



# Shin-Etsu Polymer Sustainability Report 2016





## Corporate Mission Statement

**The Group strictly complies with all laws and regulations, conducts fair business practices, and contributes to people's daily lives as well as to the advance of industry and society by providing key materials and technologies.**

**The Shin-Etsu Group places safety and fairness first in its business and targets becoming a group of companies that develops together with society.**

### Corporate Action Policy

**Unlimited challenges and growth!  
We work to become a company full of creativity and vitality by realizing hopes and visions toward the future.**

- 1 We serve as a strong and reliable partner with companies challenging to grow in their markets through innovative products and services.
- 2 We always consider and make proposals from the viewpoint of our customers and globally provide products and services that contribute to their value creation and growth.
- 3 We assume our corporate responsibilities toward shareholders, customers, employees, communities, and the global environment.

### About the symbol mark

The symbol mark expresses our feeling of "creating our brilliant value in a 'green environment'" with the green leaf and bright morning dew.



The combination of indigo water, green trees and blue sky symbolize our commitment to "continuously develop vitality," while the Shin-Etsu colors provides an image of the development of Shin-Etsu Polymer.



### Corporate Action Policy

- 1 We have pride and awareness as employees of Shin-Etsu Polymer Co., Ltd. and its Group companies and do our best to become a company trusted by society by always maintaining a law-abiding spirit, complying with laws, regulations, internal codes and rules and conducting fair and highly transparent corporate activities.
- 2 We disclose a comprehensive range of corporate information where necessary and appropriate and promote communication with society as well as stockholders, investors, customers, and communities as an "open company."
- 3 We respect the histories, cultures, customs, etc. of individual countries and regions, work at developing business based on mutual trust, and make efforts to coexist with communities.
- 4 We recognize global environmental preservation as one of our first priority challenges and, by fulfilling social responsibilities required, actively participate in the establishment of a recycling-oriented economic society aiming for sustainable development.
- 5 Through business activities, we try to develop and manufacture environmentally friendly products with high performance, contribute to an affluent society and preservation of the environment. Furthermore, we implement green procurement, properly control chemical substances, and comply with regulations on substances contained in products.
- 6 We commit ourselves to meet the requirements of customers and consumers and make efforts to provide attractive, safe, and quality products and services that are highly satisfactory. Furthermore, we carefully handle personal information associated with customer's privacy and strictly control such information so that no information leakage or illegal use should occur.
- 7 We respect the principle of free competition and always promote fair trade. We also build transparent, fair, and healthy relations with customers and consumers.
- 8 We respect human rights, personality, and diversity of employees, realize fair treatment, and establish a working environment where they can exert their abilities, skills, and vitality. We comply with occupational laws and regulations and conduct no inhumane labor practice such as child or forced labor.
- 9 We maintain healthy and normal relations with governments and their administrations.
- 10 We confront antisocial groups and organizations that threaten social order and security with a resolute attitude.
- 11 We, as "good corporate citizens" carry our social action programs in a positive manner.

## Editorial Policy

The Shin-Etsu Polymer Group started publishing its "Sustainability Report" from 2001. In this report, we provide our view, initiatives and achievement of the global environmental preservation and environmental management as main subjects as well as CSR related activities.

The editorial principles of the 2016 Version are as follows:

- 1 This Report conforms to the "Environmental Reporting Guidelines (Fiscal Year 2012 Version)" of the Ministry of the Environment in its reporting.
- 2 Along with an introduction of various products from each segment, we also cover the framework of our basic technologies, in addition to products utilizing adhesive technology, which is an existing technology, and Polymer Ace® that utilizes adhesion as its special feature. These products have a very good reputation in terms of applications for custom-made kitchens and numerous construction materials.
- 3 The CSR Report sums up the group's organization and activities in relation to engagement with "corporate governance," "customers," "employees," "communities," "environment" in a configuration that is easy to read and understand.
- 4 The information in this Report (including the English Version) and details of environmental data are all disclosed on our website. We also provide additional information on our website.
- 5 We received third-party comments from Mr. Kozuma, Professor of Sophia University, as was the case with previous editions, and we shall take advantage of them for our future efforts and initiatives.

**Website URL:** <http://www.shinpoly.co.jp/english/environment/report/>

- **Period subject to report**  
April 2015 - March 2016
- **Issued**  
September 2016 (Next issue: September 2017 (Scheduled))
- **Organizations subject to report**  
Shin-Etsu Polymer Group  
\*For further detail, please refer to page 32.
- **Field of reporting**  
This Report covers the fields of environmental conservation and social activities. For the overview of our business, please refer to our Corporate Profile.
- **Contact**  
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Sotetsu Kandasudacho Building 1-9 Kanda-Sudacho, Chiyoda-ku,  
Tokyo 101-0041 Japan  
TEL: 81-3-5289-3714 FAX: 81-3-5289-3707  
URL <http://www.shinpoly.co.jp/english/>

## About the design

The Shin-Etsu Polymer Group is striving to think about the realization of a sustainable society with people in the community and to put it into practice. In the design of the Sustainability Report, we express our commitment by combining the "Bird of a prefecture" of a location of one of our plants and published it in the 4th Red List of the Ministry of Environment with an image of four seasons and the bird's habitat. The 2016 Version shows hooded cranes standing as snow falls in Yamaguchi Prefecture, where our Nanyo Plant is located. The common keyword with the "Flower of a prefecture" series (2005 to 2008 Versions), "Tree of a prefecture" series (2009 to 2012 Versions) and "Bird of a prefecture" series (2013 to 2016 Versions) is "bio-diversity."



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## Business overview of Shin-Etsu Polymer Group

### ● Company profile

Trading name: Shin-Etsu Polymer Co., Ltd.

Founded: September 15, 1960

Headquarters address: Sotetsu Kandasudacho Building 1-9  
Kanda-Sudacho, Chiyoda-ku, Tokyo  
101-0041 Japan

Paid-in capital: 11,635,950,000 yen

Employees: Total for all group companies:

3,942 (1,694 male employees, 2,248 female employees)

Independent:

612 (504 male employees, 108 female employees)

(as of March 31, 2016)

Domestic production bases: Tokyo Plant, Nanyo Plant,  
Kodama Plant

Consolidated subsidiaries: 18 companies

### Domestic production bases

Shinano Polymer Co., Ltd.

Urawa Polymer Co., Ltd.

Niigata Polymer Co., Ltd.

SAN-ACE Co., Ltd.

### Domestic non-production bases

Shin-Etsu Finetech Co., Ltd.

### Overseas production bases

Suzhou Shin-Etsu Polymer Co., Ltd.

Dongguan Shin-Etsu Polymer Co., Ltd.

Shin-Etsu Polymer (Malaysia) Sdn.Bhd.

PT. Shin-Etsu Polymer Indonesia

Shin-Etsu Polymer India Pvt. Ltd.

Shin-Etsu Polymer Hungary Kft.

### Overseas non-production bases

Shin-Etsu Polymer Shanghai Co. Ltd.

Shin-Etsu Polymer Hong Kong Co., Ltd.

Shin-Etsu Polymer (Thailand) Ltd.

Shin-Etsu Polymer Singapore Pte. Ltd.

Shin-Etsu Polymer America, Inc.

Shin-Etsu Polymer Europe B.V.

Shin-Etsu Polymer Vietnam Co., Ltd.

(Became a consolidated subsidiary as of April 2016)

### ● Main Business Activities

We were established as a polyvinyl chloride (PVC) processing manufacturer and have continued to work on the development and application of basic technologies of various resins, including silicone rubber, such as materials and composition, design, manufacturing processes, and evaluation and analysis.

We support various customer needs in a comprehensive range of fields from automobiles and information equipment to semiconductors and construction.

### Electronic devices business

#### • Input devices

Automobile key switch, laptop PC touch pad, remote control input device, electronic home appliance switch

#### • Display-related devices

Electronic device connector, privacy filters prevention film for ATMs / PCs

#### • Component-related products

Waterproof products for smartphones, parts inspection connectors, wiper blades

### Precision molding products business

#### • OA equipment parts

Various rollers for printers, faxes, and PPCs

#### • Silicone rubber molded products

Medical catheter, silicone plug, adhesive plate, fire-proof gasket

#### • Semiconductor-related containers

Wafer case, Semiconductor-related containers

#### • Carrier tape-related products

Emboss carrier tape, top cover tape

### Living environment and life-related materials business

#### • Wrapping films

Wrapping film for fresh food, self-adhesive film

#### • Plastic sheet-related products

Industrial sheets, Puraten sheets for copier, flame-resistant sheets

#### • Functional compounds

Items for various electrical cables (communication cable, robot cable etc.), interior and exterior equipment for automobiles

#### • PVC pipe-related products

Water supply and sewerage piping, general drain piping, agricultural piping, piping joints

#### • Exterior material-related products

PVC / PolyCarbonate corrugated sheets

### Others

#### • Construction

Commercial facilities, interior and exterior design and construction of bathrooms, etc.

#### • Packaging materials

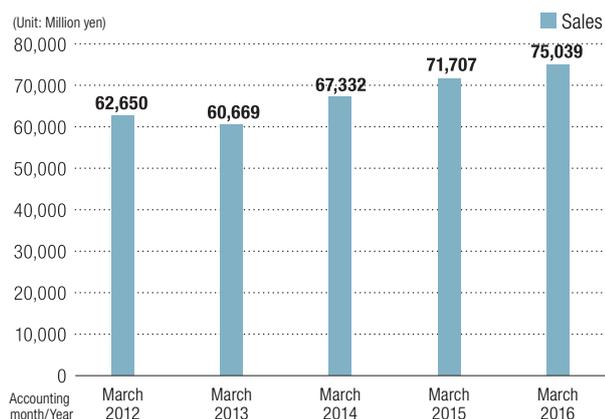
Industrial trays, packaging for fruits, agricultural materials, shopping bags, container washing

## Summary of Key Performance Indicators

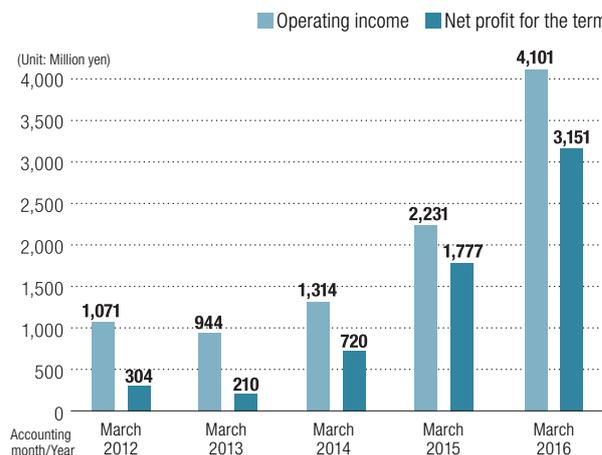
In relation to the business environment surrounding our group in recent years, demand has been steady in the automotive field as well as semiconductor and OA equipment related fields. Under these circumstances, in terms of sales, we have continued domestic and international development

of sales activities that focus on expanding the sales volumes of growth products. As for production, we actively made capital investments for the purpose of improving our capacity, efficiency and quality.

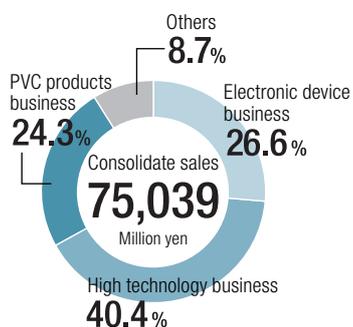
### Changes in sales (Consolidated)



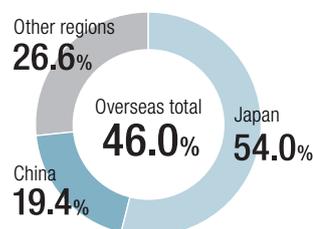
### Changes in operating income and net profit (Consolidated)



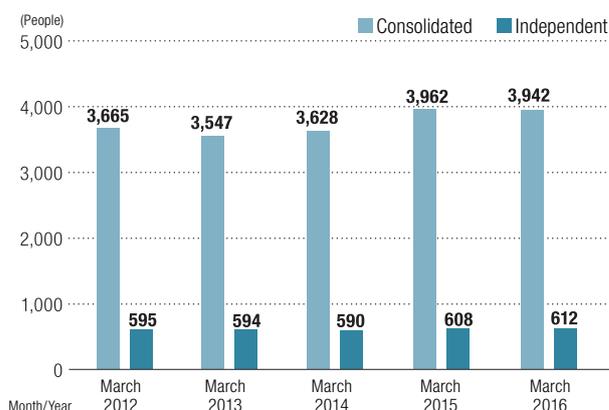
### Distribution of consolidated sales by business segment



### Distribution of consolidated overseas sales



### Changes in the number of employees



For a split by male and female employees see page 22.

### Changes in key indicators

Period (Fiscal year end)	52nd Period (Ending in March 2012)	53rd Period (Ending in March 2013)	54th Period (Ending in March 2014)	55th Period (Ending in March 2015)	56th Period (Ending in March 2016)
Net sales (Million yen)	62,650	60,669	67,332	71,707	75,039
Operating income (Million yen)	1,071	944	1,314	2,231	4,101
Total assets (Million yen)	81,017	81,342	88,644	93,889	92,845
ROE (%)	0.5	0.3	1.1	2.6	4.4
Domestic basic units of CO <sub>2</sub> emissions against produced weight (t-CO <sub>2</sub> /t)	0.6048	0.6878	0.7144	0.7108	0.6684
Overseas basic units of CO <sub>2</sub> emissions against produced weight (t-CO <sub>2</sub> /t)	6.071	6.480	6.793	7.006	7.034
Emission rate (%)	0.52	0.24	0.22	0.29	0.39
Number of accidents (Including number of lost time accidents)	11 (3)	14 (6)	8 (3)	11 (1)	6 (4)

1. Sales do not include consumption tax.

2. For other key management indicators etc., please refer to our financial report.

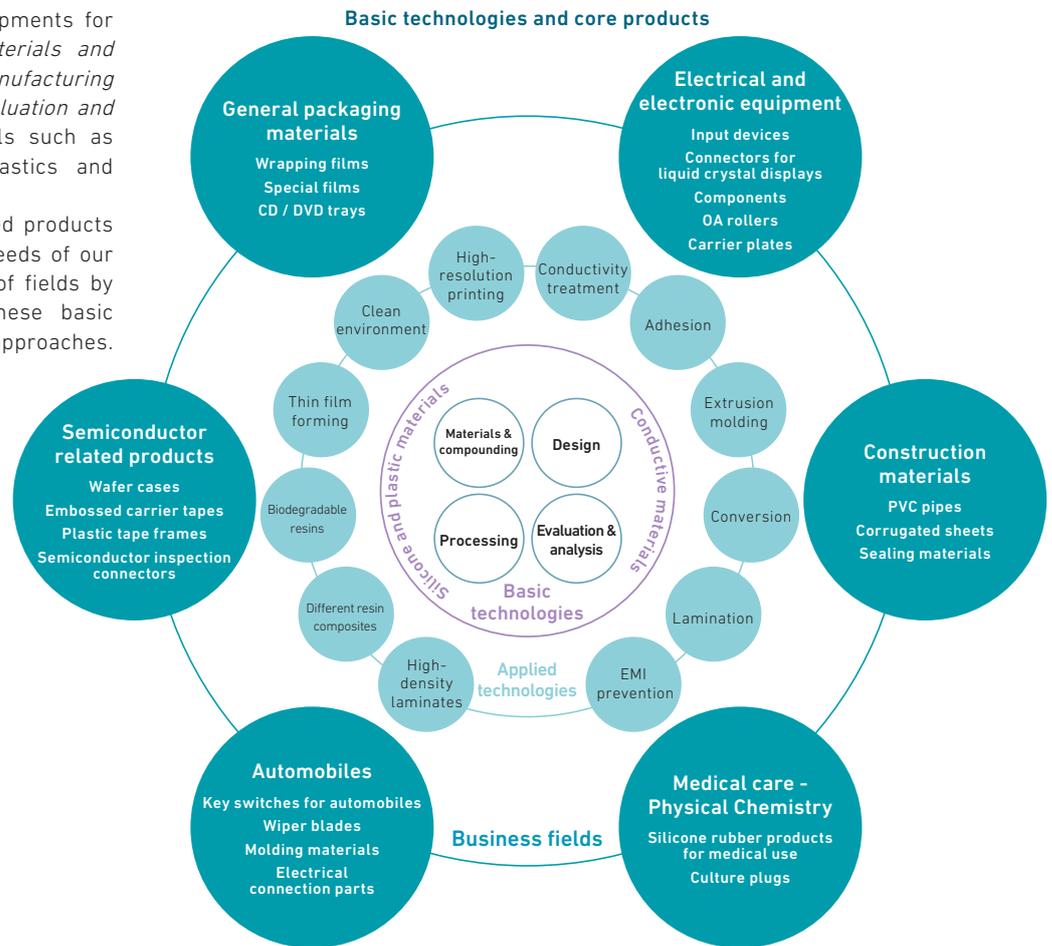
3. Emission rates refer to domestic production sites of the group.

