



# ***Polyplastics***

DAICEL Group

# Company Profile



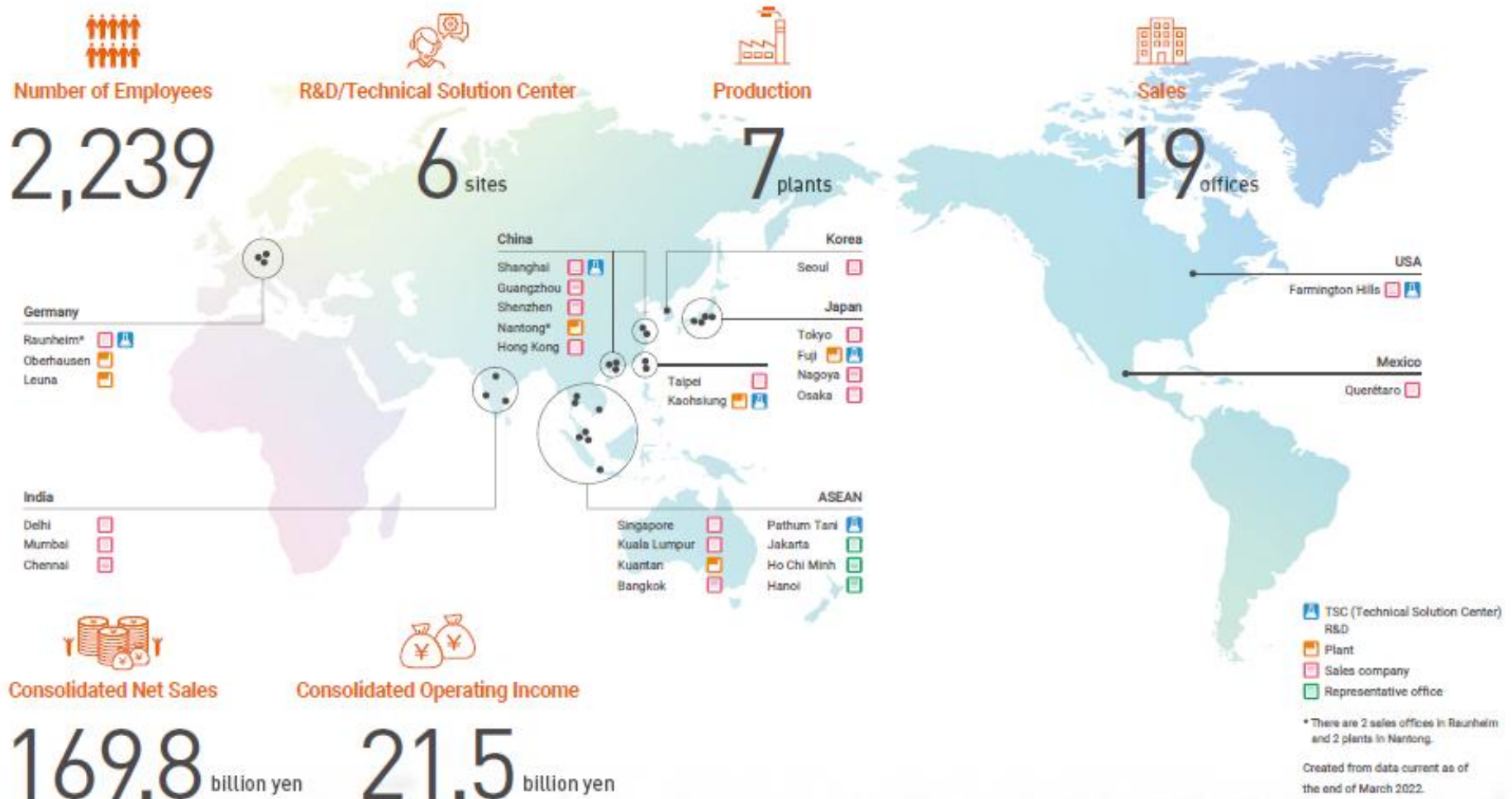
<b>Company name</b>	Polyplastics Co., Ltd.
<b>Establishment</b>	May 1964 (Founded June 1962)
<b>Representative</b>	Takashi Miyamoto, President and CEO
<b>Capital</b>	3 billion yen
<b>Shareholders</b>	DAICEL CORPORATION
<b>Business</b>	Manufacturing, importing, and marketing of engineering plastics and polymers
<b>Employees (Group)</b>	2,286 (as of March 2023)
<b>Head office</b>	JR Shinagawa East Bldg., 18-1, Konan 2-chome, Minato-ku, Tokyo 108-8280, Japan
<b>Website</b>	<a href="https://www.polyplastics-global.com">https://www.polyplastics-global.com</a>

## Consolidated statements for FY2021

Net sales	:167,962
Operating income	: 21,548

(Unit: Million yen)

# Polyplastics at a glance



# Business Location (Japan)

## Nagoya Branch

JP Tower Nagoya Bldg., Nagoya City

## Osaka Branch

Grand Front Osaka

## Tokyo H.Q.

JR Shinagawa East Bldg., Minato-ku, Tokyo



## R&D Center Technical Solution Center

Fuji, Shizuoka



## Fuji Plant

Fuji, Shizuoka

 Sales  R&D  Production

# Business Location (Asia)



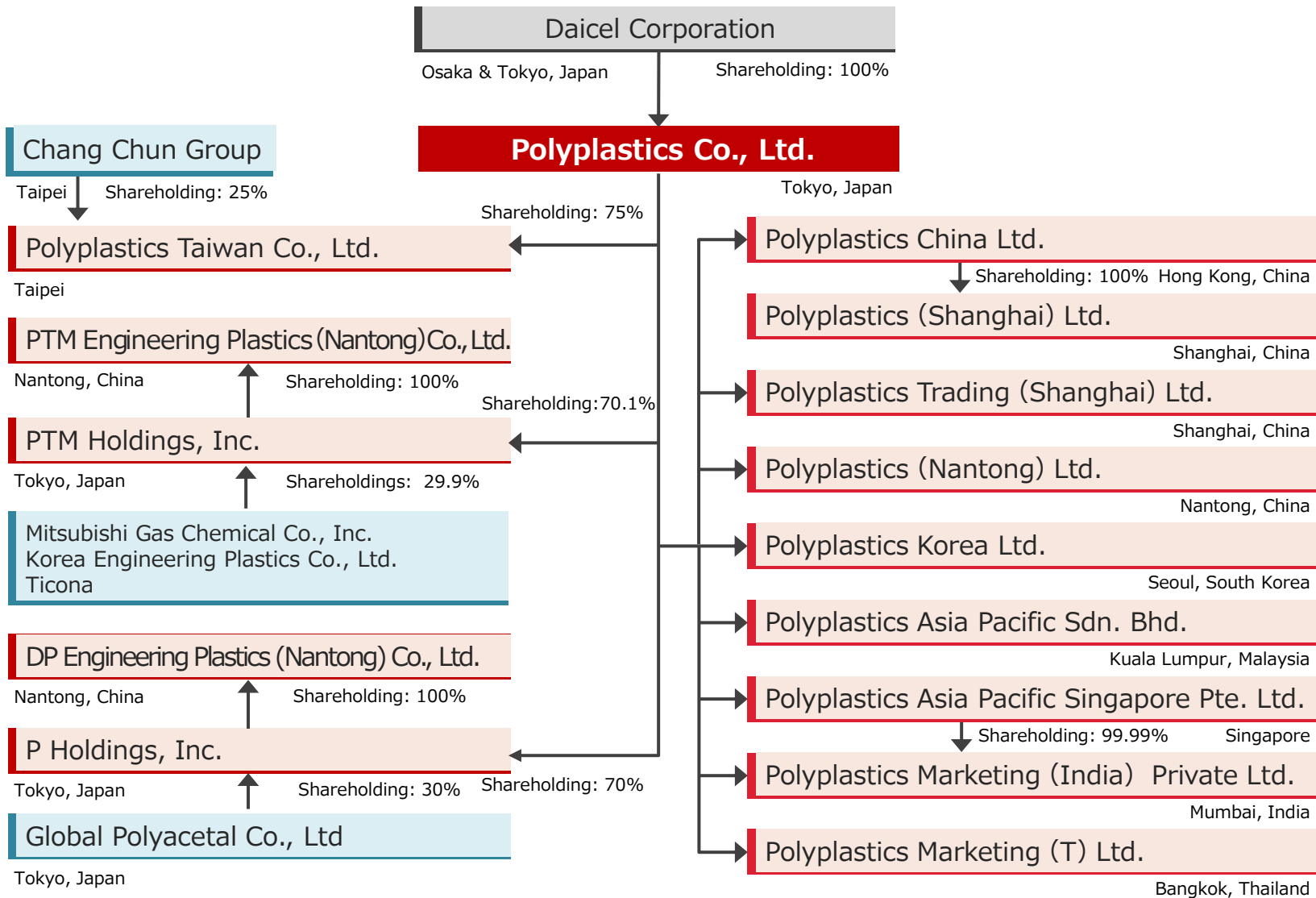
# Business Location (Europe and the Americas)



