abroad

For over a decade, Tosoh Group companies in the United States have banded together to increase the well-being of their communities. They participate in various activities and encourage all of their employees and their employees' families to join in. We look at two such community activities in the United States and at the exciting community initiatives of a Tosoh Group company in the Philippines.

### American Red Cross

The Red Cross blood drive comes to Tosoh in Grove City, Columbus, Ohio, every two months. In 2010, employees from Tosoh companies in Grove City donated 162 units of blood, sufficient for potentially saving 486 lives. As of July 2011, Tosoh companies in Grove City report 125 units collected, potentially saving 375 lives. Multiple employees have also reached a milestone of nine gallons of blood donated per individual.

### Christmas "Giving Tree"

Every year before Christmas, members of the Social Activities Committee (SAC) at Tosoh's Grove City location in Ohio visit select needy families to ask them their Christmas wishes. The committee members then set up a Christmas tree in the company cafeteria with ornaments revealing the "wish list" for each member of the families visited. The ornaments include the name and the age of the child or adult. In 2010, the SAC contacted the local schools and picked four families said to be particularly hard hit by the weak economy. Tosoh employees then donated more than 150 gifts valued at over \$800 to 17 children in those four families.

Tosoh Group company Philippines Resins Industries, Inc., serves its community in the Philippines in several ways. On a continuing basis, the company participates in scholarship programs and

tree plantings. It also provides donations to local communities for such activities as church construction, gift giving during the Christmas season, "fiesta" celebrations, and tourism. And as an active member of the Bataan Coastal Care Foundation, the company has participated in regular coastal cleanups, mangrove planting and reforestation, and emergency preparedness forums.

[MORE AT WWW.TOSOH.COM](http://www.tosoh.com)

- Employee Training
- Reemployment
- Sexual Harassment Prevention

For over a decade, Tosoh Group companies in the United States have banded together to increase the well-being of their communities.

### NANYO COMPLEX

Principal Products: Caustic soda, chlorides, vinyl chloride monomer, PVC paste, cement, polyethylene, polychloroprene rubber, specialty products

#### Environmental Data

SO <sub>x</sub> emissions volume	180 metric tons per year
NO <sub>x</sub> emissions volume	7,000 metric tons per year
Dust emissions volume	180 metric tons per year
Substances subject to the PRTR Law emissions volume	210 metric tons per year
COD emissions volume	730 metric tons per year
Total nitrogen emissions volume	200 metric tons per year
Total phosphorus emissions volume	25 metric tons per year
Wastewater (excluding seawater)	42 million metric tons per year
Wastewater (including seawater)	1.2 billion metric tons per year
Final waste materials disposal volume	0 metric tons per year
Number of complaints	
Odor	0
Noise	0
Vibration and others	0

### YOKKAICHI COMPLEX

Principal Products: Ethylene, propylene, cumene, polyethylene, PPS resins, petroleum resins, vinyl chloride monomers, PVC resins, caustic soda, chlorides

#### Environmental Data

SO <sub>x</sub> emissions volume	160 metric tons per year
NO <sub>x</sub> emissions volume	1,900 metric tons per year
Dust emissions volume	26 metric tons per year
Substances subject to the PRTR Law emissions volume	230 metric tons per year
COD emissions volume	88 metric tons per year
Total nitrogen emissions volume	120 metric tons per year
Total phosphorus emissions volume	1 metric tons per year
Wastewater (excluding seawater)	15 million metric tons per year
Wastewater (including seawater)	99 million metric tons per year
Final waste materials disposal volume	2,100 metric tons per year
Number of complaints	
Odor	0
Noise	0
Vibration and others	0

### STATUS OF ISO CERTIFICATION

Company name	Location
Japan ISO 9001	
Tosoh Corporation	Nanyo Complex, Yokkaichi Complex
Tosoh SGM Corporation	Nanyo Complex
Tosoh Hyuga Corporation	Hyuga
Tosoh Logistics Corporation	Entire company
Tosoh Speciality Materials Corporation	Entire company
Tosoh Finechem Corporation	Nanyo Complex
Tosoh Quartz Corporation	Entire company
Tosoh Silica Corporation	Nanyo Complex
Tosoh F-Tech, Inc.	Nanyo Complex
Tosoh AIA, Inc.	Entire company
Tosoh Zeolum, Inc.	Entire company
Tosoh Techno-System, Inc.	Entire company
Tosoh Hi-Tec, Inc.	Entire company
Tosoh Analysis and Research Center Co., Ltd.	Nanyo Complex, Yokkaichi Complex, Yamagata
Nippon Polyurethane Industry Co., Ltd.	Nanyo Complex
Organo Corporation	Plant Operations Department, Tsukuba, Functional Products Division, OPS
Tohoku Tosoh Chemical Co., Ltd.	Sakata
Taiheiyō Chemical Products Corp.	Entire company
Plas-Tech Corporation	Nabari, Tsukuba
Tohoku Denki Tekko Co., Ltd.	Entire company
Rinkagaku Kogyo Co., Ltd.	Entire company

Company name	Location
Japan ISO 14001	
Tosoh Corporation	Nanyo Complex, Yokkaichi Complex
Tosoh Hyuga Corporation	Hyuga
Tosoh Speciality Materials Corporation	Entire company
Tosoh Quartz Corporation	Entire company
Nippon Polyurethane Industry Co., Ltd.	Nanyo Complex
Organo Corporation	Plant Operations Department, Tsukuba
Sankyo Kasei Industry Corporation	Entire company
Rinkagaku Kogyo Co., Ltd.	Toyama
Kasumi Kyodo Jigyo Co., Ltd.	Entire company
Taiheiyō Chemical Products Corp.	Entire Company
Tohoku Tosoh Chemical Co., Ltd.	Sakata
Japan ISO 13485*	
Tosoh Corporation	Bioscience Division
Tosoh AIA, Inc.	Entire company
Tosoh Techno-System, Inc.	Entire company
Tosoh Hi-Tec, Inc.	Entire company

\*ISO 13485 applies to medical devices and products and, along with ISO 9001, is intended to ensure product quality

Company name	Location
International ISO 9001	
Tosoh Europe N.V.	Belgium
Tosoh Hellas A.I.C.	Greece
Tosoh SMD, Inc.	USA
Tosoh Quartz, Inc.	UK
Tosoh Bioscience, Inc.	USA
Tosoh SMD Korea, Ltd.	South Korea
Tosoh Bioscience GmbH	Germany
International ISO 14001	
Tosoh SMD, Inc.	USA

# Our Commitment to a Well-Run Company

Tosoh is committed to implementing robust corporate governance that optimizes transparency, compliance, business performance, and operational efficiency. Corporate governance at Tosoh is grounded in the company's corporate ethics and determination to be a good corporate citizen.

## Management Reporting

Our corporate governance organization oversees business decision making and business execution. Tosoh's 16-member Board of Directors meets monthly to decide business matters and monitors managers who have operational responsibilities. The Executive Committee, which comprises the company's chairman, president, and senior managing directors, meets weekly to facilitate quick decision making on business proposals.

At the Management Reporting Meeting, the president is provided with background information on operating conditions and on pending decisions for individual business units.

## Auditors' Committee and Auditing Section

The Auditors' Committee of two internal and two external auditors monitors Tosoh's accounting system. It also observes the behavior and business execution of Tosoh's Board of Directors. The external auditors have no significant business dealings with or investments in Tosoh and thus bring an objective perspective to the Auditors' Committee.

The Auditors' Committee Office assists the corporate auditors with their tasks.

It uses third-party, outside accounting auditors to obtain independent verification of Tosoh's finances. The Auditing Section, meanwhile, conducts operational audits of Tosoh's business units and group companies and reports its findings to the company's president.

## Other Governance Committees

Additional committees handle specific aspects of corporate governance. They include the Compliance, Antitrust, Export Management, Internal Control, and Responsible Care Committees.

The Compliance Committee identifies external laws and regulations and internal guidelines and oversees related compliance by the Tosoh Group. In addition, this committee prepares a manual that sets out the ethical responsibilities of the company and its employees. It also monitors compliance with these corporate ethics. Groupwide, Tosoh conducts ongoing training to make employees aware of their responsibilities.

The Antitrust Committee collaborates with Tosoh's Legal and Patent Department to ensure that fair business practices as defined by the Antitrust Law of Japan and by Tosoh's internal guidelines are

observed. The committee produces manuals that set out applicable practices.

In 2006, Japanese legislation established systematic guidelines for corporate internal controls to support accurate and reliable financial reporting. Tosoh's Internal Control Committee fosters groupwide awareness of and compliance with these guidelines.

Tosoh's Responsible Care Committee and Environment, Safety and Quality Control Department cooperate in achieving conformance with conservation and antipollution laws and with internal environmental preservation regulations. The committee publishes an annual *Responsible Care Report* that provides updates on Tosoh's progress in fulfilling its Responsible Care program.

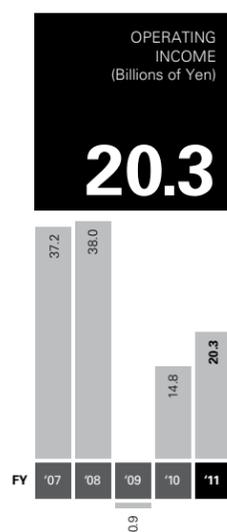
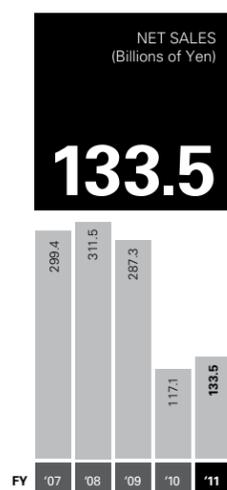
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# Management's Discussion and Analysis

## Specialty Group

Fiscal 2011 net sales for the Specialty Group amounted to ¥133.5 billion (US\$1.6 billion), a rise of 14.0% over the previous year's figure. The group's contribution to Tosoh's consolidated net sales likewise increased, to 19.5%, from 18.6% in fiscal 2010.



The growth in the Specialty Group's net sales owes itself to recoveries in demand and price for its products in markets worldwide. The group posted operating income of ¥20.3 billion (US\$244.5 million), up ¥5.5 billion from fiscal 2010, contributing 60.6% of Tosoh's consolidated operating income

Early in fiscal 2011, the Specialty Group participated in Tosoh's reorganization of its business groups. Its MDI operations were transferred to the company's newly renamed Chlor-alkali Group, and its water treatment operations formed the core of Tosoh's newly established Engineering Group. The Specialty Group, meanwhile, established a new division when its Specialty Materials and Electronic Materials Divisions were combined to become the Advanced Materials Division.

### Organic Chemicals

#### Ethyleneamines and derivatives

##### Performance and Markets

Rising demand for ethyleneamines and their derivatives in Asia, coupled with production troubles at competitor's plants, helped the demand and supply balance to remain tight in fiscal 2011. Tosoh was well positioned to take

advantage of solid demand in Asia to increase its sales and profits. The company recently expanded its ethyleneamine manufacturing capacity 26,000 metric tons, to 79,000 metric tons annually.

Tosoh's triethylenediamine (TEDA) and Toyocat catalysts for polyurethane production and heavy metal treatment also were in high demand during the fiscal year under review. This was the case domestically and overseas.

##### Developments

Strong demand for ethyleneamines in Asia is projected to continue. Tosoh thus has moved ahead with plans to expand its ethyleneamine production capacity a further 10,000 metric tons, to 89,000 metric tons annually. This will consolidate Tosoh's position as Asia's and one of the world's top producers of ethyleneamines. The added capacity is scheduled to come onstream in fiscal 2012.

Competitors, however, have also recently added to their ethyleneamine manufacturing capacities, causing some excess supply in the market. Still, the global and Asian markets are growing, at approximately 4% and 8%, respectively.

##### Strategies and Outlook

In fiscal 2011, Tosoh continued to focus its sales efforts on high molecular weight amines, reflecting a product mix strategy that takes advantage of Tosoh's ethylene dichloride (EDC)-based production method. Although the global supply of ethylenediamine (EDA) is expected to increase as more plants come onstream worldwide, Tosoh plans to continue to leverage its positioning as an EDC-based amine producer to differentiate its products in the market. We will expand our sales of ethyleneamine while carefully watching demand and price movements.

The global supply of EDA is expected to increase significantly starting in fiscal 2012. So Tosoh will adjust its product mix in favor of high molecular weight amines based on market trends.

Tosoh is, in fact, altering its facilities for the greater production of the more profitable high molecular weight amines. The company will also be expanding its global ethyleneamine derivative network, including its technical support services, and developing a broader range of product grades to capture more customers.

In its TEDA and Toyocat operations, Tosoh is focusing on capturing more business in China as that country's appetite for tertiary amine catalysts increases. The company is proceeding with plans to convert its TEDA production to a more cost competitive process at a cost of about ¥150 million. At the same time, it is commercializing a high-performance, reactive TEDA that will reduce amine

emissions. Tosoh anticipates that these advantages will significantly increase its share of the domestic TEDA market by fiscal 2014 and assist it in its shift into growing Asian markets for TEDA.

Tosoh is aiming, meanwhile, to increase its share of the non-fluorine spray market in Japan, where its early development of the product has been a success. Despite weak demand for Toyocat in Europe, the company is working to establish Toyocat as a top spray product in the US spray insulation market.

#### Bromine and brominated derivatives

##### Performance and Markets

Fiscal 2011 saw firm global markets for bromine and brominated derivatives, with prices rising. A recovery in demand in conjunction with supply shortfalls in China contributed to upward pressure on prices. Amid deterioration in raw material supply and soaring prices, Chinese buyers ramped up imports of bromine and brominated derivatives.

The main cloud on the horizon for Tosoh is the specter of stricter standards. This will phase out the use of some products by automotive and other manufacturers, including of decabromodiphenyl ether (DBDE); hexabromocyclododecane (HBCD); and n-Propyl bromide (NPB). For that and other reasons, demand for bromine and brominated derivatives is falling in Japan, particularly for Tosoh's core products: bromine, hydrogen bromide, tetrabromobisphenol A (TBA), and DBDE.

##### Strategies and Outlook

Tosoh's goals for its bromine and brominated derivatives product line are to remain competitive by reducing costs and to establish a production structure that ensures profitability. The company is moving toward these goals in its bromine operations by shifting production from its No. 7 through No. 10 plants, which employ an alkaline process, to a new, cost-efficient No. 12 plant that uses a sulfuric acid gas process.

Tosoh also is working with its affiliate Manac Incorporated to expand its bromide chain to improve profitability. The focus is on agency sales of tributyl phosphate and on exports of by-products, excluding Manac's portion of by-products.

The company's goals for its hydrogen bromide operations are not only to restore profitability but also to introduce inorganic intermediates (MOS) operations. The strategy is straightforward: achieve long-overdue price increases and expand sales. In addition, Tosoh will increase its TBA production by de-bottlenecking operations at a cost of approximately ¥290 million. It plans as well to introduce DBD ethane as a substitute product for DBDE.

#### Eco-business

##### Performance and Markets

Eco-business contributed solid profitability to Tosoh's organic chemical operations in fiscal 2011. But demand in Japan for eco-related products and services continued downward.

In Japan, the growing use of eco-cement and the conversion to urban mining methods to recover nonferrous metals from molten fly ash hampered domestic sales of Tosoh's heavy metal chelating agents. Greater environmental conservation efforts generated less waste, likewise lowering domestic demand for the company's incinerator waste treatment agents. And the ongoing shift in Japan of sanitation facilities from the public to the private sector is reducing the use of Tosoh's incineration treatment agents, which also are being substituted with cheaper and inferior products.

Even government entities are turning to less-expensive products in the face of tax deficits. On the other hand, there is a clear gap in pricing emerging in the favor of piperazine-based agents over diethylamine-based agents for environmental reasons. Consequently, problems are emerging with sourcing bulk piperazine.

Tosoh's hydrocarbon-based and nonflammable cleaning solvents also face a number of challenges. Demand for hydrocarbon-based cleaning solvents is growing in the automobile and electronic components industries, but prices are declining. In addition, a major Japanese competitor has entered the market and is expanding its production capacity. There is concern, meanwhile, that stricter standards will force some of the company's bromine-based products out of the cleaning solvent market.