4. The accident frequency ratios refer to domestic and overseas production sites of our group in a calendar year.

## Product Introduction

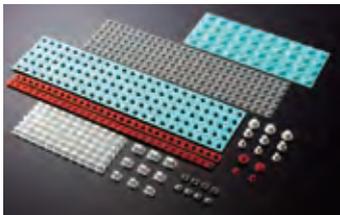
The basic technologies that are the core of technological developments for Shin-Etsu Polymer are *materials and composition, design and manufacturing processes*, in addition to *evaluation and analysis*, using key materials such as silicone rubber, various plastics and conductive materials.

We offer high value-added products that can meet the diverse needs of our customers in a wide range of fields by applying and integrating these basic technologies across multiple approaches.



## Electronic devices business

This business segment is developing business by focusing on electronics industries such as input devices for automobile electric components and information equipment, while leading overseas businesses in the whole company by developing overseas sales and production from the early stage.

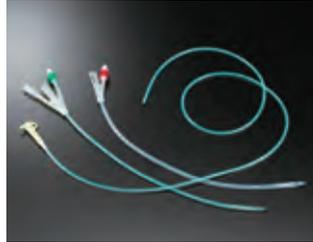
	Key switches	Touch switches	View angle control films
Automobiles			
	Remote keyless entry systems	For consoles	Reflection preventive films for navigation
Information equipment			
	Key switches	For electric home appliances	Privacy filters prevention films for ATMs

## Precision molding products business

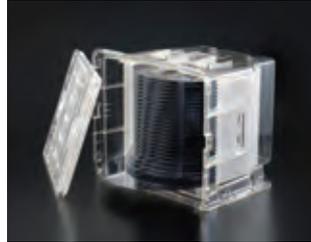
We sell precision molding products taking advantage of our unique technologies within and outside Japan, including OA equipment parts and medical equipment parts made of silicone rubber, shipping / carrying cases for semiconductor silicon wafer, and automatic mounting materials for electronic devices.



Rollers for OA equipment



Medical silicone rubber products



Semiconductor silicon wafer shipping / carrying cases



Mounting materials for electronic devices

## Living environment and life-related materials business

We are developing wide-range business with molded products made of vinyl chloride resin, such as residential construction materials, food packaging materials, as well as Compound, an in-process material for molding process. Compound is one of the growing products that is incrementally used for the automobile industry, and we aim for steady profits with this product.



Vinyl chloride pipes



Self-adhesive silicone rubber tapes



Conductive polymers "SEPLEGYDA"



"Polymer Wrap"



Compound

## Others

We operate construction-related business including the renovation of commercial facilities, and develop and sell industrial and food packaging materials. In our construction related business, we offer comprehensive services under consistently responsible construction structures, from store launch planning, design, construction to after-sales care of supermarkets, restaurants and other facilities. In our development / sales business, we develop and sell industrial trays that convey industrial parts and products, fruit packaging materials and agricultural materials.



Store launch planning, design and construction of supermarkets

# Contributing to realize a safe and secure society by further improving our total strengths and achieving sustainable growth under any business environment

## What our group is aiming at

Shin-Etsu Polymer Co., Ltd. was founded in 1960 as a processing manufacturer under the umbrella of Shin-Etsu Chemical Co., Ltd. Since that time, we have provided high value-added products made from silicone rubber and various other plastics using our consistent technology all the way from material development to forming processes in cooperation with Shin-Etsu Chemical Co., Ltd. We have sales and production bases in 10 different countries to meet the comprehensive range of needs of all our customers, which involve automobiles, information equipment, office automation equipment, semiconductor-related products, and commodities for living and housing-related products. We conduct business while fully utilizing our total strengths both in Japan and overseas.

We achieved an increase in sales and profits for three consecutive business terms as of the fiscal year ending March 2016. However, the business environment is anticipated to become somewhat more severe due to the prolonged economic slowdowns in emerging countries and fluctuations in foreign currencies, in addition to certain serious environmental issues and natural disasters. Additionally, we need to consider our activities while responding to COP21 of last year, the Paris Agreement and Sustainable Development Goals (SDGs). Even under such circumstances, we aim to sustainably grow and contribute to realize a safe and secure society.

Our actual initiatives involve strengthening and expanding the competitiveness of existing businesses, while at the same time, creating new products and businesses. As market needs are constantly changing, there is a need to improve or reform existing technologies to meet the many requirements of customers. (Please refer to pages 6 and 7 in relation to our basic technology

and core products, and pages 10 and 11 with regard to the expansion of existing businesses).

Also, we will create new products and new businesses by utilizing our basic technologies and develop new technologies to solve any additional customer issues as a manner to meet the requirements of customers. For this reason, we established the Development Unit as of April 1, 2016.

By responding to these critical issues, we can solve customers' issues and thereby contribute to solving social issues beyond that which our customers face.

In addition, as a processing manufacturer, we have conducted our unique company-wide activities, "Green Activities", since 2000 to save on energy and resources and reduce environmental burdens, while always bearing in mind to contribute to global environmental conservation. With these "Green Activities", we will contribute to the creation of a recycling economic society.

## Environmental Management

### ● Contributing to global environmental preservation

Our group actively promotes our group-wide "Green Activities" and sets medium term targets once every three years.

As mid-term targets, we set countermeasures against global warming and a reduction of waste for the most effective use of resources, in addition of course to focusing on global environmental preservation.

FY2015 fell on the first year of the 5th Mid-term Targets, and consequently, we achieved such targets for the first year in the form of the basic unit of CO<sub>2</sub> emissions and the basic unit of waste emissions. We will continue to take action towards achieving all mid-term targets.

Please refer to page 30.



President

*Yoshihiko Ono*

### ● Providing environmentally friendly and contributory products

We position products that solve customers' issues and that are required by society and the environment in order to realize a sustainable society as "environmentally friendly and contributory products." We will develop products that contribute to reducing environmental burdens not only within our company but also in the manufacturing processes and products of our customers.

Please refer to page 12.

## Management based on CSR

### ● Placing first priority on safety

Safety is the basis of all our corporate activities and one of the most important management targets. We conduct various initiatives such as the observance of operation manuals and risk prediction training (KYT) to achieve zero accidents. In FY2015, the number of accidents was reduced by half, but the number of accidents accompanied by lost work-time increased. We aim to achieve zero accidents by conducting risk assessments of all facilities and operations, safety suggestions, near-miss activities and KYT with participation by all employees.

Please refer to page 25.

### ● Enhancement of corporate governance

We are striving to enhance corporate values to become a company that is trusted by all stakeholders, including shareholders, through securing transparency in our management activities and strengthening risk management and internal controls.

There are two Outside Directors out of 12 members on the Board of Directors and two Outside Corporate Auditors of the three corporate auditors in total. We will enhance

internal corporate control systems of group companies and further strengthen the functions of management supervision across the entire group.

We will realize highly transparent and fair corporate activities through proper disclosure of important information in a timely and proper manner to stakeholders such as shareholders and customers.

Please refer to page 16.

### ● Respect for human rights

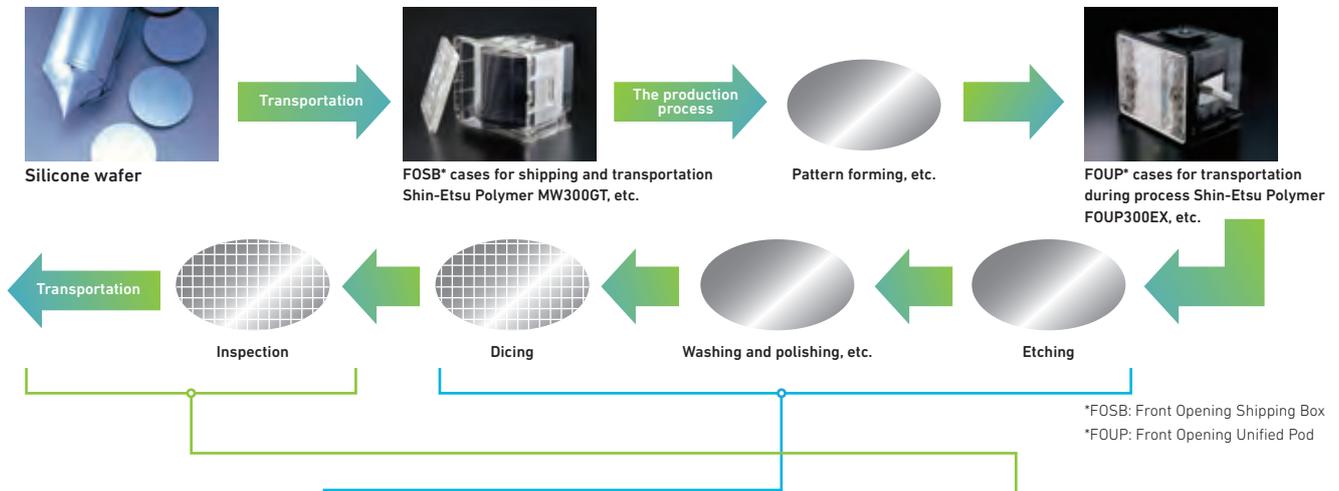
We rule out any unfair discrimination based on race, gender, education, career or handicaps. We also pay close attention to human resource management so that no forced or child labor should occur while developing our global corporate activities. Please refer to page 22.

This Report conforms to the "Environmental Reporting Guidelines (Fiscal Year 2012 Version)" of the Ministry of the Environment and includes the targets and results of the Key Performance Indicators (KPI) as status of activities of Green Activities. We would very much appreciate any feedback, opinions or comments from our stakeholders. We received third-party comments from Mr. Yoshinao Kozuma, Professor of Economics Department, Sophia University, as was the case with previous editions, and we shall take advantage of them for our future efforts and initiatives.

Our group will actively promote efforts and initiatives to contribute to the realization of a sustainable, safe and secure society. We do appreciate your further guidance and support.

Part 1 | Expansion of existing business

# Developing alternative markets with new adhesive technology



**Semiconductors/Wafers**

Shin-Etsu TWSS disk type (Top)  
Shin-Etsu TWSS ring type (Bottom)

**TWSS\*** is a semiconductor processing jig, which was developed as a result of a brand-new idea. Existing wet process with adhesives and solvents is changed into a dry process using heat-resistant base material and an adhesive elastomer.

- Using self-adhesive elastomer eliminates adhesive and spin coater in its application, thereby requiring no device in the solvent peeling process
- Semiconductors are attached to the jig by only pasting it to a wafer. By bending the base material, the jig can be released with a small load
- Suitable for handling process of thin wafers such as device washing, film formation, photo process, laser dicing and transportation

\* TWSS: Thin-Wafer-Support-System

**Semiconductor chips**

Shin-Etsu sticky carrier

Sticky carrier is a reusable semiconductor processing jig.

- Responding to customers' demands with a unique silicone material composition and adhesive pattern layer design
- Base materials reusable after use by removing adhesive layer
- Many semi-conductor chips can be transported by storing them in FOSB, etc.

Shin-Etsu sticky tray

A sticky tray is an adhesive-fixing transportation container that utilizes self-adhesive film technology.

- Vibration-resistant, making it possible to transport vulnerable parts without causing damage
- Possible to steadily pick up parts due to our unique separating system
- Conforming to SEMI Standards (G97-0116 "Specification of adhesive tray used for thin chip handling") (Except for some products)

## Construction materials

**Mizumoregoyo**, silicone rubber tape for repairing pipes and hoses



**Rubber tape** to prevent leakage from pipes, etc.

- Possible to prevent leakage by just directly winding the tape
- Possible to apply to pipes made of various materials thanks to design to prevent leakage with winding tension
- As tapes mutually adhere, not easily
- Easy to cut with cutter, etc. for removal
- Free of adhesives and plasticizers (No traces are left)

## Multipurpose

**Adhesive type silicone sheet**

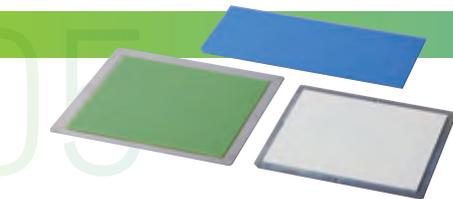


**Adhesive type silicone sheet** is an adhesive sheet that can be used in various applications.

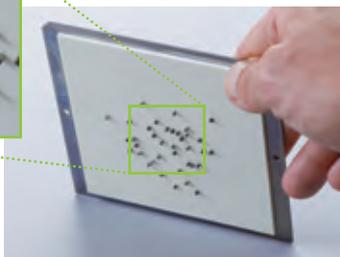
- Possible to cut into any shape
- Color variations range from transparent to black
- Reusable by cleaning

## Electronic parts

**HSP adhesive plate**



Micro electronic parts in storage condition



**A HSP adhesive plate** is a jig to fix and transport electronic parts by using its adhesion.

- The base is elastomer, adhesive silicone rubber with excellent heat and chemical resistance
- Rubber hardness is from 20 to 40 degrees
- Arbitrary adhesion strength settings are possible
- Stuck to or integrally molded with base materials such as aluminum plates, SUS plates, glass epoxy, etc.
- Supports thicknesses over 0.3 mm for base materials and 0.5 to 5 mm for silicone rubber
- Sizes are up to 300 mm × 300 mm
- Possible to add or adjust colors



Development Unit  
Development Division I

## Toshiaki Hatsumi

The HSP adhesive plate is used during the process to store and transport thousands to hundreds of thousands of electronic parts the size of strawberry seed. Customers demand products that firmly store parts and where it is easy to separate parts as necessary, and also that can be used repeatedly. To achieve these contradicting functions and

performance requirements, we work on the development of products through trial and error on a daily basis.

We share information associated with this adhesion-related technology across divisions to check and confirm both advantages and disadvantages, as we prepare to apply the technology to alternative markets.

# Creation of environmentally friendly and contributing products



Our Group is tackling product development to reduce environmental burdens and conducts internal certification of environmentally friendly and contributing products based on Basic Environmental Principles (page 28).

## ●Concept of our environmentally friendly and contributing products

The concept of environmentally friendly and contributing products within our group based on Corporate Action Policy is as follows.

### Concept

Environmentally friendly and contributing products in our group are new or existing products that solve customers' challenges and, upon confirmation that they are required by society and the environment (social needs), are evaluated and certified for seven items.

## ●Concept of activities

We add the ideas of ecology to QCD and take on the challenge of environmental burden reduction of products, from raw material procurement to its manufacture, use, and disposal.

### The concept is to convert conventional QCD to QCD+E [environmental friendliness]

(Q stands for quality, C for cost, D for delivery and E for ecology (reduction of environmental burden))



By developing eco-friendly products, we target becoming a company that contributes to the realization of a recycling-oriented society and that is appreciated in society where environmental management is emphasized.

## Evaluation standards of environmentally friendly and contributing products

These standards evaluate as to whether we can reduce the environmental burdens caused by our group and also contribute to a reduction in operational and environmental burdens for our customers.

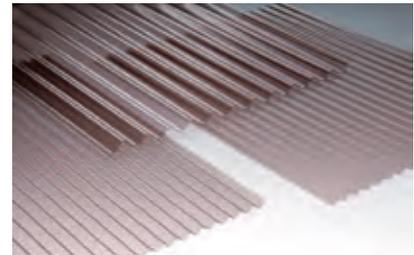
Category	Description
① Resource saving	We have decreased the weight of products, reduced the use of raw materials, and/or improved yields. We have also used recycled materials or resources.
② Energy saving	We reduced energy consumption, the amounts of various basic units and the generation of GHG at the time of energy-saving manufacturing. We have also reduced energy consumption at the time of use of products.
③ Waste reduction	We have suppressed the generation of waste in the waste-reducing manufacturing processes. We have also contributed to the reduction of waste after use.
④ Recycling	In the manufacturing process, we have diverted waste from incineration and dumping to recycling process, etc.. After the use of products, reuse and recovery has become possible.
⑤ Environmental pollutants	Products containing environmental pollutants satisfy laws, regulations, industry standards, etc. and we have reduced the use of environmental burdens in products and manufacturing processes.
⑥ Safety	We improved the safety through the reduction of explosion and injuries in production processes. We also improved the safety at the time of the use of products.
⑦ Bio-diversity protection	We have reduced the amount of water use and VOC emissions in manufacturing processes. Products have also contributed to the protection of bio-diversity.

For the above seven categories, we have a total of 97 evaluation standards.

Since April 2013, we have started to internally certify "environmentally friendly and contributing products", judging them against these evaluation items.

