

# RESPONSIBLE CARE

## 1. Philosophy

JSR Group developed its Environment Safety Management Policy promotion items with reference to "Management Policies - Responsibility to Our Stakeholders" and the Japan Chemical Industry Association's "Guiding Principles for the Improvement of Environmental, Safety and Health Conditions." We use these items as the basis for formulating concrete activity plans and advancing our RC activities.

## 2. What is Responsible Care®(RC)? International Initiatives

RC is an acronym for Responsible Care. In the chemical industry, each company handling chemical substances is responsible for ensuring that safety, health, and environmental issues are addressed throughout the chemical lifecycle, from development and production to distribution, use and disposal, publishing the results of their activities and maintaining dialogue and communication with society - all voluntarily. This initiative is called "Responsible Care."

The International Council of Chemical Associations (ICCA) has adopted the Responsible Care (RC) Global Charter, a voluntary activity policy shared by the chemical industry, to enhance and reinforce RC activities around the world.

JSR subscribes to this activity policy, and signed a declaration supporting the RC Global Charter in October 2008. JSR has also signed the revised RC Global Charter in March 2015. By signing the declaration, JSR has committed itself to making even greater contributions to health, safety, and environmental preservation not just in Japan, but around the world.



The declaration supporting the RC Global Charter

## Health and Safety Initiatives

[Non-Financial KPI]  
**Zero Facility Accidents and Workplace Accidents**

### 1. Philosophy and Course of Action for Occupational Health and Safety

JSR has established a "Course of Action for the Philosophy for Occupational Health and Safety" that present specific actions demanded of the company and each of its employees. It is based the "Philosophy For Occupational Health and Safety" that is spelled out in the "Top Commitment" issued by JSR's top management and which serves as the basis for realizing worksites in which everyone can work "healthily," "safely," and "with peace of mind."

**<Philosophy for Occupational Health and Safety>**

At JSR Corporation, safety is our highest priority and the foundation of all of our activities. Accordingly, we will create safe worksites and strive to maintain physical and mental health, with the goal of ensuring a safe return home at the end of each workday.

**<Courses of Action of the Philosophy for Occupational Health and Safety>**

1. No matter the situation, we will act with safety foremost in mind.
2. We will comply with established rules and never fail to act in accordance with safety basics.
3. We will maintain safety by identifying and eliminating both actual and potential hazards.
4. We will strive to create comfortable work environments and promote physical and mental health.
5. Through communication and ingenuity, we will aim to achieve 100% employee participation in all safety activities.

## 2. Occupational Health and Safety Initiatives

### Workplace Accident Record

No lost time accidents nor non-lost time accidents affecting JSR employees occurred in 2018. Among our manufacturing partners, there were no lost time accidents; however, there was one lost time accident.

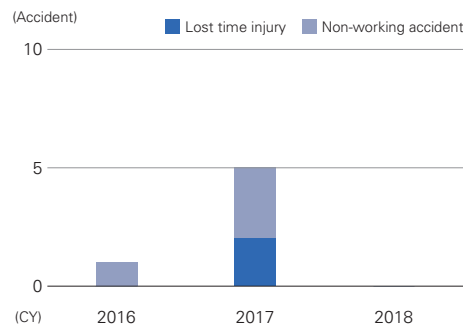
Among domestic Group companies, there were two lost time accidents and three non-lost time accidents in 2018. Among the manufacturing partners of domestic Group companies, there were no lost time accidents; however, there were two non-lost time accidents. Among domestic Group companies, an increasing trend is seen in terms of both the number of all workplace accidents and the number of lost time workplace accidents. Accidents involving tripping, falling, and entanglement are increasing.

Among overseas Group companies, workplace accidents continue to occur in a manner similar to that seen with domestic Group companies. We will make pertinent improvements by deepening collaborative safety activities throughout the entirety of JSR Group.

