



Polyplastics

DAICEL Group

Company Profile



Company name	Polyplastics Co., Ltd.
Establishment	May 1964 (Founded June 1962)
Representative	Toshio Shiwaku, President and CEO
Capital	3 billion yen
Shareholders	DAICEL CORPORATION
Business	Manufacturing, importing, and marketing of engineering plastics and polymers
Employees (Group)	2,177 (as of March 2021)
Head office	JR Shinagawa East Bldg., 18-1, Konan 2-chome, Minato-ku, Tokyo 108-8280, Japan
Website	https://www.polyplastics-global.com

Consolidated statements for FY2020

Net sales	:131,090
Operating income	: 17,840

(Unit: Million yen)

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

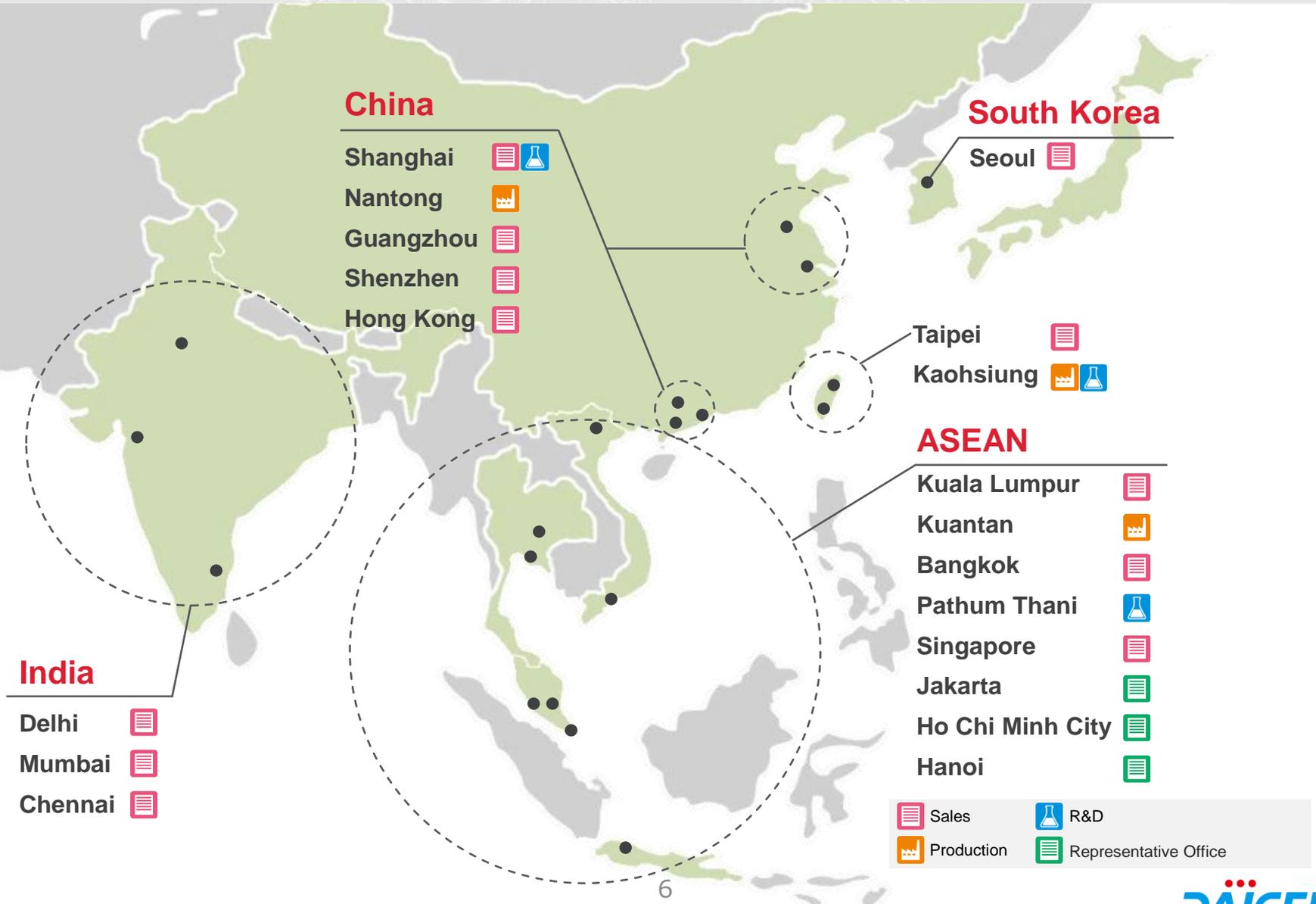


Fuji Plant

Fuji, Shizuoka

 Sales  R&D  Production

Business Location (Asia)