## Certified Products (Excerpts)

Product name (group)	Polica Tough Corrugated Sheets
Usage	Polycarbonate corrugated plates
Features	<p>Corrugated sheets made from at least 50% of recycled materials</p> <ul style="list-style-type: none"> <li>● Acquired Eco-mark</li> <li>● Complies with JIS standards</li> </ul>
Evaluated points	① Resource saving ④ Recycling



Polica Tough Eco-corrugated Sheets Bronze



Product name (group)	Shupua
Usage	Cups and glasses
Features	<p>Looks just like glass but the material is silicone rubber. Therefore, it does not crack or shatter if dropped.</p> <ul style="list-style-type: none"> <li>● Safe as it does not break</li> <li>● Can be used safely outdoors or by infants and those requiring nursing care.</li> </ul>
Evaluated points	⑥ Safety



Product name (group)	Toilet cubicles that prevent finger jamming YubiTect®
Usage	Toilet cubicles
Features	<p>Finger jamming can occur on both door ends and hinge sides. "YubiTect®" has a special door shape that prevents fingers from becoming caught during use.</p> <ul style="list-style-type: none"> <li>● Prevention of accidental finger jamming</li> <li>● Also ensures privacy</li> </ul>
Evaluated points	⑥ Safety



Construction example of YubiTect® cubicles that prevent finger jamming

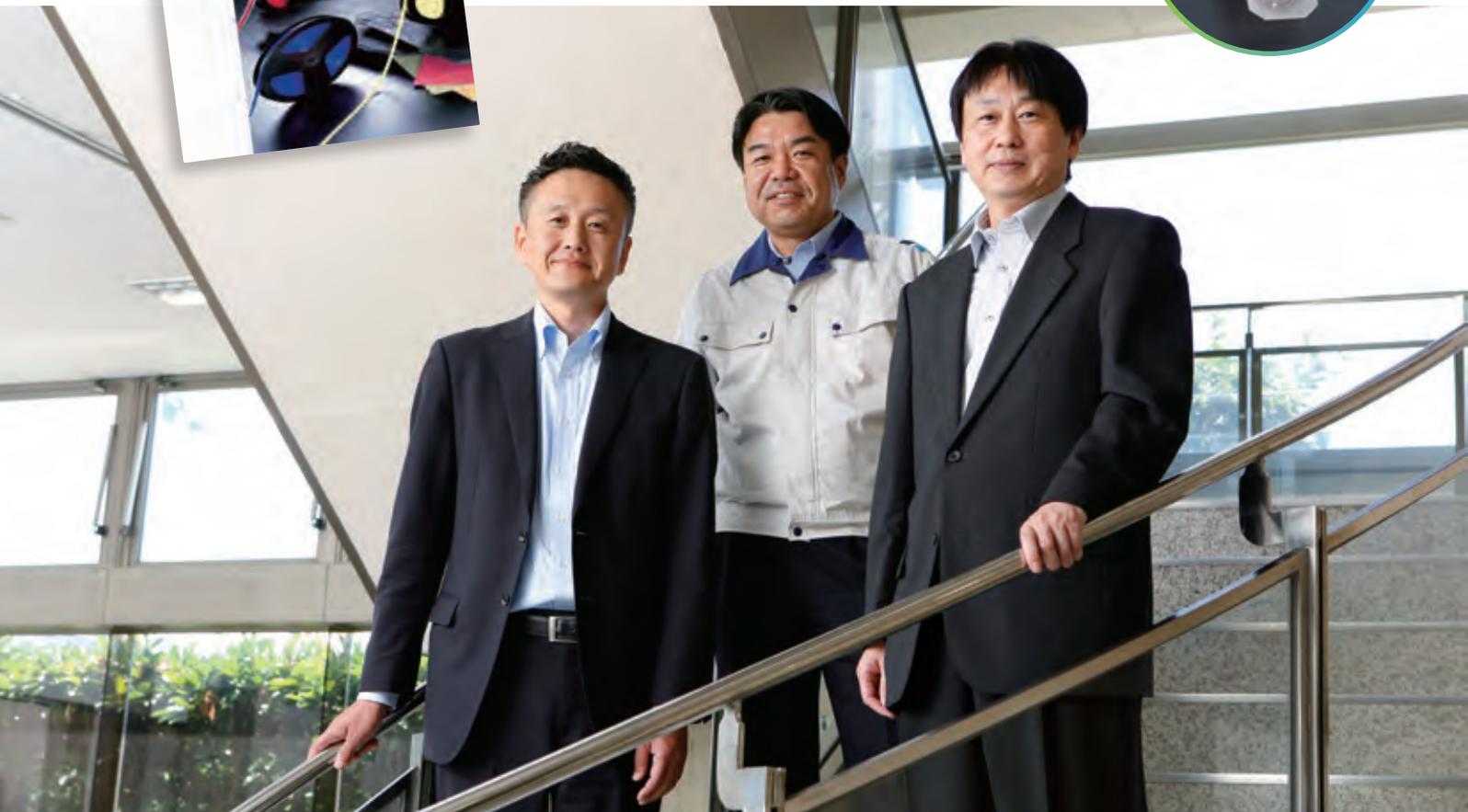
Part 2 | Supply of environmentally friendly and contributing products

# Polymer Ace®, an adaptable 'putty-like' sealing material

In 1997, Polymer Ace® was launched as the only putty-like product among silicone-based sealing materials. Unlike other liquid sealing materials, it is capable of self-shape retention and contributes to saving energy and resources, thanks to its easy handling.



Polymer Ace® string type and constructions jigs



Group III  
Sales Unit, Sales and Marketing Division II  
**Kensuke Kanto**

Group I  
New Technology Development Division  
Development Unit,  
**Yoshihiko Sekiguchi**

Technical Management Group  
Development Management  
Development Unit, Office of Product  
**Hideki Tabei**

## Consistently simple and convenient, from storage to execution

Sealing materials are applied to the joints of structures, etc. improving air tightness and waterproofness. Shapeless liquid sealing materials are commonly used, but as an alternative to this, Polymer Ace® was developed.

Like clay, even when uncured it holds its own shape. Taking advantage of its putty-like nature enabling this self-shape retention even when uncured like clay, the product comes in two types, a string type wound on a reel and a planar sheet type. For customer convenience, regarding the string type, construction jigs are developed and manufactured in house to be offered as a set. At the same time, the sheet type is processed into a shape to meet its application by, for example, punching before shipment. Additionally, in terms of the curing method, we offer selections of the thermosetting type that reacts to heat and humidity settings and to moisture.

**Kanto:** "Due to these properties, Polymer Ace® is consistently easy and convenient to handle from storage to execution. We assist customers in making their products stable in quality, as there is no need for operation-specific skills and anyone can easily use it."

Also, compared to the adhesive strength that Polymer Ace® possesses, it is an adhesive strength twice as much as that of typical silicone-based sealing materials. Therefore, in addition to its applications such as joint fillers in construction materials and sealing materials for housing equipment, it has also been adopted for special applications requiring reliability such as water-tightness and adhesion of pieces of groove-shaped glass at the National Museum of Emerging Science and Innovation. In this way, Polymer Ace® is playing an active role in a wide range of situations.

## Achieving high quality with strict manufacturing control of temperature and humidity

As Polymer Ace® is an unprecedented product, it brought with it a variety of challenges in each stage of development and manufacturing before we could commercialize the five grades currently available.

**Tabei:** "To make the product sufficiently adhesive to glass, metal, plastic or other surfaces, we had to minutely change ingredients and their ratios one by one. After literally repeating hundreds of trial and error processes, we finally achieved the current adhesive strength."

**Sekiguchi:** "Due to the curing method, in the manufacturing process, heat and moisture are powerful enemies. As they adversely affect quality, they must be absolutely avoided, so humidity and temperature levels are strictly

controlled."

## Reducing masking process operation hours by one-sixth

Currently, Polymer Ace® is mainly introduced to industrial applications, especially assembly plants of housing equipment.

**Kanto:** "The string type in particular is adopted in many cases such as sealing materials that fill the gaps between kitchen bench tops made of artificial marble and stainless steel sinks."

A primary factor boosting its introduction to industrial applications, in addition to the fact that specific skills are not required, is its energy and resource saving effects. Firstly, unlike shapeless liquid sealing materials, Polymer Ace® has no risk of oozing out during construction. For this reason, we can fully reduce the prior masking process.

**Tabei:** "Operation times can be shortened by one-sixth when shapeless sealing materials are used, and as masking materials are no longer necessary, we can also save on energy and resources."

Furthermore, another advantage of Polymer Ace® is that it can be cured without flowing out from the applied part, while also causing no problems, even if some vibration is applied or tilted."

**Tabei:** "It is now possible to move items applied with Polymer Ace® immediately after application as very little of Polymer Ace® is forced out even if some load is applied."

## Aiming at further market expansion with integrated efforts from Development, Production and Marketing

Currently, Polymer Ace® has been introduced to mainly industrial applications, and we intend to improve on it and expand sales channels for even further prevalence.

**Tabei:** "We want to promote the product's use to applications of construction work conducted on site. For this purpose, the product must be able to steadily exert its performance against a further variety of adherends. Our next challenge is the development of tough products."

**Kanto:** "Regarding sales, we are proceeding with activities in view of overseas marketing. We intend to expand our market, while sharing feedback about local customers' needs to Production and Development."

**Sekiguchi:** "Cost reductions are essential to expand the range of applications and sales channels. To achieve this, an improvement in production efficiency is crucial. By doing this, along with an improvement in packing methods, we will be able to meet all customers' requirements."

# Corporate governance

As a global company that is trusted by and carries the expectations of various stakeholders, including our shareholders, the Shin-Etsu Polymer Group fully recognizes that improving corporate value is the basis of management. With such an awareness, we are continually working to enhance corporate governance through proper decision-making and execution by promoting prompt management decision-making, securing transparent management, while also strengthening internal control functions.

## Basic Principles

### 1 Ensuring shareholders' rights and equality

We strive to maintain an environment where shareholders can properly exercise their rights by respecting such rights and ensuring equality for all, including minority and overseas shareholders.

### 2 Appropriate cooperation with all stakeholders, in addition to shareholders

We strive to uphold appropriate cooperation with all stakeholders other than just shareholders, while working towards creating sustainable growth and medium to long-term corporate value for the company.

### 3 Ensuring disclosure and transparency of appropriate information

We strive to ensure that all information is useful and easy for users to understand, while making sure details are properly disclosed based on relevant laws and regulations. We also independently provide various other information.

### 4 Responsibilities of the Board of Directors

We strive for the appropriate implementation of the roles and responsibilities of the Board of Directors based on our fiduciary responsibility to shareholders.

### 5 Dialogue with shareholders

We strive to make constructive dialogue with shareholders, and understandably explain our management policies in order to make sure they are properly understood.

## Corporate Governance System

We adopt an auditor system where two organizations, the board of directors and the board of auditors, supervise and audit in regard to business execution in a multi-layered way. To realize a functional and effective function of management supervision and an audit function of secured objectivity and neutrality, we position specialists of business execution with superior abilities in management as directors and outside directors with supervising abilities, as well as personnel with superior capabilities in auditing, including outside statutory auditors as auditor.

## Management decision-making and business execution/supervision

The board of directors makes important decisions in management together with supervising business execution of directors properly. The Board of Directors is comprised of 12 members, two of whom are outside directors. Outside directors have extensive experience and deep insights over the years as company owners and specialists in accounts/tax affairs and supervise our company's management from an overall view in an objective, proper manner.

## Audit system

Three auditors comprise the Board of Auditors, including two outside auditors, all of whom conduct audits totally independent of business execution. Auditors as a function to monitor management at tend various meetings including the board of directors etc, and hold board of auditors meetings, needed to discuss important issues regarding an audit based on reports provided from each auditor.

As for internal audits, the Office of Internal Auditing audits the control/operation system and status of business execution from the view of legality, rationality and efficiency.

With regard to accounting audits, we have quarterly reviews where, from time to time, advice regarding accounting is received.

At audits by auditors, internal audits and accounting audits, they exchange information etc. closely based on mutual cooperation and collaboration to improve audits.

## Relationship with the parent company

Our parent company, Shin-Etsu Chemical Co., Ltd., is a controlling shareholder that holds 52.5% of the total number of our issued shares (excluding treasury shares). We maintain independence in business activities and properly decide trading conditions based on market prices in trades when we purchase materials, etc. from the parent company.

## Directors' remuneration

Directors' remuneration is decided within the range of an amount approved at the General Assembly of Shareholders in consideration of their roles, etc., through discussions at Board of Directors meetings for directors and at Board of Auditors meetings for auditors.

### ● Directors

Remuneration for directors includes "Bonuses" and "Stock options" that are a reflection of annual results, in addition to a "Basic remuneration," in order to reflect company performance and share price and clarify their management responsibility in improving corporate value. Remuneration for outside directors is a "Basic remuneration" corresponding to their roles in consideration of their responsibilities.

### ● Auditors

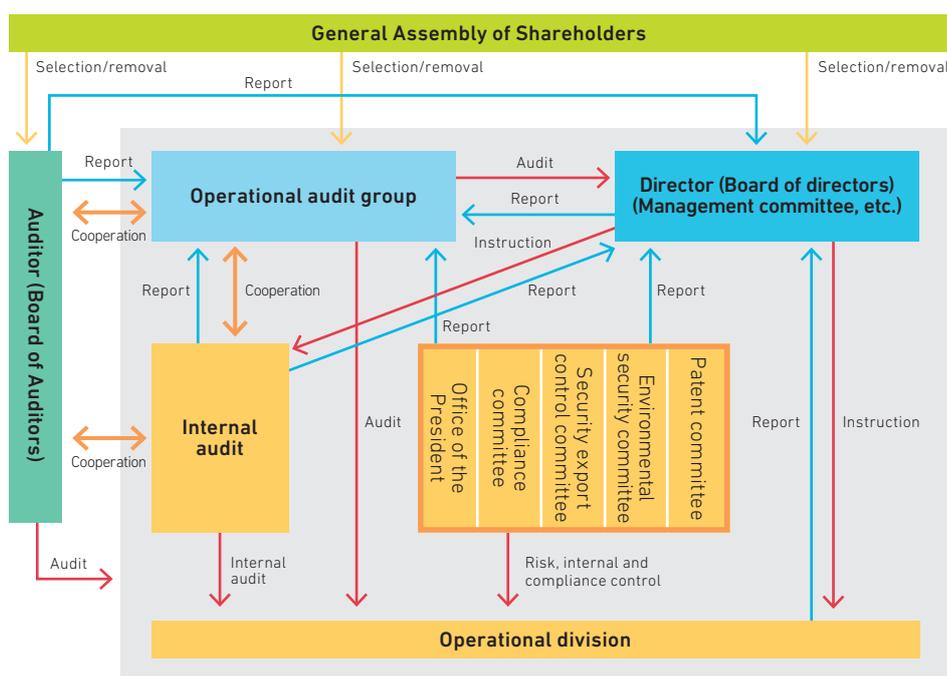
Remuneration for auditors is a "Basic remuneration" in order to place an emphasis on objectivity regarding performance and based on their roles.

## Support System for Outside Directors (Outside Corporate Auditors)

We inform outside directors and outside auditors of the schedule and agenda of important meetings, such as the Board of Directors meeting in advance.

Additionally, the General Affairs Department and Legal Department provide support to outside directors, while the Auditors' Office supports outside auditors.

## Shin-Etsu Group corporate governance system



### Office of the President

Manages corporate-wide challenges and risks, comprehends management policies, measures all situations of the entire company and takes the appropriate measures. Furthermore, cooperates with other departments and operates as a contact center in case of an emergency.

### Compliance committee

Involves deliberation and resolution of matters related to compliance policy and situational awareness.

### Security export control committee

Involves deliberation and resolution of matters related to compliance with export control laws and regulations.

### Environmental security committee

Involves deliberation and resolution of matters related to environmental security, disaster management, in addition to occupational health and safety.

### Patent committee

Involves deliberation and resolution of matters related to industrial property rights.

## Information disclosure system

We are always bearing in mind to enhance corporate governance and secure transparency of management and making efforts for fair, timely and proper information disclosure to shareholders/investors in accordance with applicable laws and regulations in relation with financial instruments trades, etc. and rules of the Tokyo Stock Exchange.

For our information disclosure system, based on "Basic Information Disclosure Policies," an information disclosure officer is appointed, and an Information Disclosure Committee meeting chaired by said officer takes place. The Information Disclosure Committee is made up of personnel from the Office of the President (In charge of IR/PR), the Accounting Department and the Legal Department as well as other related departmental personnel. The meeting is held when considered appropriate, striving to disclose information in a flexible and prompt manner.

