Taking action one by one
for a more abundant future.

Our Catchphrase Concept

In order to effectively implement Polyplastics' approach to CSR, which seeks to shape a sustainable society through our engineering plastic, it is more important than ever that every Polyplastics employee works on CSR activities as his/her own business. Everyone should consider what they can do and then act on it. We believe that it is through the accumulation of such contributions that the creation of a sustainable society is made possible.

Biomass Mark

VOC FREE T&K
Printed with Volatile Organic Compounds, VOC, Free inks.

RICE INK

VEGETABLE OIL INK

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About environmentally-friendly "T&K TOKA Best One KIRÉINA RIC-E100" next-generation ink

Rice ink derived from Japanese rice bran was used to print this document. This ink is characterized by a lack of volatile organic compounds (VOC). In addition, by using domestically produced raw materials instead of imported raw materials, we significantly reduce the amount of CO_2 emissions produced during shipping. Compared with conventional VOC-free ink, this ink offers better offset resistance, setting and drying and resistance to blocking, which means less spray powder is needed during printing.
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2020.07.1.5M.1st(1-01)CSR20-E

Polyplastics

CSR REPORT 2020

Corporate Social Responsibility
2019.4 - 2020.3

Taking action one by one
for a more abundant future.

POLYPLASTICS
CSR REPORT 2020

Polyplastics' Business Expansion

Supporting global manufacturing with engineering plastic.

Polyplastics is Japan's first specialized manufacturer of engineering plastic. Engineering plastic is made from functional resins having superior properties, such as mechanical strength and heat resistance. It is used in a variety of different products, including aircraft and automobiles, as well as everything from home appliances to food packaging, and is indispensable to modern manufacturing. The Polyplastics Group maintains a network of 32 operations sites spread across 13 countries and regions through which we provide engineering plastic and technical support to customers worldwide.

Acetal Copolymer
DURACON® POM
Well-balanced mechanical properties and outstanding sliding properties

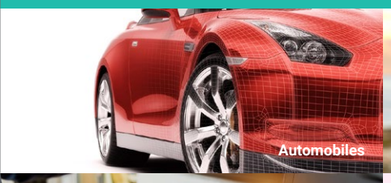
Polybutylene Terephthalate
DURANEX® PBT
Superior electrical properties and reliability for electronic devices and components

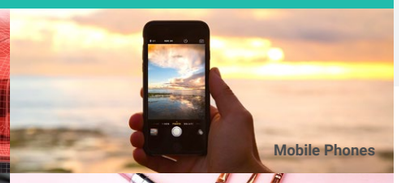
Polyphenylene Sulfide
DURAFIDE® PPS
A linear polymer that is extremely tough and shock resistant

Liquid Crystal Polymer
LAPEROS® LCP
A stand-out, super engineering plastic with thinness and flowability beyond conventional engineering plastic

Cyclic Olefin Copolymer
TOPAS® COC
Superior transparency and safety suited to healthcare and food packaging applications

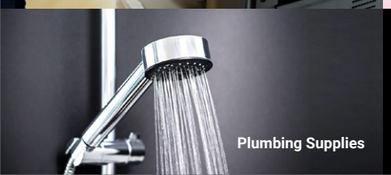
Polyethylene Terephthalate
FR-PET® GF-PET
High heat resistance and superior electrical properties rivaling those of thermosetting resins


Automobiles


Mobile Phones


Printers


Make-up Brushes


Plumbing Supplies


Film

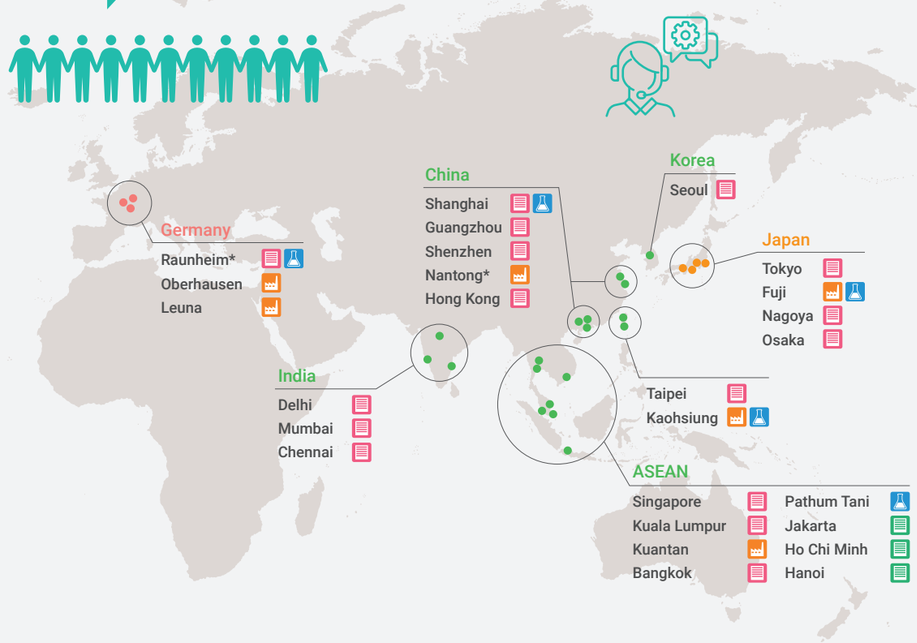
Created from data current as of the end of March 2020.

Employees
2,131

R&D/Technical Solution Center
6 sites

Production
7 plants

Sales
19 offices



Consolidated Net Sales
135.4 billion yen

Consolidated Operating Income
18.2 billion yen

- TSC (Technical Solution Center) R&D
- Plant
- Sales company
- Representative office

* There are 2 sales offices in Raunheim and 2 plants in Nantong.


Engineering plastic from Polyplastics

Corporate Outline

Company Name	Polyplastics Co., Ltd.
Established	May 1964 (Founded: June 1962)
Capital	3 billion yen
Shareholders	Daicel Corporation (55% shareholding) Celanese Corporation (45% shareholding)
Representative	Toshio Shiwaku, Representative Director and President
Number of Employees	2,131 (Polyplastics Group)
Business Operations	Manufacturing and sales of various types of engineering plastic and polymers

Editorial Policy

This report contains information about the activities the group conducted during the 2019 fiscal year. We would appreciate readers' frank feedback on any part of this report. Please note that the term "employees" as used in this report refers to all those who work in the Polyplastics Group.