### Strategies and Outlook

Tosoh plans to build on its strength in piperazine-based agents. The company intends on developing new piperazine products and technologies to further consolidate its position as a major player in the piperazine market. Among the company's strategic actions are the conversion of TEPA-based agents to piperazine-based agents, the rapid development of amine-based treatment agents for hexavalent chromium six and arsenic-based compounds, and the establishment of a stable source of piperazine.

To cope with a contracting domestic market for its eco-business products and services, Tosoh is turning to China for growth. China incinerates only around 20% of its trash, but the volume is forecast to rise to 35% by 2015. This will more than double the country's production of fly ash. As a result, the Chinese market for heavy metal treatment agents is forecast to grow to about 40,000 metric tons from the present about 200 metric tons.

Tosoh won its first order to supply heavy metal treatment agents to an organization in China in fall 2010. In fiscal 2012, Tosoh will proceed with plans to start production in China to meet an initial annual sales target of around 1,000 metric tons.

Tosoh also plans to differentiate its cleaning solvent products from the low-price products of its competitors. Chiefly, the company will emphasize

its ability to assess the effectiveness of customers' systems and to provide recommendations for improvement. Tosoh in addition will emphasize the sales of new cleaning systems that use high-grade cleaning solvents. And to get around concerns about stricter standards for bromine-based products, the company is concentrating on converting customers to its hydrocarbon-based products.

### Advanced materials

The newly established Advanced Materials Division combines the Specialty Group's former Electronics Materials (thin film and quartz) and Specialty Materials (zirconia and zeolites and electrolytic manganese dioxide) Divisions. In so doing, it reinforces Tosoh's core competence in advanced inorganic materials. It strengthens our capabilities in the fields where we compete while allowing us to better pinpoint expansion opportunities.

#### Zirconia and zeolites

##### Performance and Markets

Rising demand and increased production capacity at Tosoh led to sales growth for zirconia and zeolites in fiscal 2011.

The dental market is a major user of zirconia products, mainly of powders for making crowns, bridges, braces, and other dental materials. Globally, Tosoh is establishing an advantage in the market with the production of a translucent grade of zirconia. The new product is ideally suited for use in front teeth and in teeth-whitening treatments because of its superior cosmetic qualities.

A catalytic converter with high-silica zeolites is another potential high-growth market for Tosoh. Government authorities around the world are intent on raising automobile emissions standards. In advanced countries, stricter standards will heighten demand for NO<sub>x</sub>-reducing catalysts. Rising emissions standards in developing countries, conversely, will raise demand for hydrocarbon adsorption zeolites.

##### Developments

Tosoh has been preparing to capture the forecasted growth in zirconia and zeolites. In March 2009, Tosoh completed the construction of two plants for the production of high-silica zeolites (HSZ) and of zirconia powder at its Yokkaichi Complex. These facilities double Tosoh's zeolite and zirconia powder production and are designed for further capacity expansion as needed.

##### Strategies and Outlook

We are forging ahead with the market expansion of our zirconia operations in Japan and overseas. Our principal tactic is to increase sales of our newly developed translucent grade of zirconia. Samples of the new product are in high demand, and we expect to begin full-scale sales worldwide in the second half of fiscal 2012.

We also are examining the potential of our colored zirconia for various applications in daily life.

Tosoh's main strategies for zeolites, meanwhile, involve increasing its HSZ production capacity to meet rising

demand from the automotive industry and developing new zeolite grades to meet increasingly stringent automobile emission standards. Plans have yet to be finalized, but the aim is to further boost our production capacity of various HSZ grades.

#### Electrolytic manganese dioxide

##### Performance and Markets

The massive disaster that hit Japan in March 2011 underscores the importance of the battery business. Immediately after the disaster, demand soared for primary batteries—used to power flashlights, radios, and other devices. Tosoh responded to market requirements and fulfilled the needs of primary battery producers for raw materials. That strong support from Tosoh enabled manufacturers to furnish batteries to the stricken area and maintained the battery supply chain. Tosoh's quick response also contributed to aiding people suffering from the devastation of the earthquake and tsunami.

For Tosoh, though, the future is in supplying EMD for rechargeable batteries for automobiles and electronic products. Automobile manufacturers around the world unveiled hybrid and electric vehicles in fiscal 2011 that signal rapid growth in the lithium-ion battery market. And Tosoh is moving quickly to increase its R&D activity and to prepare for the commercialization of raw materials for application in lithium-ion batteries for electric and hybrid vehicles to meet anticipated demand.

##### Developments

Tosoh subsidiary Tosoh Hyuga Corporation invested to expand the landfill disposal site

at its Hyuga plant in Miyazaki Prefecture in fiscal 2011. The expanded disposal site is 1.2 million square meters in size, is home to an environmental protection facility, and is sufficient for the next 50 years.

##### Strategies and Outlook

Tosoh is implementing multiple strategies to deal with conditions in the EMD market. The company will further strengthen its marketing activities in the primary battery market. At the same time, Tosoh will continue to invest resources to ensure that it capitalizes on the growing market in lithium-ion batteries for hybrid and electric vehicles.

#### Thin film and quartz

##### Performance and Markets

The upturn in the global silicon cycle supported sales growth in all three of Tosoh's major thin film and quartz product lines in fiscal 2011. Particularly strong were sales of quartz materials and fabricated quartzware. With sales moving well past the break-even point, the company's profits also recovered from their slightly negative levels of fiscal 2010.

Our thin film material operations enjoyed a good year. The resurgence in activity in the semiconductor industry also drove sales of Tosoh's high-purity natural and synthetic fused quartz. Two emerging markets, solar cells and touch panels, also began to contribute to growth in Tosoh's thin film material business.

##### Strategies and Outlook

As the upswing in the semiconductor market continues, we plan to expand

sales of our metal sputtering targets, particularly of our copper sputtering targets. We will utilize our production bases in Asia to do so. Fiscal year 2012, moreover, has been designated the start of our marketing drive for our chemical vapor deposition (CVD) materials. In line with that initiative, Tosoh established a thin film sputtering target manufacturing subsidiary near Shanghai, China. Tosoh SMD Shanghai Co., Ltd., was established to expand Tosoh SMD, Inc.'s global capacity and to serve its semiconductor, flat-panel display, solar, and large-area coating customers in China.

Our efforts in the growing solar cell market are focused on marketing our new indium tin oxide (ITO) and zinc aluminum oxide (ZAO) lines—ITO-X, ZAO-X, and ZAO-S1—and our cylindrical sputtering targets. With the flat-panel display (FPD) market maturing, we intend to concentrate on the production of profitable ITO sputtering targets. We also will maintain a high pace of product development for other emerging markets, such as the touch-panel market.

We plan to maximize the profits from our quartz products by giving preference to markets where we have an advantage. We are, by contrast, strengthening our fabricated quartzware operations with a view to expanding business in Asia. In fiscal 2012, we will expand our fabricated quartzware production capacity at Tosoh Quartz Co., Ltd., in Taiwan.

The optical quartz market, too, is a focus at Tosoh. Our aim is to differentiate our

large, highly homogenous products and enter high-value-added sectors of this market, such as laser-driven nuclear fusion and optical equipment.

## Bioscience

### Performance and Markets

The four main product lines of our bioscience operations—separation products, clinical high-performance liquid chromatography (HPLC) systems, immunodiagnosics, and molecular testing—put in solid performances in fiscal 2011. All but separation products, which had flat sales, posted slight sales growth. Immunodiagnosics accounted for almost half of bioscience sales, primarily with sales of Tosoh's automated immunoassay (AIA) systems.

As successful as Tosoh's sales of AIA systems are, those sales represent only a fraction of the global bioscience market. Markets are surging, so Tosoh is targeting substantial growth for its AIA systems. During the past several years, annual market growth has been more than 15% in China and more than 20% in India.

Sales of separation products and HPLC systems generated a substantial portion of bioscience sales. We maintained our leadership position in Japan's market for gel permeation chromatography (GPC) separation systems.

### Developments

In fiscal 2011, Tosoh invested in building a second reagent plant for its AIA systems in Japan. The plant increased production capacity 50% and features enhanced cost

performance that will support Tosoh's efforts to expand its AIA systems market in Asia and other parts of the world.

### Strategies and Outlook

Tosoh's goal in its bioscience operations is to become a global player with a major market presence. This means being more competitive in all aspects of its business—technology, quality guarantees, marketing, and customer support. Achieving this goal will translate into greater sales and profits, particularly because Tosoh's presence in many overseas markets is still undeveloped.

To strengthen our development of overseas markets, we are implementing many marketing strategies, with an emphasis on Asia. On the separations front, we spearheaded growth in China with the establishment of Tosoh Bioscience Shanghai Co., Ltd., in June 2010. We will continue to promote the use of our high-performance Toyopearl in the antibody drug purification industry. In the United States and Europe, we are kicking off the full-scale marketing of our GPC systems. Other regional strategies have Tosoh expanding business for its HPLC and AIA systems in China. We also will begin cultivating markets for our separation and HPLC products in India and in nations throughout Southeast Asia and Central and South America.

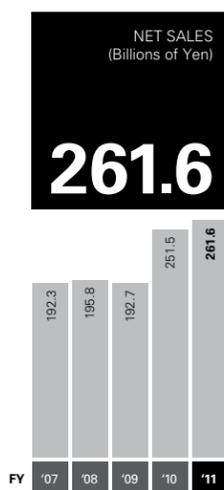
Making good on the success of our multiple marketing strategies requires that we expand our production capacities. We plan to double the annual production capacity of our Toyopearl and of our AIA system reagents.

Forecasts suggest that the number of people diagnosed with diabetes will reach 435 million globally by 2030. Tosoh, therefore, is examining the point-of-care testing (POCT) market as a potential source of high growth. Compact and often handheld POCT devices serve the growing need for on-the-spot testing in hospitals, clinics, and emergency units and at home and thus are increasingly popular.

The global POCT market, in fact, is valued at about ¥500 billion and is growing more than 10% annually. To tap this market, Tosoh will take advantage of its expertise in devices for measuring hemoglobin A1c (HbA1c) levels. The company plans to develop a POCT product line using its proprietary technology and technologies acquired through alliances and even mergers and acquisitions.

## Chlor-alkali Group

The Basic Chemicals Group was renamed the Chlor-alkali Group in fiscal 2011. It also gained a new business operation in methylene diphenyl diisocyanate (MDI), which was transferred from the Specialty Group. MDI is produced by Tosoh subsidiary Nippon Polyurethane Industry Co., Ltd. (NPU).



Net sales of the Chlor-alkali Group were ¥261.6 billion (US\$3.1 billion), an increase of 4.0% from a year earlier. The group generated 38.2% of Tosoh's consolidated net sales, compared with 40.0% in fiscal 2010. Its improved sales performance owes itself mainly to increases in chlor-alkali product prices and a strong recovery in demand for MDI. The Chlor-alkali Group posted an operating loss of ¥3.5 billion (US\$41.9 million) for fiscal 2011, an improvement of ¥10.8 billion year on year.

### Chlor-alkali Performance and Markets

Performances by the Chlor-alkali Group's principal chlor-alkali products were mixed in fiscal 2011. Domestic shipments of caustic soda increased in line with rising demand, and because of tighter overall supplies Tosoh decreased exports. Shipments of VCM to Japanese and overseas markets also decreased, because robust markets pushed up product prices. As in the case of caustic soda, PVC shipments increased alongside the recovery in domestic markets and, consequently, export volumes decreased. PVC prices also rose in Japan and overseas, reflecting the rising costs of raw materials. As a result, overall PVC sales grew.

The Japanese market for the most part drove chlor-alkali sales in fiscal 2011, with caustic soda posting a significant recovery after several lean years. By contrast, the appreciation of the yen put pressure on exports. Rising prices in overseas markets, however, offset some sales declines.

Since Tosoh is a major player in chlor-alkali internationally, the company was able to maintain solid market positions in fiscal 2011. Of, for example, the 1.45 million metric tons of VCM the company produced during the year, approximately half was exported. The company is an especially influential chlor-alkali manufacturer in the Asian market. Worldwide, Tosoh has a reputation for providing stable supplies because of its ability to maintain cost-effective operating rates by adjusting domestic supplies and exports.

Without procuring additional product from outside sources, however, Tosoh must adjust its product mix to maximize its profitability in current market conditions. And this can lead to imbalances in individual markets. The surge in MDI sales, for instance, means that NPU requires more of the group's chlorine and other raw material production.

In Japan, Tosoh must compete with 25 other companies with electrolysis facilities. And that is one less competitor than previously, with a producer having ceased production at the end of fiscal 2011. A new trend to increase competitiveness in the domestic market is to avoid the high costs of chlorine storage and delivery by decreasing production.

China accounts for approximately 40% of global salt electrolysis and PVC production capacity and is rapidly emerging as the main player in chlor-alkali. Global demand for caustic soda and PVC, though, is forecast to expand about 10% in fiscal 2012, with the markets of China and India acting as the main drivers of growth. So additional supply from more sources than Chinese producers will be needed.

### Developments

Japan's Government Tax Commission is proposing a new environmental tax on individual categories of fossil fuel in accordance with the carbon dioxide emissions within a category. If implemented as planned, the tax will increase Tosoh's energy costs—of coal in particular—to unacceptable levels. The proposed tax, originally to be introduced in fall 2011, is being hotly contested by the basic manufacturing industry.

### Strategies and Outlook

Tosoh's domestic and overseas markets are linked, but the company faces different challenges in each market. In Japan, the company is dealing with mature markets, rising naphtha prices, and the possibility of an environmental tax on coal.

Our strategy seeks to maintain the profitability of our operations in Japan. This entails such initiatives as bringing product prices in line with rising naphtha and other fixed costs and working to expand sales in profitable markets. Exports will continue to play an important role in balancing overall supply and demand in the domestic market. We are also looking at methods of keeping down the per kilowatt cost of our independent electric power generation facilities amid rising commodities costs globally.

In the meantime, we are considering expanding the production capacities of our major products overseas where feasible. We also are implementing measures to improve the competitiveness of our exports and of our locally produced products. Tosoh's exports are at risk of deteriorating if the yen appreciates. We plan as a result to implement measures that enable us to maintain our profitability even when market conditions weaken. These measures include reducing our export volumes and other contractual measures.

### Methylene diphenyl diisocyanate Performance and Markets

In fiscal 2011, NPU contributed significantly and to a greater extent than in fiscal 2010 to Tosoh's consolidated net sales. The sizeable increase reflects the worldwide recovery in demand for MDI.

Because of a temporary global oversupply of MDI and other operating issues, NPU has faced a challenging operating environment over the past few years. The

subsidiary, however, steadily improved its profitability in fiscal 2011 and continues to make greater strides forward.

NPU supplies MDI to polyurethane manufacturers in Japan and other Asian nations. In recent years, Tosoh and NPU have worked to increase NPU's MDI production capacity to 400,000 metric tons per year in anticipation of growth in the market, particularly in Asia. MDI demand in Asia totals 1.9 million metric tons annually, with China accounting for 1.2 million metric tons of this demand.

Our competitors also plan to increase their MDI production capacities, but nothing is expected to come onstream until fiscal 2014. In addition, major additions in capacity are not expected until fiscal 2015 and beyond. During this period, therefore, NPU will have an opportunity to fortify its operations for the next upturn in global production capacity.

### Strategies and Outlook

NPU must further increase its profitability to better support the Tosoh Group. A full recovery in demand for MDI is going to take time. NPU, therefore, must aim to rebuild its profitability by other means, such as with the development of value-added product grades and the rationalization of its logistics.

NPU has established an earnings improvement team that is targeting a cumulative increase in earnings of ¥7.0 billion during the three-year period from fiscal 2012 to fiscal 2014. This goal brings the subsidiary in line with the Tosoh

Group management policy of earning a 5% profit margin on sales.

NPU's earnings improvement team has multiple strategies to increase NPU's sales. Those strategies include revising sales tactics in China; achieving price increases based on the anticipated improvement in the demand-supply spread; increasing the production of new, high-grade MDI products; and renegotiating business contracts with trading companies. Strategies for cost-reduction efforts revolve around greater production, investment, and logistics efficiencies and cutting procurement and other operating costs.

In fiscal 2012, NPU plans to operate at close to full capacity and will attempt to solidify its dominance in the polymeric market, where it already holds a greater than 50% share. In the monomeric market, NPU will revise its sales strategies in Japan and China to optimize sales and profits. NPU also will solve a color hue issue with monomeric that will support a higher price structure. In addition, NPU will seek to increase its share of the market for hexamethylene diisocyanate (HDI) in Japan, to 25%, from 20%.