## Communication with shareholders/ Investors

We hold explanatory meetings for analysts, investors and media at the time of announcements of financial statements of the end of each fiscal year and the 2nd quarter to explain our business status to shareholders/investors. We also offer information such as news releases, summaries of accounts, materials for explanatory sessions of accounts, annual reviews, notices for General Meeting of Shareholders, notices of resolution etc. using the web site as speedy and fair information disclosure methods to shareholders/investors.

Described below are the current status of our efforts towards the invigoration of the General Assembly of Shareholders and a facilitation of exercising voting rights:

- **Early delivery of convocation notices for the General Assembly of Shareholders**  
To be sent three weeks prior to the day of the General Assembly of Shareholders
- **General Meeting of Shareholders to be held on a day other than a day general meetings of shareholders for other companies are taking place**  
56th General Assembly of Shareholders: June 28, 2016
- **Exercise of voting right using an electromagnetic method**  
Exercise of voting rights using an electromagnetic method via the Internet adopted
- **Effort to improve environment to exercise voting rights**  
Participation in electronic voting platform

Please visit our web site for a "Report on corporate governance".

- <http://www.shinpoly.co.jp/company/corporate.html>

## Risk management and maintenance/ promotion of internal control and compliance system

Recognizing that risk management is a crucial issue for the sustainable group of a company, our group takes all necessary measures by promoting information sharing of critical risks across the entire group, especially driven by the Office of the President, and establishes a Disaster Recovery and Business Continuity Manual.

Additionally, we strive to operate and maintain a more appropriate and efficient internal control system positioning the construction, improvement and operation of said internal control system as an important management responsibility.

Furthermore, based on the idea that for our group to obtain trust as a member of society, it is essential to "Sincerely act, respecting values and ethics that are required as a member of society, not to mention complying with laws and regulations," our group promotes thorough compliance and excludes any relationships with antisocial forces.

## Risk Management Regulations

Our group established "Risk Management Regulations" for the purpose of contributing to the smooth operation of our business by upgrading to a management system that is aimed at total risk prevention and one that responds to risks that do arise.

### Risks as defined in Risk Management Regulations

#### 1 Risk factors relating to business activities

- |                                    |                                      |
|------------------------------------|--------------------------------------|
| 1) Management risks                | 12) Information risks                |
| 2) Sales and marketing risks       | 13) Finance and accounting risks     |
| 3) Customer risks                  | 14) Personnel and labor risks        |
| 4) Production risks                | 15) Publicity and reputational risks |
| 5) Purchasing risks                | 16) Social risks                     |
| 6) Logistics risks                 | 17) Business infrastructure risks    |
| 7) Quality risks                   | 18) Legal risks                      |
| 8) Technology risks                | 19) Country specific risks           |
| 9) Environment and safety risks    | 20) Others                           |
| 10) Research and development risks |                                      |
| 11) Intellectual Property risks    |                                      |

#### 2 Risks due to factors outside business activities

- 1) Risks due to economic factors
- 2) Risks due to social factors
- 3) Risks due to political factors
- 4) Risks due to scientific and technical factors
- 5) Risks due to natural environment and disaster factors
- 6) Others

## Management of Business Continuity

Our group recognizes that using advanced technology to supply society with high-value-added products as one of our most important social contributions and considers that it is also a major corporate responsibility to continually supply these products. Many of our products have a large market share and are used for special applications in cutting-edge industries not only in Japan but also around the world, so any suspension of their supply may have a significant social impact.

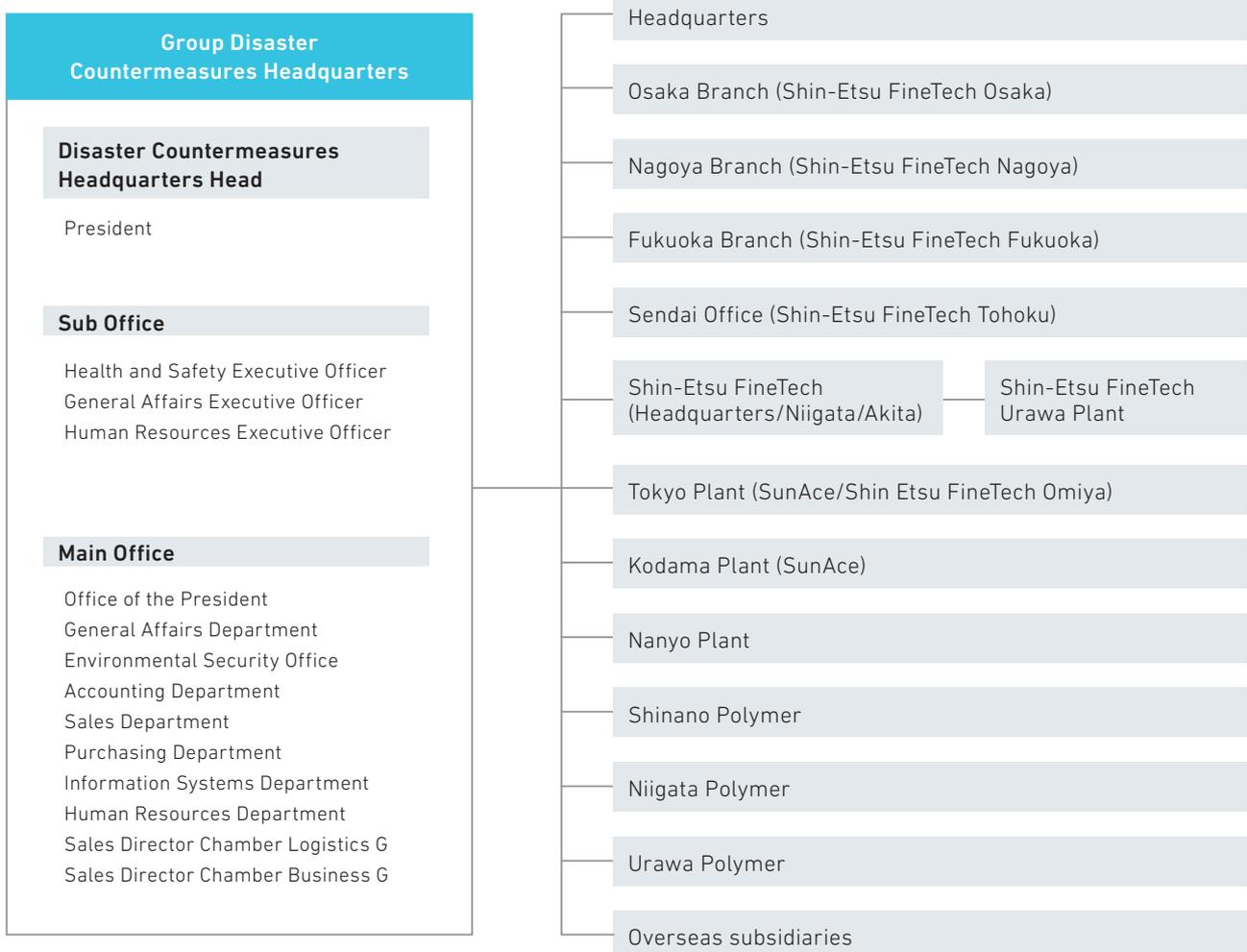
We work on group business continuity management so that even in the instance of a serious disaster such as a large-scale earthquake, explosion or fire, we can fulfill our responsibility of supplying important products. The development of a business continuity and operational management plan is in progress, and by improving the business continuity system, we target accomplishing the following:

- 1 Safety confirmation and security of people associated with our group and their family members, as top priority**
- 2 Minimization of any impacts on customers' business**
- 3 Meeting expectations of our group from all stakeholders**
- 4 Active and prompt support of restoration and recovery of disaster affected areas**
- 5 Maintaining a system that allows quick responses to any new issues that may arise**

\*For further information on the 'Disaster recovery manual' and 'Conceptual diagram' in our group business continuity management plan, please see page 25.

## Emergency System

### Shin-Etsu Polymer Group Disaster Countermeasures Organization

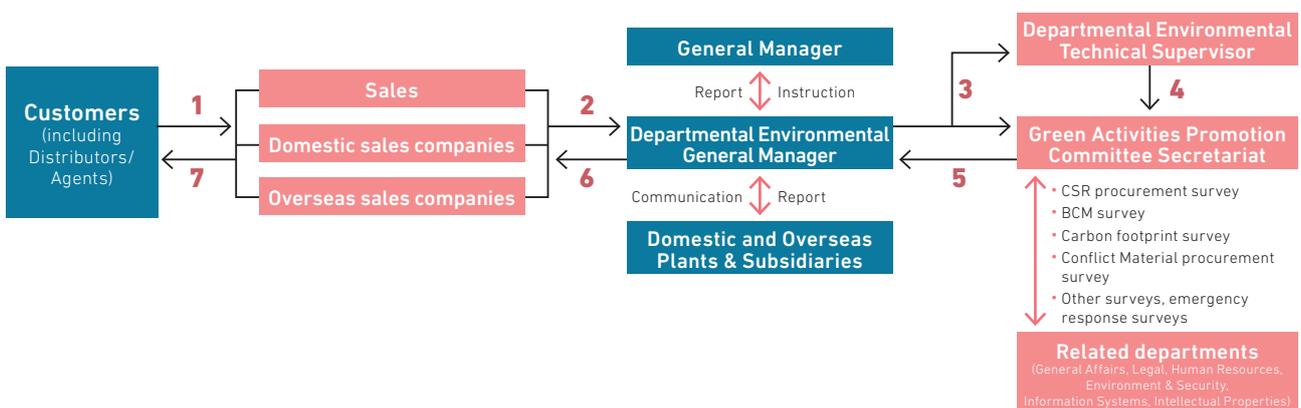


# Response to customers

In order to meet the requirements of customers and for the management rules of chemicals contained in our customers' products, the Shin-Etsu Polymer Group created the "Global Environmental Communication System" (G-Environmental System) to centrally manage all Group companies including overseas plants. We also apply the Global Environmental Communication System to respond to items which the whole group gets involved in, such as customers' environmental quality system, CSR surveys and BCM surveys.

## Global Environmental Communication System (G-Environmental System)

- 1 The "Environmental Management Representative" of our Group is appointed, and the Representative represents our Group with regard to customer's requirements in relation to the environmental quality of our products.
- 2 The "Environmental General Manager" and the "Environmental Technical Supervisor" are appointed at each division and respectively manage issues associated with the environmental quality of products of the division.
- 3 Submissions of such documents as Green Procurement Survey Responses, Certificate of non-use of environment-related substances, Conformation Form of the Changes in Management or Analysis Data are conducted in accordance with the rules set forth in the Global Environmental Communication System.
- 4 Materials with low environmental burdens (raw material, parts/components, packing material, etc.) are purchased from suppliers that promote environmental considerations in accordance with "Green Procurement Guidelines" and "Control Standards of Chemical Substances Contained in Products."
- 5 Part of this system is applied to customer's "CSR Procurement Survey (Supplier CSR Promotion Status Survey)" on human rights/labor, safety and welfare, environment, fair trade and ethics, quality and safety, information security and social contribution.



## Shin-Etsu Polymer Group Conflict Material Policy

The Shin-Etsu Polymer Group expresses the following in relation to conflict minerals:

- The Shin-Etsu Polymer Group agrees with and supports the objectives of the Wall Street Reform and Consumer Protection Act on conflict minerals.
- The Shin-Etsu Polymer Group has no intention to participate in human right violations or environmental destruction by procuring raw materials, parts, components, or products using such conflict minerals.
- The Shin-Etsu Polymer Group will continue to work with customers, business partners, and industry organizations to proceed with efforts to avoid such participation.
- If any conflict minerals are found in raw materials, parts, components, or products the Shin-Etsu Polymer Group procures, the group will promptly take the necessary measures.

## Initiatives in relation to quality control

To enable customers to use our group's products with an even better sense of security, we established the Office of Quality Assurance in 2014 to manage corporate-wide quality assurance, representing our efforts to improve the overall quality assurance system.

### Quality Policy of the Shin-Etsu Polymer Group

- **Focus on customer satisfaction**

Recognizing the importance of quality and product safety and in order to ensure responsible action, we target the improvement of customer satisfaction.

- **Improvement of responses to customers**

Should any problem occur, we strive to resolve it as quickly as possible by cooperating with relevant departments and taking immediate action.

- **Establishment of quality assurance system**

By establishing a quality assurance system that covers the entire group and continually improving it, we can realize quality differentiation and contribute to sales increases.

In addition of course to products manufactured internally, the system is applied to all outsourced products and raw materials in an organized manner.

### 1) Focus on customer satisfaction

To continually improve service levels, we periodically conduct customer satisfaction surveys. Information from them is analyzed and fed back to relevant departments to utilize as an improvement tool.

### 2) Improvement of responses to customers

Customer opinions and requirements are communicated to persons in charge at Engineering, Development, Production and Quality Assurance via Sales and shared with all the people involved.

### 3) Establishment of quality assurance system

- 1 By centrally controlling defective quality information that is conventionally supported by business units, we get an understanding of the number of quality defects across the entire company, in addition to failure costs. Furthermore, we work with relevant departments to resolve quality issues early on and prevent a recurrence.
- 2 By introducing our quality control method to suppliers and striving to stabilize the quality of all procured items, we make continuous efforts to secure stable quality for our products.
- 3 We develop internal quality education, thereby raising quality awareness for each employee.
- 4 Each domestic production plant has acquired an ISO9001 certification, striving to provide products that satisfy customers.

\*Reference website

- <http://www.shinpoly.co.jp/technology/index.html>



### Comments from Mr. Makoto Kojima, Manager, Office of Quality Assurance

When discussing quality control, people tend to consider it as an initiative specializing in quality, but its range has actually been expanding to include product safety, environment-related chemical management and BCM. While not being limited by conventional frameworks, we are continually working on the improvement of customer satisfaction.

# Together with employees

With thinking that safety and environmental preservation are the foundation of company activities and one of the most important issues for management, the Shin-Etsu Polymer Group is positively working on activities to realize a human- and environment-friendly workplace with the aim for zero work time accidents and zero environmental accidents. In addition, we are working towards creating a work environment where each and every employee can be themselves but also develop and grow at work.

## Respect for human rights

### ● Human rights awareness raising activities

Based on a respect for human rights, the Shin-Etsu Polymer Group eliminates any unfair discrimination in terms of race, gender, academic background, disability, place of birth, ethnicity or religious beliefs. We conduct human rights awareness training for all employees as part of our efforts to promote an understanding of social integration and prevent problems such as sexual or power harassment.

### ● Elimination of child or forced labor

Our Group complies with laws and regulations related to labor and applicable global rules and prohibits child or forced labor in all countries and regions. We have surveyed all group companies including the ones overseas and confirmed no existence of child or forced labor.

## Status of employment

### Changes in consolidated number of employees (Unit: Person)

End of FY	Personnel (Independent)			Personnel (Consolidated)		
	Male	Female	Total	Male	Female	Total
2011	500	95	595	1,580	2,085	3,665
2012	494	100	594	1,556	1,991	3,547
2013	488	102	590	1,601	2,027	3,628
2014	501	107	608	1,678	2,284	3,962
2015	504	108	612	1,694	2,248	3,942

\* Number of employees refers to working employees.

### Status of promotion to managerial positions (Our company only) (Unit: Person)

End of FY	Managers		Officers	
	Male	Female	Male	Female
2011	250	3	14	0
2012	248	4	15	0
2013	245	4	17	0
2014	251	4	16	0
2015	293	4	15	0

### Number of new graduate employees (Our company only) (Unit: Person)

FY	Universities/colleges		High schools, etc.	
	Male	Female	Male	Female
Joined in April 2012	4	0	3	0
Joined in April 2013	1	1	0	0
Joined in April 2014	6	0	0	0
Joined in April 2015	6	2	2	0
Joined in April 2016	7	2	1	0

**Labor distribution by gender and age group  
(Our company and domestic group companies)**



**Labor distribution by gender and age group  
(Overseas group companies)**



**Work-life balance/  
Diversity in ways of working**

Our group and domestic group companies have created action plans based on the Act on Advancement of Measures to Support Raising Next-Generation Children, which will help to create an environment where all employees can comfortably work.

**● Response to the Act to Advance Women's Success in Their Working Life**

Simply achieving numerical targets is not considered the only thing of importance. Another important thing is each person's continuous efforts to further enhance their abilities and sufficiently demonstrate them in the company.

**● Child rearing/Nursing care**

To enhance work-life balance for all employees, we introduced a system in line with various requests from individual employees, such as shorter working hours, following a return to work from child rearing or nursing care leave. In FY2015, four employees took advantage of childcare leave. Child rearing leave can be extended until April 30 after a child turns 18 months old, serving as a system designed to enable employees to properly balance work and child rearing. We will continue to tackle the challenge of implementing systems to realize a work-life balance and enable employees to fully demonstrate their abilities.