Applicable Period	April 1, 2019 to March 31, 2020
Organizations Covered	The Polyplastics Group

Contents

Polyplastics CSR

Shaping a Sustainable Society with Our Plastics

As mentioned in the Corporate Philosophy, our corporate social responsibility (CSR) is contributing to shape an abundant future for society through our engineering plastic business. This means that we see a significant overlap between putting our Corporate Philosophy into practice and undertaking CSR. Thus, we approach CSR with the dual aims of contributing to society through our business activities and providing opportunities for social improvement. Based on this, there are five specific areas which we have identified as key activity areas for the sake of shaping a sustainable and abundant future for society.

Contribution to Society

Development of Talented and Engaging Human Resources

Engineering Plastic Business

Harmony with Environment

Compliance

Polyplastics Corporate Philosophy

MISSION

We contribute to building an abundant future society by innovation and developing talented and responsible people, through pursuing the unlimited potential of engineering plastics

VISION

The No.1 solution provider for engineering plastics
We will continue to provide our customers with the best solutions for engineering plastics, in technology, quality, services, supply, and all other aspects.

VALUE

1. The “Polyplastics Way”: We create value together with our customers.
2. The “Polyplastics Family”: The best teamwork

Overview of our CSR Activities

Business Activities

Contributing to Society through Our Business Activities

Engineering Plastic Business

Contribute to shaping of an abundant society through engineering plastic solutions.

Development of Talented and Engaging Human Resources

Utilize, and thereby contribute to development of, talented and engaging human resources.

Harmony with Environment

Reduce environmental impact and carry out business operations in harmony with environment.

Compliance

Prioritize compliance and carry out business in a socially fair and appropriate manner.

Social Contribution Activities

Providing opportunities for social improvement

Contribution to Society

- Contribute to the prosperity of local areas, as they are the foundation for our business activities.
- Provide a platform for cultivating the next generation of human resources upon whom society will rely.
- Support voluntary, employee-led social contribution activities.

Top Message

Providing the unique value found only with engineering plastic for a more sustainable society.

Engineering plastic is a valuable material created using energy derived from fossil resources. At Polyplastics we believe we have an obligation to realize socially-beneficial products by waste-free use of engineering plastic and to provide society with the value that can be realized only by engineering plastic.

Responding to new things, keep challenging while changing ourselves

The 2019 fiscal year saw a steady cooling of the global economy as a result of trade conflict between the world's major industrial nations, along with other factors which cast a cloud over the outlook for the future. While we can foresee a severe market environment continuing for some time, it just so happens to coincide with our own corporate self-review and reappraisal. With the start of our new Mid-Term Business Plan in FY2020, we are actively seeking out the challenge of new things. We are exploring new business and new markets, such as through technological development in support of EV/automated driving and next-generation 5G communications and development of easily recyclable materials. We are also committed to incorporating new elements, including SDGs-focused initiatives, introduction of IoT technology into our equipment and facilities and utilizing AI in our production systems, in order to drive internal, organizational innovation.
The driving force behind this push for new things is found in the employees who make up our global Polyplastics group of companies. I expect every department in the Polyplastics group works together to be the company which keeps challenging new things while changing ourselves.

Contributing to a more recycling-oriented society with engineering plastic

Marine littering caused by waste plastic has attracted a lot of attention as a social problem. To address this problem, the growing consensus in society is that we need to move towards a more recycling-oriented “circular economy”, which emphasizes recyclable and reusable plastics over disposable plastics. Realizing such a circular economy on a large scale will require the development of easily recyclable materials. At Polyplastics, we anticipate that our TOPAS®COC resin can be a key material used in meeting these sorts of societal needs. For example, in order to recycle PET bottles, you must first remove the label material from the bottle. Labels made from a combination of COC and polyolefin have a different specific gravity from the material which makes up the bottle, enabling the labels to float and, thus, be easily removed; at the same time, because the functionality required of a label can be achieved with a single material (broadly speaking, an olefin-based resin), it is easily recyclable.
Normally, engineering plastic is not used for one-way applications. However, even though the engineering plastic that we manufacture is not a direct cause of the problem, we see this problem as one to be addressed by the plastic industry as a whole. We place great value on being able to provide a solution to the issue of how to get society to treat plastic as a valuable material for long-term use. We are working to address these and other challenges for the sake of establishing a more recycling-oriented society.

Striving to be the most reliable engineering plastic supplier for each and every customer

At Polyplastics, we are driven by the Corporate Philosophy that seeks to “pursue the unlimited potential of engineering plastic, develop talented and responsible people and contribute to the creation of an abundant future society through innovation.” We use engineering plastic as a means of contributing to society. All of the activities that we undertake for the sake of putting our Corporate Philosophy into practice are a manifestation of our CSR in practice. As we strive for new things, we remain completely unchanged in our commitment to working side-by-side with our customers in their manufacturing in order that we can continue to produce products that are indispensable to the creation of abundant future for society.
The sense of pride and responsibility that this gives us helps keep our focus on being the No.1 engineering plastic solutions provider, one in whom each and every customer can have complete confidence.

Toshio Shiwaku
Representative Director and President

01
HIGHLIGHT
FY2019

CHECK POINT

Helping Europe Address the Challenge of Recycling PET Drink Bottles

Bottle PET resin
Label PET-G and PVC resin

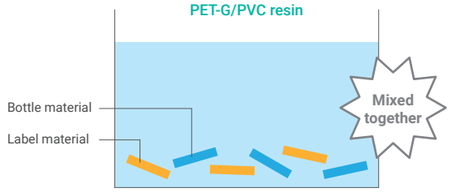
In order to create highly pure, recycled plastic, the bottle and label need to be recycled separately; however, there is no clearly cost-effective method for removing labels from bottles.

Achieving Efficient Removal with Labels Made from TOPAS®COC Resin

By developing a label material which retains the functionality required for a label but which is also buoyant in water, labels can be removed from PET bottles by putting them in water so that the label material remains afloat while the bottle material sinks.