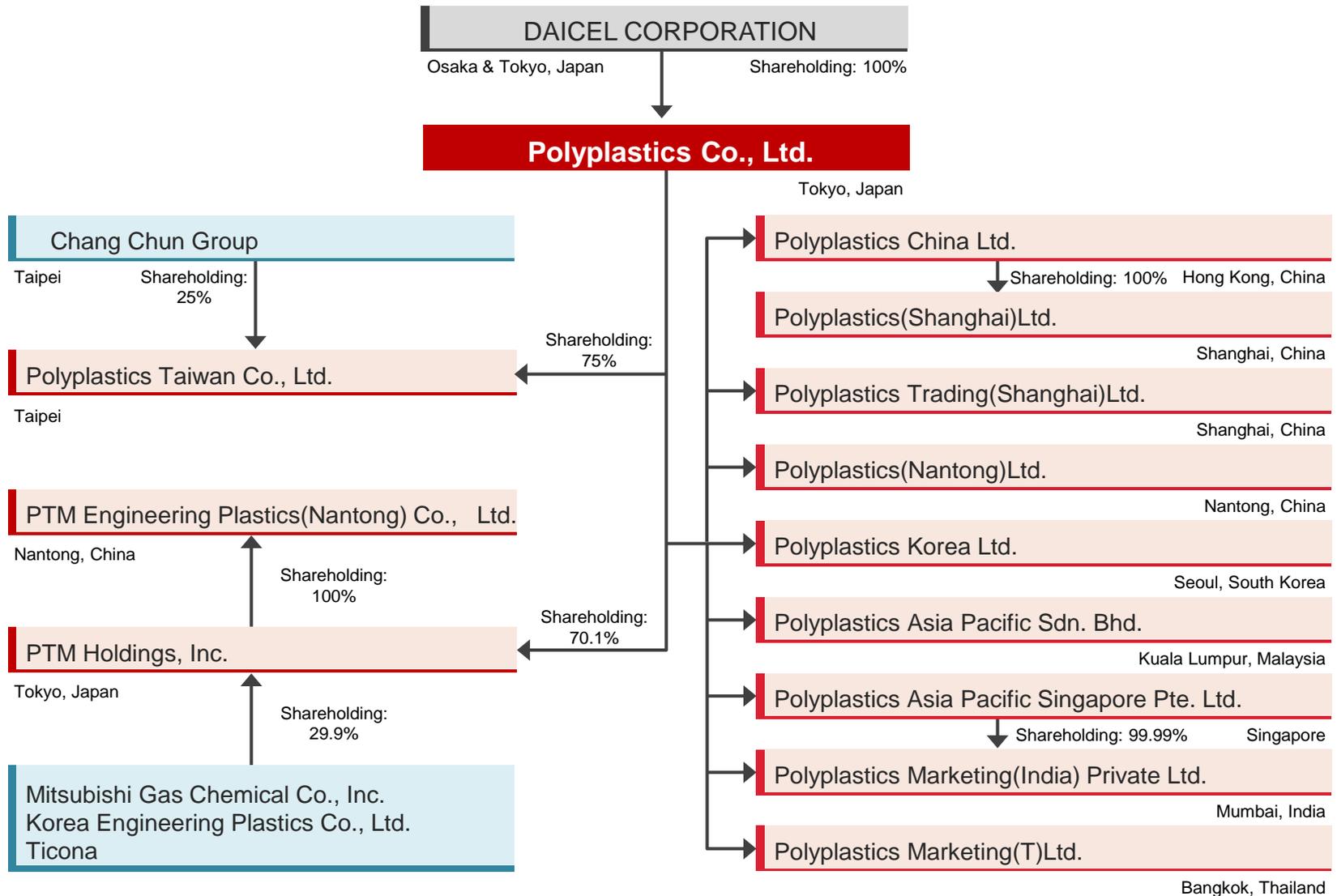


Business Location (Europe and the Americas)