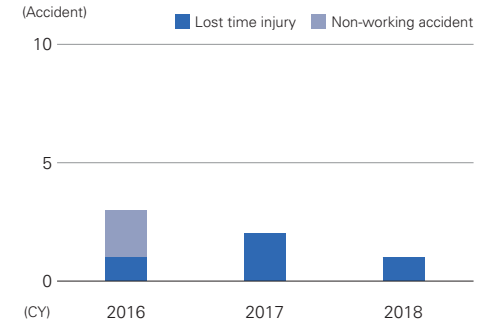


Safety Monument

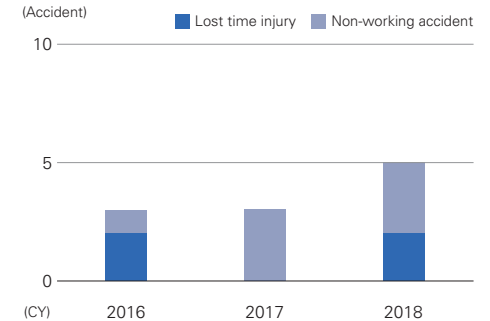
### Number of Workplace Accidents (JSR)



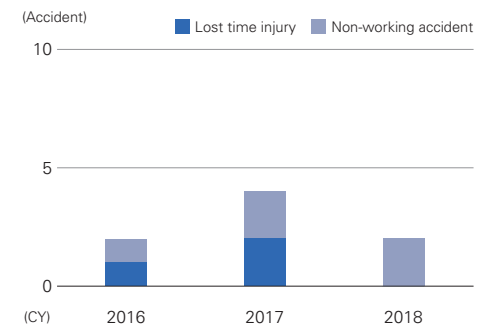
### Number of Workplace Accidents (Manufacturing partners of JSR)



### Number of Workplace Accidents (Domestic group companies)



### Number of Workplace Accidents (Manufacturing partners of domestic group companies)



# RESPONSIBLE CARE

**Environmental Impact Reduction**

[Non-Financial KPI]  
**Reduce greenhouse gas emissions by 15% in FY2030 compared to the 2013 level.**

## 1. Initiatives to Reduce Greenhouse Gas (GHG) Emissions

Environmental problems attributable global warming (e.g., forest fires, droughts, water shortages, rising sea levels, threats of extinction, and impacts on ecosystems) are occurring on a global scale. Such problems are also seen in Japan. They are represented by floods caused by torrential rains, health problems such as heatstroke that result from more and more days of extreme heat, and such impacts on the ecosystems as coral bleaching.

JSR Group recognizes this as an important issue. We therefore strive to reduce GHG

emissions by, for example, reducing the amount of energy needed in the various processes of producing and supplying our products.

### (1) Response by JSR (business establishments)

•Actions for Scopes 1 and 2  
In FY2012, JSR established its "System to Reduce Total CO<sub>2</sub> Emissions from Three Plants by 6% Compared to FY1990" by upgrading its energy-saving technologies through the introduction of fuel conversion at the Kashima Plant (Kashima South Joint Power Corporation) and a natural gas-fired gas turbine cogeneration system and sludge dewatering system at the Yokkaichi Plant. In FY2018, we reduced our CO<sub>2</sub> emissions by 7.4% compared to the FY1990 level.

Beginning in FY2005, we achieved a significant reduction of 21.6% by FY2013 compared to the FY2005 level by promoting the above-mentioned fuel conversion and making large-scale capital investments.

However, since FY2013, our GHG emissions have remained about the same, despite our efforts to conserve energy.

Looking ahead, we will strive to reduce our GHG emissions toward achieving a long-term goal of "reducing emissions by 15% in FY2030 compared to the FY2013 level." In addition to energy conservation activities, we will achieve this by introducing highly efficient equipment and using renewable energy.

At the head office, we are promoting energy conservation on our own initiative by voluntarily setting a specific power saving target.

In FY2018, our power consumption fell below the base year average as a result of the main initiatives described below, and we achieved a 15.6% reduction in our emissions compared to the base year average.