Conventional label

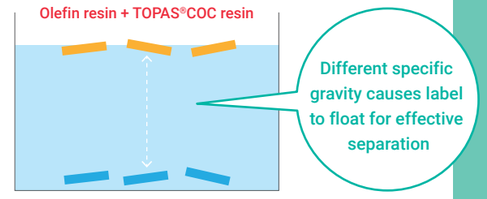
PET-G/PVC resin



- Fulfills the functions of a label, but is unable to float.
- Both bottle and label end up mixed together at the bottom of the water bath.

Developed label

Olefin resin + TOPAS®COC resin



- PE and PP olefin resin floats because it has a lower specific gravity than water.
- The properties of TOPAS allow it to maintain the functionality required for labels.

Significantly Increasing Recycling Efficiency with PET Bottle Labels that Float on Water

Supporting Plastic Recycling in Europe with TOPAS®COC

Plastic is a highly convenient material indispensable to contemporary society, but the large role it plays in marine littering and global warming has become the subject of some concern in recent years. As a means of addressing these problems, there has been a rapid shift, both in regulatory requirements and public opinion, away from disposable plastics and towards recyclable plastics as a way of fostering the establishment of a more recycling-oriented society, and this has created a heightened need for plastics capable of being efficiently recycled. In the case of PET drink bottles, the key difficulty has been the bottle label material, but now Polyplastics' TOPAS®COC is being utilized to create an easily recyclable label material.

Searching for an optimal method of removing labels from PET bottles

PET drink bottles are made up of a bottle, a cap and a label, each of which is manufactured from different resins. In order to efficiently recycle a PET drink bottle, it is necessary to separate these resins from one another. If these different materials are all recycled together, then the purity of the recycled plastic is degraded, which limits its potential applications. Countries in Europe have investigated a variety of ideas for removing labels from bottles, including equipping recycling plants with specialized label removal machines and calling on consumers to remove labels from bottles; however, from a cost vs. benefit standpoint, none of these approaches can be described as effective. An idea which is currently attracting attention is to utilize a difference in specific gravity between the materials so that only the labels float in water, causing them to separate from the PET flakes which make up the bottle itself. This would allow highly pure resin to be recovered. To do this, a label material is needed which performs all of the essential functions of a label but which also will float in water.

Using TOPAS to provide a buoyant, easily recyclable material that can function as a label

PET bottle labels need to be able to retain ink printing as well as be able to shrink and adhere to the PET bottle. Traditionally, PET-G and PVC resins are commonly used to make labels, but because the specific weights of these materials are too large to float in water, the aforementioned method cannot be used to remove them from the bottle. Now, Polyplastics has developed a buoyant, low specific gravity label using TOPAS®COC resin. TOPAS makes it possible to create a material which is buoyant while also providing the optimal characteristics needed for a label. This helps to improve the recycling rate of PET bottles by efficient separation. Additionally, despite the fact that TOPAS is a different material to PE and PP olefin resins, it has the same framework structure as olefin resin; thus, in general, it is possible to recycle this label along with other olefin resins.

Strengthening the supply system and contributing to a more recycling-oriented society through a combination of engineering plastic and technology

With the demand for TOPAS rapidly increasing, the number one issue is how to bolster the supply system. In order to make sure that we are able to provide a stable supply of high-quality product, we are planning to increase the production capacity of our existing equipment by 50% at the start of FY2021 and to bring new equipment on-line during FY2022. At the same time, we will be working to raise market awareness of TOPAS as a recyclable olefin material. Global warming and marine littering are problems which affect the entire world, not just Europe. We will continue to use a combination of engineering plastic and technology to help find solutions that will enable society to recycle, and thereby maximize the usable life of, plastics made from our earth's limited petroleum resources.

02
HIGHLIGHT
FY2019

Americas TSC members

Technical Solution Center Grand Opening in the USA

Providing the World with Technological Innovation Support

At Polyplastics, we continue to expand the number of overseas business sites we operate in order to better contribute to technological innovation among our customers worldwide. Previously, our technical support for customers has mainly focused on Asia, and through this support we have facilitated technological innovation in the electrical components, automotive parts and other products of a number of different customers. In 2012 we opened our first sales company in the USA, and this was followed in 2013 with the pre-opening of a Technical Solution Center (TSC) to provide development support to customers locally. Since then, as our equipment and human resources have grown, we have continued to develop our capacity to promptly and accurately meet the on-site needs of customers, culminating this fiscal year with the grand opening of the Americas TSC.

Providing detailed and timely solutions along with greater accessibility for local customers

Prior to the grand opening of the TSC, our lack of local manpower meant that technical support had to be provided remotely, or involved dispatching team members from Japan, and the time differences involved meant that we were unable to address issues in a sufficiently speedy manner.
However, now that we have opened the Americas TSC, we have more equipment and human resources which enable the detailed and direct customer communication, from which we can find out our customers' specific needs and then promptly offer solutions which utilize materials with physical properties optimally suited to those needs. This added responsiveness has contributed to customers' decisions to adopt Polyplastics materials. (For example, acid-resistant POM. See p.11 for more details.)

Capitalizing on a global technical solutions network

With the grand opening of the Americas TSC, we now have five TSC worldwide, and our technical solutions network is becoming truly global in scope. Moving forward, we will continue to use our individual TSC to provide accessible, timely and meticulous support to our local customers, and at the same time we will capitalize on the network to provide direct support to the customers who are themselves expanding their operations globally. For example, in the case of a customer who manufacturers metal molds in China which are then used to perform molding in the USA and Mexico, we are able to support their metal mold manufacturing through our G. China TSC and their molding operations through our Americas TSC.
Furthermore, the Americas TSC has enabled us to smoothly and quickly approach for manufacturers headquarters in the USA and register our materials for their global model products. We are now able to expand our support for technological innovation between our own products and those of our customers on a more truly global scale.