**Cement**

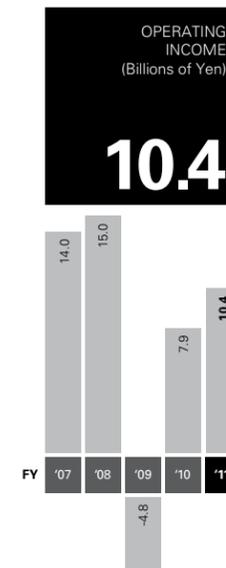
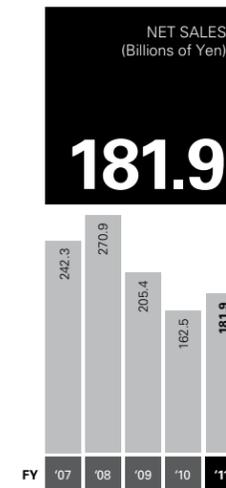
Cement shipments again edged downward in Japan in fiscal 2011. The rate of the decline began to slow in the private sector, but public-sector demand remained stagnant. Consequently, Tosoh's domestic Cement Division sales continued to decrease.

Overseas demand for cement remains strong, but profit margins on sales are low—unit prices are approximately half the domestic level. What is more, rising production and freight costs and increasing competition from cement makers in other countries continue to put Tosoh at a disadvantage in export markets.

We forecast further declines in demand for cement in Japan in the year ahead. Harsh business conditions, including low profit margins on export sales, are forcing us to ramp up our cost-reduction and recycling efforts. Declining sales notwithstanding, our cement operations retain an important role in our recycling and environmental activities.

**Petrochemical Group**

The Petrochemical Group posted net sales of ¥181.9 billion (US\$2.2 billion), a 12.0% increase from fiscal 2010. Those sales accounted for 26.6% of Tosoh's consolidated net sales, compared with 25.8% a year earlier.



Although market conditions varied for the group's major product lines, in general demand was strong, and the group was able to pass on higher raw material costs through price increases. The group's operating income totaled ¥10.4 billion (US\$124.9 million), an increase of ¥2.5 billion from the previous fiscal year, and contributed 31.0% of Tosoh's consolidated net operating income.

**Olefins**

**Performance and Markets**

Olefin sales rose in fiscal 2011 on the strength of higher product prices and a recovery in demand for ethylene and propylene derivatives. Tosoh was able to negotiate price increases with customers for ethylene and propylene that reflected the rising cost of its core raw material, naphtha. In addition, demand pushed up prices of cumene.

We expected markets to be weaker than they were because of excess supply. However, the anticipated flooding of Asian markets with products from new Middle Eastern petrochemical facilities did not happen in fiscal 2011. Production problems kept those plants operating at low rates. In addition, large-scale planned plant maintenance shutdowns in Japan

and Korea reduced supply. Demand, meanwhile, surged in the markets of China, of the Association of Southeast Asian (ASEAN) countries, and of India. As a result, ethylene production in Japan rose above seven million metric tons for the first time in three years.

**Strategies and Outlook**

A demand-supply imbalance with pricing consequences could occur in fiscal 2012 if Middle Eastern petrochemical plants achieve full operating rates. Only if the Chinese and Indian markets continue to chalk up double-digit growth would markets remain in balance. Over the longer term, we expect olefins to remain a growth market because developing economies invariably consume increasingly large amounts of plastics.

We will likely continue to face a gradual rise in raw material prices over the long term. The import price of naphtha rose to ¥52,400 per kiloliter in the first quarter of 2011, up from ¥45,249 in the first quarter of 2010. Consequently, diversifying the feedstocks used in Tosoh's cracking operations remains an important cost strategy. Tosoh is increasing its use of liquefied petroleum gas (LPG) and other non-naphtha

alternatives as well as employing less-costly grades of naphtha. In fiscal 2011, non-naphtha sources accounted for 16% of the raw materials Tosoh used to manufacture olefins.

In fiscal 2012, we hope to maintain a profitable balance for ethylene and propylene use in our feedstocks and in our sales. We will also work on maintaining our market prices. The focus in our cumene operations will be on raising prices to regain profitability.

## Polymers

### Performance and Markets

Polyethylenes staged a recovery in sales and profits in fiscal 2011 as the price increases that we implemented at the end of the previous fiscal year steadily took effect. This trend was apparent even in product lines where sales unit volume actually declined.

Our EVA sales and profits surged, underpinned by our positions as Japan's top manufacturer of EVA grades for the high-growth solar cell market and No. 2 EVA manufacturer overall. Tosoh's Melthene profitability likewise jumped, on the strength of slightly higher sales volumes. Our sales of HDPE were the sole disappointment among our polyethylene products. They declined in the face of pricing pressure from new plants in the Middle East.

### Strategies and Outlook

As a medium-sized player in the LDPE market, Tosoh will continue its shift to specialization in the food product

laminates and the medical treatment fields. We plan to utilize the special features of our production facilities in our Nanyo and Yokkaichi Complexes, including our tubular production capacity, to optimize our product mix in carrying out this strategy.

The demand-supply gap appears to be tightening as manufacturers shift more of their LDPE capacity to producing EVA. Because of the demand for more EVA, particularly from solar cell manufacturers, we are planning to increase our production of various EVA grades by more than 5,200 metric tons over the next few years. Most of the expansion will occur in fiscal 2012.

In other polyethylene product lines, we will continue to develop more niche markets for Melthene. In doing so, we will leverage Melthene's versatility and Tosoh's strong position in the market. The market for LLDPE, meanwhile, is similar to that for LDPE, so we will focus on the laminate and medical treatment markets to boost LLDPE sales by developing high-value-added products.

To differentiate ourselves in the HDPE market, we are developing HMS-PE laminates that serve as substitutes for low-density polyethylene. We also are developing HMS-PE foam grades to support the automotive industry's drive to build lighter cars. In addition, we will strive to expand our sales of the high-purity pipes and pharmaceutical containers that are our areas of strength in our line of Ziegler catalyst-based products.

## High-performance polymers

### Performance and Markets

Sales and profits were up in all categories of high-performance polymers during the year under review amid upswings in demand and prices. A recovery in housing starts and higher prices for PVC paste supported sales growth despite a decline in overall shipments, primarily of exports.

Price increases likewise helped our sales of chloroprene rubber overcome downward pressure from tight supplies of butadiene, a raw material; from a strong yen; and from a competitor's added production capacity. Sales and profits of chlorosulphonated polyethylene (CSM) rubber moved up sharply, reflecting Tosoh's new position as the top supplier of CSM to the global market.

Our polyphenylene sulfide (PPS) resin sales and profits also surged in fiscal 2011, the result of heightened automobile production. An excess supply of PPS resin is building up in the market as manufacturers bring back mothballed production lines. But we took advantage of the special features of our branched PPS production facilities to achieve full production and sales.

### Developments

To fill the gap in demand and supply resulting from a competitor's departure from the market, Tosoh completed building a new plant for CSM at its Nanyo Complex in August 2010. This ¥3 billion facility has more than doubled Tosoh's annual CSM production capacity, from 4,000 metric tons to 8,500 metric tons.

In June 2010, Tosoh resumed producing tyrosine polymer (TYR) for a new customer following a hiatus from production. TYR is used to produce displays for smart phones, cell phones, and tablets. We are in the testing stages of a next-generation TYR that we will launch in fiscal 2012. Touting its superior properties, we plan to market the new grade of TYR to in-plane switching (IPS) panel manufacturers.

### Strategies and Outlook

We will leverage the strengths of our vinyl isocyanate chain to maintain the strong market position of our special grades of PVC paste for wallpaper and flooring. Tosoh is combating worsening business conditions for chloroprene rubber with several measures. We are raising prices to maintain profitability and developing new sulfur-modified and latex grades, which should boost sales in Japan and elsewhere in Asia.

In our CSM operations, we are increasing production capacity by de-bottlenecking operations. We plan to substantially expand our CSM sales and profits by taking advantage of the global supply shortage and of being the only supplier of CSM rubber in the world.

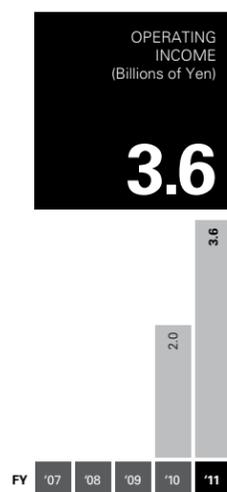
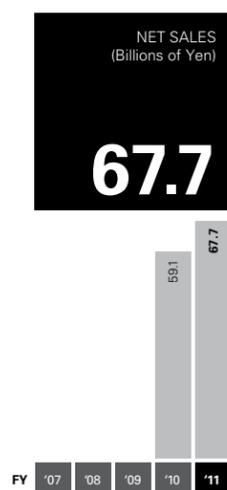
To target further sales growth in our PPS resin operations, we are de-bottlenecking our PPS resin operations and pursuing a strategy aimed at applications that require special grades of PPS resins. Our specialty grades include a PPS resin with superior metal bonding for automotive applications and a PPS resin with the high

thermal conductivity required for LED lighting parts. Recently, we added metal adhesion and high heat conduction grades to our PPS resin product lineup.

## Engineering Group

The Engineering Group's net sales recovered to ¥67.7 billion (US\$814.2 million) in fiscal 2011, a 14.7% increase from fiscal 2010.

The group's operating income was ¥3.6 billion (US\$43.6 million), a climb of 77.1% year on year.



The Engineering Group accounted for 9.9% of Tosoh's consolidated net sales, compared with 9.4% in fiscal 2010, and its operating income constituted 10.8% of Tosoh's consolidated net operating income.

Tosoh established the Engineering Group in fiscal 2011. The newly constituted group combines the operations of several Tosoh subsidiaries. These include the water treatment operations of Organo Corporation, the soil purification and remediation operations of Eco-Techno Corporation, and the construction operations of Tohoku Denki Tekko Co., Ltd. Organo accounts for over 85% of the group's sales.

### Water treatment

#### Performance and Markets

Organo Corporation's water treatment sales expanded during the year 2011 because of improved performance in Japan and overseas. In Japan, the solution business—the maintenance and management of installed water treatment systems—grew year on year, primarily for maintenance and reconstruction work. Overseas, capital expenditures by the electronics industry on large-scale projects in China, Taiwan, and elsewhere in Asia supported growth in our sales of water

treatment systems. Sales of consumables, such as standard products and chemicals, also contributed to this growth.

#### Developments

In fiscal 2011, Organo made two additions to its overseas network as part of its drive to position itself firmly in the Asian market. It established a sales subsidiary, Organo (Vietnam) Co., Ltd., in Ho Chi Minh City, Vietnam. And it established Organo (Suzhou) Water Treatment Co., Ltd., an R&D center, in Suzhou, China. Organo also has sales subsidiaries and offices in Malaysia and Taiwan.

#### Strategies and Outlook

Organo's goal is to focus on growth opportunities and profits. Its markets in Japan are maturing and becoming highly competitive. Nevertheless, there are growth opportunities for Organo domestically, in the membrane resin, shipping fire quenching, and groundwater and public water markets. Even larger opportunities for growth await Organo elsewhere in Asia, and winning orders means becoming highly cost competitive. And beyond Asia, Organo needs to become more strongly positioned. The global market, though, is forecast to grow substantially, to ¥86.5 trillion by 2025.

The subsidiary must develop new technologies, markets, and businesses that capitalize on growth opportunities. It also must become more cost competitive through greater efficiencies and cost reductions.

Organo's strategies to meet its goals are multifaceted. The subsidiary is restructuring to shift from its concentration on the electronics industry, pure water, and its domestic market to general industry, wastewater treatment, and the global market. It is emphasizing market prices and customer demand. To attain its goals, Organo is encouraging its individual employees and its business groups to implement strict plan-do-check-act (PDCA) cycles. The subsidiary also continues to make progress with its cost-reduction programs.

In fiscal 2012, Organo expects some sales growth in Japan despite the low levels of private- and public-sector capital investment. Electronics, pharmaceuticals, and food products are among the areas in which opportunities are expected to arise.

Overseas, Organo is continuing with its efforts to position itself in markets. The subsidiary is being selective in its marketing, carefully choosing customers and projects. In addition, the subsidiary's business localization activities, including the development of local supply chains, is helping to root Organo in local markets.

Many projects are up for the bidding in fiscal 2012, but competition is stiff. Organo will be coming up with creative and

cost-effective solutions to win orders in targeted fields and markets.

In the meantime, the subsidiary is engaged in developing new technologies and products. Its recent developments in wastewater treatment and resource recovery include Ecocrysta, a fluoride collection and removal system technology for wastewater. They also include a high-speed nitrogen removal process for sludge that is three to five times faster than conventional systems and a cost-efficient, high-rate dissolved air flotation unit.

Organo has also expanded its functional product lineup with the introduction of the Puric- $\omega$  and Purelabo flex UV ultrapure water production systems for laboratories. And the subsidiary has augmented its Amberlite polymeric adsorbents and ion exchange resins for the medical and pharmaceutical industries. Retail consumers benefit from its launch of an air purifier that uses water to remove sulfur oxides, nitrogen oxides, and pollen from the air.

### Other operations

#### Performance and Markets

Sales by Tohoku Denki Tekko fell short of performance targets in fiscal 2011 and continued their downward trend. The business environment has deteriorated over the past few years, and competition has become fierce. Reflecting those business conditions, order levels are declining.

Conversely, sales by Eco-Techno rose sharply in fiscal 2011 after a poor performance in the previous fiscal year. Orders also improved

markedly. Eco-Techno nevertheless faced challenging market conditions. The overall soil purification and remediation market is forecast to continue to contract, unlike the upswing in the construction-related market.

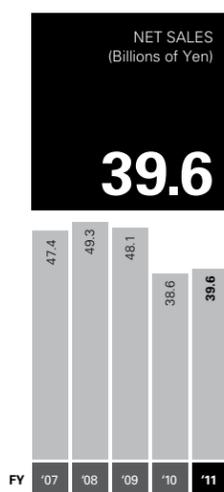
#### Strategies and Outlook

Tohoku Denki Tekko's profitability remains stable but action must be taken to preserve it from further steady erosion amid the poor business climate. In this respect, Tohoku Denki Tekko has been cutting costs through natural employee attrition and greater efficiencies. The improved cost structure should help this subsidiary to win more orders. The large-scale rebuilding required in the aftermath of the Great East Japan Earthquake, moreover, should provide Tohoku Denki Tekko with opportunities to expand its orders and sales.

Eco-Techno plans to continue its recovery from an extremely poor performance in fiscal 2010 and will work to shore up its profitability. Although competition from general contractors has grown increasingly severe in soil purification, Eco-Techno remains cost competitive in its core business of soil surveys and analyses. Eco-Techno's introduction in fiscal 2011 of PetroXtractor oil recovery equipment should contribute to the expansion of its customer base and to additional soil survey and analysis business.

## Other

Sales by trading companies and from logistics subsidiaries recorded growth in fiscal 2011. Net sales by other businesses thus rose 2.7% year on year, to ¥39.6 billion (US\$476.6 million). Other business operating income amounted to ¥2.7 billion (US\$32.2 million), an increase of 4.5%.



Other business thus contributed 5.8% of Tosoh's consolidated net sales, compared with 6.1% in the previous term, and 8.0% of Tosoh's consolidated operating income.

Other business has long included Eco-Techno Corporation and Tohoku Denki Tekko Co., Ltd. Both subsidiaries, however, were transferred to the Engineering Group in fiscal 2011.

### Logistics

#### Performance and Markets

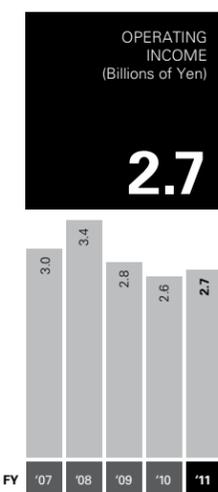
Logistics operations serve the Tosoh Group's expansion and transport needs. And in fiscal 2011 these operations achieved greater-than-forecast sales because of higher business volumes for many Tosoh Group companies.

During the fiscal year, logistics operations assisted NPU and Taiyo Vinyl Corporation implement more efficient logistics systems and thereby raise their competitiveness. The group's logistics operations also improved energy conservation by Tosoh's shipping operations by painting the hulls of ships with hydrolytic paints that reduce water drag and thereby raise fuel efficiency.