 Sales  R&D  Production

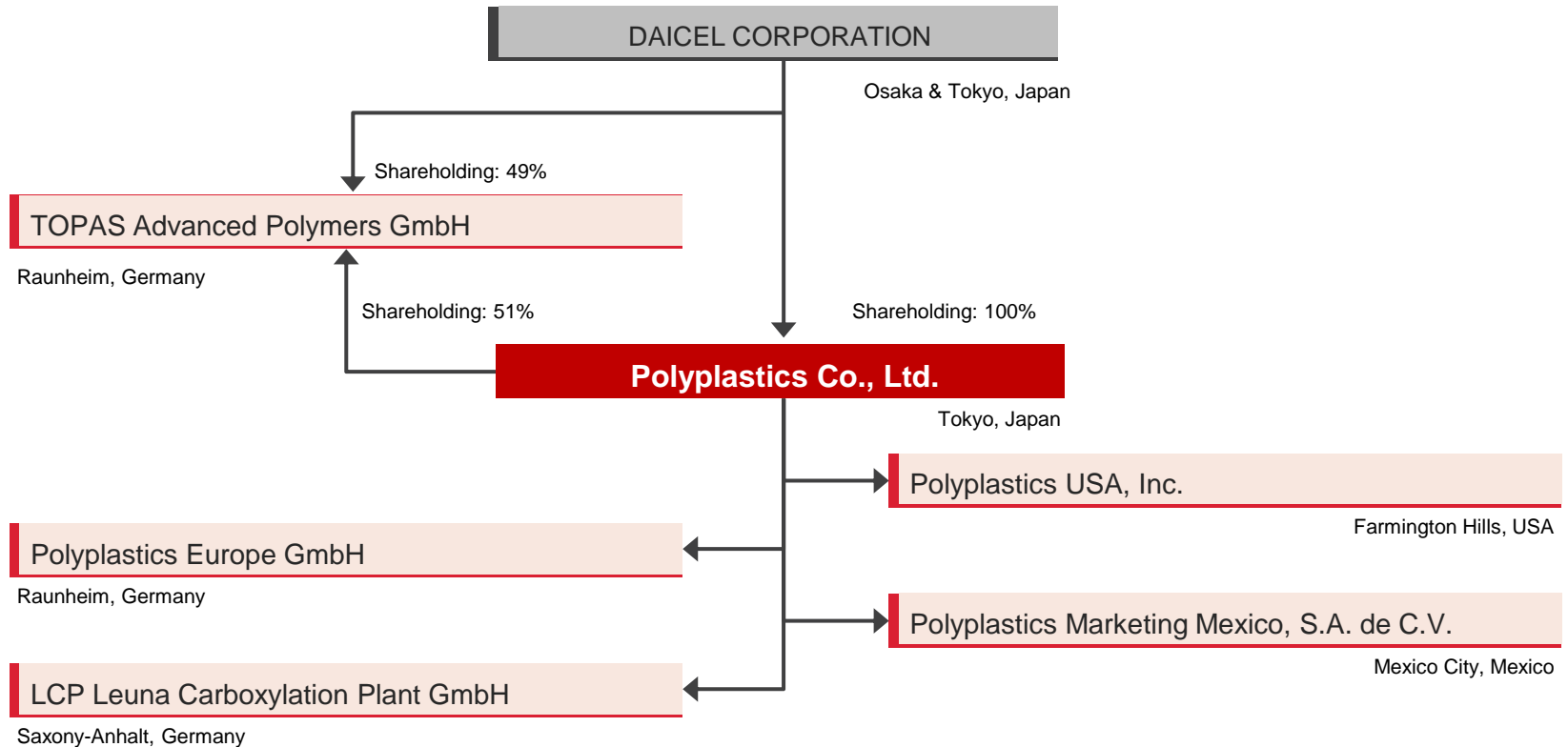


# Investment Relationship Map (Asia)



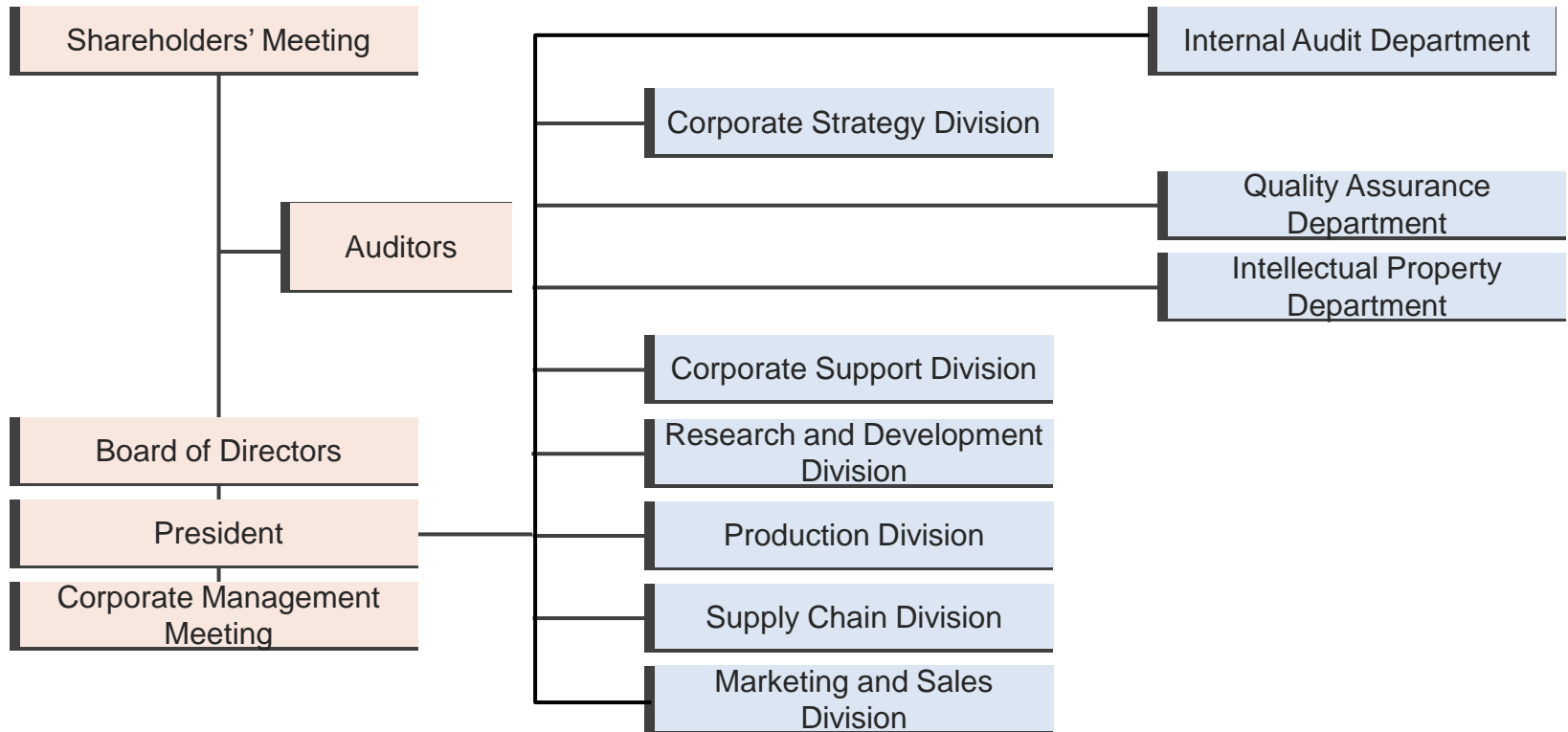
This background indicates Polyplastics Group companies.