Scheduled grand opening of TSC in Germany as part of our plan to be the No.1 solutions provider worldwide

In order to provide more meticulous and timely service to our European customers, as well as support the manufacturing of an even larger customer base, we are planning the grand opening of TSC in Germany in the near future.
This is part of our larger, ongoing efforts to become the world's "No.1 engineering plastic solution provider" capable of contributing to the shaping of an abundant society.

CHECK POINT

Strengths of the TSC Support System

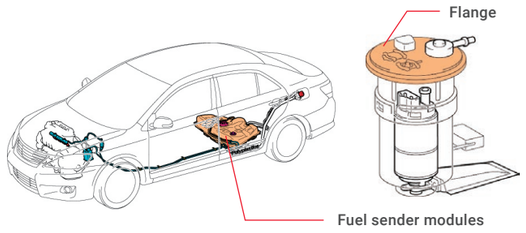
- Provide solutions which address needs gleaned from detailed, on-site consultations with customers
- Provide speedy responses which are handled locally
- Provide integrated supports by working in concert with TSC in other countries

TSC sites worldwide

Example) Support for global companies with manufacturing sites in different countries

subject
01 Addressing Customer Needs with the Development of POM Offering a Thirty-fold Improvement in Acid Resistance

POM is used in a large number of fuel system components due to its superior mechanical properties, heat resistance and fuel resistance, as well as excellent moldability and formability.
POM is also quite commonly used in the fuel system components of American automobiles, but because of the strongly acidic nature of American automotive detergents, there is concern about the effect on fuel system components made of POM when the spray of such detergents come into contact with them. This concern is particularly strong with regard to fuel sender module flanges installed on the exterior of the fuel tank, as they are highly likely to come into contact with the spray of detergents. Due to the potential impact on automobile safety that these components can have, there has been an urgent need from our customers to find more acid-resistant materials to use for their manufacture.
In order to address this need in a more resource and time efficient manner, our Americas TSC worked closely with customers to ascertain their detailed physical requirements while applying Polyplastics' wealth of knowledge and experience towards rapidly developing a material which would meet these requirements.
As a result, we succeeded in developing the new grade of DURACON®POM, a material which meets customers' physical property requirements by providing a roughly thirty-fold improvement in acid resistance when compared with regular POM, as well as offering superior stress crack resistance.
Through an automobile manufacturer, we were able to introduce the new POM to Stant Corporation, an automotive component manufacturer, who has adopted it for use in the production of multifunctional control valves.
These multifunctional control valves manufactured by Stant Corporation are well regarded for the functionality and safety and have been nominated for an IAG Award, which is a major honor bestowed by the American automotive and plastic industries.



FY2019
Awards from customers

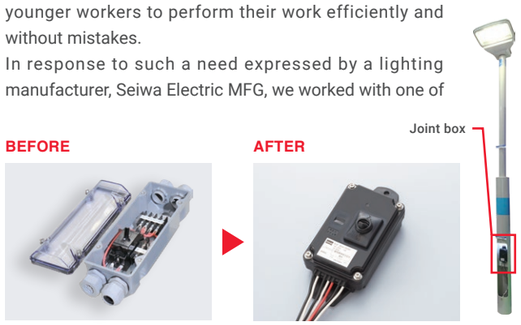
In addition to being nominated for the above-mentioned IAG Award, we were honored to be the recipient of the following awards from our customers. We will continue to work to meet the needs and expectations of our customers.

SUPPLIER OF THE YEAR 2019
PolySource

BEST SUPPLIER AWARD
Xiamen Hongfa Electroacoustic Co.,Ltd.

subject
02 Using AKI-Lock® Technology to Support the Development of Unprecedented Products

At Polyplastics, we not only manufacture and sell engineering plastic, we also use AKI-Lock® technology to support the development of new products which join plastic and non-plastic materials together. This fiscal year saw the development of a completely new type of street lighting joint box utilizing AKI-Lock technology.
Conventional street lighting breakers are housed inside plastic joint boxes installed on poles. During maintenance, workers open these joint boxes to perform wiring, inspection, etc. However, with younger and more inexperienced workers handling these tasks in recent years, there is a growing need among lighting manufacturers to develop joint boxes which will help these younger workers to perform their work efficiently and without mistakes.
In response to such a need expressed by a lighting manufacturer, Seiwa Electric MFG, we worked with one of our partner companies to help with development from the conceptual stage onward.
For the case, a highly weather-resistant, durable plastic (DURANEX®PBT) was used, while the cover was made from a flexible rubber material (nitrile rubber) conducive to external operation of the breaker switches. And to join these two materials together, AKI-Lock was used, resulting in the creation of a revolutionary joint box product that securely prevents rain and other water from getting inside while still allowing operation with the lid closed. Thanks to this, the new joint box reduces stress and hassle for maintenance workers.



What is AKI-Lock® technology?

AKI-Lock is technology which enables resin materials, or resin and non-resin materials, to be joined together without the typical difficulty that this would entail. First, laser processing is performed on the joining surface of the primary molded article to expose the glass fiber. Next, the secondary molding is performed on that point; this allows the primary and secondary materials to be firmly joined together.

TOPIC

Towards Greater Technical Support
Following Up Product Development for Customers with On-line Support

At Polyplastics, we have established an on-line technical support service, "WEB@TSC®," which customers can join free of charge to receive support 24 hours a day, 365 days a year.
In addition to providing various technical information, such as detailed information about physical properties, other product-related inquiries, requests for safety and export-related certificate issuance and other customer needs are meticulously handled. This easily accessible, Web-based service has been well-received among our customers.

Client voice Customer Satisfaction Survey Feedback

- There is a wealth of data available on the website, and team members are very nice in their prompt and thorough responsiveness to inquiries about data not found on the website.
- The wealth of information about physical properties provided on the website has been helpful when we are dealing with design difficulties.
- I appreciate the ease with which I am able to find needed information, as well as the responsiveness to my direct inquiries, that the WEB@TSC service provides.

Used by more than 30,000 people in 50 countries worldwide

Handles over 15,000 requests and inquiries per year

subject
01 FY2019 Environmental Impact Reduction Activities

At Polyplastics, we cultivate a good relationship with sky, soil, water and society by minimizing the environmental impact of our business activities and by undertaking environmental preservation initiatives company-wide. Also, we have incorporated new environment-related targets into our next Mid-Term Business Plan as part of our increased commitment to environmental impact reduction activities.