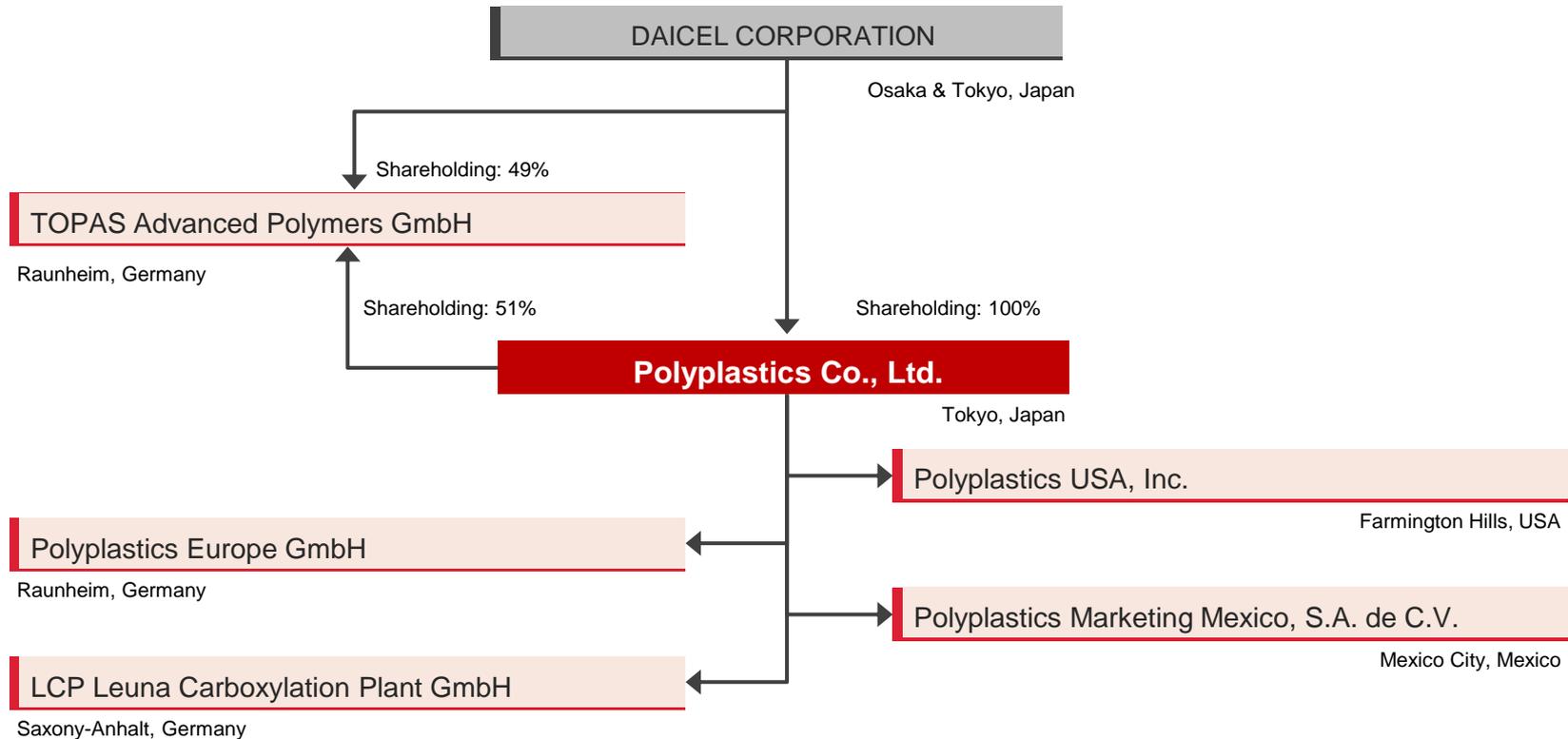
 Sales  R&D  Production

Investment Relationship Map (Asia)