# Investment Relationship Map (Europe and the Americas)

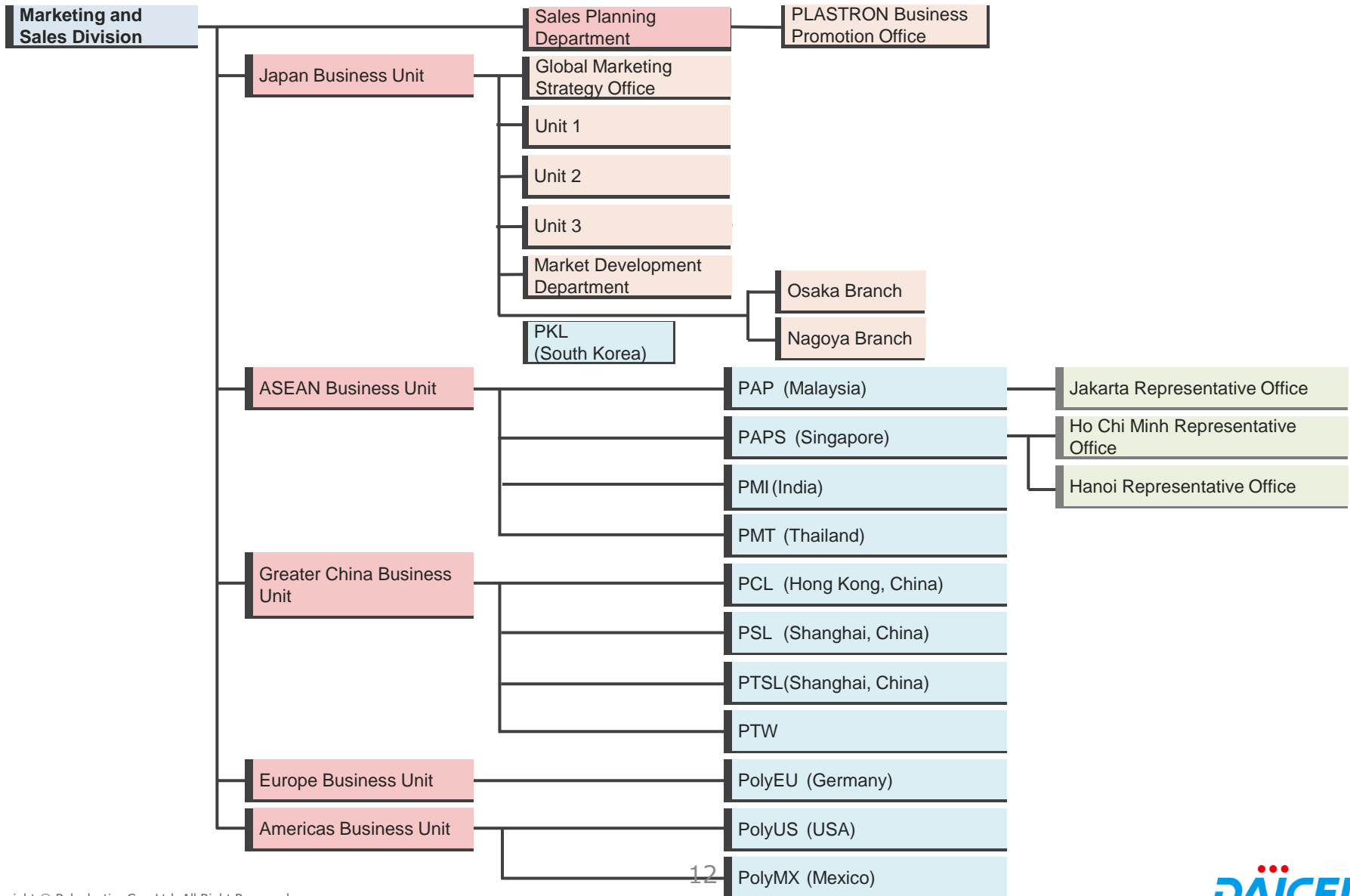


This background indicates Polyplastics Group companies.

# Organization Chart



# Organization Chart (Sales)



# Group Companies

<b>Greater China</b>	<ul style="list-style-type: none"><li>• Polyplastics Trading (Shanghai) Ltd. (Shanghai, China)</li><li>• Polyplastics (Shanghai) Ltd. (Shanghai, China)</li><li>• PTM Engineering Plastics (Nantong) Co, Ltd. (Nantong, China)</li><li>• Polyplastics (Nantong) Ltd. (Nantong, China)</li><li>• DP Engineering Plastics (Nantong) Co., Ltd. (Nantong, China)</li><li>• Polyplastics China Ltd. (Hong Kong, China)</li><li>• Polyplastics Taiwan Co, Ltd. (Taipei)</li></ul>
<b>South/ Southeast Asia</b>	<ul style="list-style-type: none"><li>• Polyplastics Asia Pacific Sdn. Bhd. (Kuala Lumpur, Malaysia)</li><li>• Polyplastics Asia Pacific Singapore Pte. Ltd. (Singapore)</li><li>• Polyplastics Marketing (T) Ltd. (Bangkok, Thailand)</li><li>• Polyplastics Marketing (India) Private Ltd. (Mumbai, India)</li></ul>
<b>Americas</b>	<ul style="list-style-type: none"><li>• Polyplastics USA, Inc. (Farmington Hills, USA)</li><li>• Polyplastics Marketing Mexico, S.A. de C.V. (Queretaro, Mexico)</li></ul>
<b>Europe</b>	<ul style="list-style-type: none"><li>• Polyplastics Europe GmbH (Raunheim, Germany)</li><li>• TOPAS Advanced Polymers GmbH (Raunheim, Germany)</li><li>• LCP Leuna Carboxylation Plant GmbH (Leuna, Germany)</li></ul>
<b>South Korea</b>	<ul style="list-style-type: none"><li>• Polyplastics Korea Ltd. (Seoul, South Korea)</li></ul>
<b>Japan</b>	<ul style="list-style-type: none"><li>• PTM Holdings, Inc.</li><li>• PolyplaService Co., Ltd.</li></ul>

## 1960s

- 1962 Jun. ■ Began import and sales of acetal polymer (POM)
- 1964 May ■ Polyplastics Co., Ltd. (PPC) established as a joint venture of Dainippon Celluloid Co., Ltd. of Japan (now “Daicel Corporation”) and Celanese Corporation of the US (capital: ¥1.6 billion)
- 1968 Sep. ■ Fuji Plant (Japan’s first POM plant) completed (capacity: 7,500 tons/year)

## 1970s

- 1970 Oct. ■ Began import and sales of polybutylene terephthalate (PBT)
- 1971 Jan. ■ Plastics Service Center completed in Fuji (renamed “Technical Service Center” in April 1975)
- 1979 ■ Began production of special grade POM/PBT compounds

## 1980s

- 1984 May ■ Technical Service Center annex completed in Fuji
- 1984 Nov. ■ PBT polymer plant completed at the Fuji Plant (capacity: 10,000 tons/year)
- 1985 Dec. ■ Began import and sales of liquid crystal polymer (LCP)
- 1986 Oct. ■ Entered into a business alliance with Kureha Chemical Industries Corporation (now “Kureha Corporation”) and began development and sales of polyphenylene sulfide (PPS) resin
- 1987 Aug. ■ Began production of PPS/LCP compounds
- 1988 Jun. ■ Research & Development Center constructed in Fuji
- 1988 Jun. ■ Taiwan Engineering Plastics Co., Ltd. (TEPCO) established as a joint venture between the Hoechst Group and the Changchun Group in Taipei

■ Research and Development ■ Production ■ Other

## 1990s

- 1992 Mar. ■ Began production and sale of POM resin at the TEPCO Dafa Plant (capacity: 20,000 tons/year)
- 1994 Aug. ■
- 1995 Oct. ■ Polyplastics China Ltd. (PCL) established in Hong Kong
- 1996 Feb. ■ Production capacity of the POM plant at the Fuji Plant expanded to 100,000 tons/year
- 1996 Oct. ■ LCP polymerization plant constructed at the Fuji Plant (capacity: 2,800 tons/year)
- Polyplastics Marketing (T) Ltd. (PMT) established in Bangkok, Thailand
- 1997 Mar. ■ Polyplastics (Shanghai) Ltd. (PSL) established in Shanghai, China
- Jul. ■ Polyplastics Asia Pacific Sdn. Bhd. (PAP) established in Kuala Lumpur, Malaysia
- Polyplastics Asia Pacific Singapore Pte. Ltd. (PAPS) established in Singapore

## 2000s

- 2000 Mar. ■ Began production and sale of POM resin at the PAP Kuantan Plant in Malaysia (capacity: 30,000 tons/year)
- Jul. ■ Established WinTech Polymer Ltd. in a joint venture with Teijin Limited
- 2001 Jul. ■ Polyplastics Trading (Shanghai) Ltd. (PTSL) established in Shanghai, China
- 2003 Jan. ■ Launched PLAMOS®, a plastic parts development assistance business, in cooperation with the Daicel Group
- 2005 May ■ Polyplastics (Shanghai) Ltd. (PSL) established in Shanghai, China.
- Oct. ■ Began production of POM at the Nantong Plant of PTM Engineering Plastics (Nantong) (PTM) (capacity: 60,000 tons/year) in Nantong, China.
- 2006 Jan. ■ Jointly purchased TOPAS® COC (cyclic olefin copolymer [COC]) operations from Ticona GmbH with Daicel Chemical Industries Corporation (now “Daicel Corporation”) and established TOPAS Advanced Polymers GmbH
- 2007 Dec. ■ China TSC established in Shanghai, China
- 2008 Feb. ■ Polyplastics Marketing (India) Private Ltd. (PMI) established in Mumbai, India
- Nov. ■ ASEAN TSC established in Pathum Thani, Thailand

## 2010s

- |      |      |   |  |
|------|------|---|--|
| 2011 | Nov. | ■ | Polyplastics Korea Ltd. (PKL) established in Seoul, South Korea  |
|      | Nov. | ■ | Completed expansion of the LCP polymerization plant at the Fuji Plant (capacity: 15,000 tons/year)   |
| 2012 | Mar. | ■ | Polyplastics USA, Inc. (PolyUS) established in Farmington Hills, USA   |
|      | Aug. | ■ | Completed acquisition of 100% ownership of LCP Leuna Carboxylation Plant GmbH (LCPG), a German manufacturer of a monomer for LCP(Saxony-Anhalt, Germany) |
|      | Nov. | ■ | Polyplastics Europe GmbH (PolyEU) established (Frankfurt, Germany)   |
| 2013 | Aug. | ■ | Polyplastics Marketing Mexico, S.A. de C.V. (PolyMX) established (Mexico City, Mexico)   |
| 2014 | Jan. | ■ | Expanded POM production capacity at Polyplastics Asia Pacific Sdn. Bhd. Kuantan Plant (123,000 tons/year)  |
| 2017 | Apr. | ■ | Equity share in TOPAS Advanced Polymers GmbH (joint venture with Daicel Corporation raised from 45% to 51%)  |
| 2018 | Apr. | ■ | TOPAS Advanced Polymers Inc. merged with PolyUS  |
| 2019 | Apr. | ■ | WinTech Polymer Ltd. merged with Polyplastics Co., Ltd.  |