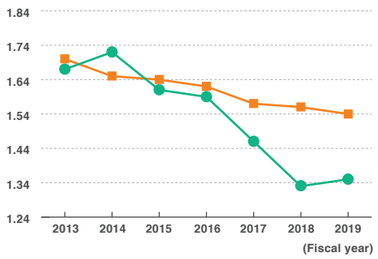
FY2019 Activity Performance

Theme 1 CO_2 Emissions Reduction

Target Reduce CO_2 emissions intensity*1 by 1%/year or more compared with FY2016

Result Compared with FY2016 **14.7% reduction**

CO_2 emissions intensity



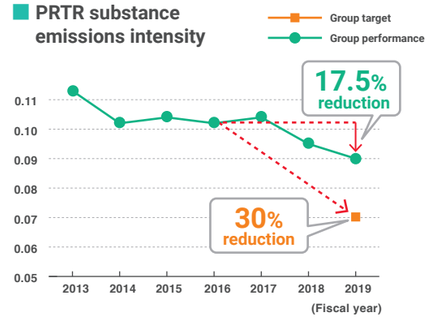
In accordance with the energy facility changeover implemented at the Fuji plant in FY2017, the raw fuel was switched from heavy oil to liquid natural gas (LNG). The effects of this change are starting.

Theme 3 Reducing Emissions of Chemical Substances (PRTR Substances*2)

Target Reduce PRTR substance atmospheric emissions intensity by 30% or more compared with FY2016

Result Compared with FY2016 **17.5% reduction**

PRTR substance emissions intensity



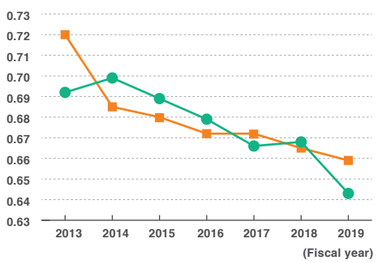
With regard to the calculation of PRTR substance emissions intensity, it was previously the practice to not revise past figures when new emission sources were identified. However, due to the fact that this approach makes it difficult to analyze the performance of Polyplastics' environmental impact reduction activities. Therefore this graph was retroactively corrected based on revised figures through FY2015. As a result, PRTR substance emissions intensity for this fiscal year is 17.5% lower than it was for FY2016 (reference year). Although the target was not met, facility upgrades have been performed in order to reduce emissions of dioxolane, which was the primary cause of the failure to achieve our target, and the effects of these upgrades are starting.

Theme 2 Energy Saving Activities

Target Reduce specific energy consumption by 1%/year or more compared with FY2016

Result Compared with FY2016 **5.3% reduction**

Specific energy consumption



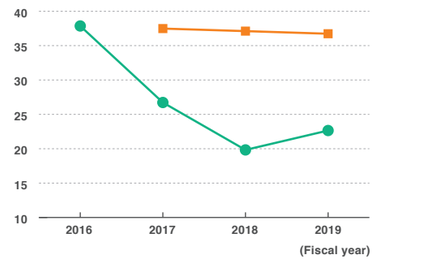
The effects of the changeover to energy-efficient boilers, as well as other changes made since FY2017, including replacement of mercury vapor lighting with LED lights inside plants and introduction of a steam compressor-driven flash steam reuse system, are starting.

Theme 4 Industrial Waste Reduction

Target Reduce industrial waste generation rate by 1%/year or more compared with FY2016

Result Rate of landfill disposal and incineration without heat recovery compared with FY2016 **40.2% reduction**

Rate of landfill disposal and incineration without heat recovery



Previously, the target rate has been calculated based on the total for incineration without heat recovery, landfill disposal and recycling; however, in order to make it easier to determine the degree to which zero-emission targets (keeping the rate of landfill disposal and incineration without heat recovery to less than 1%), the calculation method and presentation of data has been revised.
For this fiscal year, the calculated rate was 40.2% lower than that for FY2016.

*1 Release, usage and generation per production volume　*2 Abbreviation of "Pollutant Release and Transfer Register"

FY2020-2022 New Targets for the Next Mid-Term Business Plan

Theme 1 CO_2 Emissions Reduction

Overall group: CO_2 emissions intensity **21.5% reduction** (compared with FY2013)

Mid-to-Long-Term Vision
By FY2030, reduce CO_2 emissions intensity 26% or more compared with FY2013

Theme 2 Energy Saving Activities

Overall group: Specific energy consumption **1% or more per year reduction** (compared with FY2019)

Theme 3 Air Pollution Emissions Reduction

Overall group: **Establishment of VOC Measurement Methods and Benchmarks**

Fuji plant: PRTR substance emissions **50% or more reduction** (compared with FY2019)

Theme 4 Industrial Waste Reduction

Overall group: Rate of landfill disposal and incineration without heat recovery **Under 16%**

Mid-to-Long-Term Vision
By FY2030, achieve and maintain zero-emissions targets for the entire group

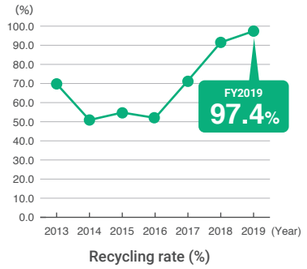
subject
02 Kaohsiung Plant in Taiwan Achieves Waste Recycling Rate of 97.4%

Global annual waste generation was more than 2.01 billion tons in 2016, and this figure is expected to grow to 3.4 billion tons over the next 30 years. In order to help reduce the environmental impact caused by waste, Polyplastics is undertaking group-wide initiatives to reduce and recycle the waste generated during the manufacturing process.

Initiatives by the Kaohsiung plant

The Kaohsiung plant has been undertaking zero-emission activities* on an ongoing basis since FY2013 and has achieved a waste recycling rate of 97.4% for this fiscal year. A major contributor to this success has been the significant reduction in the amount of sludge (highly noxious precipitate produced during the drainage water treatment process) the plant produces.