**Status of maternity leave,  
child rearing leave and nursery leave**

End of FY	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Number of employees who took maternity leave (Persons)	5	4	2	3	5
Number of employees who took childcare leave (Persons)	10	7	6	3	4
Number of male employees who took childcare leave (Persons)	0	0	0	0	0
Ratio of female employees who took maternity leave (%) (Number of acquirer Number of birth ×100)	100	100	100	100	100
Number of employees who used shorter working-time system while caring for children (Persons)	7	4	4	1	3
Number of employees who took nursing care leave (Persons)	0	0	0	0	0

\*The applicable organization of this data is Shin-Etsu Polymer Co., Ltd. only.

**● Employee Assistance Program (EAP)**

To support employees and their families to lead a healthy life both physically and mentally, the Shin-Etsu Polymer Group introduced the Employee Assistance Program (EAP).

While protecting privacy by using toll-free calls and e-mail, professionals of different fields offer consultation on, among others, mental health, health, child rearing, nursery care, legal matters and financial matters. We also have a point of contact for consultation in relation to sexual harassment.

To raise awareness about mental health and health management, we regularly deliver information useful for health promotion via our in-house LAN.

**● Employment of people with a disability**

Our group and domestic group companies actively hire people with a disability, exceeding the minimum legal employment rate.

End of FY	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Number of employees with a disability (Persons)	14	14	15	15	14
Employment rate of people with a disability (%)	1.96	1.99	2.22	2.25	2.02

\*The applicable organization of this data is Shin-Etsu Polymer Co., Ltd. only.

\*The legal employment rate of people with a disability in the private sector increased from 1.8% to 2.0%, as of April 1, 2013.

## [ Together with employees ]

### ● Re-employment system

Our group and domestic group companies have updated the re-employment system for employees following retirement so that those who wish to work can do so until they reach the legal re-employment obligation age. This is designed to work along with the revision of the Act on Stabilization of Employment of Elderly Persons. Furthermore, to enable re-employed persons to make use of their knowledge, skills and experience they have cultivated, promote cost reductions and transfer skills to young employees as well as play a more active role, we will continue to plan systems that are compliant with relevant laws and regulations, going forward.

### ● Career self-assessment system

We began implementing a career self-assessment system for employees 50 years old and over to recognize the challenges and knowledge required to continue working, and to improve their motivation levels. Additionally, in order to improve understanding of financial plans after retirement, we regularly host Pension Seminars by inviting outside instructors.

### ● Transition of annual paid leave

End of FY	FY2011	FY2012	FY2013	FY2014	FY2015
Average annual paid leave granted (Days)	19.1	19.4	19.6	19.6	19.2
Average annual paid leave taken (Days)	10.1	10.1	10.3	10.8	11.1
Annual paid leave taken (%)	52.9	52.1	52.6	55.1	57.8

\*The applicable organization of this data is Shin-Etsu Polymer Co., Ltd. only.

## Human Resources System

Our group and domestic group companies are continually working on personnel systems to facilitate challenges being faced by employees, focusing not only on achievements but also processes. General staff members are evaluated by their degree of growth in terms of competency, which is directly connected to the outcome, while managers are evaluated by their performances based on their responsibilities and achievement process. Personnel evaluation records are stored in a database to ensure complete fairness, objectivity and transparency.

## Training and Development

We consider "helping people grow" as a source of development and business continuity, by supporting employees with a variety of programs at times of major turning points such as joining the company, promotions, and of course OJT.

### ● Tutor System

Our tutor system assigns a one-on-one tutor to each new employee with a focus on training. With this system, the tutor acts as both a role model and councilor for new employees. Working with new employees, the tutor also develops and grows through the experience.

### ● Management Training

Since FY2015, we have participated in rank-specific training (manager layer training, senior staff layer training) to learn the concepts and techniques of group-wide management. The training is conducted by Human Create Co., Ltd., an education and training institution belonging to Shin-Etsu Chemical Co., Ltd.

Also, within our group, we provide promotion training for employees newly elevated to management positions to give them additional support for growth.



Rank-based training targeting core employees

## Environmental security management system

### ● Environmental Security Policy

We consider safety and global environmental protection as priority issues, and as a group, we work on: (1) thorough commitment with first priority on safety, (2) contribution to global environmental conservation and (3) compliance with all relevant laws and regulations.

### ● Aiming for zero work time accidents

We perform regular risk assessments of our facilities and operations based on the occupational health and safety management system in place, and promote safety proposals, near-miss elimination activities, and risk prediction training with participation by all employees. Our target is to achieve zero accidents by establishing safety as part of our corporate culture and creating workplaces with a high level of safety awareness.

### ● Environmental security audit

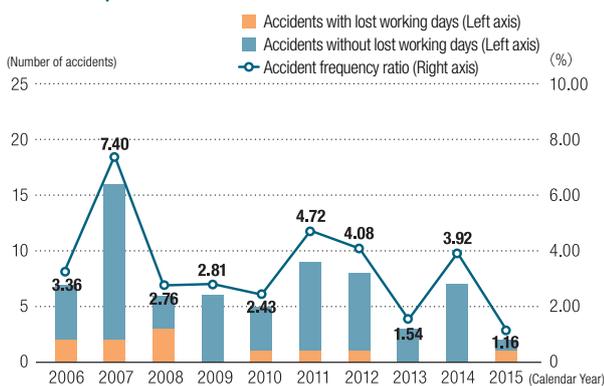
We regularly conduct environmental security audits to confirm if environmental security activities of each business office are certainly implemented. In the audits, compliance with applicable laws and regulations and current status of environmental security management activities are checked. In an audit in FY2015, we engaged in the enhancement of our disaster prevention system and the implementation of effective safety education toward zero accidents as priority challenges.

### ● Reports on work time accidents in 2015

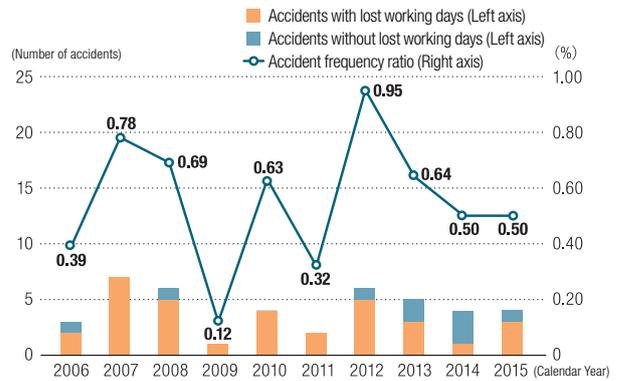
Occupational accidents in 2015 at domestic production sites was reduced to two, as opposed to seven in 2014, while overseas production sites saw no change from the previous year with four cases in total. To achieve zero accidents, we are tackling this challenge, positioning the following four items as important points:

- 1) Environment: Organize into a safe and comfortable working environment.
- 2) Facilities: Design is made with awareness of safety from the design stage, strictly conduct safety audits, and secure safety with facilities.
- 3) Procedures: Create procedures that will prevent accidents by strictly following these procedures and all rules.
- 4) Education: Ensure that all employees know the rules and procedures to be observed by operators at every opportunity, using appropriate means and approaches without any omissions.

### Transition in number and frequency ratio of industrial accidents (Domestic plants total)



### Transition in number and frequency ratio of industrial accidents (Overseas plants total)

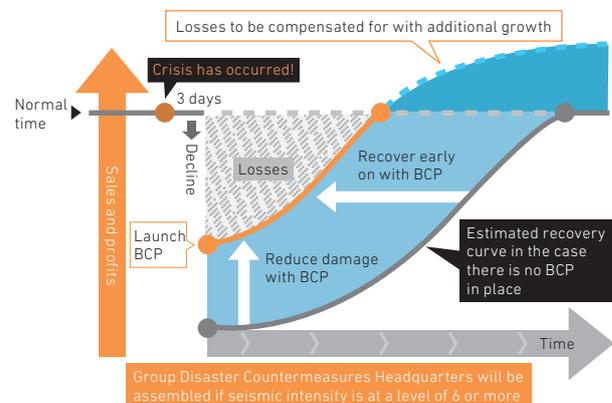


### ● Promotion of Business Continuity Management (BCM)

In 2015 we launched the BCM Project, promoting the establishment of a BCM system, targeting all domestic and overseas group companies and business sites. We first revised the Disaster Recovery Manual as the Disaster Recovery and Business Continuity Manual.

Based on the manual, we are proceeding with 1) organization of Disaster Countermeasures Headquarters, 2) identification of risks such as natural disasters, terrorist attacks and labor issues and an evaluation of their probability of occurrence, 3) assurance of employee safety at the time of a disaster through improvement of a safety confirmation system, emergency supplies, and an emergency communication system, in addition to evacuation drills, and 4) collection and organization of information to promptly restart business activities such as client, procurement and equipment maintenance information.

### Conceptual view of our Business Continuity Plan (BCP)



# 【 Together with local community 】

Based on the concept of “making efforts to coexist with local communities,” we tackle health and safety, communication with communities, humanitarian and disaster relief activities, in addition to other environmental protection activities. In relation to the implementation status of such activities, we openly disclose all relevant information.

## Communication with communities

### ● Humanitarian and disaster relief activities

At all our domestic and overseas plants, our group strives to assist with humanitarian support and disaster relief activities in various regions around the world.

#### Shin-Etsu Polymer India Pvt. Ltd.

We donated clothes and medicine to the Facility for the Old and Children where about 75 elderly citizens and 25 children live. Most of the old people are quite sick, with some even bedridden, but the facility has a medical office where a doctor periodically provides medical care.

The facility has a simple pharmacy, and we donated medicine that the facility requested thanks to a generous contribution from our employees.



Medical office in the facility



Members of the facility and our employees

### Response to the 2016 Kumamoto Earthquakes by Shin-Etsu Polymer and domestic group companies

#### Contribution activity

We conducted an activity to collect contributions for victims of the earthquakes and sent a donation via *the Japanese Red Cross Society's Response to the 2016 Kumamoto Earthquake Disaster*.

#### Support

To contribute to disaster relief activities for people that were affected by the disaster, we provided 200 cases of 100-meter rolls of Polymer Wrap, which is produced at our Tokyo Plant (Saitama Prefecture).



Collecting contributions at Head Office



Polymer Wrap donated to disaster-stricken areas

### ● Volunteer activities

Each site is engaged in volunteer activities in their local communities.

#### Nanyo Plant

The Nanyo Plant participates in an annual volunteer activity, *Exchanges among Town, Forest and Water*. Two employees who participated in the program for the first time had an opportunity to protect nature by working together with people of the local community.



Employees who participated for the first time

● **Acceptance of workplace experience participants**

Each production site offers opportunities for local students to gain a workplace experience. This year, three sites accepted a total of 10 students.

Tokyo Plant	5 people
Urawa Polymer Co., Ltd.	3 people
Niigata Polymer Co., Ltd.	2 people



**Urawa Polymer Co., Ltd.**  
Three second-year students from Kuki Municipal Kurihashigashi High School (located in the local neighborhood) experienced the packaging process of carrier tapes for two days.



**Niigata Polymer Co., Ltd.**  
During summer vacation, two students from Itoigawa Municipal Itoigawa Junior High School experienced the inspection process of semiconductor-related containers for three days.

● **Beautification activities**

All production sites conduct beautification activities in their local vicinities. This year, there was participation by a total of 232 employees at three bases. Also, the Tokyo Plant hosts a monthly cleaning activity in the vicinity of the plant, making great efforts to beautify the neighborhood.

Tokyo Plant	134 people
Kodama Plant	33 people
Niigata Polymer Co., Ltd.	65 people



**Kodama Plant**  
The Kodama Plant participated in Clean Operation that took place in Kodama Industrial Park.

● **Participation in community events**

**Kodama Plant**

The Kodama Plant actively participated in local events hosted by the City of Honjo and the town of Kamikawa on five occasions in FY2015. At an event featuring a local *Yuru-chara* (costume mascot character), we prepared unbreakable glasses shupua that are produced at the plant, stamped with a Yuru-chara, which helped to liven up the event together with the sponsors.



**Health and safety**

● **Blood donation**

We conducted blood donation at domestic and overseas sites, with 361 employees in total participating at five different sites this year. The number of participants are as per the below details:

Tokyo Plant	25 people
Kodama Plant	27 people
Shin-Etsu Polymer Hungary Kft.	3 people
Shin-Etsu Polymer (Malaysia) Sdn. Bhd.	267 people
Suzhou Shin-Etsu Polymer Co., Ltd.	39 people



**Shin-Etsu Polymer Hungary Kft.**  
Conducted at the company with a small number of participants



**Suzhou Shin-Etsu Polymer Co., Ltd.**  
Conducted in a mobile blood donation bank



**Shin-Etsu Polymer (Malaysia) Sdn. Bhd.**  
This year once again, and with the assistance of Pusat Darah Negara (National blood bank), we conducted blood donation twice.

# Together with environment

Based on its Basic Environmental Principles, the Shin-Etsu Polymer Group addresses challenges such as global warming protection, energy saving, resource saving, waste reduction and recycling, positioning them as action items of the group-wide Green Activities and promoting environmental protection by reducing environmental burdens.

## Basic Environmental Principles

### ● Basic Policy

Shin-Etsu Polymer group recognizes that the work for environmental conservation is one of the highest priority issues for our operation. Therefore we are working hard to become a part of building a recycling economic society through our responsibilities required.

### ● Action Policy

- 1 We are rebuilding the organization and systems to work for efficient and continuous environmental activities.
- 2 We observe law and regulations for resource conservation, energy saving, waste reduction, recycling and the proper handling of environmentally harmful substances. In addition, we set challenging goals and try to achieve it within our own manner in technical and economic resources.
- 3 We evaluate the environmental impacts of all phases from purchase and production through usage and disposal during the new product development stage and thus reduce its environmental impact.
- 4 We strive for the conservation and sustainable use of biological diversity by understanding and evaluating the impact on ecosystems from business activities, and by reducing this impact.
- 5 We provide internal education programs to achieve understanding and awareness of basic environmental policies for all employees.
- 6 We disclose the information of our environmental activities and make efforts to coexist with the community.

## Environmental management system diagram

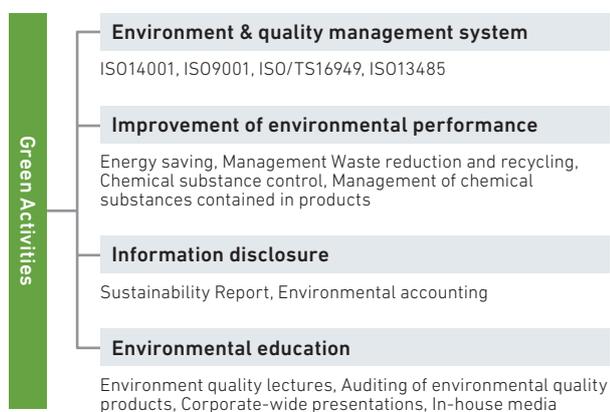


Activity: Green Activities	
Environmental management system	Acquired certification for environmental management system
Environmental performance	Countermeasures against global warming
	Measures for effective use of resources
	Measures to reduce environmental load substances
	Creation of environmentally friendly and contributing products
Publicity	Bio-diversity protection
	Sustainability report
Education / training	Environment accounting
	Environmental education
	Auditing
	Company-wide briefing

## Green Activities organization

Green Activities refer to activities including the acquisition of an environmental management system certificate, understanding and support of "Environmental Performance" such as countermeasures against global warming and measures for the effective use of resources, public relations as represented by environmental and social reports, and education and training in the form of corporate-wide briefings.

### Green activities organization (As of April 1, 2016)



## Certifications of Environmental Management System

We have received ISO9001 and ISO14001 certification at all domestic and overseas production sites. Based on the ISO9001 standard, we will establish a quality management system and deliver products that satisfies our customers. With the acquisition of ISO14001, we also have an approach to environmental regulations of each country, and improve our performance to prevent problems related to environment.

\*Please visit our website for further information on registration card numbers, certification bodies and various other data.

## List of Plants & Subsidiaries approved by the Sony Green Partner Environmental Quality Approval Program

Partner Name	Corporate ID	Plant Name	Factory Code	Issuance	Current Validity Period
Shin-Etsu Polymer Co., Ltd	410A	Tokyo Plant	FC007742	2005.07.01	2017.08.31
		Kodama Plant	FC002586	2003.07.01	2017.08.31
		Shinano Polymer Co., Ltd. (Shiojiri Plant)	FC002584	2003.07.01	2017.08.31
		Urawa Polymer Co., Ltd.	FC014180	2003.07.01	2017.08.31
		Niigata Polymer Co., Ltd.	FC007726	2005.07.01	2017.08.31
		Suzhou Shin-Etsu Polymer Co., Ltd.	FC013450	-	2017.08.31
		Ta Yang Group Holdings Ltd.	FC013237	-	2017.08.31

## The 5th Mid-term Targets of the Green Activities of the Shin-Etsu Polymer Group Results for FY2015 (As of April 1, 2016)

The time period for the 5th Mid-Term Targets is from FY2015 to FY2017. We are working towards achieving them all by FY2017.