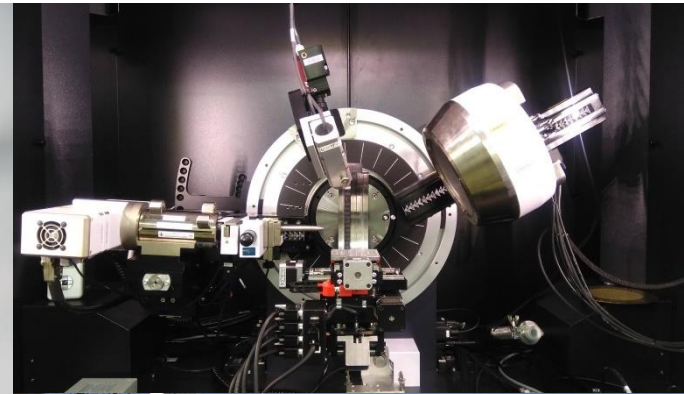
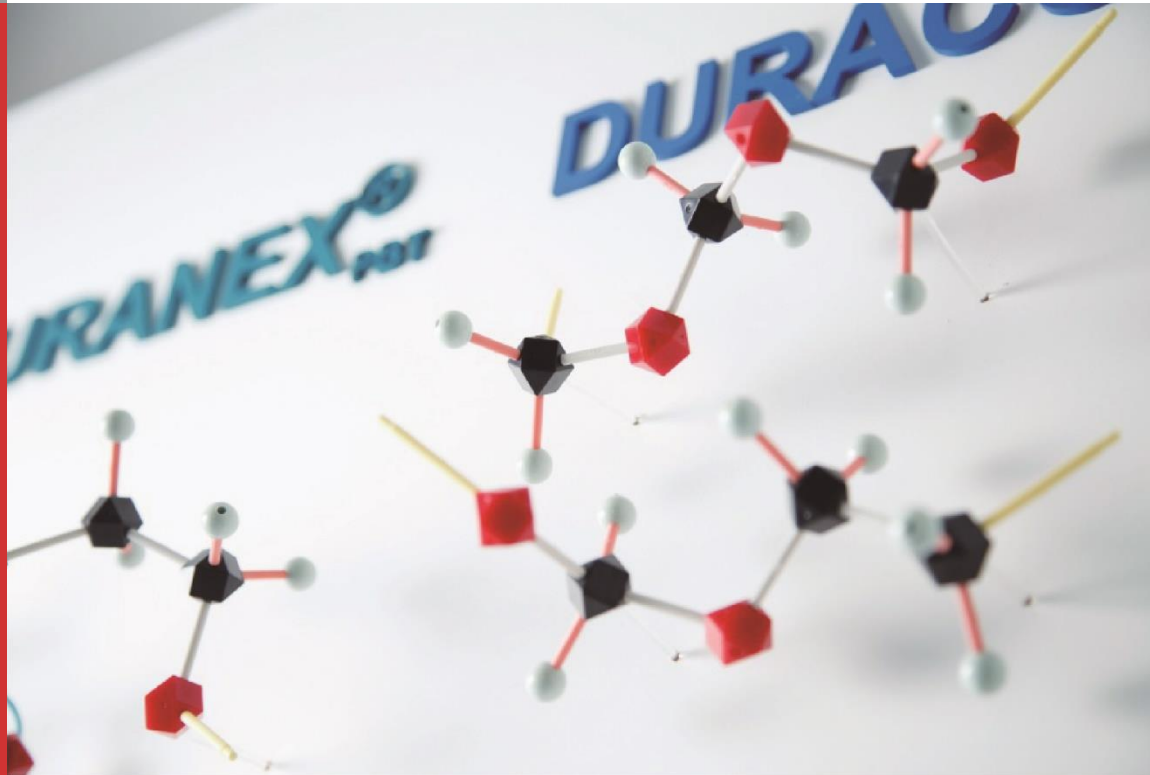
## 2020s

- |      |      |   |  |
|------|------|---|--|
| 2020 | Oct. | ■ | Daicel acquires 100% of ownership of Polyplastics Co., Ltd.                |
| 2021 | Jan. | ■ | F-BASE, a new base for advanced productivity established at the Fuji Plant |
|      | Apr. | ■ | EU- TSC established in Germany (Raunheim)                                  |

■ Research and Development ■ Production ■ Other

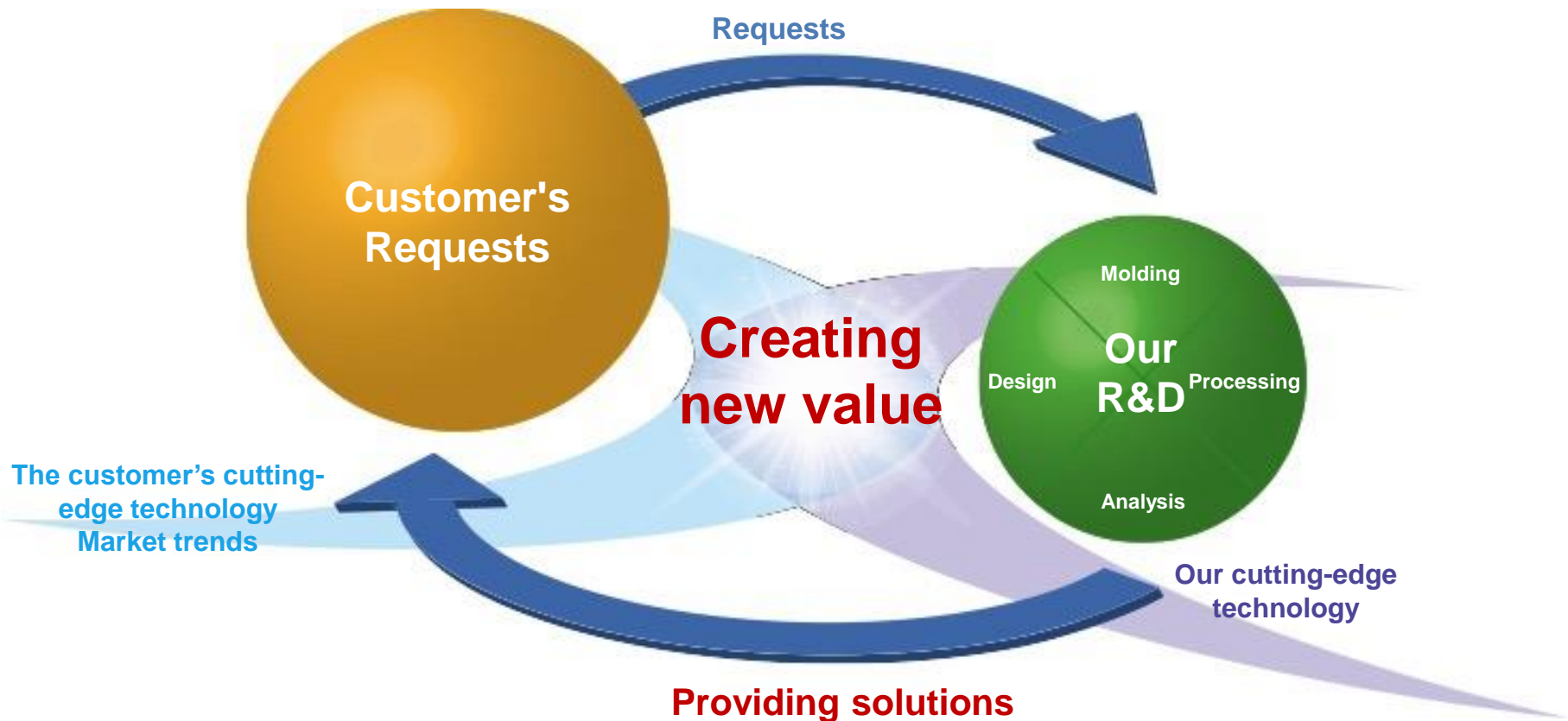


# R&D/Technical Solution Center

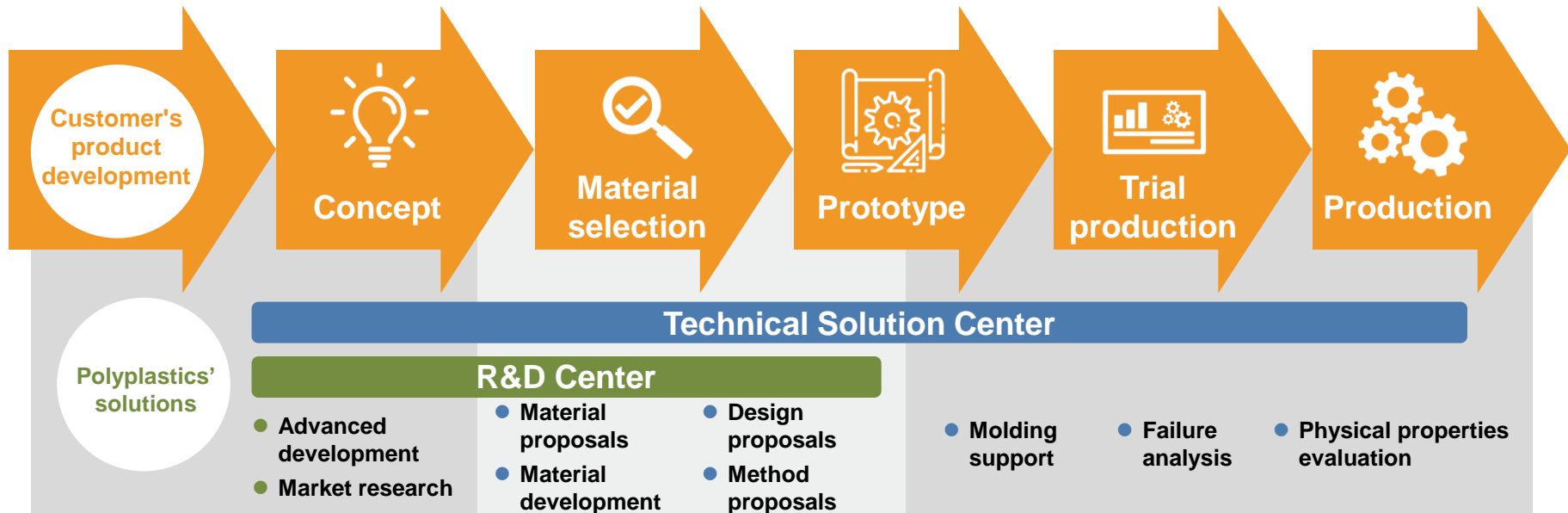


The Research and Development Division (located in Fuji, Shizuoka) is the heart of the Group's R&D and technical support operations.