#### Strategies and Outlook

Logistics operations focus on four main tasks. They assist Tosoh companies and manufacturing groups with reducing manpower requirements and heightening efficiency. They introduce risk management processes and other procedures to improve safety and quality. They ensure that shipping terminals and warehouses have the capacities and facilities to meet the Tosoh Group's changing needs and that traffic is optimized along shipping routes. And they aid in the Tosoh Group's overseas expansion.

In fiscal 2012, logistics operations plan to further assist NPU and Taiyo Vinyl in boosting their competitiveness through improvements to their logistics systems. Logistics operations also will establish a berth master system for the Tosoh Group's ship-related operations. This system involves placing a manager in charge of individual harbor operations to heighten safety. To support increased business activity in China, logistics operations will be expanding and upgrading port facilities and services in China.



### General services

#### Performance and Markets

General services worked to improve personnel compensation and benefit calculation methods and finished implementing a new management accounting system for the Tosoh Group in fiscal 2011.

#### Strategies and Outlook

General services will continue its mandate to handle and improve personnel management and employee benefit administration and training. It will upgrade payroll accounting system software to include double checking to reduce human error.

Based on a survey of most of its customers, general services also will initiate measures to raise awareness of issues among its employees in an effort to improve its services. General services, moreover, will examine several of its services with a view to further reducing its manpower costs through outsourcing and other measures.

### Analysis and research

#### Performance and Markets

Sales by analysis and research operations exceeded forecasts in fiscal 2011 and increased over the year before. Declining sales to Tosoh affiliates were offset by greater sales to the parent company and to non-Tosoh Group customers.

The start-up process for several new Tosoh plants built recently resulted in a higher volume of analysis work from the parent company. In fiscal 2011, analysis

and research operations continued to upgrade the level and scope of their testing capabilities to meet the Tosoh Group's growing need for a variety of analysis services.

#### Strategies and Outlook

In fiscal 2012, analysis and research operations will cooperate with other operations in upgrading cost-efficient analysis and research capabilities, including within individual manufacturing organizations, as necessary. They also will strive to expand their non-Tosoh Group sales by differentiating and raising their level of specialization in analysis and research services at the Nanyo and Yokkaichi Complexes and at Tosoh's Tokyo operations.

Higher production capacities for various Tosoh Group product lines is expected to drive up sales by analysis and research operations over the next few years. General industry trends will also support growing sales of such services to external customers.

### Information systems

#### Performance and Markets

Sales by Tosoh's information systems operations continued their slow decline in fiscal 2011. The decline was attributed to the completion of the implementation of a SAP system and in line with a reduction in outsourcing costs for information systems. These operations maintain and upgrade server and mainframe systems within the Tosoh Group. They also install software systems and furnish web services. In general, they propose ways to make Tosoh Group companies' IT systems more efficient,

including an overhaul of NPU's systems. Throughout fiscal 2011, information systems sought to introduce innovative technology and to improve working processes.

#### Strategies and Outlook

Information systems is tasked with evaluating and introducing new technology, with planning and introducing new systems and services, with maintaining and upgrading systems and services, and with reducing IT costs for the Tosoh Group. In fiscal 2012, these operations also will work on the first phase of installing backup systems at the Nanyo and Yokkaichi Complexes.

Another important project slated for the fiscal year ahead is achieving IT cost reductions at NPU based on a proposal made to NPU in fiscal 2011. Longer term, information systems must address manpower shortages that will occur over the next four years because of the expected retirement of a significant number of information systems staff members.

## Financial Review

The Japanese economy strengthened in fiscal 2011 despite continued difficult employment conditions and declining personal incomes. An upswing in Japanese exports reflected sustained economic growth globally and provided a boost to the domestic economy.

Other positive signs for Japan's economy included a clear improvement in corporate performances. Occurring as it did near the end of fiscal 2011, the Great East Japan Earthquake had only a minor impact on the fiscal 2011 results of Japanese corporations.

Companies in Japan's chemical industry shared in fiscal 2011's better corporate performances amid improvements in their business environment. Business conditions brightened primarily because of product price increases and strong demand in Asian markets. Japanese chemical makers thus were able to overcome worsening trade conditions caused by the appreciation of the yen.

A rise in the average annual price for naphtha, a key raw material for chemical makers, underpinned higher product prices domestically and internationally. The price of naphtha increased from ¥41,175 per kiloliter in fiscal 2010 to ¥47,500 per kiloliter in fiscal 2011. The Tosoh Group benefited significantly from higher sales prices for such of its core products as PVC resins, urethane, and ethyleneamines.

### Accounting Standard Changes

Effective fiscal 2011, Tosoh and its consolidated domestic subsidiaries adopted several new accounting standards. They include a new standard for measuring inventories whose effect was immaterial on the consolidated statements of operations for the year ended March 31, 2011.

Another of the newly adopted standards involves presenting valuation and translation adjustments to the consolidated balance sheets as comprehensive income. In fiscal 2011, "accumulated other comprehensive income" and "total accumulated other comprehensive income" replaced their previous-year equivalents "valuation and translation adjustments" and "total valuation and translation adjustments," respectively.

In addition, Tosoh changed its method of presenting segment information. The company now classifies its operations under four business segments: Petrochemical, Chlor-alkali, Specialty, and Engineering. We also have a category for service-related businesses, such as transportation and warehousing.

### Net Sales

The Tosoh Group posted a strong recovery in its consolidated business performance for fiscal 2011. The group's consolidated net sales climbed 8.9%, to ¥684.4 billion (US\$8.2 billion).

### Operating Expenses and Operating Income

Cost of sales increased 6.7%, to ¥552.6 billion (US\$6.6 billion), reflecting higher unit sales. Gross profit expanded 18.8%, to ¥131.8 billion (US\$1.6 billion), and the gross profit margin rose to 19.3%, from 17.6% in fiscal year 2010.

Selling, general and administrative expenses edged up 0.4%, to ¥98.3 billion (US\$1.2 billion). R&D expenditures fell 2.8%, to ¥13.4 billion (US\$161.2 million), and personnel expenses likewise decreased. Logistics expenses and other items associated with the decline in unit sales fell. Among other income (expenses), Tosoh recorded a loss on disaster of ¥1.8 billion (US\$21.8 million), primarily related to the Great East Japan Earthquake.

Operating income jumped 157.0%, to ¥33.5 billion (US\$403.3 million). Net other expenses, which were ¥5.4 billion in fiscal

2010, totaled ¥8.4 billion (US\$101.4 million) in fiscal 2011. Income before income taxes and minority interests more than tripled, to ¥25.1 billion (US\$301.9 million).

### Net Income

Minority interests in the net income of subsidiaries totaled ¥1.0 billion (US\$11.4 million) in fiscal 2011, compared with minority interests in the net losses of subsidiaries of ¥0.5 billion a year earlier. Consequently, the Tosoh Group posted net income of ¥10.0 billion (US\$120.4 million), up 45.4% from fiscal 2010. These results were closely in line with Tosoh's latest performance forecast. Net income per share, undiluted, amounted to ¥16.74 (US\$0.20), compared with ¥11.51 in the previous fiscal year. Tosoh maintained its annual dividend per share at ¥6.00 (US\$0.07).

### Performance by Geographic Region

Export sales and sales made outside Japan by overseas subsidiaries were ¥259.4 billion (US\$3.1 billion) in fiscal 2011. This amount represented 37.9% of consolidated net sales, up 0.2 percentage points from fiscal 2010. Sales in Asia accounted for ¥199.9 billion (US\$2.4 billion) of the total amount and for 29.2% of consolidated net sales, a rise of 1.6 percentage points.

### Dividend Policy

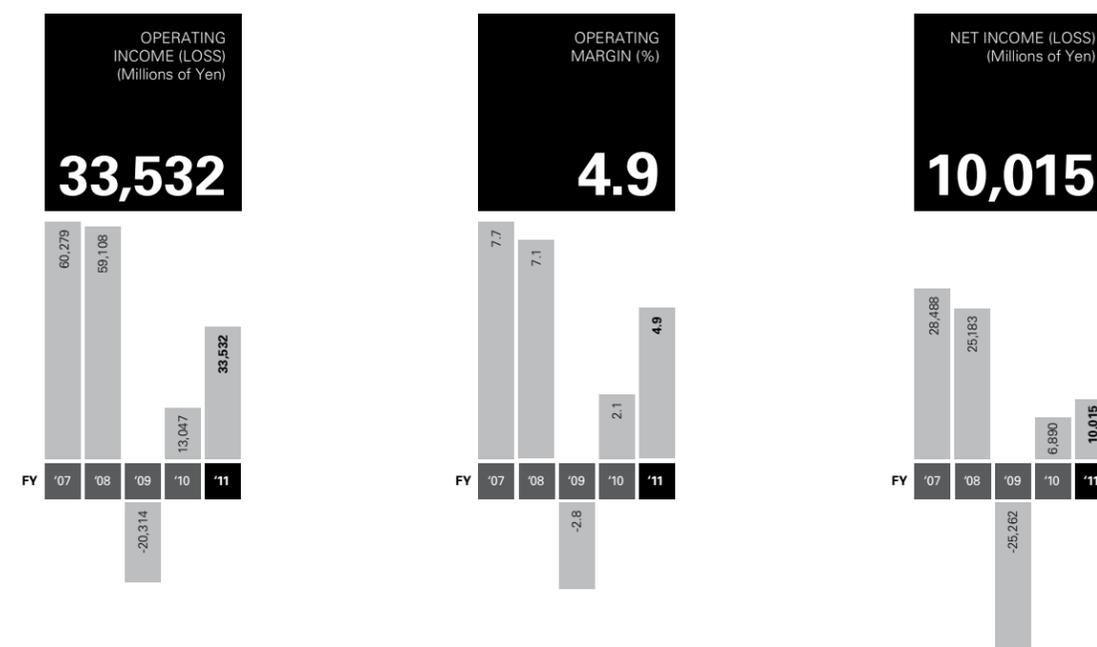
Tosoh aims to maintain a balance between its internal reserves for R&D and capital expenditures, which are designed to sustain steady high growth, and its returns to its shareholders. The company intends to provide a stable dividend to shareholders on a continuous basis, subject to business conditions.

In fiscal 2011, Tosoh's annual dividends per share were ¥6.00 (US\$0.07). As a result, the consolidated payout ratio for the year under review was 35.8%. Tosoh will continue to invest its internal reserves in competitive product development and global business strategies in a bid to respond to anticipated changes in its business environment.

### Financial Position and Liquidity

#### Fund procurement and liquidity management

Tosoh raises working capital as necessary through short-term bank loans and other means. The company decides on the funding method for its long-term capital requirements, such as capital investment, after determining the investment



recovery period and risk. In fiscal 2011, Tosoh financed its capital expenditure and R&D activities primarily from cash provided by operating activities.

### Assets, liabilities, and net assets

Current assets as of March 31, 2011, were up 4.9% from a year earlier, to ¥372.2 billion (US\$4.5 billion). Trade receivables and inventories were the main contributors to the increase. Current liabilities declined 2.9% from the previous fiscal year, to ¥332.4 billion (US\$4.0 billion) in fiscal 2011, primarily because of a drop in other current liabilities. Working capital, therefore, totaled ¥39.8 billion (US\$478.6 million), compared with ¥12.4 billion a year earlier. The current ratio was 1.12 times, up from 1.04 times in fiscal 2010.

Property, plant and equipment contracted 8.5%, to ¥277.0 billion (US\$3.3 billion), mainly as a result of higher depreciation expenses. This decline was the main factor behind a 1.9% decrease in total assets from a year earlier, to ¥725.9 billion (US\$8.7 billion). Interest-bearing debt was ¥364.4 billion (US\$4.4 billion) as of March 31, 2011, down from ¥387.8 billion at the previous fiscal year-end.

Total shareholders' equity rose 3.9% year on year, to ¥171.2 billion (US\$2.1 billion), mainly because of a 6.7% rise in retained earnings, to ¥101.5 billion (US\$1.2 billion). Net unrealized gains on securities reflected the decline in stock prices at fiscal year-end and fell 36.6%, to ¥2.2 billion (US\$26.1 million).

Among total accumulated other comprehensive income, foreign currency translation adjustments—chiefly the effect of exchange rates on the net assets of overseas Tosoh Group companies—reduced net assets ¥9.4 billion (US\$113.2 million) in fiscal 2011. This compares with ¥6.5 billion a year earlier. Total net assets edged up 1.4% year on year, to ¥193.5 billion (US\$2.3 billion). Net assets per share totaled ¥275.35 (US\$3.31), compared with ¥271.59 a year earlier. Return on average total net assets was 6.1%, and the net asset ratio was 22.7%, compared with 22.0% in fiscal 2010.

## Capital Expenditures and Depreciation

### Cash flows

Net cash provided by operating activities was ¥49.6 billion (US\$597.0 million), dropping from ¥81.7 billion in fiscal 2010. The principal sources of cash were depreciation and amortization and an increase in trade payables. The major uses of cash were an increase in trade receivables and an increase in inventories.

Investing activities absorbed ¥27.0 billion (US\$324.5 million) in cash flows, down from ¥29.2 billion in the previous fiscal year. Lower payments for the purchases of property and equipment resulted in the overall decline in investment cash flows.

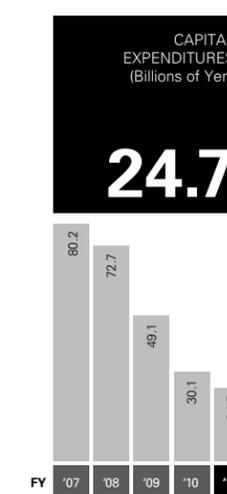
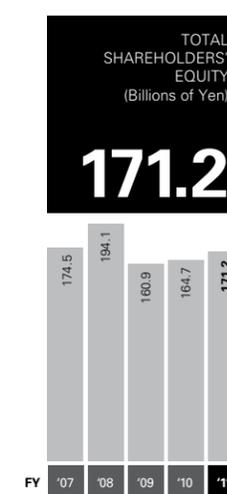
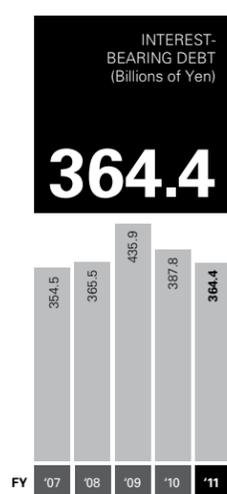
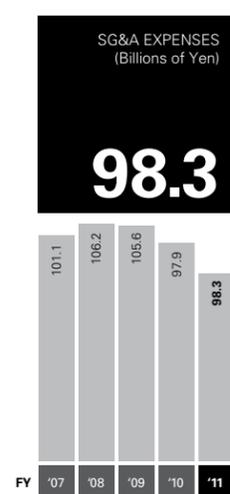
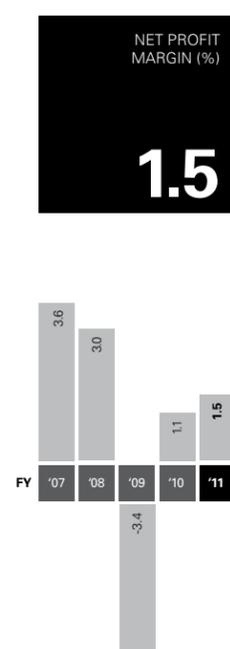
Free cash flow, therefore, was positive. The excess of cash flows from operating activities over the cash absorbed in investing activities amounted to ¥22.7 billion (US\$272.5 million), compared with free cash flow of ¥52.5 billion in fiscal 2010.

Net cash used in financing activities was ¥25.9 billion (US\$311.6 million), compared with ¥51.9 billion used in financing activities in the previous year. The principal reason for the decrease in net cash used was a ¥7.8 billion (US\$93.2 million) net decrease in long-term debt, compared with a net decrease of ¥37.8 billion in fiscal 2010. Cash and cash equivalents on March 31, 2011, were ¥52.7 billion (US\$633.3 million), down 7.5% from a year earlier.

## Projections for Fiscal 2012

Tosoh projects further growth in fiscal 2012. The company anticipates consolidated net income of ¥23 billion and operating income of ¥46 billion on a 16.9% increase in net sales, to ¥800 billion.

In preparing these sales and earnings projections for fiscal 2012, Tosoh's management has assumed an average exchange rate of ¥85 to the US dollar, compared with ¥90 in fiscal 2011. Management has also assumed an average naphtha cost—a benchmark of raw material costs in the chemical industry—of ¥63,000 per kiloliter in Japan, compared with ¥50,000 in fiscal 2011.