### Countermeasures against global warming

	Indicator	FY2015			FY2016 target
		Target	Result	Achievement	
Reduction of CO <sub>2</sub> emissions (Domestic plants)	Basic unit of production weight (t-CO <sub>2</sub> /t) Reference: FY2008	7% reduction	7.7% reduction	Achieved	8% reduction compared to FY2008
		0.6734	0.6684 (*1)		0.6662
Reduction of energy converted to crude oil (Domestic plants)	Basic unit of production weight (kℓ/t) Reference: FY2014	1% reduction	Max. increase: 0.1% Max. reduction: 17.8%	Achieved at 5 plants Not achieved at 1 plants	2% reduction compared to FY2014

\*1. The amount of CO<sub>2</sub> emissions is calculated by the emission factor of each power company, as published on November 30, 2015

#### FY2015 activities

- Promoting energy conservation and reducing energy consumption with an organized introduction of LED lighting and high-efficiency air conditioners, in addition to investments to replace obsolete utilities.

#### FY2016 challenges

- Promoting improvements such as process yields and start/stop losses as well as process improvements in the form of productivity improvements.

	Indicator	FY2015			FY2016 target
		Target	Result	Achievement	
Reduction of energy converted to crude oil (Domestic non-plant business bases)	Basic unit of used area (kℓ/m <sup>2</sup> ) Reference: FY2014	1% reduction	14.2% reduction	Achieved	2% reduction compared to FY2014
		0.0550	0.0477		0.0545

#### FY2015 activities

- Implementation of energy saving measures in the summer and winter.

#### FY2016 challenges

- Implementation of energy saving and power saving measures in the summer and winter (in cooperation with building management company).

	Indicator	FY2015			FY2016 target
		Target	Result	Achievement	
Reduction of energy consumed for logistics	Basic unit of transportation compared to the previous year (kℓ/t)	1% reduction	1.6% reduction	Not achieved	1% reduction compared to FY2015
		0.0127	0.0130		0.0129

#### FY2015 activities

- Upsizing vehicles.
- Modal shift (Transportation by railway and sea) Rail transportation: 10.9%, sea transportation: 11.1%.

#### FY2016 challenges

- Handling smaller lot shipments.
- Handling urgent shipments.

### Effective use of resources

	Indicator	FY2015			FY2016 target
		Target	Result	Achievement	
Emission rate (Group domestic plants)(*2)	Less than 1%	Less than 1%	0.39%	Achieved	Less than 1%
Emission rate (Domestic plants)	Less than 1%	Less than 1%	Minimum 0% Maximum 1.83%	Achieved at 5 plants Not achieved at 1 plants	Less than 1%

\*2. Emission rate = (amount of landfill + simple incineration)/total waste emissions x 100 (%)

#### FY2015 activities

- Recycling of sludge in grease traps, oil-water separation tanks, etc.

#### FY2016 challenges

- Recycling of reagents and chemicals in small quantities and further sorted collections.

	Indicator	FY2015			FY2016 target
		Target	Result	Achievement	
Reduction of waste emissions (Group domestic plants)	Basic unit of production weight (kg/t) Reference: FY2014	1% reduction	4.8% reduction	Achieved	2% reduction compared to FY2014
		59.0 kg/t	56.7 kg/t		58.4 kg/t
Reduction of waste emissions (Domestic plants)	Basic unit of production weight Reference: FY2014	1% reduction	Between 15.5% increase and 16.4% reduction	Achieved at 5 plants Not achieved at 1 plants	2% reduction compared to FY2014

#### FY2015 activities

- Activities to improve process yields, start-stop-losses and reduce molding burrs.

#### FY2016 challenges

- Improvement of process yields and production processes by reusing liquid silicone materials, etc.
- Reduction in the amount of waste for packaging materials and secondary materials based on equipment refurbishment and maintenance.

Control value achievements for 2014 are shown in the table below.  
We are aiming for year-on-year reductions in FY2016.

	Indicator	FY2015			FY2016 target
		Target	Result	Achievement	
Creation of environmentally friendly and contributing products	Compared with the number of certified products in FY2014	To be doubled in FY2017	1.5 times	Not achieved	To be doubled in FY2017

**FY2015 activities**

• This evaluation was based on interviews with customers on the degree of contribution made to the customers' production processes.

**FY2016 challenges**

• Measurements of the degree of contribution at the time of use by customers is difficult, which makes evaluation somewhat hard to calculate.

**Control of chemical substances**

Control item	Indicator	FY2015		
		Control value	Result	Achievement
PRTR registration	Registered amount	1,861kg	1,417kg (444kg reduction)	24% reduction compared to previous year
	Basic unit of production weight	0.051kg/t	0.039kg/t	24% reduction compared to previous year
	Class I Specified Chemical Substance	71kg	84kg (13kg increase)	18% increase compared to previous year
Reduction of emissions of VOC into the atmosphere	Emissions into atmosphere	23.5t	Emissions: 27.2t (3.7t reduction)	16% increase compared to previous year
	Basic unit of production weight	0.642kg/t	0.744kg/t	16% increase compared to previous year

**FY2015 activities**

• Promoting the replacement of raw materials and cleaning solvents.

**FY2016 challenges**

• Consideration of the optimal alternative materials based on evaluation and confirmation of risk assessments.

**Water resources**

Control item	Indicator	FY2015		
		Control value	Result	Achievement
Domestic use of industrial water	Total amount of use by all domestic plants	474m <sup>3</sup>	462m <sup>3</sup> (12m <sup>3</sup> reduction)	3% reduction compared to previous year
	Total basic unit of production weight by all domestic plants	13m <sup>3</sup> /kt	13m <sup>3</sup> /kt	Same as the previous year
Domestic industrial water drainage	Domestic industrial water drainage	417m <sup>3</sup>	407m <sup>3</sup> (10m <sup>3</sup> reduction)	2% reduction compared to previous year
	Total basic unit of production weight by all domestic plants	11m <sup>3</sup> /kt	11m <sup>3</sup> /kt	Same as the previous year
Amount of overseas industrial water used (*3)	Total amount of use at overseas plants	191m <sup>3</sup>	185m <sup>3</sup> (6m <sup>3</sup> reduction)	3% reduction compared to previous year
	Basic unit of production weight at overseas plants	37m <sup>3</sup> /kt	34m <sup>3</sup> /kt	8% reduction compared to previous year
Overseas industrial water drainage (*3)	Total amount of drainage at overseas plants	176m <sup>3</sup>	175m <sup>3</sup> (1m <sup>3</sup> reduction)	1% reduction compared to previous year
	Basic unit of production weight at overseas plants	34m <sup>3</sup> /kt	32m <sup>3</sup> /kt	6% reduction compared to previous year

\*3. Some mistakes in the production weight of some plants and the amounts of drainage of some plants were found in "Overseas industrial water use= drainage," which were duly corrected.

**FY2015 activities**

• Promote switch to circulating water both in Japan and overseas.

**FY2016 challenges**

• Comprehend and reduce the amount of water use except for industrial water used for production.  
• Investigate water risks in the community each plant is located and study countermeasures.

## Environmental burdens accompanying our business activities

We consider that accurately understanding the environmental burdens associated with our business activities is the basis of environmental conservation activities. In order to effectively and continually promote environmental conservation activities, we check these figures and make plans to reduce environmental burdens and duly carry out activities.

### INPUT

Resources and energy		() Figures within brackets show the percentage against the previous year			
	Domestic production locations	Domestic offices	Foreign production locations	Foreign offices	Group Total
Energy (Converted to crude oil)	11,456kℓ (3% reduction)	267kℓ (13% reduction)	16,725kℓ (1% increase)	44kℓ (13% reduction)	28,491kℓ (1% increase)
Water consumption	462km <sup>3</sup> (2% reduction)	-	185km <sup>3</sup> (3% reduction)	-	648km <sup>3</sup> (3% reduction)

**Raw materials**

- PVC (polyvinyl chloride)
- Silicone rubber
- Other synthetic resins
- Indirect materials

\*There was a mistake in the data of domestic offices in the previous year, which was dully corrected.

### Shin-Etsu Polymer Group

Domestic Plants & Subsidiaries	Domestic non-plant business bases	Overseas plants	Overseas non-plant business bases
<ul style="list-style-type: none"> <li>• Shin-Etsu Polymer Co., Ltd. Tokyo Plant Nanyo Plant Kodama Plant</li> <li>• Manufacturing subsidiaries Shinano Polymer Co., Ltd. Urawa Polymer Co., Ltd. Niigata Polymer Co., Ltd. SAN-ACE Co., Ltd</li> </ul>	Shin-Etsu Polymer Co., Ltd. Head Office, etc. Shin-Etsu Finetech Co., Ltd. Head Office, etc.	Suzhou Shin-Etsu Polymer Co., Ltd. Dongguan Shin-Etsu Polymer Co., Ltd. Shin-Etsu Polymer (Malaysia) Sdn.Bhd. PT. Shin-Etsu Polymer Indonesia Shin-Etsu Polymer India Pvt. Ltd. Shin-Etsu Polymer Hungary Kft.	Shin-Etsu Polymer Shanghai Co. Ltd. Shin-Etsu Polymer Hong Kong Co., Ltd. Shin-Etsu Polymer (Thailand) Ltd. Shin-Etsu Polymer Singapore Pte. Ltd. Shin-Etsu Polymer America, Inc. Shin-Etsu Polymer Europe B.V.



Suzhou Shin-Etsu Polymer Co., Ltd.

### OUTPUT

To society		To the environment					
		() Figures within brackets show the percentage against the previous year					
		Domestic production locations	Domestic offices	Foreign production locations	Foreign offices	Group Total	
<ul style="list-style-type: none"> <li>• Electronic devices Input devices Display-related devices Component-related products</li> <li>• Functional molded products OA equipment parts Silicone rubber molded products Semiconductor-related containers Carrier tape-related products</li> <li>• Living environment and life-related materials Wrapping films Plastic sheet-related products Functional compounds PVC pipe-related products Exterior material-related products</li> <li>• Others Architectural packaging materials</li> </ul>	CO <sub>2</sub> emissions	24,438t-CO <sub>2</sub> (6% reduction)	525t-CO <sub>2</sub> (15% reduction)	38,571t-CO <sub>2</sub> (6% increase)	99t-CO <sub>2</sub> (25% increase)	63,633t-CO <sub>2</sub> (1% increase)	
	Waste	Total emissions	2,074t (5% reduction)	-	2,378t (15% increase) (*1)	-	4,452t (5% increase)
		Recycled amount	2,066t (5% reduction)	-	-	-	-
		Simple incineration	5.29t (11% reduction)	-	-	-	-
		Landfill	2.86t (536% increase)	-	-	-	-
		Emission rate	0.39% (0.1 points increase)	-	-	-	-
	Waste water	407km <sup>3</sup> (2% reduction)	-	-	175km <sup>3</sup> (1% reduction) (*2)	-	582km <sup>3</sup> (2% reduction)
	PRTR emissions (Reported amount of subject substances)	1.4t (26% reduction)	-	-	-	-	-

\*1 Aggregated value based on Group standard  
\*2 There was a mistake in the amount of drainage at overseas plants in the previous year, which was duly corrected.

\*Figures of overseas plants are aggregated based on the calendar year.

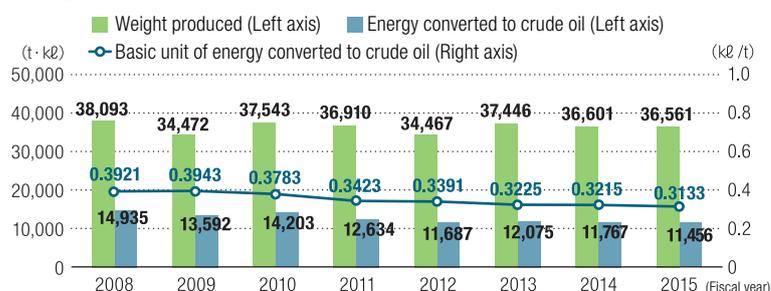
## Countermeasures against global warming

To contribute to the prevention of global warming, we are striving to promote efficient transportation, in addition to energy saving in Japan and at overseas plants. We calculate energy converted to crude oil, the basic units of CO<sub>2</sub> emissions against produced weight and scope 3, all the while attempting to reduce each of them.

### ● Domestic plants

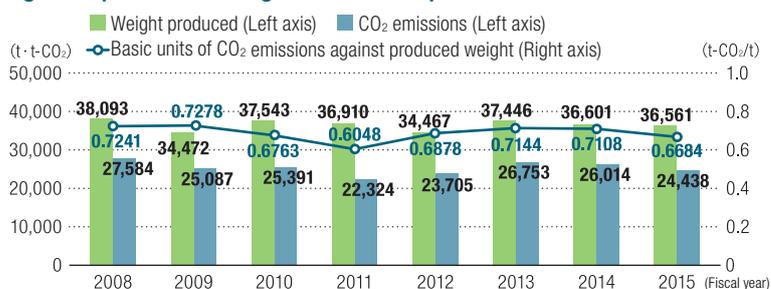
We reduced energy consumption when converted to crude oil by 2.6% in FY2015 against that in FY2014, surpassing the target of 1%. In addition, we reduced 7.7% of production weight of CO<sub>2</sub> emissions per basic unit compared to FY2008, surpassing the target of 7%. We will promote the improvement of process yields and further invest in highly efficient equipment such as LED lighting and air conditioners in the future.

### Transition of energy converted to crude oil and basic unit of energy converted to crude oil (Domestic plants)



\*The data for FY2014 was updated since the Tokyo Electric Power Company or TEPCO corrected its emission factors on July 24, 2015.

### Transition of CO<sub>2</sub> emissions and basic units of CO<sub>2</sub> emissions against produced weight (Domestic plants)



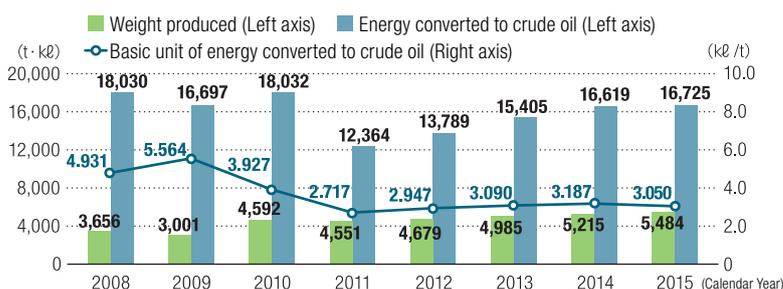
\*The data for FY2014 was updated since the Tokyo Electric Power Company or TEPCO corrected its emission factors on July 24, 2015.

\*The calculation of CO<sub>2</sub> emissions is based on emission factors that are announced by individual power companies every year.

### ● Overseas plants

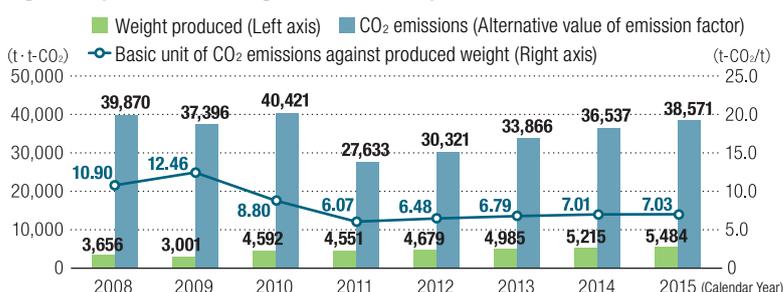
Basic unit of energy converted to crude oil in FY2015 was reduced by 4.3% when compared to that in 2014. The basic unit of CO<sub>2</sub> emissions was reduced significantly by 52.2% when compared to that in FY2008. We are aiming to further reduce energy consumption by applying energy-saving equipment and process technologies from Japan to overseas plants.

### Transition of energy converted to crude oil and basic units of energy converted to crude oil (overseas plants)



\*Due corrections have been made to mistakes in production weights at some plants since FY2009.

### Transition of CO<sub>2</sub> emissions and basic units of CO<sub>2</sub> emissions against produced weight (Overseas plants)



\*Due corrections have been made to mistakes in production weights at some plants since FY2009.

● GHG Scope 3 emissions

Our group calculates the Scope 3 emissions based on the guidelines by the Ministry of Environment, and compares the value with last year by category. The Scope 3 emissions in FY2015 was 1,289,000t-CO<sub>2</sub>.