**Understand the customer's true needs  
through communication**



**We communicate with our customers in order to capture their true needs and provide the most suitable solutions.**



## The Group's strengths in R&D

- A group of engineering plastics technology specialists with vast experience and a proven track record of 50 years
- Problem-solving abilities based on abundant resin data and accumulated technology
- Capability to make proposals that create new future value from current seeds

Realize the customer's next step forward with an understanding of the latest market and technical trends.

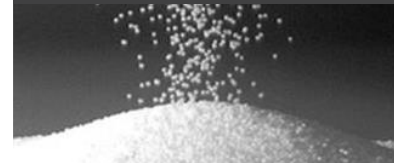


## Basic research

- New polymer development
- Polymerization research
- Material property research
- New function material research
- Component technology research



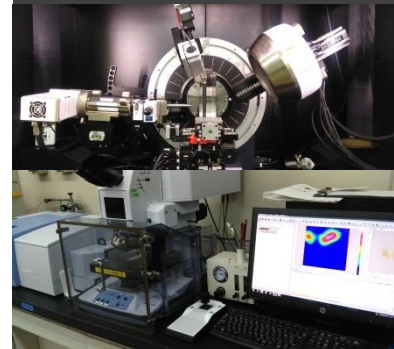
## Grade development



- New grade development



## Analysis



- Analysis of all types
- Analysis technology development

## Strong technical support from the customer's concept stage to the development stage



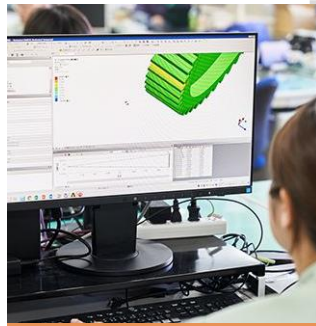
- Clarifying desired properties
- Providing property data
- Providing test pieces

- Property evaluation
- Prediction techniques
- Molding and product design technology
- Predictive technology development

- Molding and processing tech
- Secondary processing tech
- Dimensional measurement
- Failure analysis
- Mechanical properties evaluation
- Long-term service life evaluation
- Chemical analysis
- Thermal analysis



Materials



Flow analysis and structure analysis using CAE  
Structural analysis

CAE



Molding machines



Ultrasonic welding



X-ray computed tomography

## A technical support network of engineering plastics experts



## Achieving both global operations and fine-tuned local support

- At our technical centers around the world, we provide timely support for the needs of local customers.
- All of our offices are linked together in a sophisticated network so we can apply the combined power of the Polyplastics Group to the challenge of solving our customers' problems.

# Plants



# Group Plants

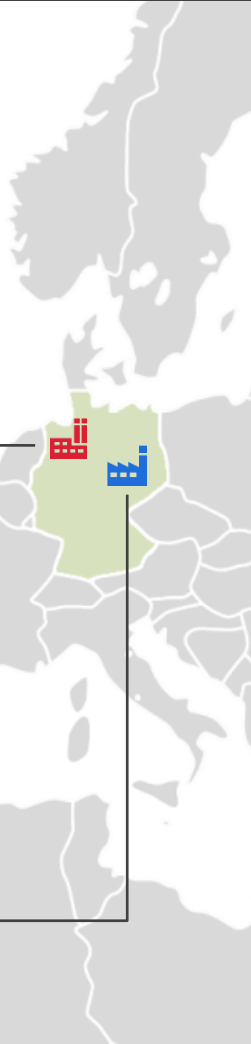
## Europe



[Oberhausen, Germany]  
**Oberhausen Plant**  
TOPAS Advanced Polymers GmbH



[Leuna, Germany]  
**Leuna Plant**  
LCP Leuna Carboxylation Plant GmbH  
**Manufactures *p*-hydroxybenzoic acid (PHBA), the raw material of LCP**



## Asia



[Jiangsu, China]  
**Nantong Plant (Compounds)**  
Polyplastics (Nantong) Ltd.

**Nantong Plant**  
PTM Engineering Plastics (Nantong) Co., Ltd.



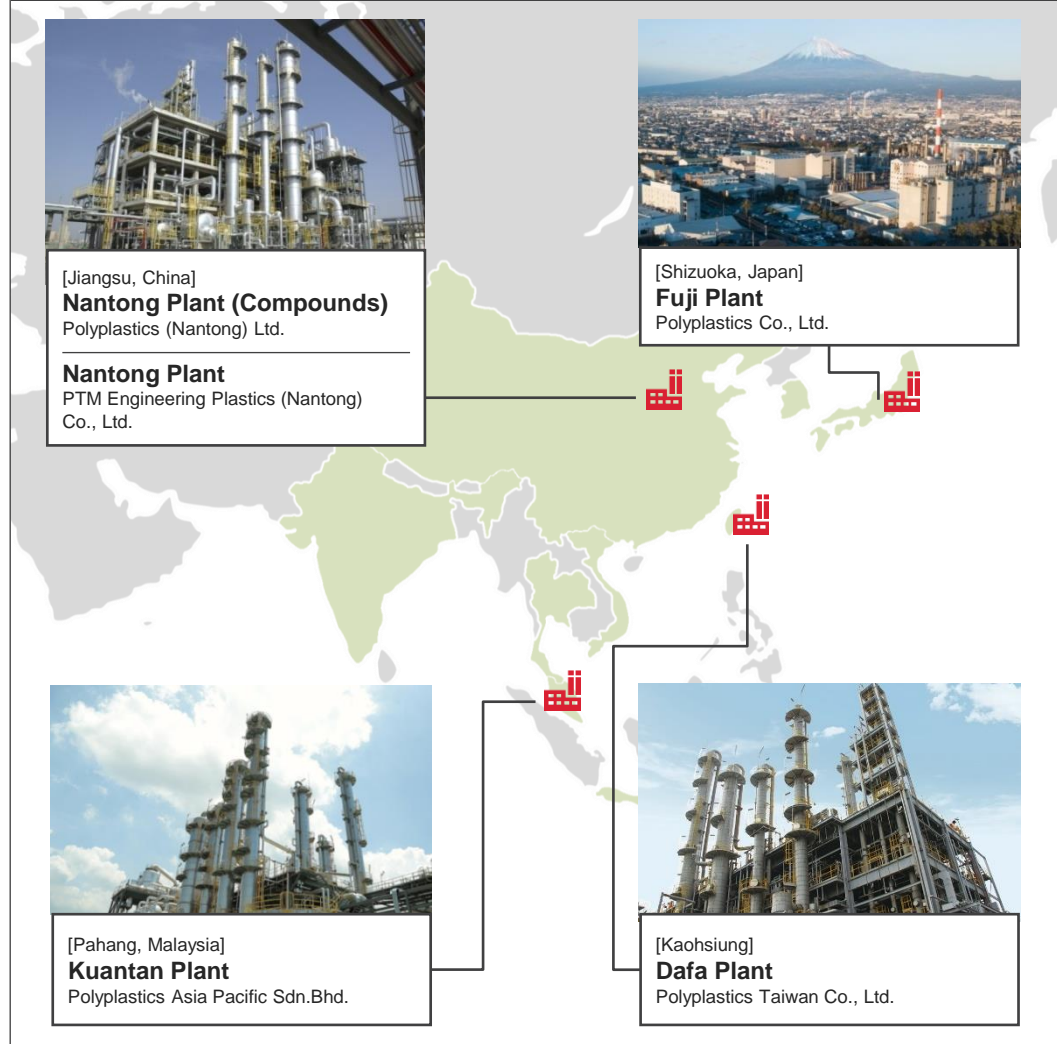
[Shizuoka, Japan]  
**Fuji Plant**  
Polyplastics Co., Ltd.



[Pahang, Malaysia]  
**Kuantan Plant**  
Polyplastics Asia Pacific Sdn.Bhd.



[Kaohsiung]  
**Dafa Plant**  
Polyplastics Taiwan Co., Ltd.