* Activities aimed at keeping the percentage of waste disposed of via landfill disposal and incineration without heat recovery, both of which have a significantly negative impact on the environment, to less than 1%



Recycling rate (%)

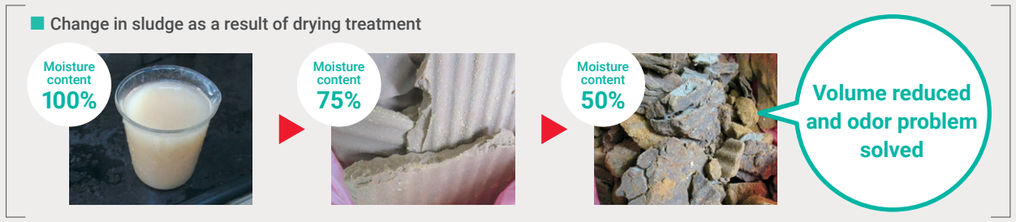

Kaohsiung plant

Amount of generated waste reduced by 360 tons/year through sludge drying treatment

The sludge produced during drainage water treatment contains a great deal of moisture which significantly adds to its volume, and around 50 tons/month of sludge was being produced. In the past, this sludge would be disposed of in landfills, but in order to reduce environmental impact and improve the noxious odor problem that the sludge creates, equipment for performing drying treatment of the sludge was introduced into the plant. A point was also made to select environmentally-friendly equipment that utilizes an energy-efficient heat pump producing very little CO_2. By reducing the volume of the sludge through drying, the plant has been able to reduce waste generation to around 20 tons/month. The plant also strives to recycle as much of those 20 tons/month as possible, achieving a recycling rate of 97.4% and resolving the noxious odor issue in the process.


Sludge drying treatment equipment

■ Change in sludge as a result of drying treatment



Other initiatives by the Kaohsiung plant

Reducing industrial wastewater by 36,000 tons/year through advanced wastewater treatment

This fiscal year, the Kaohsiung plant has introduced advanced wastewater treatment equipment that will help reduce the amount of industrial wastewater it produces. This equipment is highly efficient at removing suspended solids (particulate material with a diameter of 2 mm or less) and has reduced industrial wastewater by 3,000 tons/month. In addition, the water treated by this equipment can be recycled for use as cleaning water during the manufacturing process, thereby reducing water usage by 3,600 tons/month.

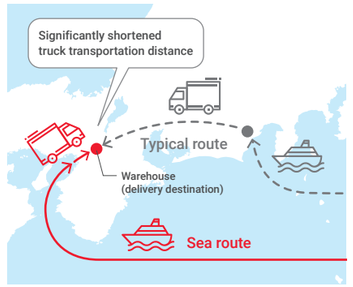

Wastewater treatment equipment

subject
03 Working Towards Environmentally-friendly Product Transport with 7% Year-on-Year Reduction in CO_2 Emissions Generated from Logistics Processes

The Fuji plant is actively working with logistics companies to reduce CO_2 emissions generated from products transportation processes. For example, it is reducing environmental impact by switching to marine and rail transport, transportation routes optimization, etc.
In terms of transportation energy efficiency, despite the specific energy consumption index value*1 for FY2019 being 100.9% compared with FY2018, it is nevertheless 56.3% below the index value for FY2006, which is the year that these activities were begun.

Shortening transportation distances by trucks within Japan through situation-specific optimization of transportation routes and methods

We have revised our transportation routes in light of the increased volume of products coming into the Port of Shimizu in Shizuoka Prefecture, which are then transported by truck to our main warehouses throughout Japan. We have shortened the distance that products are transported by truck by first having them transported by ship to the nearest port, either the Port of Tokyo or the Port of Osaka, depending upon the volume of demand within each region. We are continuing to optimize the transportation.



Example of shortened transportation route

Major CO_2 Emissions Reduction Initiatives

- Shift to low environmental load transportation methods (modal shift)
- Transportation route optimization
- Increased truck loading efficiency
- Encouraging driving practices that lower emissions

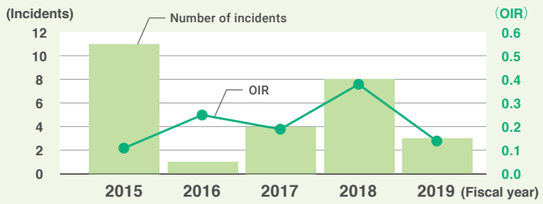
*1 Specific energy consumption index value = Energy consumption (crude oil equivalent in kl) / Product sales volume

subject
04 Group-wide Safety Activities Aimed at Eliminating Occupational Accidents

Within the Polyplastics Group, together with in-house contractors, we are working to raise safety awareness among our employees with the goal of eliminating occupational accidents. In addition to hands-on safety training and ESH audits conducted jointly among group members, starting in FY2018 we instituted hazard area identification and response activities intended to help prevent serious accidents.

Group target and results

Target	Zero lost-time injuries or non-lost-time injuries including in-house contractors		OIR*2≦0.07
Results	Failure to meet	Lost-time injury 2 cases Non-lost-time injury 1 case	OIR 0.14

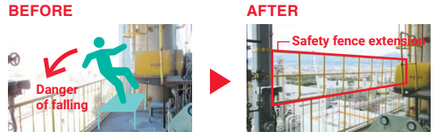


Regrettably, there were three occupational accidents during this fiscal year. Urgent action was, of course, taken on-site when the accidents occurred, and more permanent mitigation and prevention measures are being investigated.

Activity Example

Working side-by-side with in-house contractors to improve on-site operational safety

Within the Fuji Plant Machinery Group, we have established a system for identifying hazardous areas from the workers' perspective, conducting on-site inspections and then investigating and implementing construction and other safety control measures. Since this initiative was begun in FY2017, a total of 71 improvement activities have been undertaken. In FY2019, this system helped us to identify that workers performing equipment repairs on the outside of the 6th floor of the plant were in danger of falling over the safety fence; as a result, the safety fence was extended to ensure workers could not fall over it.