# Financial Statements

## Consolidated Balance Sheets

As at March 31, 2011 and 2010

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
<b>ASSETS</b>			
<b>Current assets:</b>			
Cash and cash equivalents (Notes 6 and 10)	¥ 52,662	¥ 56,916	\$ 633,337
Marketable securities (Notes 4 and 10)	8	8	96
Trade receivables (Notes 6 and 10)	181,765	170,807	2,185,989
Inventories (Note 3)	115,600	102,557	1,390,259
Deferred tax assets (Note 11)	7,594	10,953	91,329
Other current assets	15,144	14,127	182,128
Allowance for doubtful accounts	(546)	(649)	(6,566)
Total current assets	372,227	354,719	4,476,572
<b>Investments:</b>			
Investment securities (Notes 4 and 10)	22,742	25,884	273,506
Investments in unconsolidated subsidiaries and affiliates (Notes 4 and 10)	17,233	17,640	207,252
Long-term loans receivable (Note 10)	459	533	5,520
Other	23,615	22,757	284,004
Allowance for doubtful accounts	(430)	(844)	(5,171)
Total investments	63,619	65,970	765,111
<b>Property, plant and equipment—net</b> (Notes 5 and 6)	276,963	302,749	3,330,884
<b>Other assets:</b>			
Deferred tax assets (Note 11)	7,988	9,310	96,067
Intangibles	5,121	6,911	61,588
Total other assets	13,109	16,221	157,655
<b>Total assets</b>	¥ 725,918	¥ 739,659	\$ 8,730,222

The accompanying notes are an integral part of these statements.

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
<b>LIABILITIES AND NET ASSETS</b>			
<b>Current liabilities:</b>			
Short-term bank loans (Notes 6 and 10)	¥ 145,461	¥ 160,698	\$ 1,749,381
Current maturities of long-term debt (Notes 6 and 10)	50,461	48,752	606,867
Trade payables (Note 10)	96,113	86,969	1,155,899
Income taxes payable	3,841	2,886	46,194
Deferred tax liabilities (Note 11)	—	1	—
Other current liabilities (Note 10)	36,552	42,996	439,590
Total current liabilities	332,428	342,302	3,997,931
<b>Long-term liabilities:</b>			
Long-term debt, less current maturities (Notes 6 and 10)	168,251	178,079	2,023,464
Retirement and severance benefits (Note 7)	18,503	18,703	222,526
Retirement benefits for directors and corporate auditors	314	470	3,776
Deferred tax liabilities (Note 11)	5,919	3,213	71,185
Provision for losses on dissolution of business	2,952	3,317	35,502
Other long-term liabilities (Note 10)	4,038	2,676	48,562
Total long-term liabilities	199,977	206,458	2,405,015
Total liabilities	532,405	548,760	6,402,946
<b>Contingent liabilities</b> (Note 8)			
<b>Shareholders' equity:</b>			
Common stock:			
Authorized—1,800,000,000 shares;			
Issued—601,161,912 shares	40,634	40,634	488,683
Capital surplus	30,053	30,062	361,431
Retained earnings	101,486	95,077	1,220,517
Treasury stock, 2,828,274 shares in 2011 and 2,824,346 shares in 2010	(989)	(1,030)	(11,894)
Total shareholders' equity	171,184	164,743	2,058,737
<b>Accumulated other comprehensive income:</b>			
Net unrealized gains on securities	2,167	3,419	26,061
Deferred gains (losses) on hedges	(5)	(7)	(60)
Land revaluation reserve	816	816	9,814
Foreign currency translation adjustments	(9,411)	(6,470)	(113,181)
Total accumulated other comprehensive income	(6,433)	(2,242)	(77,366)
<b>Stock acquisition rights</b> (Note 14)	258	278	3,103
<b>Minority interests</b>	28,504	28,120	342,802
Total net assets	193,513	190,899	2,327,276
Total liabilities and net assets	¥ 725,918	¥ 739,659	\$ 8,730,222

## Consolidated Statements of Income

Years ended March 31, 2011 and 2010

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
<b>Net sales</b> (Note 12)	¥ 684,399	¥ 628,706	\$ 8,230,896
<b>Cost of sales</b>	552,613	517,754	6,645,977
Gross profit	131,786	110,952	1,584,919
<b>Selling, general and administrative expenses</b>	98,254	97,905	1,181,648
Operating income (Note 12)	33,532	13,047	403,271
<b>Other income (expenses):</b>			
Interest and dividend income	847	756	10,186
Foreign exchange losses, net	(2,944)	(1,032)	(35,406)
Subsidy income	—	1,352	—
Interest expense	(5,468)	(6,573)	(65,761)
Equity in earnings of affiliates	1,741	1,264	20,938
Loss on disposal of property, plant and equipment	(765)	(826)	(9,200)
Loss on valuation of investment securities	(1,102)	(72)	(13,252)
Devaluation on goodwill	—	(1,029)	—
Disaster loss	(1,811)	(161)	(21,780)
Other, net	1,071	914	12,880
Subtotal	(8,431)	(5,407)	(101,395)
<b>Income before income taxes and minority interests</b>	25,101	7,640	301,876
<b>Income taxes</b> (Note 11):			
Current	5,934	3,786	71,365
Deferred	8,200	(2,515)	98,617
Subtotal	14,134	1,271	169,982
<b>Income before minority interests</b>	10,967	—	131,894
Minority interests	(952)	521	(11,449)
<b>Net income</b>	¥ 10,015	¥ 6,890	\$ 120,445
	Yen		US Dollars (Note 1)
<b>Net income per share:</b>			
Net income—primary	¥ 16.74	¥ 11.51	\$ 0.20
Net income—diluted	16.71	11.50	0.20
Cash dividends per share	¥ 6.00	¥ 6.00	\$ 0.07

The accompanying notes are an integral part of these statements.

## Consolidated Statements of Comprehensive Income

Years ended March 31, 2011 and 2010

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
<b>Income before minority interests</b>	¥ 10,967	¥ 6,368	¥ 131,894
<b>Other comprehensive income:</b>			
Net unrealized gains (losses) on securities	(1,293)	3,081	(15,550)
Deferred gains (losses) on hedges	(1)	1	(12)
Foreign currency translation adjustments	(2,776)	449	(33,386)
Share of other comprehensive income of affiliates applied for equity method	(344)	237	(4,137)
Total other comprehensive income	(4,414)	3,768	(53,085)
Comprehensive income	6,553	10,136	78,809
<b>Breakdown of comprehensive income:</b>			
Comprehensive income attributable to shareholders of the parent	5,823	10,546	70,030
Comprehensive income attributable to minority interests	730	(410)	8,779

## Consolidated Statements of Changes in Net Assets

	Millions of Yen				
	Shareholders' equity				
	Common stock	Capital surplus	Retained earnings	Treasury stock	Total shareholders' equity
<b>As at March 31, 2009</b>	¥ 40,634	¥ 30,062	¥ 91,205	¥ (991)	¥ 160,910
Net income			6,890		6,890
Cash dividends			(2,998)		(2,998)
Decrease due to changes in shareholding ratio			(5)		(5)
Purchase of treasury stock				(66)	(66)
Increase of treasury stock due to changes in shareholding ratio				(0)	(0)
Decrease by merger			(14)		(14)
Disposal of treasury stock			(1)	27	26
Other, net					
<b>As at March 31, 2010</b>	¥ 40,634	¥ 30,062	¥ 95,077	¥ (1,030)	¥ 164,743
Effect of changes in accounting policies applied to foreign affiliates		(9)			(9)
Net income			10,015		10,015
Cash dividends			(3,596)		(3,596)
Decrease due to changes in shareholding ratio			(1)		(1)
Purchase of treasury stock				(74)	(74)
Increase of treasury stock due to changes in shareholding ratio				(0)	(0)
Disposal of treasury stock			(9)	115	106
Other, net					
<b>As at March 31, 2011</b>	¥ 40,634	¥ 30,053	¥ 101,486	¥ (989)	¥ 171,184

	Thousands of US Dollars (Note 1)				
<b>As at March 31, 2010</b>	\$ 488,683	\$ 361,539	\$ 1,143,440	\$ (12,387)	\$ 1,981,275
Effect of changes in accounting policies applied to foreign affiliates		(108)			(108)
Net income			120,445		120,445
Cash dividends			(43,247)		(43,247)
Decrease due to changes in shareholding ratio			(12)		(12)
Purchase of treasury stock				(890)	(890)
Increase of treasury stock due to changes in shareholding ratio				(0)	(0)
Disposal of treasury stock			(109)	1,383	1,274
Other, net					
<b>As at March 31, 2011</b>	\$ 488,683	\$ 361,431	\$ 1,220,517	\$ (11,894)	\$ 2,058,737

The accompanying notes are an integral part of these statements.

	Millions of Yen							
	Accumulated other comprehensive income							
	Net unrealized gains on securities	Deferred gains (losses) on hedges	Land revaluation reserve	Foreign currency translation adjustments	Total accumulated and other comprehensive income	Stock acquisition rights	Minority interests	Total net assets
	¥ 284	¥ (13)	¥ 816	¥ (6,984)	¥ (5,897)	¥ 217	¥ 30,651	¥ 185,881
								6,890
								(2,998)
								(5)
								(66)
								(0)
								(14)
								26
	3,135	6		514	3,655	61	(2,531)	1,185
	¥ 3,419	¥ (7)	¥ 816	¥ (6,470)	¥ (2,242)	¥ 278	¥ 28,120	¥ 190,899
								(9)
								10,015
								(3,596)
								(1)
								(74)
								(0)
								106
	(1,252)	2		(2,941)	(4,191)	(20)	384	(3,827)
	¥ 2,167	¥ (5)	¥ 816	¥ (9,411)	¥ (6,433)	¥ 258	¥ 28,504	¥ 193,513

	Thousands of US Dollars (Note 1)							
	\$ 41,118	\$ (84)	\$ 9,814	\$ (77,811)	\$ (26,963)	\$ 3,343	\$ 338,184	\$ 2,295,839
								(108)
								120,445
								(43,247)
								(12)
								(890)
								(0)
								1,274
	(15,057)	24		(35,370)	(50,403)	(240)	4,618	(46,025)
	\$ 26,061	\$ (60)	\$ 9,814	\$ (113,181)	\$ (77,366)	\$ 3,103	\$ 342,802	\$ 2,327,276

## Consolidated Statements of Cash Flows

Years ended March 31, 2011 and 2010

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
<b>Cash flows from operating activities:</b>			
Income before income taxes and minority interests	¥ 25,101	¥ 7,640	\$ 301,876
Adjustments to reconcile income before income taxes and minority interests to net cash provided by operating activities:			
Depreciation and amortization	50,317	51,983	605,135
Decrease in retirement and severance benefits	(2,703)	(1,638)	(32,508)
Interest and dividend income	(847)	(756)	(10,186)
Interest expense	5,468	6,573	65,761
Equity in earnings of affiliates	(1,741)	(1,264)	(20,938)
Loss on valuation of investment securities	1,102	72	13,253
Loss on disposal of property, plant and equipment	765	826	9,200
Increase in trade receivables	(13,148)	(14,632)	(158,124)
(Increase) decrease in inventories	(15,256)	14,758	(183,476)
Increase in trade payables	10,898	15,890	131,064
Other, net	(2,500)	8,574	(30,065)
Subtotal	57,456	88,026	690,992
Interest and dividends received	2,158	1,549	25,952
Interest paid	(5,568)	(6,717)	(66,963)
Income taxes paid	(4,402)	(1,204)	(52,940)
Net cash provided by operating activities	49,644	81,654	597,041
<b>Cash flows from investing activities:</b>			
Payments for purchases of property, plant and equipment	(27,768)	(29,092)	(333,951)
Payments for advances of long-term loans receivable	(2,553)	(2,327)	(30,704)
Proceeds from collections of long-term loans receivable	3,062	2,997	36,825
Other, net	273	(728)	3,284
Net cash used in investing activities	(26,986)	(29,150)	(324,546)
<b>Cash flows from financing activities:</b>			
Net decrease in short-term bank loans	(14,091)	(10,600)	(169,465)
Proceeds from long-term debt	41,707	16,032	501,587
Repayments of long-term debt	(49,470)	(53,790)	(594,949)
Cash dividends paid	(3,880)	(3,384)	(46,663)
Other, net	(174)	(152)	(2,091)
Net cash used in financing activities	(25,908)	(51,894)	(311,581)
Effect of exchange rate changes on cash and cash equivalents	(1,004)	327	(12,075)
Net increase (decrease) in cash and cash equivalents	(4,254)	937	(51,161)
<b>Cash and cash equivalents at beginning of year</b>	<b>56,916</b>	<b>55,913</b>	<b>684,498</b>
Increase in cash and cash equivalents resulting from merger of subsidiaries	—	66	—
Cash and cash equivalents at end of year	¥ 52,662	¥ 56,916	\$ 633,337

The accompanying notes are an integral part of these statements.

## Notes to the Consolidated Financial Statements

### NOTE 1—BASIS OF PRESENTING CONSOLIDATED FINANCIAL STATEMENTS

The accompanying consolidated financial statements of Tosoh Corporation (the "Company") and its consolidated domestic subsidiaries have been prepared in accordance with the provisions set forth in the Financial Instruments and Exchange Law of Japan and its related accounting regulations and in conformity with accounting principles generally accepted in Japan ("Japanese GAAP"), which are different in certain respects as to application and disclosure requirements from International Financial Reporting Standards. The accounts of the Company's overseas subsidiaries and affiliates are prepared in accordance with International Financial Reporting Standards or US generally accepted accounting principles or Japanese GAAP with consolidation adjustments for the specified six items, which are described in "Practical Solution on Unification of Accounting Policies Applied to Foreign Subsidiaries for Consolidated Financial Statements ("PITF No. 18")" and "Practical Solution on Unification of Accounting Policies Applied to Associates Accounted for Using the Equity Method ("PITF No. 24")," as applicable.

The accompanying consolidated financial statements have been restructured and translated into English from the consolidated financial statements of the Company prepared in accordance with Japanese GAAP and filed with the appropriate Local Finance Bureau of the Ministry of Finance as required by the Financial Instruments and Exchange Law of Japan. Some supplementary information included in the statutory Japanese language consolidated financial statements, but not required for fair presentation, is not presented in the accompanying consolidated financial statements.

The translations of the Japanese yen amounts into US dollars are included solely for the convenience of readers outside Japan, using the prevailing exchange rate at March 31, 2011, which was ¥83.15 to US\$1.00. The translations should not be construed as representations that the Japanese yen amounts have been, could have been, or could in the future be converted into US dollars at this or any other rate of exchange.

### NOTE 2—SUMMARY OF ACCOUNTING POLICIES

#### Consolidation and investments

The consolidated financial statements include the accounts of the Company and its significant subsidiaries. All significant intercompany transactions and accounts have been eliminated in the consolidation.

Investments in affiliates are, with minor exceptions, accounted for by the equity method. Equity in earnings of affiliates has been calculated by excluding unrealized intercompany profits.

In the elimination of investments in subsidiaries, the assets and liabilities of the subsidiaries, including the portion attributable to minority shareholders, are evaluated using the fair value at the time the Company acquired control of the respective subsidiaries.

#### Translation of foreign currencies

Receivables and payables denominated in foreign currencies are translated into Japanese yen at the year-end rates, and the resulting translation adjustments are credited or charged to income.

Financial statements of consolidated overseas subsidiaries are translated into Japanese yen at the year-end rates, except that shareholders' equity accounts are translated at historical rates.

#### Cash and cash equivalents

Cash on hand, readily available deposits and short-term highly liquid investments with original maturities of three months or less are considered to be cash and cash equivalents.

#### Securities

Securities are classified into one of the following categories based on the intent of holding, resulting in the different measurement and accounting for the changes in fair value. Held-to-maturity debt securities are stated at amortized cost. Equity securities issued by subsidiaries and affiliates, which are not consolidated or accounted for using the equity method, are stated at cost as determined by the moving-average method. Available-for-sale securities with available fair values are stated at fair value. Unrealized gains and losses on these securities are reported, net of applicable income taxes, as a separate component of net assets. Other available-for-sale securities with no available fair values are stated at moving-average cost.

Significant declines in fair value or the net asset value of held-to-maturity debt securities, equity securities not on the equity method, issued by unconsolidated subsidiaries and affiliates, and available-for-sale securities judged to be other than temporary are charged to income.