# Group Plant Facility Capacity

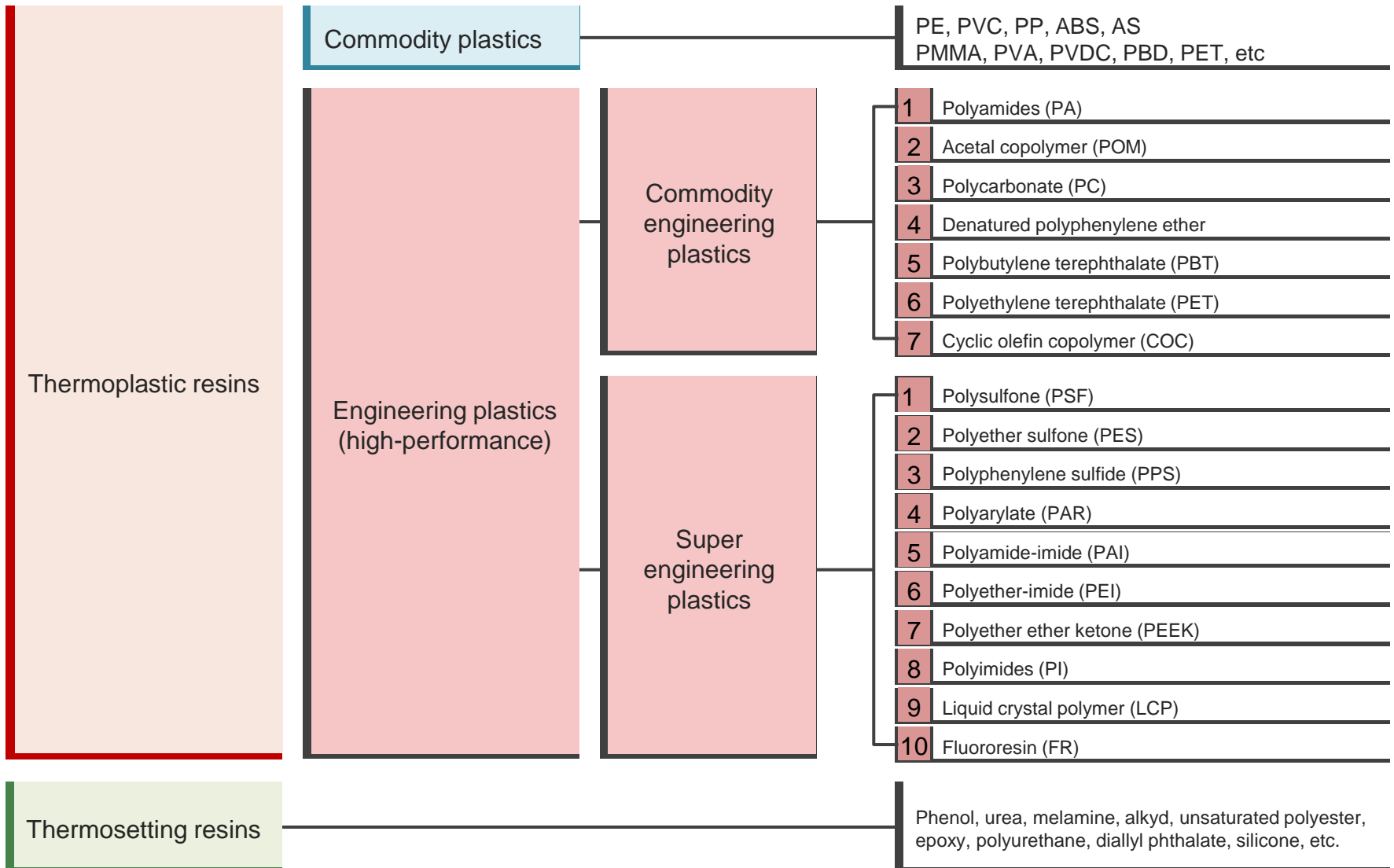
Company name		PPC	PTW	PAP	PTM	PNL	TAP
Location		Shizuoka, Japan	Kaohsiung	Pahang, Malaysia	Jiangsu, China	Jiangsu, China	North Rhine-Westphalia, Germany
Plant name		Fuji Plant	Dafa Plant	Kuantan Plant	Nantong Plant	Nantong Plant (Compounds)	Oberhausen Plant
Start of operations		September 1968	March 1992	March 2000	October 2005	October 2013	October 2000
Site area		200,000m <sup>2</sup>	75,560m <sup>2</sup>	303,000m <sup>2</sup>	220,000m <sup>2</sup>	20,000m <sup>2</sup>	10,343m <sup>2</sup>
Production capacity	POM	100,000t	25,000t	123,000t	60,000t	—	—
	PBT	21,000t	—	—	—	—	—
	LCP	15,000t	—	—	—	—	—
	Compounds	74,500t	38,000t	50,000t	—	10,000t	—
	COC	—	—	—	—	—	30,000t

For details on ISO status and other certifications at each plant, visit:

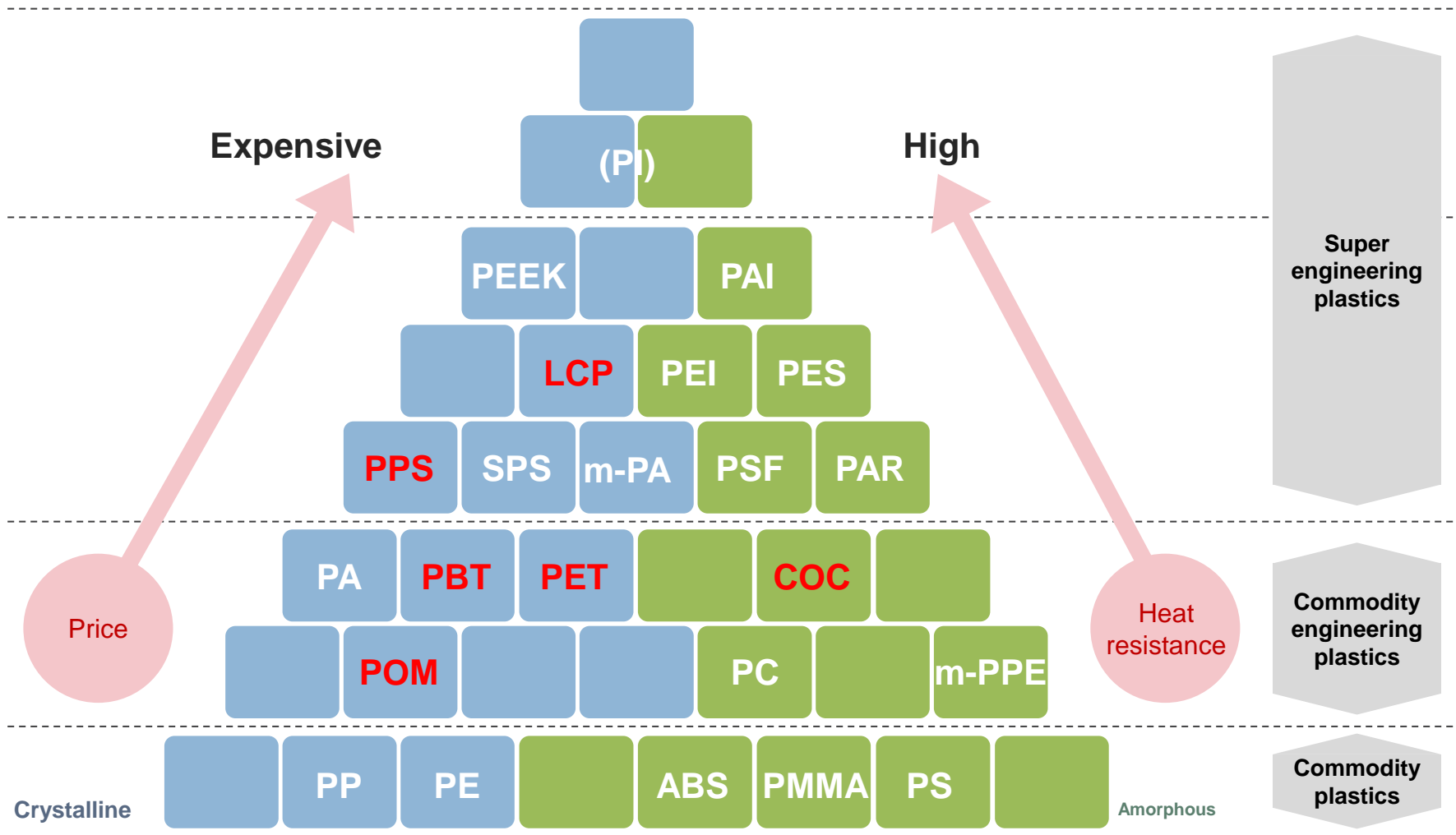
▶ <https://www.polyplastics-global.com/en/aboutus/certification.html>

# Product lines





# Positioning of Crystalline and Amorphous Resins



Red text indicates products sold by Polyplastics Co., Ltd.

**DURACON**<sup>®</sup>

Acetal copolymer (POM)

**TOPAS**<sup>®</sup>

Cyclic olefin copolymer (COC)

**DURANEX**<sup>®</sup>

Polybutylene terephthalate (PBT)

**RENATUS**<sup>®</sup>

Polyethylene terephthalate (PET)

**DURAFIDE**<sup>®</sup>

Polyphenylene sulfide(PPS)

**PLASTRON**<sup>®</sup>

Long Fiber Reinforced Thermoplastics  
(LFT)