Category		FY2014 (kt-CO <sub>2</sub> )	FY2015 (kt-CO <sub>2</sub> )	Changed rate	Notes
Our group	(Scope 1) Direct emissions	3.2	3.0	-6%	Implementation of energy saving.
	(Scope 2) Indirect emissions from	63.2	63.6	1%	Increased by expansion of overseas businesses.
1	Purchased products/services	52.6	48.7	-7%	Increased procurement of capital goods.
2	Capital goods	3.6	-3.6	-200%	Tangible fixed assets were depreciated.
3	Energy-related activities outside Scope 1, 2	4.2	4.1	-2%	Implementation of energy saving.
4	Transportation, shipping (upstream)	38.6	38.3	-1%	Increased procurement of capital goods.
5	Business waste	1.2	1.1	-8%	Decreased by waste reduction activity.
6	Business trips	1.6	1.8	13%	Increased by expansion of overseas businesses.
7	Employee commute	2.9	2.6	-10%	12% decrease in Japan.
8	Lease assets (upstream)	-	-	-	The amount is negligible and excluded from the subject.
9	Transportation, shipping (downstream)	10.5	3.9	-63%	There was a calculation mistake in FY2014, meaning that the results were actually flat.
10	Processing of products sold	-	-	-	N/A
11	Use of sold products	-	-	-	N/A
12	Disposal of sold products	34.4	32.0	-7%	Disposal of products was reduced.
Subtotal of Scope 3		149.6	128.9	-14%	
Total		216.0	195.5	-9%	
Percentage (Scope 3)		69%	66%		

\*Category 1-8 belong to upstream in the supply chain, and Category 9-12 belong to downstream

● Energy-saving activities related to transportation

As a Specified Consigner, we made the 10th periodical report. The amount of freight volume decreased by 2.1% compared to the previous year, while CO<sub>2</sub> emissions decreased by 0.5%, but energy consumption basic units increased by 1.3% compared to the previous year due to an increase in small lots shipping and urgent shipments.

As a result of an enlargement of vehicles for transportation between locations, modal shifts (change to railway/ship transportation), and the reorganization of locations, the effects of our efforts continue, as shown by the basic unit for railway transportation at 10.9% and sea freight at 11.1%, achieving 97.8% on average for five years (2.2% reduction), which exceeded the target 1% reduction in terms of annual average.

Transition of energy pertaining to transportation

	Unit	Reporting FY					Comparison with previous FY
		FY2011	FY2012	FY2013	FY2014	FY2015	
Annual freight volume	1,000 ton-km	27,253	25,911	25,878	25,111	24,659	-1.8%
	t	93,658	87,285	93,955	88,900	87,061	-2.1%
Energy consumption	GJ	51,501	46,288	48,777	44,209	43,858	-0.8%
	kℓ	1,329	1,194	1,258	1,141	1,132	
Energy consumption basic unit	kℓ/t (*)	0.0142	0.0137	0.0134	0.0128	0.0130	1.3%
Annual CO <sub>2</sub> emissions	t-CO <sub>2</sub>	3,498	3,137	3,315	2,992	2,976	-0.5%

\* The basic unit changed from kℓ/1,000 ton-km in FY2011. Previous data has also been corrected.

Transition status of basic units related to energy consumption rate in the past five fiscal years

	FY2011	Y2012	Y2013	FY2014	FY2015	Transition of average basic units in five fiscal years
Energy consumption basic unit	0.0142	0.0137	0.0134	0.0128	0.0130	97.8
Compared to previous year (%)		96.4	97.9	95.8	101.3	

## ● Cap and trade system in Saitama Prefecture

Following the G8 L'Aquila Summit in 2007 aiming for a 50% reduction in the total amount of global greenhouse gas emissions by 2050, Saitama Prefecture set a mid-term target to reduce greenhouse gas emissions in 2020 by 25% compared to that of 2005. To achieve this target, and based on previous reduction records and an anticipated future reduction of partner companies, and also in consideration of consistency with the preceding system of the Tokyo Metropolitan Government from the viewpoint of a wide area system, the Tokyo and Kodama Plants were required to reduce emissions by 6% on average for four years against the reference amount of emissions during the period of the 1st Plan between FY2011 and FY2014. Based on this reduction target, each partner company trades emission amounts, but it is necessary to undergo inspections on the reference amount of emissions during the planned period by a third party institution. The Japan Management Association conducted the inspection, and we reported the results to the Global Warming Countermeasure Section in the Environmental Department of Saitama Prefecture.

### Greenhouse emissions reduction results during the first period of the plan

Plants	Target reduction rates (%)	Average reduction rates from FY2011 to FY2014 (%)	Tradable emission amount (Exceeded amount of reduction) (t)
Tokyo Plant	6	27.6	8,436
Kodama Plant	6	38.0	5,128
			Total 13,564

As illustrated above, thanks to their efforts, both the Tokyo and Kodama Plants hugely exceeded the target for the first period of the plan, and the tradable emission amount (amount that can be sold) reached 13,564 tons. However, both plants are subject to a stricter target of a 13% reduction on average for five years between FY2015 and FY2019. We will thus conduct further energy saving activities to achieve said target.



**Masaki Shinada**  
In charge of Tokyo Plant



**Masamitsu Hasegawa**  
In charge of Kodama Plant

## ● Responding to the Act for Rationalized Use and Proper Management of Fluorocarbons

The Act on Ensuring the Implementation of Recovery and Destruction of Fluorocarbons as part of countermeasures against ozone layer destruction and global warming was revised, and the Act for Rationalized Use and Proper Management of Fluorocarbons that was added with proper controls (leakage prevention) of fluorocarbons during use of industrial air conditioners, refrigerators and freezers became law on April 1, 2015. This revision imposed obligations of proper control of fluorocarbons in use on owners (managers) of the devices in question.

### Additional major regulations

Subject devices: Industrial air conditioners, refrigerators and freezers  
(Hereinafter referred to as Class I Specified Devices)

#### 1 Inspections

- 1) Simple regular inspections: Once every three months or more for all Class I Specified Devices.
- 2) Regular inspections: Equipment of a certain scale or more is inspected by people with professional knowledge.

Product category	Rated output of compressor motors	Inspection frequency
Air conditioners	Equipment with output of 50 kw or more	Once a year or more
	Equipment with output of 7.5 kw to 50 kw	Once every three years or more
Refrigerators and freezers	Equipment with output of 7.5 kw or more	Once a year or more

#### 2 Report of calculated leakage amounts\*

\*Calculated leakage amounts =  
(Refilled amounts - collected amounts) x GWP (CO<sub>2</sub> converted value)

To be reported to the Ministry in charge should the leakage amount exceed 1,000 CO<sub>2</sub>-t/year

We conducted a survey and identified Class I Specified Devices (Table-1) to start simple regular inspections of all devices in use. Regular inspections of devices that require annual inspections were completed, and inspections of some devices requiring an inspection once every three years were also carried out. Additionally, we calculated the leakage amounts for FY2015 (Table-2).

**Table-1 Quantity of Class I Specified Devices**

Product category	Quantity (Number of devices subject to regular inspection) (Unit: Set)	
	Group-wide	Details
Air conditioners	857 <194> <small>*All devices are subject to regular inspections once every three years</small>	Tokyo Plant: 241 <64>, Nanyo Plant: 14 <0>, Kodama Plant: 239 <24>, Shinano Polymer Co., Ltd.: 162 <38>, Niigata Polymer Co., Ltd.: 141 <42>, Urawa Polymer Co., Ltd.: 53 <25>, Shin-Etsu Fine Tech Urawa Plant: 7 <1>
Freezers and refrigerators	171 <14>	Tokyo Plant: 114 <6>, Nanyo Plant: 8 <3>, Kodama Plant: 22 <3>, Shinano Polymer Co., Ltd.: 20 <0>, Niigata Polymer Co., Ltd.: 0, Urawa Polymer Co., Ltd.: 7 <2>, Shin-Etsu Fine Tech Urawa Plant: 0

**Table-2 Calculated leakage amount of fluorocarbons in FY2015**

Business operators	Calculated leakage (CO <sub>2</sub> -ton)	Details
Shin-Etsu Polymer	88.0	Tokyo Plant: 55.2 Nanyo Plant: 0 Kodama Plant: 32.8
Shinano Polymer	19.6	---
Niigata Polymer	0.0	---
Urawa Polymer	1.2	---
Shin-Etsu Finetech	0.0	---

\*As all devices has less than 1,000 CO<sub>2</sub>-t, they were not subject to reporting

## Waste reduction and recycling

In the 5th Mid-term Targets (FY2015-2017), we are promoting activities with the goal of "maintenance and continuation of zero emission" and "3% reduction of basic unit of waste emissions against produced weight compared to FY2014".

### ● Approaches to waste reduction and recycling

With our keywords "zero landfills and simple incineration by promoting waste recycling," we are engaged in activities to achieve and maintain zero emissions (less than 1% emission rate) with control indicators 1) basic unit of waste emissions and 2) emission rate.

### ● Key initiatives

In terms of waste reduction activities, we are engaged in making improvements of the pass rates as well as a reduction of start-stop losses, molding burrs and the remainders of liquid silicone materials. Additionally, periodical on-site inspections of waste disposal agents are conducted to ensure proper waste disposal.

### ● Results for FY2015

#### Domestic plants

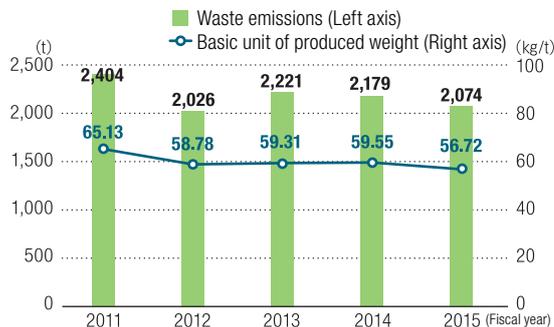
The total amount of waste for FY2015 was 2,074 tons, representing a reduction of 106 tons when compared to the previous year, while the basic unit of waste emissions against produced weight was 56.72kg/t, i.e. a 4.8% reduction from the previous year. The emissions rate was 0.39%, achieving the target of less than 1.0%, but the absolute figure increased by 0.1% compared to the previous year. This was a result of about three tons of waste plastics, which was used for landfill, as they were contaminated with foreign substances.

Specially controlled industrial waste mainly consisting of waste acid, waste alkali and waste oil, which were properly treated with neutralization, incineration and by other methods.

#### Overseas plants

The total amount of waste in 2015 (calendar year) was 2,378 tons or a 241-ton increase from the previous year. The cause of this was an increase in production volume. The basic unit of waste emissions against produced weight was 433.7kg/t, which has shown a tendency to increase in recent years.

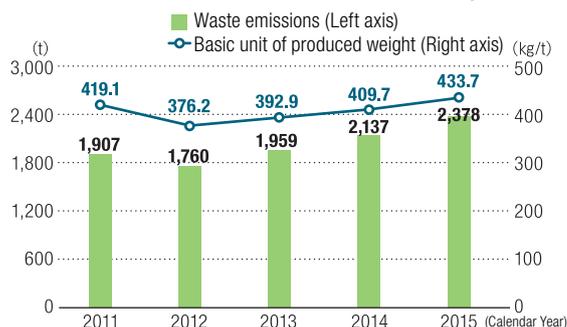
#### Annual transition of waste emissions (Domestic plants)



#### Annual transition of emission rate (Domestic plants)

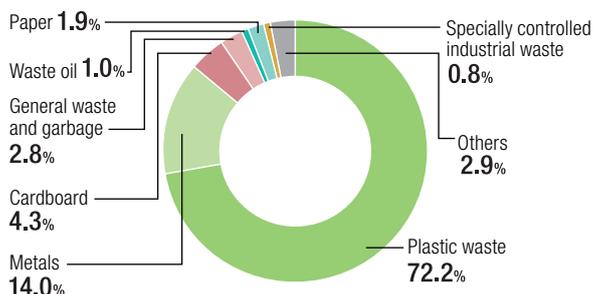


#### Annual transition of waste emissions (Overseas plants)



\*Production weight value is different from that in previous graphs, as some offices had incorrect values.

#### Sorting category (56th Period in FY2015)



#### Disposal of PCB waste

Based on the Act on Special Measures Related to Promote Proper Disposal of PCB Waste, we disposed of the following PCB waste:

- Niigata Polymer Co., Ltd.**  
Disposal in December 2015  
1500kVA high-voltage transformer (Low concentration PCB waste): 1
- Shinano Polymer Co., Ltd.**  
Disposal in March 2016  
300kVA high-voltage transformer (Low concentration PCB waste): 1



Carry-out of high-voltage transformer at Niigata Polymer Co., Ltd.



Removal of high-voltage transformer at Shinano Polymer Co., Ltd.

## Control of chemical substances

### ● Control Standards of Chemical Substances Contained in Products

Based on the Control Rules of Chemical Substances Contained in Products, we stipulated the Control Standards of Chemical Substances Contained in Products. With these standards, we target reducing chemical substances in all products and purchased materials.

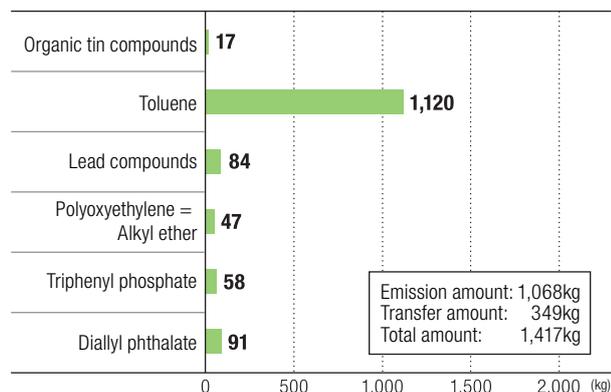
In relation to chemical substances, we collect information about regulations of chemical substances and their environmental effects around the world and

based on customer requirements, investigate relevance to our products in terms of use, applications and field records, and decide on a response based on each individual substance. Additionally, we fully comprehend the amount of each chemical substance contained in products and based on the information acquired, proceed with a reduction of environmental burdens.

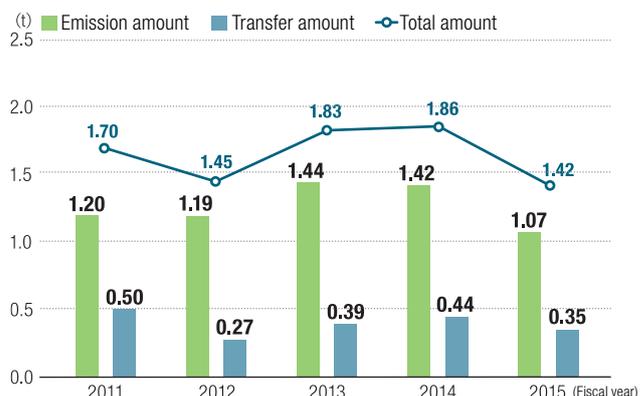
### ● PRTR notifications in FY2015

The Tokyo Plant, the Nanyo Plant and the Shiojiri Plant of Shinano Polymer Co., Ltd. made PRTR notifications. In FY2015, we made notifications for 1,417kg of six substances (1,068kg of emissions and 349kg of transfer). In relation to Class I Specified Chemical Substances, we notified of 84kg (35kg of emissions and 49kg of transfer) of lead compounds (lead-based stabilizer for PVC products).

#### PRTR notification results (FY2015)



#### Substances subject to PRTR (Details of emission and transfer amounts)



### ● VOC emissions into the air in FY2015

The domestic VOC emission amount into the air (t/year) in FY2015 was 27.2 tons or an increase of 3.7 tons (15.7%) compared to the previous year. Substances containing a large amount of emissions, included ethanol, butyl acetate and isopropyl alcohol.

(Unit: t/year)

		Tokyo Plant	Nanyo Plant	Kodama Plant	Shinano Polymer Co., Ltd.	Urawa Polymer Co., Ltd.	Niigata Polymer Co., Ltd.	Total
Facilities category	1. Painting	1.6	0.0	5.3	2.7	0.0	0.0	9.6
	2. Adhesion	0.0	0.0	0.1	0.0	0.0	0.0	0.1
	3. Printing	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4. Chemical products production	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5. Industrial cleaning	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6. VOC storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other types of facility category		0.0	0.0	10.5	3.4	0.0	3.6	17.5
Total amount		1.6	0.0	15.9	6.1	0.0	3.6	27.2

\*Subject VOCs are 20 substances for electrical and electronic organizations.