#### Allowance for doubtful accounts

The Company and its consolidated subsidiaries (the "Companies") provide the allowance for doubtful trade receivables by individually estimating uncollectible amounts and for other receivables based on the Companies' historical experience of write-offs of such receivables.

#### Inventories

Inventories are principally valued at cost as determined by the average cost method. If the profitability of the inventories went down, the book value is reduced accordingly.

Effective from the fiscal year ended March 31, 2011, the Company and its consolidated domestic subsidiaries adopted a new accounting standard for the measurement of inventories, and a few of the consolidated subsidiaries changed the inventory valuation method from the last-in first-out method to the average cost method.

The effect of this adoption was immaterial on the consolidated statements of income for the year ended March 31, 2011.

#### Property, plant and equipment, and depreciation

Property, plant and equipment are stated at cost. Cumulative amounts of impairment losses recognized have been deducted from acquisition costs. Depreciation is principally computed over the estimated useful lives of the assets on the declining basis. However the straight-line basis is applied to buildings. Repairs, maintenance and minor renewals are charged to expense as incurred.

#### Lease transactions

Assets acquired by lessees in finance lease transactions are recorded in the corresponding asset accounts. However, finance leases of which the ownership is considered to be transferred to the lessee and whose commencement dates started prior to March 31, 2008, are accounted for in the same manner as operating leases.

#### Accounting standards for asset retirement obligations

Effective from the fiscal year ended March 31, 2011, the Company and its consolidated domestic subsidiaries adopted new accounting standards for asset retirement obligations.

The effect of this adoption was immaterial on the consolidated statements of income for the year ended March 31, 2011.

#### Retirement and severance benefits

The Companies provide two types of post-employment benefit plans: unfunded lump-sum payment plans and funded contributory pension plans.

The Companies provide an allowance for employees' retirement and severance benefits based on the estimated amounts of the projected benefit obligation, actuarially calculated using certain assumptions, and the fair value of the plan assets.

Prior service cost (credit) is recognized as expense (income) as incurred.

Actuarial loss (gain) is recognized as expense (income) using the straight-line method over 10 years commencing in the following period.

#### Income taxes

The asset and liability approach is used to recognize deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes.

#### Shareholders' equity

The Corporate Law of Japan (the "Law") requires that an amount equal to 10% of dividends must be appropriated as a legal reserve (a component of retained earnings) or as additional paid-in capital (a component of capital surplus), depending on the equity account charged upon payment of such dividends, until the aggregate amount of legal reserve and additional paid-in capital equals 25% of common stock. Under the Law, the aggregate amount of additional paid-in capital and legal reserve that exceeds 25% of common stock may be made available for dividends by resolution of the shareholders. Under the Law, the total amount of additional paid-in capital and legal reserve may be reversed without limitation of such threshold. The Law also provides that common stock, legal reserve, additional paid-in capital, other capital surplus and retained earnings can be transferred among the accounts under certain conditions upon resolution of the shareholders.

The maximum amount that the Company can distribute as dividends is calculated based on the non-consolidated financial statements of the Company in accordance with the Law.

#### Stock options

The Company has adopted a new accounting standard for stock options. The standard requires companies to account for stock options granted to non-employees based on the fair value of the stock option. In the balance sheet, the stock option is presented as stock acquisition rights as a separate component of net assets until exercised.

#### Comprehensive income

Effective from the fiscal year ended March 31, 2011, the Company adopted a new accounting standard for presentation of comprehensive income. As a result of the adoption of the standard, the Company prepared the consolidated statement of comprehensive income for the fiscal year ended March 31, 2011. The items "Accumulated other comprehensive income" and "Total accumulated other comprehensive income" for the previous fiscal year are exactly the same as "Valuation and translation adjustments" and "Total valuation and translation adjustments" of the previous fiscal year, respectively.

#### Net income per share

Net income per share is computed based upon the weighted average number of shares of common stock outstanding during the period.

Diluted net income per share reflects the potential dilution that could occur if stock options were fully exercised.

#### Reclassifications

Certain prior year amounts have been reclassified to conform to the current year presentation.

## NOTE 3—INVENTORIES

Inventories as of March 31, 2011 and 2010 consisted of the following:

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
Finished products	¥ 68,961	¥ 63,055	\$ 829,357
Raw materials and supplies	36,310	32,438	436,681
Work-in-process	10,329	7,064	124,221
<b>Total</b>	<b>¥ 115,600</b>	<b>¥ 102,557</b>	<b>\$ 1,390,259</b>

## NOTE 4—FAIR VALUE INFORMATION OF SECURITIES

The following tables summarize acquisition costs, book values and fair values of securities with available fair values as of March 31, 2011 and 2010.

## (1) Held-to-maturity debt securities:

	Millions of Yen					
	2011			2010		
	Book value	Fair value	Difference	Book value	Fair value	Difference
Securities with fair values exceeding book value	¥ 1	¥ 1	¥ 0	¥ 1	¥ 1	¥ 0
Securities with fair values not exceeding book value	—	—	—	1	1	(0)
<b>Total</b>	<b>¥ 1</b>	<b>¥ 1</b>	<b>¥ 0</b>	<b>¥ 2</b>	<b>¥ 2</b>	<b>¥ 0</b>

	Thousands of US Dollars (Note 1)		
	2011	Fair value	Difference
	Book value	Fair value	Difference
Securities with fair values exceeding book value	\$ 12	\$ 12	\$ 0
Securities with fair values not exceeding book value	—	—	—
<b>Total</b>	<b>\$ 12</b>	<b>\$ 12</b>	<b>\$ 0</b>

## (2) Available-for-sale securities:

	Millions of Yen					
	2011			2010		
	Acquisition cost	Book value	Difference	Acquisition cost	Book (fair) value	Difference
Securities with book values exceeding acquisition costs	¥ 6,575	¥ 12,167	¥ 5,592	¥ 9,161	¥ 15,753	¥ 6,592
Securities with book values not exceeding acquisition costs	7,871	5,963	(1,908)	5,186	4,480	(706)
<b>Total</b>	<b>¥ 14,446</b>	<b>¥ 18,130</b>	<b>¥ 3,684</b>	<b>¥ 14,347</b>	<b>¥ 20,233</b>	<b>¥ 5,886</b>

	Thousands of US Dollars (Note 1)		
	2011	Book value	Difference
	Acquisition cost	Book value	Difference
Securities with book values exceeding acquisition costs	\$ 79,074	\$ 146,326	\$ 67,252
Securities with book values not exceeding acquisition costs	94,660	71,714	(22,946)
<b>Total</b>	<b>\$ 173,734</b>	<b>\$ 218,040</b>	<b>\$ 44,306</b>

## NOTE 5—PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment as of March 31, 2011 and 2010 consisted of the following:

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
Land	¥ 75,006	¥ 75,216	\$ 902,057
Buildings and structures	200,776	197,987	2,414,624
Machinery and equipment	751,354	725,158	9,036,127
Lease assets	165	148	1,984
Construction in progress	12,872	33,845	154,805
	<b>1,040,173</b>	<b>1,032,354</b>	<b>12,509,597</b>
Less accumulated depreciation	(763,210)	(729,605)	(9,178,713)
<b>Net property, plant and equipment</b>	<b>¥ 276,963</b>	<b>¥ 302,749</b>	<b>\$ 3,330,884</b>

## NOTE 6—SHORT-TERM BANK LOANS AND LONG-TERM DEBT

Short-term bank loans (partially secured) bore interest at weighted average annual rates of 1.00% and 1.10% as of March 31, 2011 and 2010, respectively. Such loans are generally renewable at maturity.

Long-term debt as of March 31, 2011 and 2010 consisted of the following:

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
Loans from banks and other financial institutions, 1.63%, maturing serially through 2023:			
Secured	¥ 5,601	¥ 7,474	\$ 67,360
Unsecured	213,111	219,357	2,562,971
	<b>218,712</b>	<b>226,831</b>	<b>2,630,331</b>
Less amounts due within 1 year	(50,461)	(48,752)	(606,867)
<b>Total</b>	<b>¥ 168,251</b>	<b>¥ 178,079</b>	<b>\$ 2,023,464</b>

Assets pledged as collateral to secure primarily short-term bank loans and long-term debt as of March 31, 2011 and 2010 were as follows:

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
Property, plant and equipment	¥ 72,772	¥ 78,715	\$ 875,189
Other	218	200	2,622
<b>Total</b>	<b>¥ 72,990</b>	<b>¥ 78,915</b>	<b>\$ 877,811</b>

The annual maturities of long-term debt as of March 31, 2011 are as follows:

	Millions of Yen	Thousands of US Dollars (Note 1)
	As at March 31,	
2012	¥ 50,461	\$ 606,867
2013	48,016	577,463
2014	44,828	539,122
2015	26,430	317,859
2016	20,305	244,197
Thereafter	28,672	344,823
<b>Total</b>	<b>¥ 218,712</b>	<b>\$ 2,630,331</b>

## NOTE 7—RETIREMENT AND SEVERANCE BENEFITS

The liabilities for retirement and severance benefits at March 31, 2011 and 2010 were as follows:

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
Projected benefit obligation	¥ 72,900	¥ 74,865	\$ 876,729
Fair value of pension assets	(61,891)	(61,554)	(744,330)
Unfunded benefit obligation	11,009	13,311	132,399
Unrecognized actuarial loss	(9,184)	(8,738)	(110,451)
Net benefit obligation	1,825	4,573	21,948
Prepaid pension cost	16,678	14,130	200,578
<b>Retirement and severance benefits</b>	<b>¥ 18,503</b>	<b>¥ 18,703</b>	<b>\$ 222,526</b>

Retirement benefit costs for the years ended March 31, 2011 and 2010 were as follows:

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
Service costs	¥ 2,956	¥ 3,043	\$ 35,550
Interest costs on projected benefit obligation	1,589	1,648	19,110
Expected return on pension assets	(1,313)	(1,117)	(15,791)
Amortization of actuarial loss	1,852	2,250	22,274
Other	244	302	2,934
<b>Retirement and severance benefit costs</b>	<b>¥ 5,328</b>	<b>¥ 6,126</b>	<b>\$ 64,077</b>

Notes: 1. Both the discount rate and the rate of expected return on pension assets used by the Companies are 2.5% for the years ended March 31, 2011 and 2010.

2. The estimated amount of all retirement benefits to be paid at the future retirement dates is allocated equally to each service year using the estimated number of total service years.

## NOTE 8—CONTINGENT LIABILITIES

Contingent liabilities primarily for loans from banks to unconsolidated subsidiaries and affiliates, which are guaranteed by the Companies, and for notes receivable discounted at banks with recourse as of March 31, 2011, were as follows:

	Millions of Yen	Thousands of US Dollars (Note 1)
	Loans guaranteed	¥ 1,316
Notes receivable discounted	22	265
Notes receivable endorsed	51	613
<b>Total</b>	<b>¥ 1,389</b>	<b>\$ 16,705</b>

## NOTE 9—DERIVATIVE FINANCIAL INSTRUMENTS AND HEDGING TRANSACTIONS

Derivatives transactions to which hedging accounting is applied as of March 31, 2011 and 2010, were as follows:

	Millions of Yen				Thousands of US Dollars (Note 1)	
	2011		2010		2011	
	Contract amount	Fair value	Contract amount	Fair value	Contract amount	Fair value
Foreign currency forward exchange contracts						
Buying US dollar	¥ 78	¥ 1	¥ 59	¥ 2	\$ 938	\$ 12
Buying euro	23	0	—	—	277	0
Total	¥ 101	¥ 1	¥ 59	¥ 2	\$ 1,215	\$ 12
Interest rate swaps						
Payment fixation and receipt change	¥ 9,282	(*)	¥ 12,859	(*)	\$ 111,630	(*)
Payment change and receipt fixation	500	(*)	500	(*)	6,013	(*)
Total	¥ 9,782	(*)	¥ 13,359	(*)	\$ 117,643	(*)

(\*) Because interest rate swaps are processed with long-term debt as a hedge object, the fair value is included in the fair value of a long-term debt (Note 10).

The fair value of currency swap contracts is based on the quotes provided by financial institutions.

## NOTE 10—FINANCIAL INSTRUMENTS

Matters relating to the conditions of financial instruments

Policy on financial instruments

Tosoh Group raises capital according to loans from banks to invest in core and growing businesses based on capital investment plans. Derivatives are used to mitigate risk, and speculative transactions are not undertaken.

Contents, Risk, and Risk Management of financial instruments

Trade receivables are exposed to credit risks of customers. The Companies monitor the due dates and the balances of customers individually in accordance with the credit control rules and strive to find doubtful debt at an early stage and to reduce the risks.

Securities, which are mainly shares, are exposed to market risks. Regarding listed shares, the Companies check the market prices every quarter and revise their position consistently, taking account of relations with companies that issue the shares.

Part of trade payables are denominated in foreign currency, which are exposed to foreign currency risks. However, almost all those balances may be offset at any time by accounts receivables, which are also denominated in foreign currency. Loans payable are used as short-term working capital or long-term capital investment, part of which are exported to interest rate risk. These risks are removed by entering into interest rate swaps.

Some consolidated subsidiaries use foreign currency forward exchange contracts to hedge against foreign currency risks associated with receivables and payables that are denominated in foreign currencies.

The Companies execute and control derivatives transactions in accordance with internal control rules that provide authority and transaction limits and have transactions only with the highest rated banks to reduce the credit risks.

The following tables summarize book values and fair values of financial instruments for which it is practical to estimate values as of March 31, 2011 and 2010:

	Millions of Yen		
	March 31, 2011		
	Book value	Fair value	Difference
Cash and cash equivalents	¥ 52,662	¥ 52,662	¥ —
Trade receivables	181,765	181,765	—
Securities			
Held-to-maturity debt securities	1	1	0
Available-for-sale securities	18,130	18,130	—
Investments in affiliates	10,207	11,961	1,754
Long-term loans receivable	459	459	—
Trade payables	(96,113)	(96,113)	—
Short-term bank loans	(145,461)	(145,461)	—
Long-term debt	(218,712)	(220,798)	(2,086)
Derivatives transaction	1	1	—

	Millions of Yen		
	March 31, 2010		
	Book value	Fair value	Difference
Cash and cash equivalents	¥ 56,916	¥ 56,916	¥ —
Trade receivables	170,807	170,807	—
Securities			
Held-to-maturity debt securities	2	2	0
Available-for-sale securities	20,233	20,233	—
Investments in affiliates	10,073	13,795	3,722
Long-term loans receivable	533	533	—
Trade payables	(86,969)	(86,969)	—
Short-term bank loans	(160,698)	(160,698)	—
Long-term debt	(226,831)	(229,268)	(2,437)
Derivatives transaction	2	2	—

	Thousands of US Dollars (Note 1)		
	March 31, 2011		
	Book value	Fair value	Difference
Cash and cash equivalents	\$ 633,337	\$ 633,337	\$ —
Trade receivables	2,185,989	2,185,989	—
Securities			
Held-to-maturity debt securities	12	12	0
Available-for-sale securities	218,040	218,040	—
Investments in affiliates	122,754	143,848	21,094
Long-term loans receivable	5,520	5,520	—
Trade payables	(1,155,899)	(1,155,899)	—
Short-term bank loans	(1,749,381)	(1,749,381)	—
Long-term debt	(2,630,331)	(2,655,418)	(25,087)
Derivatives transaction	12	12	—

## Calculation method of fair value of financial instruments

Cash and cash equivalents, trade receivables, trade payables and short-term bank loans

The book values approximate fair value because of the short-term nature of these instruments.

## Securities

Fair values of securities are estimated based on quoted market prices for these instruments.

## Long-term loans receivable

The fair values of long-term loans receivable are calculated by discounting future cash flows of the principal and interest using the current interest rate applicable to similar loans.

## Long-term debt

The fair values of long-term debt are calculated by discounting future cash flows of the principal and interest using the current interest rate applicable to similar debts.

## Derivatives transactions

Refer to Note 9

Financial instruments whose fair values are deemed to be extremely difficult to determine are indicated below and are not included in "Securities" in the fair value information of the financial instruments.