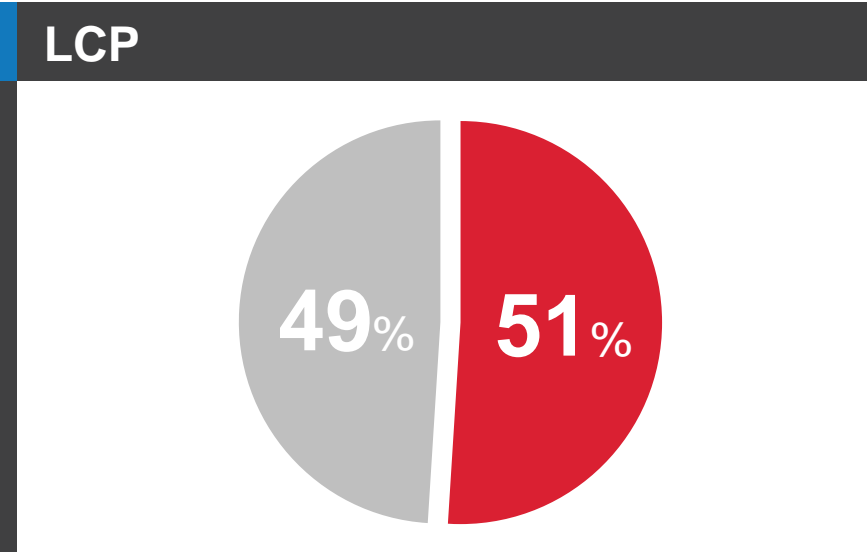
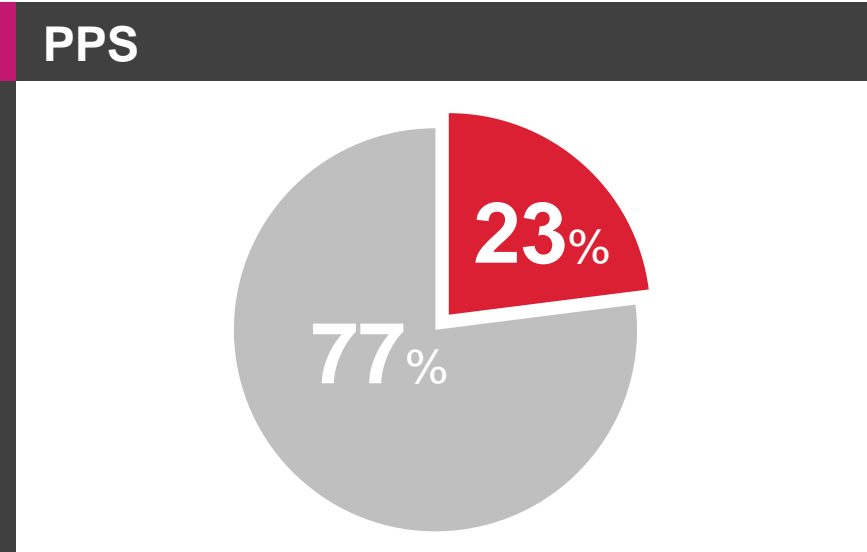
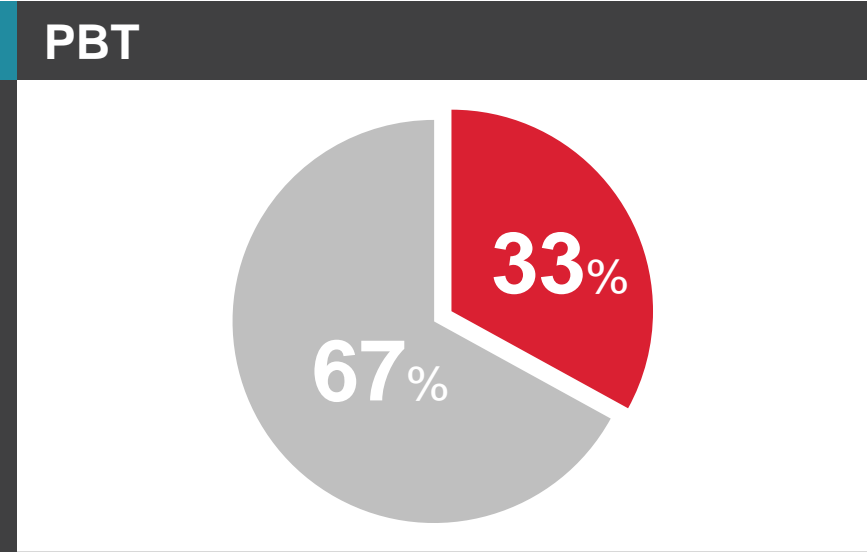
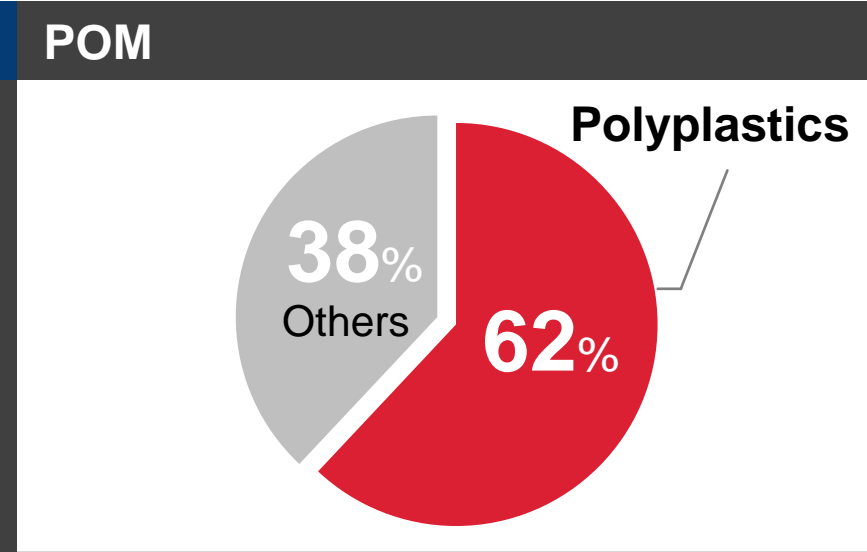
**LAPEROS**<sup>®</sup>

Liquid crystal polymer(LCP)

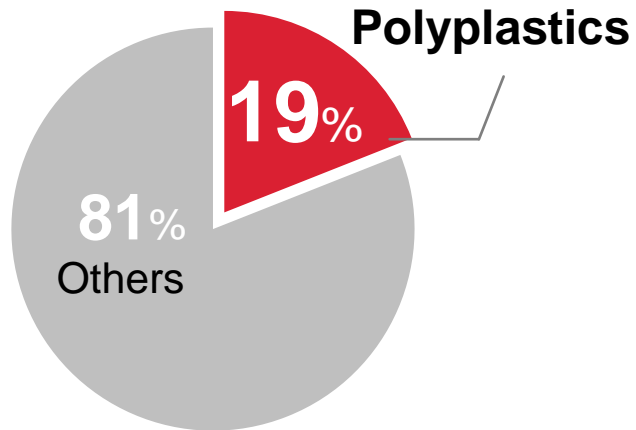
**DURAST**<sup>™</sup>

Engineering Plastics Fine Powder

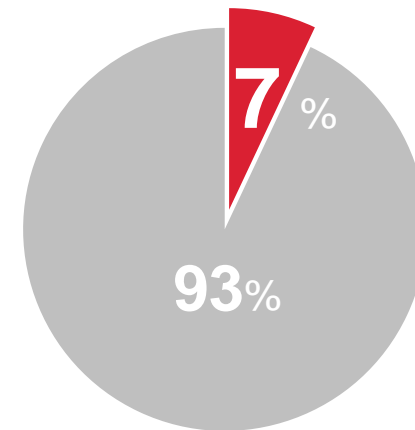
# Market Share in Japan



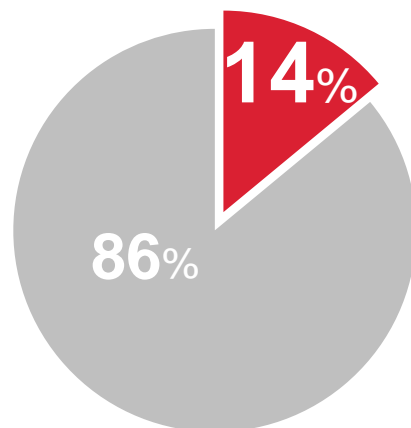
## POM



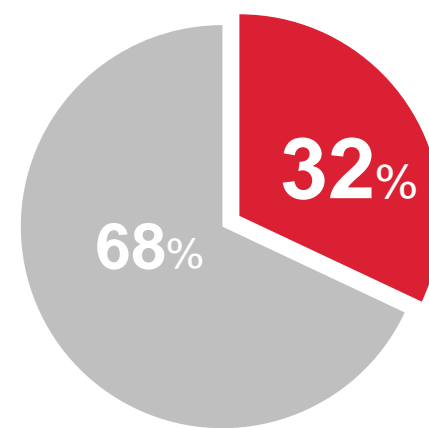
## PBT



## PPS



## LCP



## Balanced mechanical properties and excellent sliding properties

### Characteristics

- Friction and abrasion properties
- Chemical resistance properties (oils, solvents)
- Elastic force
- High-temperature aging properties



Combination switch



Fuel pump module



Window regulator



Door lock



Metallic-colored inner handle



Gear train of laser printer driving unit



## Excellent electrical characteristics and high reliability, suitable for electrical devices and equipment

### Characteristics

- Stable electrical characteristics
- High heat resistance
- Dimensional stability
- Simple polymer alloy



Wire harness connectors



HEV power feed connectors



Airbag rotary connectors



Window regulator actuator cases



Motor insulators



HEV battery cases

## A linear polymer that achieves both high toughness and impact resistance

### Characteristics

- High heat resistance
- Stable electrical properties (e.g. volume resistivity, permittivity)
- Heat shock characteristics
- Fatigue characteristics



HEV water pumps



HEV regenerative braking systems



HEV motor insulators



IH rice cooker heater coil bases



HDD connectors

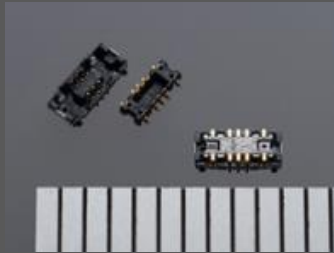


Bread makers

## Ultra-thin and high flowability beyond the borders of engineering plastics

### Characteristics

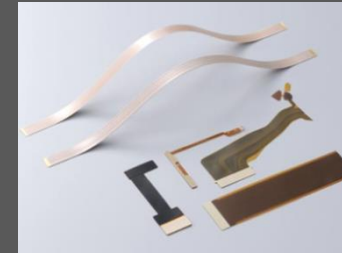
- Ultra-thin and high flowability
- High rigidity
- SMT-compatible heat resistance