*2 Occupational accident incidence safety indicator. This indicator represents the number of employee injuries requiring time off per 200,000 working hours.

subject
01 Conducting Survey to Visualize Employee Feedback and Further Improve Engagement

Eliciting Essential Measures for Improving Engagement*1

At Polyplastics, we strive to create work environments which capitalize on the skills and individuality of each and every employee, and we are therefore committed to having greater engagement with our employees. In order to identify those measures needed for achieving this goal, our HR Department conducts regular Engagement Survey*2 of group company employees. This survey elicits frank and honest employee feedback from a variety of angles, such as with regard to how employees feel about their work environments and job duties or how they feel performing their day-to-day duties, and the results are then quantified and visualized. Based on these results, each Group company elicited the essential measures and put into action (see the page at right).
Furthermore, the headquarters also put these survey results to use in enhancing engagement via cross-functional measures for the entire group, such as implementing a global rotation system and ensuring greater transparency of in-house systems.

*1 Engagement: Enthusiasm of employees for their work *2 Engagement Survey is conducted by the Korn Ferry.

Engagement Survey

Employee attitudes and awareness with regard to assessment of the work environment, job motivation and other matters were investigated across 14 main categories.

- Resources
- Strategy and Direction
- Respect for Individual
- Employee Engagement
- Quality and Customer Focus
- Leadership
- Remuneration and Welfare
- Employee-driven Environment
- Cooperative Structure
- Performance Management
- Education and Training
- Authority and Discretion
- Growth Opportunities
- Work Processes and Organizational Structure

Examples of Engagement Survey Results-based Activities

Following the visualization of the Engagement Survey results, essential initiatives were undertaken at each group company.

Enhancing "Cooperative Structure"
Team-building exercise
Hong Kong

A team-based competition was held at a company where a large number of employees expressed a desire for further enhancement of the company's cooperative structure.
The teams were given targets to achieve which required them to communicate and work together, and the result was an enjoyable exercise which fostered camaraderie and a greater sense of unity.


Increasing "Growth Opportunities"
Training program
Taiwan

At a company where a large number of employees expressed a desire for more growth opportunities, an outside specialist was invited to conduct LIFO-based management training geared towards identifying and developing employees' individual strengths and style. Participants were provided with useful management skills for better communication, enabling them to not only recognize their own behavioral characteristics and strengths but those of others as well.


Increasing "Growth Opportunities"
Encouragement to acquire qualifications
Nantong

A company whose employees expressed a desire for growth opportunities set for itself a goal to increase the number of qualifications held by its employees. In order to help motivate employees, an evaluation system was instituted which included such rewarding of employees who acquired numerous qualifications recommended by the company. As a result, the number of qualifications acquired by employees increased by 39% compared with FY2018.


TOPICS from JAPAN
Creating an Employee-friendly Workplace

Our aim is to create a workplace which is accommodating of diverse human resources and which enables them to effectively and happily perform their duties. As the foundation for such an environment, we maintain, as well as continue to develop, convenient paid leave systems, including employee reappointment and rehiring systems and childcare and family care leave systems.

Kurumin* Certification

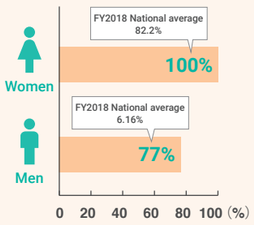
We undertake a variety of measures aimed at ensuring employees can balance childcaring and work without difficulty. In recognition of the effectiveness of our efforts, Japan's Minister of Health, Labour and Welfare has recognized Polyplastics as a childcare-friendly company and certified us with the second star of Kurumin in FY2019.

* Kurumin is a certification mark given by Minister of Health, Labour and Welfare for companies that provide support to families raising children. The stars in this mark show how many times the company received this certification.

Childcare Leave Usage Rate

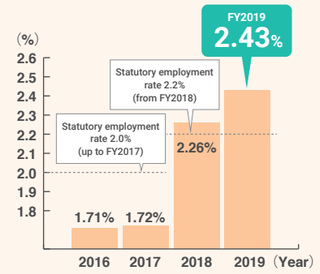
We actively encourage employees to make use of childcare leave. The latest childcare leave usage rate among female employees was 100% and 77% among men.

Source: Ministry of Health, Labour and Welfare
Basic Survey of Gender Equality
in Employment Management in FY2018



Percentage of Employees with Disabilities

We strive to provide a work environment which is conducive to persons with disabilities. In FY2019, persons with disabilities comprised 2.43% of Polyplastics' workforce. We will continue proactive hiring practices in the future.



subject
01 Contribute to the Prosperity of the Local Areas which Serve as the Foundation for our Business Activities

The Polyplastics Group plans and implements various social contribution activities based on local needs and in line with the size of each base of operations. Be it cleanup activities, blood donations, tree planting or any number of other activities, our employees around the world actively participate wherever they can to help their communities.

Cleanup Activities

Fuji
Employees clean 54 roadway mirrors in the vicinity of their plant

Nantong
60 employees participate in roadside litter cleanup activities around their plant

Blood Donations

Various sites
Employees at various sites take part in blood donations

Tree Planting

Kuantan
Employees work with a local NGO to plant 1,000 mangrove trees

Bangkok
A group of 20 people made up of employees and their families help plant mangrove trees

Other Activities

Shanghai
25 computers that are no longer being used are donated to Nantong University

Taipei and Kaohsiung
Visually impaired persons are asked to provide massages to employees

subject
02 Providing a Platform for Cultivating the Next Generation of Children Who Represent the Future of Society

Employee-led activities are planned and conducted at each of our various business sites in order to provide the children who represent the future of society with Polyplastics-style learning opportunities.

Kuantan

01 Providing Safety Education at an Orphanage utilizing our knowledge and experiences

Our Kuantan plant has designated every December as CSR month and uses this time to engage in social contribution activities.
In FY2019, after learning that a newly established orphanage needed support, employees decided to provide them with safety education, a topic for which Polyplastics is perfectly equipped to speak about. This is because the essential safety knowledge that we use in our plants is also useful in daily life. On the day of the class, 17 employees visited the orphanage and spoke to the children and staff about a variety of topics, including pointing and calling (the safety verification method of pointing at and identifying danger spots), common household injuries and how to provide first-aid for them, and how to use a fire extinguisher. This activity was carried out in conjunction with the Malaysian Society for Occupational Safety & Health NGO, and it proved to be a fun and effective safety education opportunity for both children and staff. Following the safety education session, the orphanage was provided with a first-aid kit set along with book bags and writing materials for school. In addition, during the visit it became apparent that the orphanage needed shoe boxes, so the employees took unused materials at the plant and created shoe boxes that they presented to the orphanage at a later date.