	Book Value		Thousands of US Dollars (Note 1)
	Millions of Yen		
	2011	2010	
Equity securities issued by unconsolidated subsidiaries and affiliates	¥ 4,557	¥ 4,418	\$ 54,805
Non-listed equity securities	4,620	5,657	55,562

Repayment schedule of monetary claims, available-for-sale securities with maturity, and bonds held to maturity as of March 31, 2011 and 2010:

	Millions of Yen			
	2011			
	Within 1 year	Over 1 year within 5 years	Over 5 years within 10 years	Over 10 years
Cash and cash equivalents	¥ 52,662	¥ —	¥ —	¥ —
Trade receivables	181,765	—	—	—
Securities				
Held-to-maturity debt securities	1	—	—	—
Available-for-sale securities	7	—	—	—
Long-term loans receivable	17	323	82	54
Total	¥ 234,452	¥ 323	¥ 82	¥ 54

	Millions of Yen			
	2010			
	Within 1 year	Over 1 year within 5 years	Over 5 years within 10 years	Over 10 years
Cash and cash equivalents	¥ 56,916	¥ —	¥ —	¥ —
Trade receivables	170,807	—	—	—
Securities				
Held-to-maturity debt securities	1	1	—	—
Available-for-sale securities	7	—	—	—
Long-term loans receivable	20	384	88	61
Total	¥ 227,751	¥ 385	¥ 88	¥ 61

	Thousands of US Dollars (Note 1)			
	2011			
	Within 1 year	Over 1 year within 5 years	Over 5 years within 10 years	Over 10 years
Cash and cash equivalents	\$ 633,337	\$ —	\$ —	\$ —
Trade receivables	2,185,989	—	—	—
Securities				
Held-to-maturity debt securities	12	—	—	—
Available-for-sale securities	84	—	—	—
Long-term loans receivable	204	3,885	986	649
Total	\$ 2,819,626	\$ 3,885	\$ 986	\$ 649

Repayment schedule of lease debt as of March 31, 2011 and 2010:

	Millions of Yen				
	2011				
	Over 1 year within 2 years	Over 2 years within 3 years	Over 3 years within 4 years	Over 4 years within 5 years	Over 5 years
Lease debt	¥ 64	¥ 46	¥ 27	¥ 14	¥ 39

	Millions of Yen				
	2010				
	Over 1 year within 2 years	Over 2 years within 3 years	Over 3 years within 4 years	Over 4 years within 5 years	Over 5 years
Lease debt	¥ 68	¥ 51	¥ 30	¥ 17	¥ 48

	Thousands of US Dollars (Note 1)				
	2011				
	Over 1 year within 2 years	Over 2 years within 3 years	Over 3 years within 4 years	Over 4 years within 5 years	Over 5 years
Lease debt	\$ 770	\$ 553	\$ 325	\$ 168	\$ 469

Refer to Note 6 for schedule of long-term debt.

#### NOTE 11—INCOME TAXES

The Company and its consolidated domestic subsidiaries are subject to a number of income taxes, which, in the aggregate, indicate a statutory income tax rate in Japan of approximately 40.4% for the years ended March 31, 2011 and 2010.

The following table summarizes the significant differences between the statutory income tax rate and the Companies' actual income tax rate for the years ended March 31, 2011 and 2010:

	March 31, 2011	March 31, 2010
Statutory income tax rate	40.4%	40.4%
Increase (reduction) in taxes resulting from		
Equity in earnings of affiliates	(2.7)	(6.5)
Devaluation on goodwill	—	9.3
Valuation allowance	16.7	109.5
Loss on valuation of investments in subsidiaries	—	(141.3)
Other	1.9	5.2
Actual income tax rate	56.3%	16.6%

Significant components of deferred tax assets and deferred tax liabilities as of March 31, 2011 and 2010 were as follows:

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
Deferred tax assets:			
Operating loss carryforwards	¥ 26,790	¥ 28,689	\$ 322,189
Unrealized gains on intercompany transactions	4,811	4,922	57,859
Retirement and severance benefits	9,022	9,090	108,503
Impairment loss on fixed assets	1,515	1,460	18,220
Other	9,950	10,697	119,663
Total gross deferred tax assets	52,088	54,858	626,434
Valuation allowance	(27,397)	(23,314)	(329,489)
Total deferred tax assets	24,691	31,544	296,945
Deferred tax liabilities:			
Reserve for replacement of property, plant and equipment	(2,451)	(2,588)	(29,477)
Net unrealized gains on securities	(1,514)	(2,390)	(18,208)
Other	(11,063)	(9,517)	(133,049)
Total deferred tax liabilities	(15,028)	(14,495)	(180,734)
Net deferred tax assets	¥ 9,663	¥ 17,049	\$ 116,211

Note: "Net deferred tax assets" above can be classified in the accompanying consolidated balance sheets as of March 31, 2011 and 2010 as follows:

	Millions of Yen		Thousands of US Dollars (Note 1)
	2011	2010	2011
Balance sheet item			
Current assets	¥ 7,594	¥ 10,953	\$ 91,329
Current liabilities	—	(1)	—
Non-current assets	7,988	9,310	96,067
Non-current liabilities	¥ (5,919)	¥ (3,213)	(71,185)
	¥ 9,663	¥ 17,049	\$ 116,211

## NOTE 12—SEGMENT INFORMATION

The operations of the Companies are classified into 4 business segments: Petrochemical, Chlor-alkali, Specialty, Engineering.

Operations of the Petrochemical segment include the manufacture and sale of olefins and polymers.

Operations of the Chlor-alkali segment include the manufacture and sale of caustic soda, vinyl chloride monomer, polyvinyl chloride, high-performance polyurethane and cement.

Operations of the Specialty segment include the manufacture and sale of fine chemicals, scientific and diagnostic instruments and systems, quartz, specialty materials and metals.

Operations of the Engineering segment include water treatment equipment and construction.

“Operating expenses” in the following segment information include cost of sales and selling, general and administrative expenses.

“Other” in the following segment information is an additional category for service-related businesses, such as transportation and warehousing.

Business segment information for the years ended March 31, 2011 and 2010 was as follows:

	Millions of Yen							
	Year ended March 31, 2011							
	Petrochemical	Chlor-alkali	Specialty	Engineering	Other	Total	Adjustments	Consolidated
Net sales:								
External customers	¥ 181,916	¥ 261,598	¥ 133,548	¥ 67,704	¥ 39,633	¥ 684,399	¥ —	¥ 684,399
Inter-segment	99,455	30,281	14,382	7,990	44,410	196,518	(196,518)	—
Operating expenses	270,988	295,359	127,604	72,067	81,367	847,385	(196,518)	650,867
Operating income (loss)	¥ 10,383	¥ (3,480)	¥ 20,326	¥ 3,627	¥ 2,676	¥ 33,532	¥ —	¥ 33,532
Identifiable assets	¥ 124,339	¥ 264,864	¥ 161,897	¥ 88,029	¥ 28,601	¥ 667,730	¥ 58,188	¥ 725,918
Depreciation and amortization	5,819	22,302	15,621	1,306	1,815	46,863	2,301	49,164
Amortization on goodwill	—	—	—	17	—	17	—	17
Capital expenditures	5,882	6,818	9,336	1,391	985	24,412	300	24,712
Investment for affiliates	964	4,728	7,246	1,717	1,206	15,861	—	15,861

	Millions of Yen							
	Year ended March 31, 2010							
	Petrochemical	Chlor-alkali	Specialty	Engineering	Other	Total	Adjustments	Consolidated
Net sales:								
External customers	¥162,486	¥ 251,464	¥ 117,104	¥ 59,052	¥ 38,600	¥ 628,706	¥ —	¥ 628,706
Inter-segment	90,153	24,645	13,665	10,549	46,498	185,510	(185,510)	—
Operating expenses	244,748	290,380	115,950	67,553	82,538	801,169	(185,510)	615,659
Operating income (loss)	¥ 7,891	¥ (14,271)	¥ 14,819	¥ 2,048	¥ 2,560	¥ 13,047	¥ —	¥ 13,047
Identifiable assets	¥115,625	¥ 264,487	¥ 185,438	¥ 82,517	¥ 29,196	¥ 677,263	¥ 62,396	¥ 739,659
Depreciation and amortization	5,719	28,407	10,516	1,491	1,953	48,086	2,613	50,699
Amortization on goodwill	—	720	—	15	—	735	—	735
Capital expenditures	2,297	5,848	20,024	428	1,210	29,807	277	30,084
Investment for affiliates	949	4,616	7,366	1,699	1,271	15,901	—	15,901

	Thousands of US Dollars (Note 1)							
	Year ended March 31, 2011							
	Petrochemical	Chlor-alkali	Specialty	Engineering	Other	Total	Adjustments	Consolidated
Net sales:								
External customers	\$ 2,187,806	\$ 3,146,097	\$ 1,606,109	\$ 814,239	\$ 476,645	\$ 8,230,896	\$ —	\$ 8,230,896
Inter-segment	1,196,091	364,173	172,965	96,092	534,095	2,363,416	(2,363,416)	—
Operating expenses	3,259,026	3,552,123	1,534,624	866,711	978,557	10,191,041	(2,363,416)	7,827,625
Operating income (loss)	\$ 124,871	\$ (41,853)	\$ 244,450	\$ 43,620	\$ 32,183	\$ 403,271	\$ —	\$ 403,271
Identifiable assets	\$ 1,495,358	\$ 3,185,374	\$ 1,947,048	\$ 1,058,677	\$ 343,969	\$ 8,030,426	\$ 699,796	\$ 8,730,222
Depreciation and amortization	69,982	268,214	187,865	15,707	21,828	563,596	27,673	591,269
Amortization on goodwill	—	—	—	204	—	204	—	204
Capital expenditures	70,740	81,996	112,279	16,729	11,846	293,590	3,608	297,198
Investment for affiliates	11,594	56,861	87,144	20,649	14,504	190,752	—	190,752

Note: Effective from the fiscal year ended March 31, 2011, the Companies have adopted a new segment accounting standard.

## NOTE 13—RELATED PARTY TRANSACTIONS

Yasushi Matsuda, a director of the Company, and his close relatives own the majority of the right to vote of Matsuda Ironworks Co., Ltd. The transactions with Matsuda Ironworks Co., Ltd., as of March 31, 2011 and 2010, were as follows:

	March 31, 2011	
	Millions of Yen	Thousands of US Dollars (Note 1)
Contract of construction	¥ 203	\$ 2,441

	March 31, 2010	
	Millions of Yen	
Contract of construction	¥ 210	

## NOTE 14—STOCK OPTION PLANS

At March 31, 2011, the Company had the following stock option plans:

	2010 plan	2009 plan	2008 plan	2007 plan	2006 plan
Date of grant	July 17, 2010	July 18, 2009	July 19, 2008	July 18, 2007	September 27, 2006
Grantees	29 (including 14 directors)	28 (including 16 directors)	29 (including 16 directors)	29 (including 15 directors)	25 (including 15 directors)
Type of stock	Common stock	Common stock	Common stock	Common stock	Common stock
Number of shares granted	419,735	361,206	201,125	121,379	181,463
Exercise price (yen)	¥1	¥1	¥1	¥1	¥1
Exercise price (US dollars) (Note 1)	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01
Exercisable period	July 18, 2010– July 17, 2035	July 19, 2009– July 18, 2034	July 20, 2008– July 19, 2033	July 19, 2007– July 18, 2032	September 28, 2006– September 27, 2031
Fair value at the date of grant (yen)	¥196	¥225	¥400	¥637	¥414
Fair value (US dollars) (Note 1)	\$2.36	\$2.42	\$4.07	\$6.36	\$3.51

## NOTE 15—SUBSEQUENT EVENTS

At the meeting of the Company's board of directors held on May 11, 2011, retained earnings of the Company as of March 31, 2011, were appropriated as follows:

	March 31, 2011	
	Millions of Yen	Thousands of US Dollars (Note 1)
Year-end cash dividends (¥3.00 per share)	¥1,798	\$21,624

## Independent Auditor's Report

To the Shareholders and the Board of Directors of Tosoh Corporation:

We have audited the accompanying consolidated balance sheets of Tosoh Corporation and consolidated subsidiaries as of March 31, 2011 and 2010, and the related consolidated statements of income, comprehensive income, changes in net assets and cash flows for the years then ended expressed in Japanese yen. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to independently express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in Japan. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of Tosoh Corporation and its subsidiaries as of March 31, 2011 and 2010, and the consolidated results of their operations and their cash flows for the years then ended, in conformity with accounting principles generally accepted in Japan.

The US dollar amounts in the accompanying consolidated financial statements with respect to the year ended March 31, 2011, are presented solely for convenience. Our audit also included the translation of yen amounts into US dollar amounts, and, in our opinion, such translation has been made on the basis described in Note 1 to the consolidated financial statements.

KPMG AZSA LLC

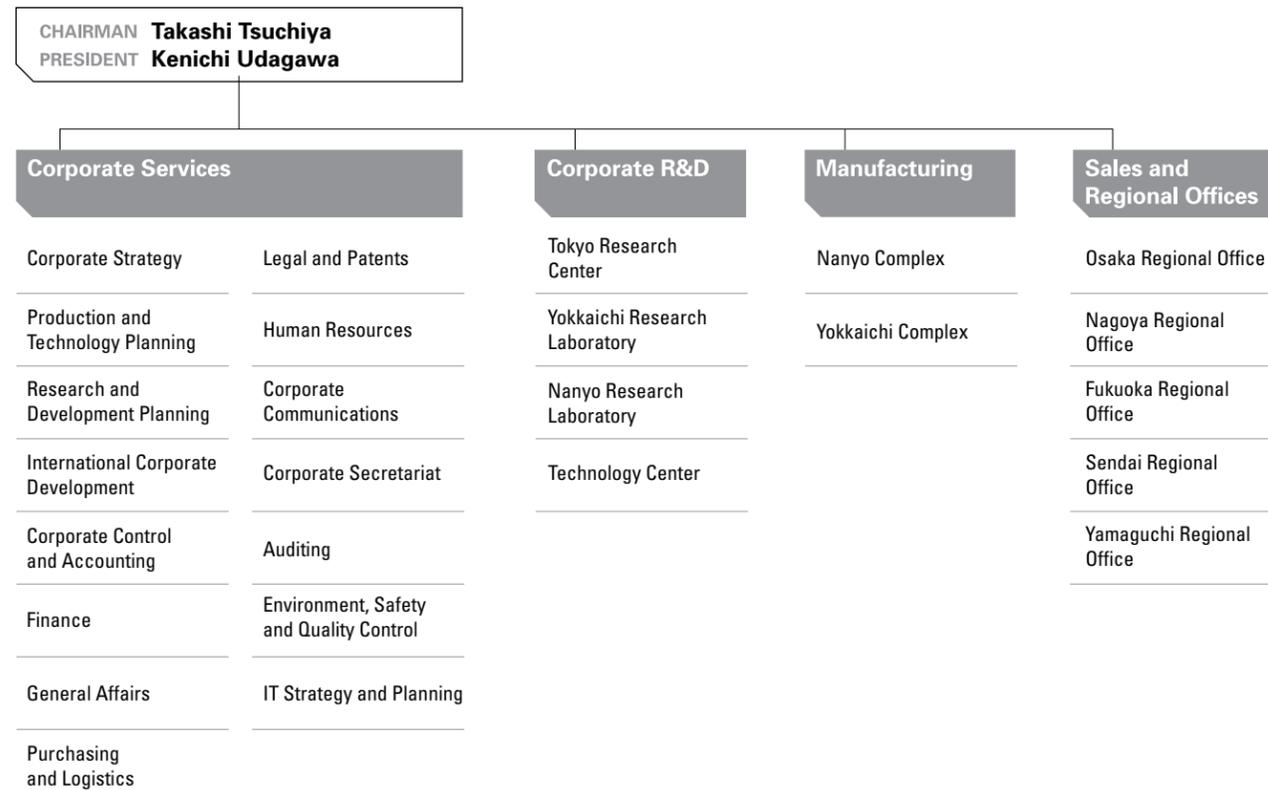
*KPMG AZSA LLC*

Osaka, Japan  
June 29, 2011

# Organization Chart

As of June 29, 2011

## TOSOH CORPORATION



## BUSINESS DIVISIONS

<b>Olefins</b>	Sales and Marketing
<b>Polymers</b>	Planning and Coordination, Polyethylenes, High-Performance Polymers
<b>Basic Chemicals</b>	Planning and Coordination, Chlor-alkali Sales and Marketing
<b>Cement</b>	Planning and Coordination
<b>Organic Chemicals</b>	Planning and Business Development, Amines, Bromine and Flame Retardants, Eco-business
<b>Bioscience</b>	Planning and Business Development, Sales, Marketing, Reagent Development, System Development, Customer Service, Separation Media Production
<b>Advanced Materials</b>	Administration, Planning and Business Development, Electronic Materials, Battery Materials, Ceramics and Zeolites