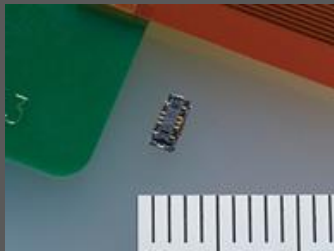
Narrow pitch connectors



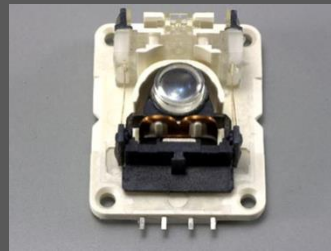
Micro USB connectors



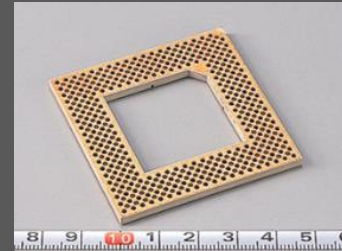
Substrate films



Narrow pitch connectors



Optical pick-up units



PGA sockets

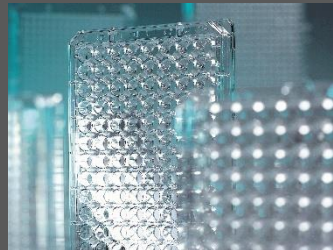
## Excellent transparency and high safety, suitable for medical and food packaging fields

### Characteristics

- Low adsorption
- High heat resistance
- High moisture barrier
- US FDA registration



Pre-filled syringes



Microtiter plates



Water analysis bottles



Freezer bags



Pharmaceutical packaging



Snack food packaging

## High heat resistance equivalent to thermosetting resin and excellent electrical characteristics

### Characteristics

- Stable electrical characteristics
- High heat resistance  
(load deflecting temperature of 220 to 242°C)
- Dimensional stability



Rearview mirrors



Car speaker grills



Rear windshield wipers



Irons



Vacuum cleaners



Microwave ovens

## Long Fiber Reinforced Thermoplastics to expand the use of resin to new fields

### Characteristics

- High impact resistance
- High rigidity
- Superior creep properties
- Broad usage temperature range
- Dimensional stability
- Sliding & wear



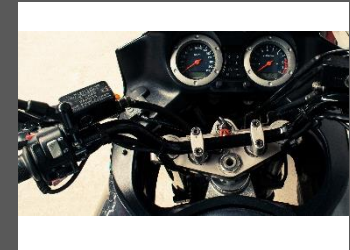
Automotive



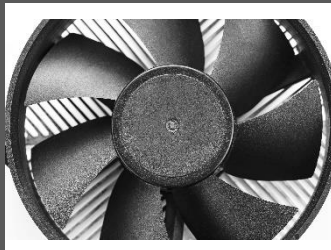
Bicycle



Pump housings



Motorcycle



Fans



Baitcasting reels



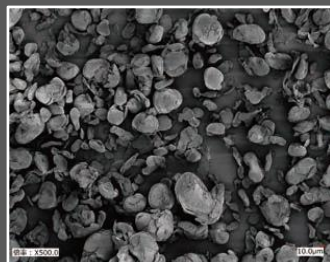
Pneumatic tool bodies

## Product properties improvement, streamlining production processes, and reduction of material loss

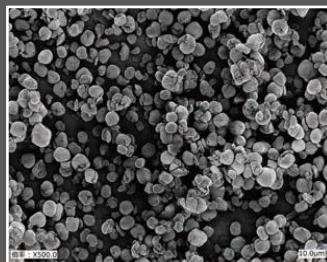
### Characteristics

- Fine Powder (Ave. particle size 10~200μm)
- No sharp edges (POM, PBT, PPS)
- Narrow Particle Size Distribution
- Anisotropic powder/spherical fine powder (LCP)

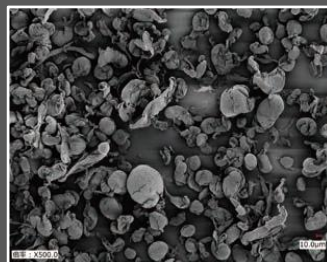
#### DURAST™ POM



#### DURAST™ PPS

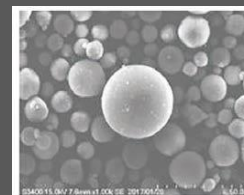


#### DURAST™ PBT

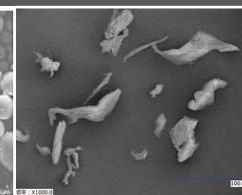


#### DURAST™ LCP

##### Sphere



##### Formless



**DURAST™ POM**  
molding materials in 3D printing



**CF RTP unidirectional (UD) tape**



**Porous gear (left)**  
**cap-shaped filter (right)**

# Example Applications for Extrusion Molding

Diverse extrusion grades suitable for films, fibers, and more in a variety of fields



**DURACON® POM**

Extrusion molding of raw materials



**DURANEX® PBT**

Extrusion lamination  
(Cold resistance, heat resistance, oil resistance)



**DURANEX® PBT**

Fibers  
(Positive restoration properties, flexibility, pleasant texture)



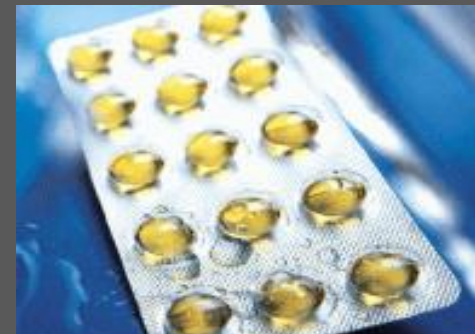
**LAPEROS® LCP**

Fibers  
(High tensile strength, high elasticity, and high strength)



**LAPEROS® LCP**

Fibers  
(High tensile strength, high elasticity, and high strength)



**TOPAS® COC**

Medical packaging  
(Water Vapor Barrier Properties/Transparency)



# CSR



*Shaping a Sustainable Society with Our Plastics*

## Business Activities

### Contributing to Society through Our Business Activities



#### Engineering Plastic Business

Contribute to shaping of an abundant society through engineering plastic solutions



#### Harmony with Environment

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



#### Develop Talented and Engaging Human Resources

Utilize and contribute to development of talented and engaging human resources



#### 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

- Contributing to the prosperity of local areas
- Cultivating the next generation
- Supporting employee-led social contribution activities

# Our CSR Activities

2021  
Highlight

## 01

Start of  
DURACON® bG-POM  
production  
utilizing biomass



*Click  
image  
pictures  
for  
details*

2021  
Highlight

## 02

“Taking productivity to  
the next level”  
Synergy with Daicel  
to accelerate the Fuji Plant  
Restructuring Project



# Our CSR Activities



PICK UP

Long Cellulose Fiber Reinforced Thermoplastics  
to Reduce CO<sub>2</sub> Emissions



PICK UP

Conserving resources and energy  
by using simulation technology to reduce trial production



PICK UP

Working with Daicel's diversity promotion project  
"WellBe"



*Click image pictures for details*

## New GHG Reduction Targets

At Polyplastics, we pursue reduction of the group's environmental impact as a whole in line with [the Group Environmental Basic Policy](#). In FY2021, the following new environmental targets were established.

### Daicel Group

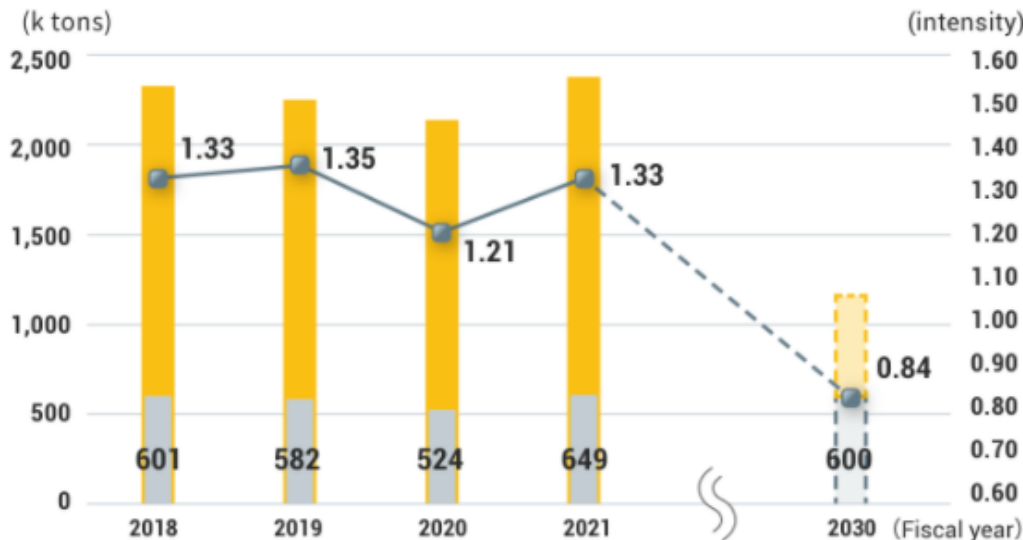
Total GHG emissions  
(Scope1&2) **50% reduction**  
(vs. FY2018)

### Polyplastics Group

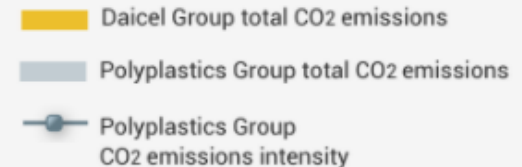
PCF\*1-focused GHG emissions intensity  
(including CO<sub>2</sub> derived from raw materials) **46% reduction**  
(vs. FY2013)

\*PCF : Product Carbon Footprint

## Daicel Group total CO<sub>2</sub> emissions (Scope 1, 2)



*We're committed to economically efficient and ecologically effective global climate protection.*





<https://www.polyplastics-global.com>