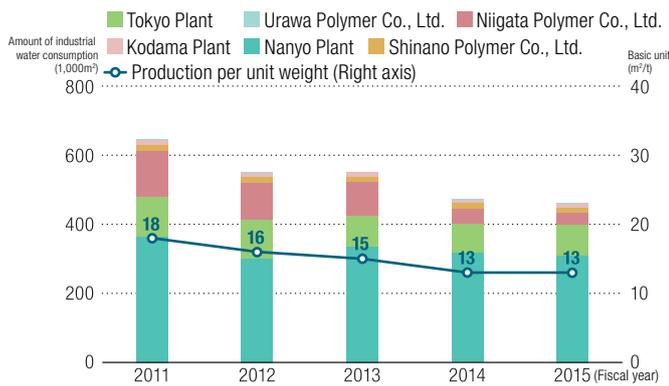
## Activities for Bio-diversity Protection and Pollution Prevention

Our group promotes efforts to reduce environmental burdens, such as global warming countermeasures, effective use of resources, and management of chemical substances, in order to reduce effects of our business activities for the protection of bio-diversity.

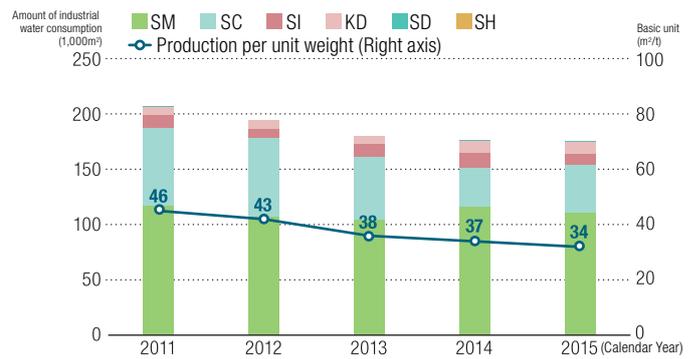
### ● Efficient use of water resources

Both in and outside Japan, the basic units of industrial water consumption and discharged water leveled off. The amount of circulated water in Japan decreased due to a change in equipment without cooling circulation chillers, but we will continue to promote the replacement of industrial water with circulated water for a more efficient use of water.

Waste water use status (Six domestic plants)

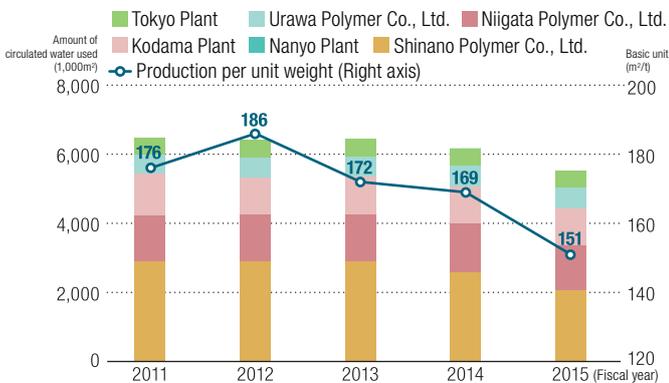


Waste water use status (Six overseas plants)

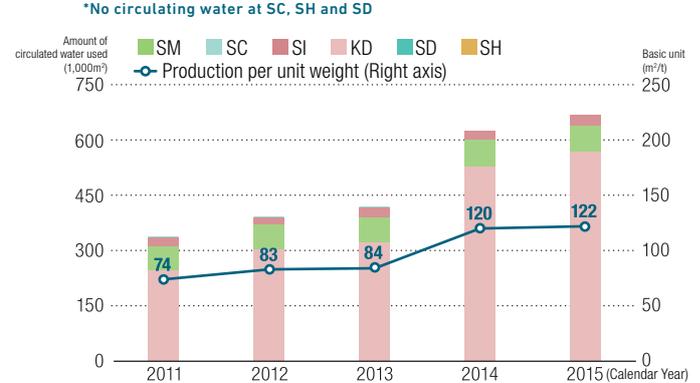


\*Revisions were made due to mistakes in production weights at some plants since FY2009.

Circulating water use status (Six domestic plants)

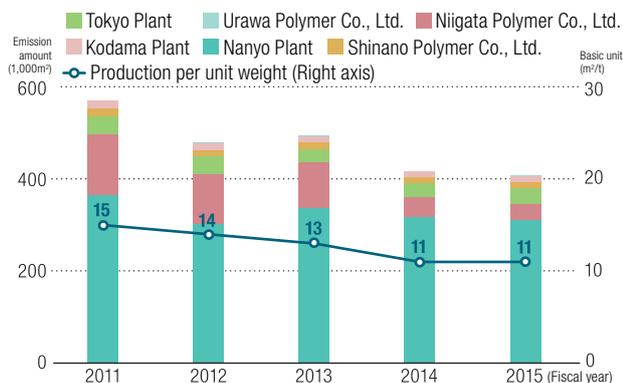


Circulating water use status (Six overseas plants)

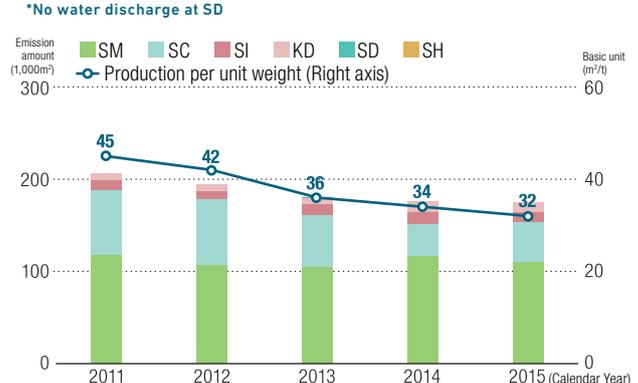


\*Revisions were made due to mistakes in production weights at some plants since FY2009.

Water discharge status (Six domestic plants)



Water discharge status (Six overseas plants)



SI: PT. Shin-Etsu Polymer Indonesia  
SD: Shin-Etsu Polymer India Pvt. Ltd.

SM: Shin-Etsu Polymer (Malaysia) Sdn. Bhd.  
SH: Shin-Etsu Polymer Hungary Kft.

KD: Dongguan Shin-Etsu Polymer Co., Ltd.  
SC: Suzhou Shin-Etsu Polymer Co., Ltd.

### ● Air pollution prevention

We have no equipment that is subject to regulations, but we stipulate self-control standards when it is considered necessary and work on reducing emission amounts. We periodically measure the emission concentration of VOC in order to confirm the value is below the standard.

### ● Water pollution prevention

We voluntarily test the water quality of discharged water to satisfy the standard specified in Water Pollution Prevention Act. We are also working on reducing the basic units of water use and conducting conversion to circulated water.

### ● Soil contamination prevention

We conduct monitoring based on the Soil Contamination Countermeasures Act. We also conduct surveys on soil and underground water where necessary to confirm there is no contamination.

## Environmental accounting

### Cost for environmental conservation

(Unit: Million yen)

Category		Main initiatives	Investment amount	Cost (*1)
1. Costs within business are as follows	1-1. Pollution prevention cost	Regular inspections of equipment, noise measurements, etc.	76.4	15.3
	1-2. Global environmental conservation cost	High-efficiency air conditioners, LED lighting, etc.	170.6	53.4
	1-3. Recycling cost	Collection and recycling of resources, conversion into raw materials or fuel, etc.	2.6	10.5
Total			249.6	79.2
2. Upstream and downstream cost		Costs related to the control of chemical substances contained in products, etc.	0.0	1.7
3. Control activity cost		EMS maintenance, education, greening of plants, etc.	0.0	28.3
4. R&D cost (*2)		Development of eco-friendly and eco-contributing products, etc.	225.0	-
5. Social activity cost		Donations, etc.	-	0.3
6. Environmental damage prevention cost		N/A	0	0
<b>Total</b>			<b>474.6</b>	<b>109.5</b>

\*1. Cost = Actual cost – cost in the case of not conducting the activity. When the total difference  $\leq 0$ , 0 is the assumed value.

\*2. R&D cost is calculated based on our own standards.

### Environment conservation effects

Items for reduction of environmental burdens	Unit	Annual reduction amount
A. Energy consumption	t-CO <sub>2</sub>	570
B. Waste discharge amount	t	1,500
C. Chemical substances consumption	t	4.9
D. Amount of purchased paper	1,000	18
E. Others	-	-

### Economic effects in accordance with environmental conservation measures

Items for reduction of environmental burdens	Unit	Cost
A. Energy cost	Million yen	20.1
B. Waste disposal cost	Million yen	4.2
C. Material purchase cost (Raw materials + subsidiary materials)	Million yen	19.2
D. Gain on the sale of valuables	Million yen	19.2
E. Others	Million yen	0.0
<b>Total</b>	<b>Million yen</b>	<b>62.7</b>

## Opinion of Third Person

We received third-party comments to further improve the environmental and social activities of our Group.



### Third-party comments on the “Sustainability Report 2016”

Professor, Economics Department,  
Sophia University

**Yoshinao Kozuma**

In relation to the environmental and social efforts and initiatives by the Shin-Etsu Polymer Group, I am providing my comments after reading the same Group’s “Sustainability Report 2016” (hereinafter referred to as Report) and after interviewing certain people involved.

#### 1. Technological contribution to a sustainable society

The business model of Shin-Etsu Polymer in which silicone rubber and other resins are made into high value-added products through the application and fusion of basic technologies appears to have a high CSV (Creating Shared Value) potential. In conjunction with the conversion to a sustainable society, this has gradually been emerging, thereby presenting a way for a resin processing manufacturer to contribute to an energy-saving and resource-saving lifestyle.

One very good example of this is the group of products using adhesion technology covered in this year’s special feature article. By delicately controlling the strength of adhesive forces, resource consumption on sites for semiconductor manufacturing, construction, etc., and appealing to consumers of its 3R performance, which is weaker than energy-saving performance is improved, while linking it with reduced running costs is impressive. This type of attitude toward manufacturing very much symbolizes the corporate philosophy of Shin-Etsu Polymer to “Contribute to people’s daily lives as well as to the advance of industry and society by providing key materials and technologies.”

#### 2. Results of cap and trade system in Saitama Prefecture

For the cap-and-trade emissions trading system that was introduced by Saitama Prefecture, the Tokyo Plant and Kodama Plant drastically exceeded their targets during the first planned period, achieving a large amount of emission credits. This is a result of the efforts made by the people concerned at the plants toward the reduction of GHG gas emissions,

and this is something that I would greatly appreciate as an achievement being made this year. The second planned period has already started, with much stricter reduction targets than the first planned period. To achieve these targets, a further improvement of environmental management will be necessary.

#### 3. Response to the Act to Advance Women’s Success in Their Working Life

The Act to Advance Women’s Success in Their Working Life, which was enforced in April, calls for efforts by private business operators to positively provide opportunities for female employment and promotion and to establish action plans, etc. and actively utilize them. In reality, many large-scale businesses already have action plans, numerical targets, etc. However, Shin-Etsu Polymer’s response to the act appears to consider that women can play an active role in the workplace depending on their efforts, emphasizing self-responsibility for female employees. It looks as if the company’s responsibility is hardly considered. Such an attitude may not only diminish female employees’ willingness to work but could also negatively affect long-term growth of the company. This issue in particular needs to be urgently improved on.

#### 4. Fair labor practices

In order to realize “Fair labor practices,” a few challenges still remain. For example, to eliminate “support” of child or forced labor, the supply chain must be taken into consideration. Also, the work-life balance system and employment ratio of persons with physical or intellectual disabilities of at least domestic group companies needs to be included in the range of the report. Furthermore, the fact that child rearing and nursery care leave taken by men is still at zero for successive years is an issue that requires corrective measures. Therefore, I expect to see policies to improve on these very issues.



Members of the Board,  
Assistant Chairman,  
Green Activities,  
Promotion Bureau, Director

**Yutaka Kawamura**

## In response to third-party comments

In the special feature of the Sustainability Report 2016, we took a different approach from the usual in relation to product introduction and employed a viewpoint with our unique adhesion technology. Professor Kozuma appears to have appreciated this content, and this certainly refreshed our recognition of the sheer importance of commercialization in consideration of 3R performance.

With regard to the cap-and-trade emissions trading system, energy saving activities for individual plants conducted under the corporate-wide Green Activities paid off, and in the first planned period between 2011 and 2014, we were able to greatly exceed the target 6% over four years. We have

already began the second planned period, and to achieve the higher target of a 13% reduction on average for five years, we are proceeding with quality energy-saving activities.

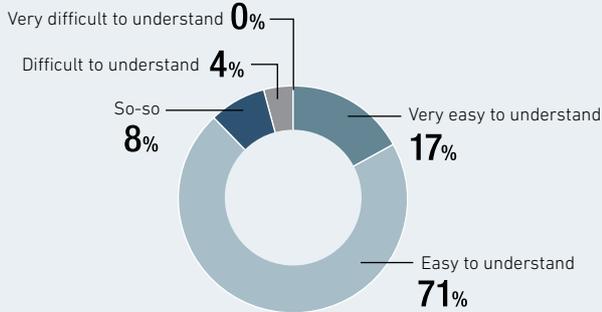
Professor Kozuma indicated many points in relation to our response to the Act to Advance Women’s Success in Their Working Life and also the realization of fair labor practices. We appreciate that these are issues that should be urgently tackled, and will continue to make improvements to our action plans and initiatives regarding the Act to Advance Women’s Success in Their Working Life, in addition to challenges that involve labor practices.

## Questionnaire results

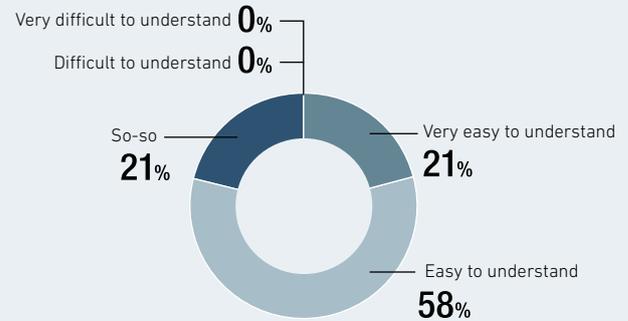
After releasing the "Sustainability Report 2015," we received both internal and external readers' responses to our questionnaire, and the results are given below.

We would like to take your opinions and comments into consideration for future issues. Thank you very much.

### ● Was the report easy to understand?



### ● What about the contents?



### ● Please give your comments, opinions, and requests.

#### [Contents you are especially interested in and its reason]

##### Construction and design

- The relationships between our products and customers are carefully described in an easy-to-understand manner.
- There are many photographs, which really compensates for points that cannot be communicated by text only, and this is something that makes it easy to understand.
- Data on environmental burdens improved, especially when overseas and domestic sites were compared with each other. Utilizing opinions from experts and external persons such as the Opinion of Third Person is very useful to improve content. Also, the introduction of community activities by individual sites and of familiar activities contributes to an overall improvement in motivation.

→We will pay further attention to easiness to see and read and strive for a report that is easy to understand and useful for all.

##### Content

- Initiatives on the environment are clearly presented. I will use this report to explain our stance when I negotiate with suppliers, etc.
- I got a real sense of corporate-wide efforts being made. The Corporate Philosophy and top message were easy to understand.
- I felt that it was easy to understand, as it exemplified the fact that environmentally friendly and contributing products helped to reduce environmental burdens. For example, EXELAST and TWSS are such products as well as shupua that does not feel hot when holding the product filled with a hot drink.

- It is good that the report delves into CSR and shows the company's relationships with society. I feel that society now very much demands corporate compliance. I think that an inability to achieve internal control directly leads to risks as a company. It was useful then that this type of activity was clearly provided
- Going forward, we will continue to explain what we are targeting at in terms of efforts for environmental conservation and contributions to environmental burdens such as environmentally friendly and contributing products, in addition to improved CSR activities.

##### [Opinions and requests]

- Descriptions should be shorter, there needs to be more illustrations and figures and the characters in the text should be bigger. I really feel it is somewhat square or boring.
- When there is too much text, people tend to just read part of the first page only. Just writing about how each product is used and their key points would be sufficient. It would be best to reduce the number of pages.
- I want to see an increase in articles on corporate governance to stress transparency as a company. As window-dressing settlements of accounts and mileage cheating scandals have appeared one after another in the news, I felt it would be better to even briefly indicate transparency in our corporate activities with actual examples.
- CSR such as improved corporate governance is an important challenge for companies. This year, we allocated two pages to explain our activities for its reinforcement and improvement.

## Editor's Note

The report started with coverage of our corporate-wide "Green Activities" that are unique to our group to promote environmental conservation and management. Also, every year in our feature articles, we zoom in on a few of our products and introduce how Engineering, Production and Sales contribute to the environment from their individual positions.

This year, we also had pages to visualize our social contribution through "Adhesion technology," one of our conventional technologies, instead of introducing individual products, so that readers could understand our business a little better.

We will address whatever we can improve on from the

comments made by Professor Kozuma and the opinions from readers and report on the results.

We are very much looking forward to hearing any opinions or comments on our Group's environmental and social activities.