# Main Products

Products	Annual capacity (metric tons)	Applications
<b>OLEFINS</b>		
Ethylene	493,000	Petrochemicals
Propylene	288,000	Polypropylene, cumene, OXO process alcohol
C4 fraction		C4 hydrocarbons, including butylenes and butane; tertiary butyl alcohol; polychloroprene rubber
Tertiary butyl alcohol	70,000	Methyl methacrylate
Cumene (isopropylbenzene)	300,000	Phenol
Aromatic compounds	Benzene: 154,000 Toluene: 65,000 Xylene: 32,000	Numerous products
<b>POLYMERS</b>		
Ethylene vinyl acetate copolymer		Shoe soles, blown film, stretch film and laminates, extruded sheet, hot-melt adhesives, injection moldings
Low-density polyethylene		Heavy-duty bags and agricultural film, extrusion coating and laminates, injection moldings
High-density polyethylene		Chemical containers used in semiconductor manufacturing; blow moldings; blown film for containers, bags, and packages; extruded pipe; injection moldings; fishing net filament
Adhesive polymers		Adhesives for diverse materials
Chloroprene rubber		Sheathing for wire and cable jackets, industrial and automotive components, construction materials, extruded products, adhesives, wet suits
Chlorosulphonated polyethylene		Automotive and industrial hoses, coatings and linings for electrical and mechanical products, raincoats
High-performance chlorosulfonated polyethylene		Automotive belts
Polyvinyl chloride paste		Wallpaper, flooring, artificial leather, toys, gloves
Polyphenylene sulfide resins		Electric and electronic equipment, home appliances, automotive components
C9 hydrocarbon resins		Paints, printing inks, adhesive tape, hot-melt adhesives, rubber
<b>CEMENT</b>		
Cement	2,900,000	Portland cement, portland fly ash cement, portland blast furnace slag cement

Products	Annual capacity (metric tons)	Applications
<b>CHLOR-ALKALI CHEMICALS</b>		
Caustic soda	1,375,000	Aluminum, paper, numerous other products
Vinyl chloride monomer	1,454,000	Polyvinyl chloride
Polyvinyl chloride resins	1,102,000	Numerous plastic products
Calcium hypochlorite	10,080	Water treatment
Sodium bicarbonate		Food processing, animal feeds, bath additives, pharmaceuticals
<b>ORGANIC CHEMICALS</b>		
Ethyleneamines and derivatives	79,000	Asphalt additives, oil and fuel additives, chelating agents, plastic lubricants, anticorrosion agents, polyamide resins, drainage aids, rubber-processing additives, pharmaceuticals, surfactants, epoxy-curing agents, textile additives, fabric softeners, urethane chemicals, hydrocarbon purification, wet-strength resins for paper, mineral processing
Methylene diphenyl diisocyanate		Polyurethane
Polyurethane catalysts		Flexible, semirigid, and rigid polyurethane foams; elastomers
Bromine	24,000	Pharmaceuticals, photosensitive materials, dyes
Hydrobromic acid		Organic intermediates, pharmaceuticals, photosensitive materials, dyes, lithium bromide, terephthalic acid
Flame retardants		Plastics, fabrics
Chelating agents		Systems for removing heavy metals and other pollutants from water
Solvents		Cleansing agents for electronic components, metals, and other items
High-purity ethylene dichloride		Pharmaceuticals, agricultural chemicals
2,2,2-trifluoroethanol		Pharmaceuticals, agricultural chemicals
Organometallic reagents		Pharmaceuticals, electronics
Sodium styrenesulfonate		Dye-improving agents for acrylic and polyester textiles, industrial and electronic applications
Organic brominated compounds		Pharmaceuticals, agricultural chemicals
Alkyl aluminums		Polyethylene, polypropylene, synthetic rubber

Products	Annual capacity (metric tons)	Applications
<b>SPECIALTY MATERIALS</b>		
Zirconia		Ceramics for optical-fiber connectors, mechanical components, electronic components, wristwatches, grinding media
Electrolytic manganese dioxide	57,000	Dry cell batteries, soft ferrites
Manganous manganic oxide		Ferrites, thermistors
Zeolites		Molecular sieves, automotive catalytic converters, other catalytic applications
<b>ELECTRONIC MATERIALS</b>		
Silica glass		Production systems for semiconductors and LCDs, electronic components
Sputtering targets		Manufacturing of semiconductor devices, photovoltaic cells, and flat-panel displays
High-purity organometallics		Lasers, flat-panel displays, semiconductor devices, solar battery electrodes
<b>BIOSCIENCE</b>		
Automated immunoassay systems		Medical diagnosis
High-performance liquid chromatography		Chemical and pharmaceutical analysis
Chromatographic separation media		Pharmaceutical development and manufacturing
Automated glycohemoglobin analyzers		Diabetic screening and monitoring
Molecular testing systems		Medical diagnosis, pharmaceutical development, food analysis
<b>OTHER</b>		
Water treatment systems		Effluent processing, pure-water generation

# Principal Subsidiaries by Business Category

BASIC CHEMICALS/CHLOR-ALKALI	POLYVINYL CHLORIDE	PETROCHEMICALS	ORGANIC CHEMICALS	SPECIALTY MATERIALS	ELECTRONIC MATERIALS
<p><b>Tohoku Tosoh Chemical Co., Ltd.</b> Chlorinated chemicals Japan www.t-tosoh-chem.jp</p> <p><b>Minami Kyushu Chemical Industry Co., Ltd.</b> Fertilizers Japan www.nakyu-c.co.jp</p> <p><b>Rinkagaku Kogyo Co., Ltd.</b> Phosphorous compounds Japan www.rinka.co.jp</p> <p><b>Mabuhay Vinyl Corporation</b> Caustic soda, chlorine derivatives Philippines www.mvc.com.ph</p>	<p><b>Taiyo Vinyl Corporation</b> PVC resins Japan www.taiyo-vinyl.co.jp</p> <p><b>Lonseal Corporation</b> PVC sheet Japan www.lonseal.co.jp</p> <p><b>Plas-Tech Corporation</b> PVC compounds Japan www.plas-tech.co.jp</p> <p><b>Taihei Chemicals Limited</b> PVC films and sheets, nitro-cellulose Japan www.taihei-chemicals.com</p> <p><b>Tokuyama Sekisui Co., Ltd.</b> PVC resins Japan www.tokuyamasekisui.co.jp</p> <p><b>Toei Co., Ltd.</b> PVC films and sheets Japan http://toei-chem.co.jp</p> <p><b>P.T. Standard Toyo Polymer</b> PVC resins Indonesia</p> <p><b>Philippine Resins Industries, Inc.</b> PVC resins Philippines www.prii.com.ph</p> <p><b>Tosoh Polyvin Corporation</b> PVC compounds Philippines</p> <p><b>Tosoh (Guangzhou) Chemical Industries, Inc.</b> PVC resins China www.tosoh-guangzhou.com</p>	<p><b>Hokuetsu Kasei Co., Ltd.</b> Synthetic resins Japan www.hokuetsukasei.co.jp</p> <p><b>Rensol Co., Ltd.</b> Synthetic resins Japan</p> <p><b>Toyo Polymer Co., Ltd.</b> Synthetic resins Japan</p> <p><b>Sankyo Kasei Industry Corporation</b> Synthetic resins Japan</p> <p><b>Ace Pack Co., Ltd.</b> Synthetic resins Japan www.acepack.co.jp</p> <p><b>Shinomura Chemical Industry Corporation</b> Paper, synthetic resins Japan</p>	<p><b>Nippon Polyurethane Industry Co., Ltd.</b> MDI, TDI, HDI, polyurethane derivatives Japan www.npu.co.jp</p> <p><b>Tosoh Finechem Corporation</b> Dicalcium phosphate, titanium trichloride, and alkyl aluminum Japan www.tosoh-finechem.com</p> <p><b>Tosoh F-TECH, Inc.</b> Fluorinated organic compounds and derivatives Japan www.f-techinc.co.jp</p> <p><b>Tosoh Organic Chemical Co., Ltd.</b> Organic intermediates Japan www.tosoh-organic.co.jp</p> <p><b>Delamine B.V.</b> Ethyleneamines Netherlands www.delamine.com</p> <p><b>Hodogaya Chemical Co., Ltd.</b> Dyes, agrochemicals, fine chemicals Japan www.hodogaya.co.jp</p>	<p><b>Tosoh Hyuga Corporation</b> Electrolytic manganese dioxide Japan</p> <p><b>Tosoh Ceramics Co., Ltd.</b> Zirconia ceramic products Japan</p> <p><b>Tosoh Zeolum, Inc.</b> Zeolites Japan</p> <p><b>Tosoh Silica Corporation</b> Rubber and plastic silica filler Japan www.n-silica.co.jp</p> <p><b>Tosoh Hellas A.I.C.</b> Electrolytic manganese dioxide Greece www.tosoh-hellas.gr</p>	<p><b>Tosoh Speciality Materials Corporation</b> Thin film deposition materials Japan www.t-smc.co.jp</p> <p><b>Tosoh Quartz Corporation</b> Fabricated quartzware Japan www.tqgj.co.jp</p> <p><b>Tosoh SGM Corporation</b> Silica glass materials Japan</p> <p><b>Tosoh SMD, Inc.</b> Thin film deposition materials United States www.tosohsmd.com</p> <p><b>Tosoh SMD Shanghai Co., Ltd.</b> Thin film deposition materials China</p> <p><b>Tosoh SMD Korea, Ltd.</b> Thin film deposition materials Korea www.tsmd.com</p> <p><b>Tosoh SMD Taiwan, Ltd.</b> Thin film deposition materials Taiwan www.tsmd.com</p> <p><b>Tosoh SGM USA, Inc.</b> Silica glass materials United States</p> <p><b>Tosoh Quartz, Inc.</b> Fabricated quartzware United States www.tosohquartz.com</p> <p><b>Tosoh Quartz, Inc.</b> Fabricated quartzware United Kingdom www.tosohquartz.com</p> <p><b>Tosoh Quartz Co., Ltd.</b> Fabricated quartzware Taiwan</p>

# Company Data

BIOSCIENCE BUSINESS	ECO-BUSINESS	OTHER
<p><b>Tosoh Techno-System, Inc.</b> Analytical instrument maintenance Japan</p> <p><b>Tosoh Hi-Tec, Inc.</b> Diagnostic and chromatography products and systems Japan</p> <p><b>Tosoh AIA, Inc.</b> Diagnostic reagents Japan</p> <p><b>Tosoh Bioscience LLC</b> Packed columns for high-performance liquid chromatography and separation media United States www.separations.us.tosohbioscience.com</p> <p><b>Tosoh Bioscience GmbH</b> Packed columns for high-performance liquid chromatography and separation media Germany www.separations.eu.tosohbioscience.com</p> <p><b>Tosoh Bioscience, Inc.</b> Clinical diagnostic systems and reagents United States www.diagnostics.us.tosohbioscience.com</p> <p><b>Tosoh Bioscience N.V.</b> Clinical diagnostic systems and reagents Belgium www.diagnostics.eu.tosohbioscience.com</p> <p><b>Tosoh Bioscience SRL</b> Clinical diagnostic systems and reagents Italy www.diagnostics.eu.tosohbioscience.com</p> <p><b>Tosoh Bioscience Ltd.</b> Clinical diagnostic systems and reagents United Kingdom www.diagnostics.eu.tosohbioscience.com</p> <p><b>Tosoh Bioscience, A.G.</b> Clinical diagnostic systems and reagents Switzerland www.diagnostics.eu.tosohbioscience.com</p> <p><b>Tosoh Bioscience Shanghai Co., Ltd.</b> Clinical diagnostic systems and reagents Packed columns for high-performance liquid chromatography and separation media China www.separations.asia.tosohbioscience.com</p>	<p><b>Organo Corporation</b> Water treatment systems Japan www.organo.co.jp</p> <p><b>Eco-Techno Corporation</b> Land survey, reclamation, and technological consulting services Japan www.eco-techno.co.jp</p>	<p><b>Tosoh Logistics Corporation</b> Transportation, warehousing, and related services Japan www.tosoh-logi.co.jp</p> <p><b>Tosoh Logistics Warehouse Co., Ltd</b> Transportation, warehousing, and related services China www.tosoh-logi.cn</p> <p><b>Tohoku Denki Tekko Co., Ltd.</b> Instrumentation, plant engineering, and maintenance Japan www.dtekkco.co.jp</p> <p><b>Yorin Construction Co., Ltd.</b> Engineering and construction Japan www.yorin.jp</p> <p><b>Sanwa Construction Co., Ltd.</b> Construction Japan</p> <p><b>Izumi Sangyo Co., Ltd.</b> Civil engineering Japan www.izumi-ib.co.jp</p> <p><b>Kasumi Kyodo Jigyo Co., Ltd.</b> Maintenance and control of common facilities Japan www.izumi-ib.co.jp</p> <p><b>Yokkaichi Oxyton Co., Ltd.</b> Industrial gases Japan</p> <p><b>Tosoh Analysis and Research Center Co., Ltd.</b> Analytical services Japan www.tosoh-arc.co.jp</p> <p><b>Tosoh Information Systems Corporation</b> Information technology services Japan www.tosis.co.jp</p> <p><b>Tosoh General Service Co., Ltd.</b> Administration and security services Japan</p>
<b>REGIONAL HOLDING AND TRADING</b>		
	<p><b>Tosoh America, Inc.</b> US subsidiary holding company and regional headquarters United States www.tosohamerica.com</p> <p><b>Tosoh USA, Inc.</b> US sales, marketing, and business development center United States www.tosohusa.com</p> <p><b>Tosoh Specialty Chemicals USA, Inc.</b> US Sales United States</p> <p><b>Tosoh Europe B.V.</b> European sales, marketing, and business development center Netherlands www.tosoh-europe.com</p> <p><b>Tosoh Asia Pte. Ltd.</b> Regional sales, marketing, and business development center Singapore www.tosohasia.com</p> <p><b>Tosoh (Shanghai) Co., Ltd.</b> China sales, marketing, and business development center China www.tosohshanghai.com</p> <p><b>Tosoh Nikkemi Corporation</b> Plastics and related materials Japan www.nikkemi.co.jp</p>	

As of March 31, 2011

## 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

¥40.6 billion

## NUMBER OF EMPLOYEES

11,221

## COMMON STOCK

Authorized: 1,800,000,000 shares  
Issued: 601,161,912 shares

## NUMBER OF SHAREHOLDERS

42,638

## STOCK EXCHANGE LISTING

Tokyo Stock Exchange  
Ticker Symbol: JP: 4042

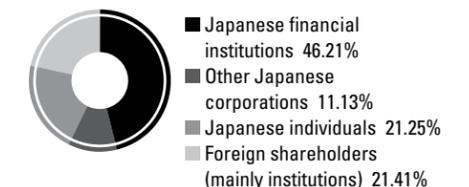
## TRANSFER AGENT FOR SHARES

The Chuo Mitsui Trust  
and Banking Co., Ltd.  
3-33-1, Shiba  
Minato-ku, Tokyo 105-8574  
Japan

## INDEPENDENT AUDITORS

KPMG AZSA LLC

## STOCK HELD BY INVESTOR TYPE



## LARGEST SHAREHOLDERS

	Shares held (Thousands of shares)	Percent of total
The Master Trust Bank of Japan, Ltd. (Trust Account)	31,009	5.17
Japan Trustee Services Bank, Ltd. (Trust Account)	29,701	4.95
Mizuho Corporate Bank, Ltd.	21,757	3.63
Mitsui Sumitomo Insurance Co., Ltd.	20,699	3.45
The Chase Manhattan Bank NA London SL (Omnibus Account)	15,353	2.56
Nippon Life Insurance Company	14,851	2.47
The Norinchukin Bank	12,985	2.16
Aioi Nissay Dowa Insurance Co., Ltd.	11,020	1.83
Japan Trustee Services Bank, Ltd. (Trust Account #9)	10,989	1.83
The Sumitomo Trust and Banking Co., Ltd.	10,004	1.66
<b>Total</b>	<b>178,368</b>	<b>29.71</b>



**TOSOH**

**TOSOH CORPORATION**

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