Children learning about pointing and calling

Organizer's Comments Siti Nur, GA, Kuantan Plant

We had a wonderful time taking part in a variety of programs with the children and staff of the orphanage. It is important, even in the normal busyness of work and family life, to take opportunities like this to serve the local community. The children were so excited about our visit. It was wonderful to be able to do activities together and to talk with the children, to give them the reassurance that they are not alone.

Nantong

02 Helping Children Who Require Educational Support

The Nantong plant continued its practice of providing educational support to local elementary schools in need by making a donation of 18,000 Chinese yuan (sufficient for supporting the educational needs of approximately 60 children). Student and teacher representatives from the recipient elementary school visited our Nantong plant to express their gratitude, after which they had a tour of the plant and opportunities for further discussion with employees.

Organizer's Comments Tracy Zhang, HR and GA, Nantong Plant

Including FY2019, the Nantong plant (PTM) has been providing this financial support to schools for 13 years. We were pleasantly surprised to receive a letter of thanks from a woman who was among the students that we supported during this initiative's first year. I was so thrilled and proud to hear about how well she is now doing as a university student. We will continue providing this sort of support for motivated students.

subject
03 Supporting Employee-led Social Contribution Activities

At Polyplastics, we work to support volunteering-minded employees at each of our business sites. In FY2019, in addition to the following activities, we also used our company newsletter to introduce the social contribution activities being undertaken by employees at our various sites, and we created opportunities for sharing social contribution-related ideas and enthusiasm among group members.

Japan

01 Expanding Learning Opportunities to Increase Support for Initiatives Against Wastefulness

In FY2018, all Polyplastics Japan members conducted the initiatives afainst wastefulness, named “Mottainai' Initiatives”. As part of this, employees brought to work household items which they no longer use so that they could be donated to those in need via the NPO Mottainai JAPAN. Last year’s effort resulted in a large number of donations, but for this fiscal year we wanted to go a step further in fostering a social contribution mindset among employees by providing them with learning opportunities. In response to employees’ feedback expressing a desire to be involved in social contribution efforts but not knowing where to begin, or wanting to donate items but not knowing what would the items would be used for, we invited NPO representative Kodai Yamamoto to visit and provide informative, first-hand presentations on four occasions, in which 42 employees participated. Following this, the seven “Mottainai Initiatives” campaigns carried out at group sites throughout Japan saw employees actively donating items in even greater numbers than the previous year.


Lecture by NPO

* Mottainai means “What a waste!” in Japanese.

NPO and organizer’s Comment

I was thrilled to be able to work together with a company that so incredibly committed to these initiatives, both in terms of choosing donation items that will truly help those in need and in facilitating lectures that spread initiative awareness.

Kodai Yamamoto, Representative
NPO Mottainai JAPAN

This was the first time for us to try this sort of lectures, but I was extremely happy that to see how it contributed to the great success of the “Mottainai Initiatives”.
I will continue helping provide other opportunities for employees to consider ways in which they can contribute to society.

Ami Akutagawa,
General Administration Department

Bangkok ASEAN TSC

02 Towards Zero PET Bottle Waste! Employee-led Slogan Contest Initiative

In FY2019, the ASEAN TSC (Technical Solution Center) in Bangkok began a campaign to reduce the amount of PET drink bottle waste it produces to zero. In order to further raise campaign awareness and activity among employees, an in-house slogan contest for the “0% PET Bottle Initiative” was held. A large number of employees happily took part. The best slogan was turned into a display poster featured inside the Center. Starting from the end of July 2019, ASEAN TSC employees put their slogan into practice, eliminating PET bottle waste by bringing their own cups and bottles with them to work and using glasses when providing customers with water.

A slogan from employees is displayed in the TSC

subject
01 Fostering a Compliance-oriented Mindset by Promoting Awareness of the Group Code of Conduct

We work to foster a compliance-oriented mindset by providing all employees with a booklet entitled “Our Commitment” which explains our Corporate Philosophy and Code of Conduct.

Compliance Awareness Month

Within the Polyplastics Group, we have established an annual Compliance Awareness Month, during which we undertake activities intended to remind employees about the importance of compliance as well as to focus on putting it into practice.

e-Learning

All employees had e-Learning and comprehension check, both of which present actual examples of corporate misbehavior of other companies and then use the Polyplastics Code of Conduct to explain what the proper behavior should have been.

Group Discussion

Based on what they learned in e-Learning, each department holds group discussions using case studies. By having participants consciously debate and discuss such scenarios, it provides an opportunity for employees to recognize again that there is connection between Polyplastics’ Corporate Philosophy and compliance.

Regular checking of “Our Commitment”

For the case when questions arise about what the proper action should be in a given situation from a compliance-related standpoint, it is important that all employees have the habit of turning back to “Our Commitment”. Thus, as part of an ongoing awareness-raising effort, every department in every group company implements regular reviews of this booklet.

TOPIC

Communication Activities with Local Communities of long year

We hold an Environmental Monitoring Meeting every year to explain environmental data and other various initiatives of our Fuji plant to local residents, as well as show them around the inside of our plant. For more than 40 years we have had, and will continue to have, this initiative as an opportunity to exchange opinions and develop sustained relationships with local communities.

Participant’s Comments

Thanks to the Environmental Monitoring Meeting and numerous dialogs to communicate with us, we can feel the Fuji plant like a familiar part of our community. We are also extremely grateful for the various proactive social contributions that the plant makes, such as regular community cleanup activities, providing job opportunities for the disabled persons, and donating pianos and emergency power generators to the local elementary school and community. It is my hope that the relationship between the local community and the Fuji plant will continue to grow and develop.

Yoshihiko Ota
Environmental Monitor
Auditor, Fuji-minami Area Urban Planning Committee
Fuji-minami Area Council Auditor
Mayor, Chidori Ward