•Actions for Scopes 3  
We have taken steps to reduce our transport energy use as a designated shipper under the

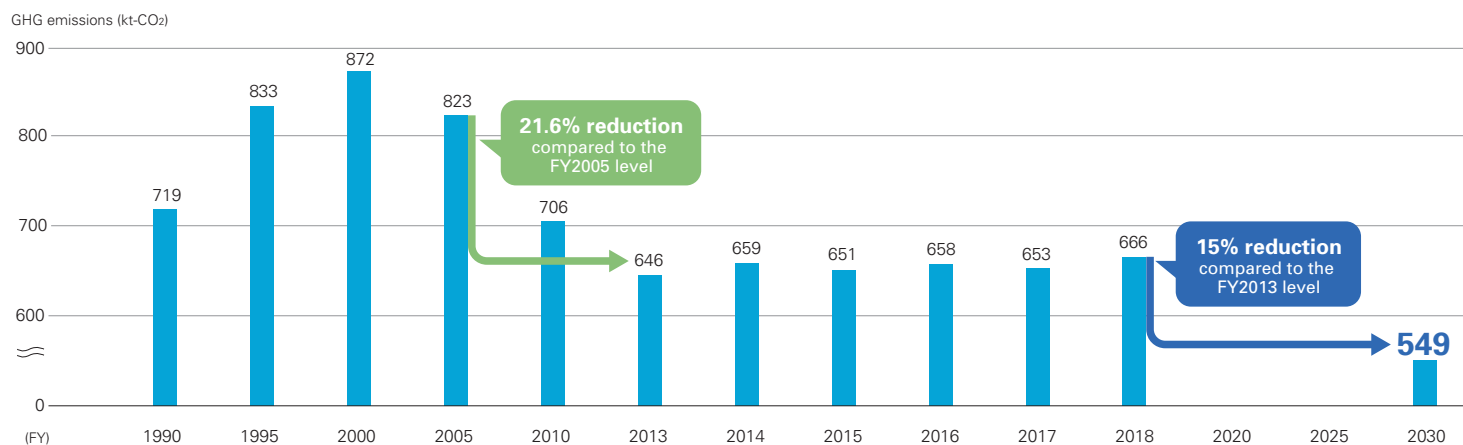
amended Energy Conservation Act.

In FY2018, as a result of policies to transport goods and raw materials by railway and ship, we achieved a modal share of approximately 85%, thus maintaining last year's high level, and successfully held down per-unit transportation energy.

### (2) Response by Global Group Companies

Globally, we emitted 1,078 kt-CO<sub>2</sub> in FY2018. This represented an increase of 2% compared to the previous year. We will promote activities that take a long-term perspective on the global side of our business as well.

Changes in JSR's CO<sub>2</sub> Emissions and 2030 Reduction Target



# RESPONSIBLE CARE

## Waste Reduction

[Non-Financial KPI]  
**Maintain achieving zero-emission target**

### 1. Initiatives to Reduce Industrial Waste

JSR Group is controlling the amount of waste it generates, sorting waste, and searching for businesses that accept recyclable materials. In FY2018, the Group generated 72,000 tons of waste globally.

#### JSR

Since FY2000, JSR has been implementing its goal of “zero emissions”<sup>\*1</sup> through activities that include prevention of generation of waste materials, sorting of waste, and the search for recycling

locations throughout the company. We have been continuing our zero-emissions efforts since FY2003.

<sup>\*1</sup> JSR's definition of “zero emissions”: When the volume of final off-site waste buried at third-party landfills is less than 0.1% of the volume of waste generated

Specifically, the Yokkaichi Plant is continuing the following measures targeting ① sludge and ② coal ash, which account for about 90% of the total volume of generated waste materials.

- ① Transforming sludge into a valuable material (conversion into fuel) with the introduction of sludge drying equipment
- ② Recycling coal ash as cement material

Furthermore, we are an executive member of the Mie Prefecture Industrial Waste Solutions Promotion Committee and endeavor to continually reduce industrial waste and ensure its proper disposal in cooperation with the community.

Moreover, aiming to help create a recycling-based society, JSR is searching for even more recycling locations and taking other measures toward fulfilling the goal of “reducing waste by 15% in 2030 compared to the FY2013 level.”

In FY2018, we reduced our generated waste by 4.5% compared to FY2013. We will continue working toward our goal by reducing the amount of waste we generate.

### 2. Responding to the Marine Plastic Litter Problem

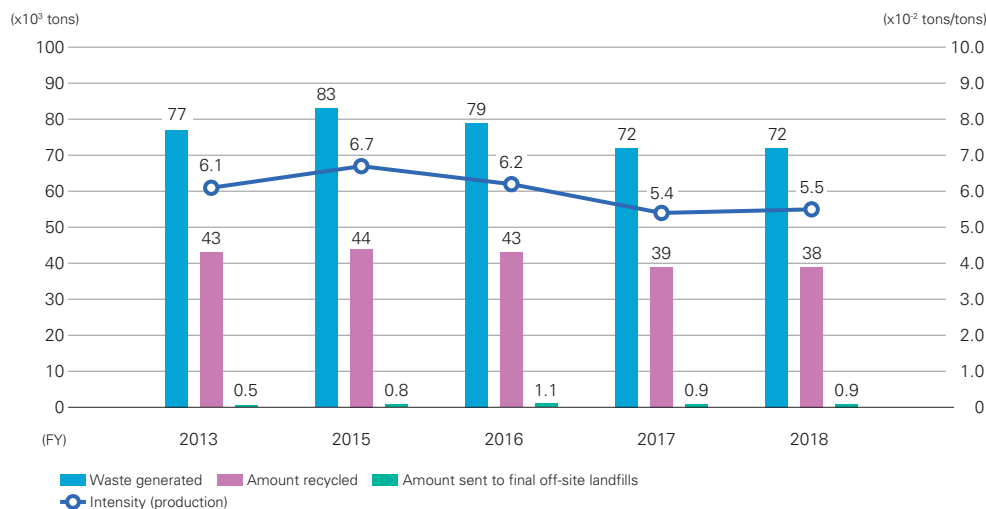
JSR considers the problem of marine plastic litter to be an important issue. In light of this, we are participating in the Japan Initiative for Marine Environment (JaIME), an organization that was launched by five chemical industry bodies on September 7, 2018, as a founding member. We are also investigating JSR Group's disposal

processes for plastics in Japan based on the national government's proposed “plastic materials recycling strategy (tentative)” and studying management indices.

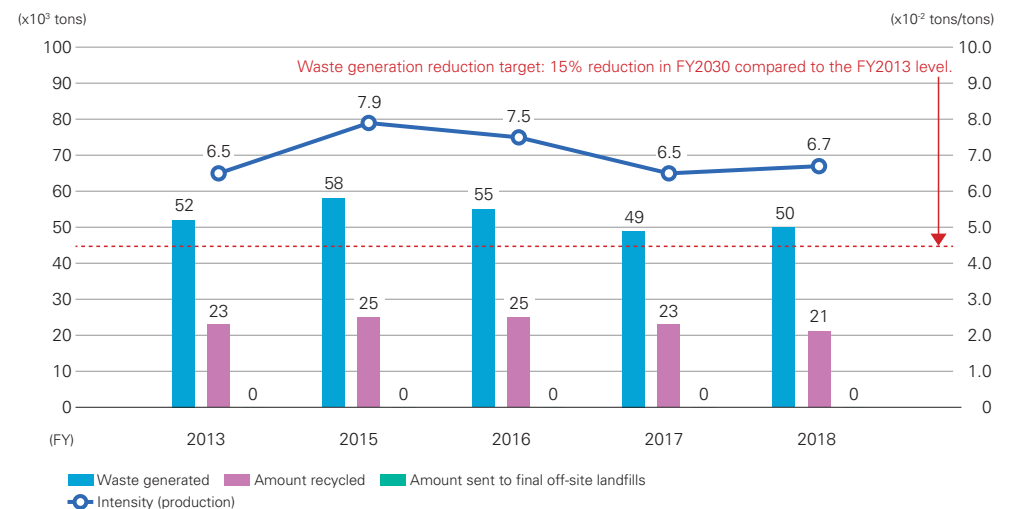
Looking ahead, we will promote further recycling of waste plastics by setting the following two points as long-term targets (FY2030). We will also strive to make a social contribution by, for example, raising awareness of the plastics problem through in-house seminars and explanatory briefings, promoting “3R”-based activities in daily life (e.g., regarding the use of plastic bags and PET plastic bottles), and participating in coastal cleanups.

- 100% recycling (including heat recovery)
- 60% recycling (not including heat recovery)

Wastes Generated by JSR Group



Wastes Generated by JSR



# RESPONSIBLE CARE

## Quality Management

### 1. Philosophy

JSR Group' Corporate Mission is "Materials Innovation - We create value through materials to enrich society, people and the environment." Moreover, the Group's Management Policies set forth "emphasis on improving customer satisfaction" and "continuous increase in customer satisfaction" as basic policies concerning quality for the entire company. We believe that an important role of JSR Group is to offer innovative materials and excellent products that meet customer needs and contribute to the making of a better society.

### 2. Quality Assurance

#### (1) ISO 9001 Certification

JSR Group supplies customers with chemicals and other diverse products and services. To continuously deliver reliable quality in all of our products and services, we give full attention to quality management each day and also continually strive to further improve quality under a management framework that is based on manufacturing and quality management standards (ISO 9001\*1).

We acquire ISO 9001 certification at all of our main plants and business establishments (including relevant divisions and indirectly involved departments). Established at each certified business establishment has a Quality Assurance (QA) Advancement Committee that is led by the plant manager or senior management. Items addressed by this committee include activities to improve quality levels, measures to prevent quality deficiencies, development of CS activities\*2, and reporting of quality abnormalities. The information

the committee collects is stratified and put to use in preventing the recurrence of problems having the same root cause. CS activities receive particular attention. Customer complaints as well as quality issues that did not go so far as to generate complaints are stratified and analyzed, and the results are applied to the prevention of complaints and problems. Constantly grasping and analyzing quality risks is useful in eradicating quality-related complaints and problems. We strive to prevent and stop recurrence and emphasize activities to prevent quality problems through an organization-wide approach. In this way, the process extending from problem discovery to recurrence prevention measures operates as a PDCA cycle.

\*1 ISO 9001: An international standard for quality management systems that was issued by the International Organization for Standardization (ISO)

\*2 Customer Satisfaction (CS) activities: Activities to gain customers' satisfaction by meeting their expectations, to create a better relationship with customers and build trust with them, and to link that relationship to sales.

#### (2) Global Quality Guidelines

As its development, purchasing, production, and sales all become more globalized, JSR Group recognizes that its philosophy vis-à-vis quality in the continual pursuit of "Materials Innovation" must be shared throughout the Group, and that any divergence from that philosophy must be prevented. For this reason, we are formulating guidelines for the sharing of basic thinking and mechanisms concerning quality management that JSR Group can rely on (e.g., elimination of differences and variations in thinking concerning quality management, application of shared language).

With these Global Quality Guidelines, we are promoting the sharing of basic thinking and mechanisms and presenting examples that illustrate quality management methods that are indispensable to "manufacturing," which is the "soul" of our company. They include responses to quality

abnormalities in design reviews for planning (e.g., of business models) and product design, contractor management, test management, logistics management, and global emergency response system. Additionally, we are focused on building a quality management system that includes not only JSR Group's overseas production bases but also contractors and business partners. Such a system will permit us to supply products and services of reliable quality continually and globally throughout the entire supply chain, from product planning, design and development to mass production and customer service. To respond to JSR's push into global and widespread fields, and to respond to supply chain diversification and increasingly sophisticated customers' needs that are occurring as a result, we will continue reinforcing our global quality assurance system.

#### (3) Quality Education

We also see education oriented toward improving quality levels and preventing product accidents as an important activity. JSR Group is also working to enhance employee education. In FY2007, we established training centers in our three plants as part of this effort. We are expanding our education program and providing education on quality control and PLP\*3, holding QFD\*4 seminars, and implementing product safety training for specific employee classes (employees with the company between 1 and 3 years, employees with the company between 6 and 10 years, and employees who will be/have been promoted to the rank of manager). JSR Group will continue to promote better awareness of quality among our employees and pour effort into human resources development in order to improve quality control and meet the sophisticated needs of our customers.

\*3 Product Liability Prevention

\*4 Quality Function Deployment

#### (4) Quality Audits

Top management-led quality performance audits have been performed annually including reports on plant QA activity concerns such as trends and corresponding solutions of claims and other issues, and activities to improve plant capability. They also include reports on customer satisfaction levels and presentations on quality improvement activities such as Six Sigma training and small-group improvement activities.

In addition, we implement internal quality audits and external quality audits for the purpose of improving our quality management system. We strive to improve quality control activities and frameworks in all quality audits with a view to achieving higher customer satisfaction.



A Quality Performance Audit being conducted by top management (JSR Corporation's Yokkaichi Plant)



Presentation of a Quality Performance Audit's "highest excellence" award (at JSR Corporation's Head Office; March 28, 2019)