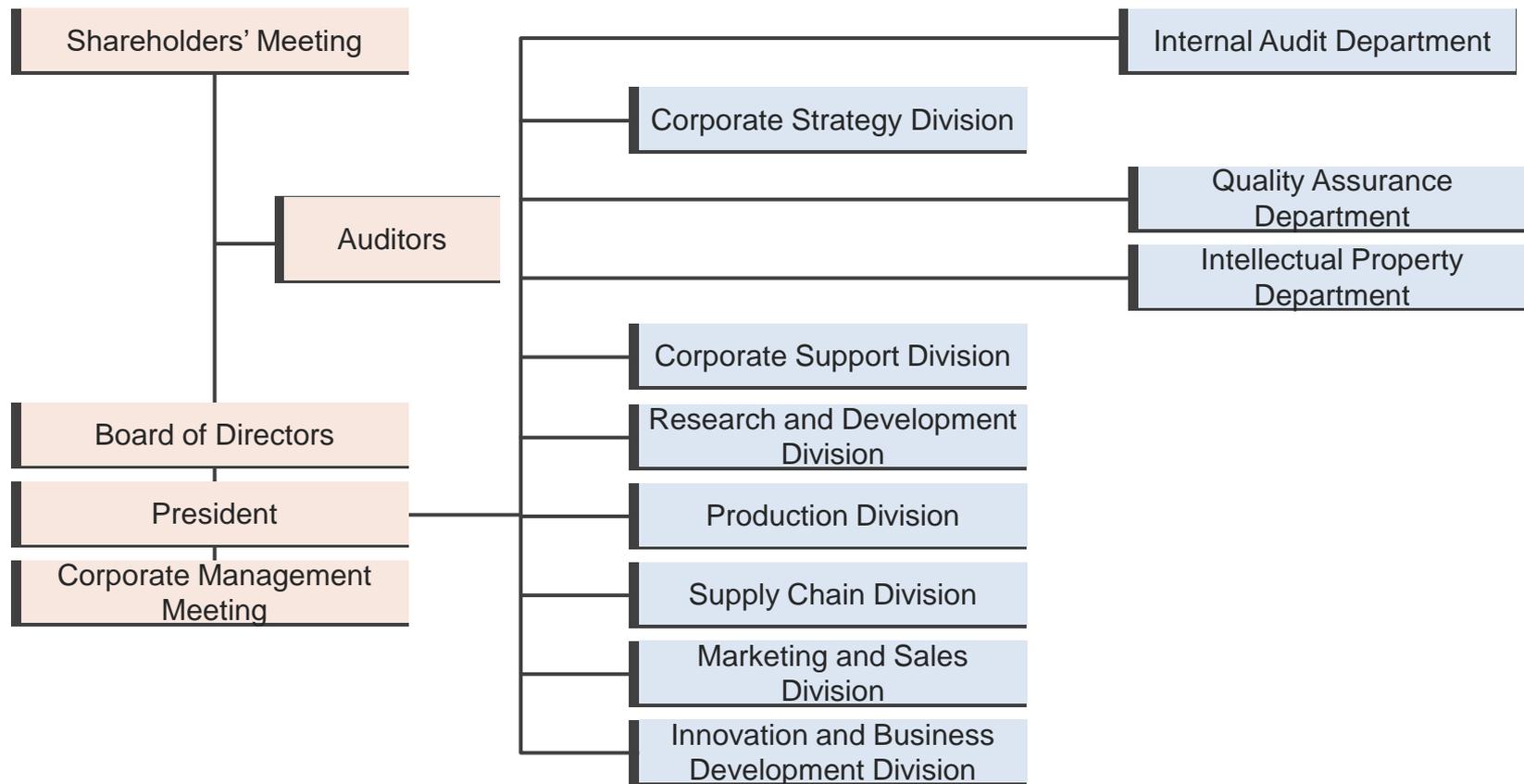
This background indicates Polyplastics Group companies.

Investment Relationship Map (Europe and the Americas)

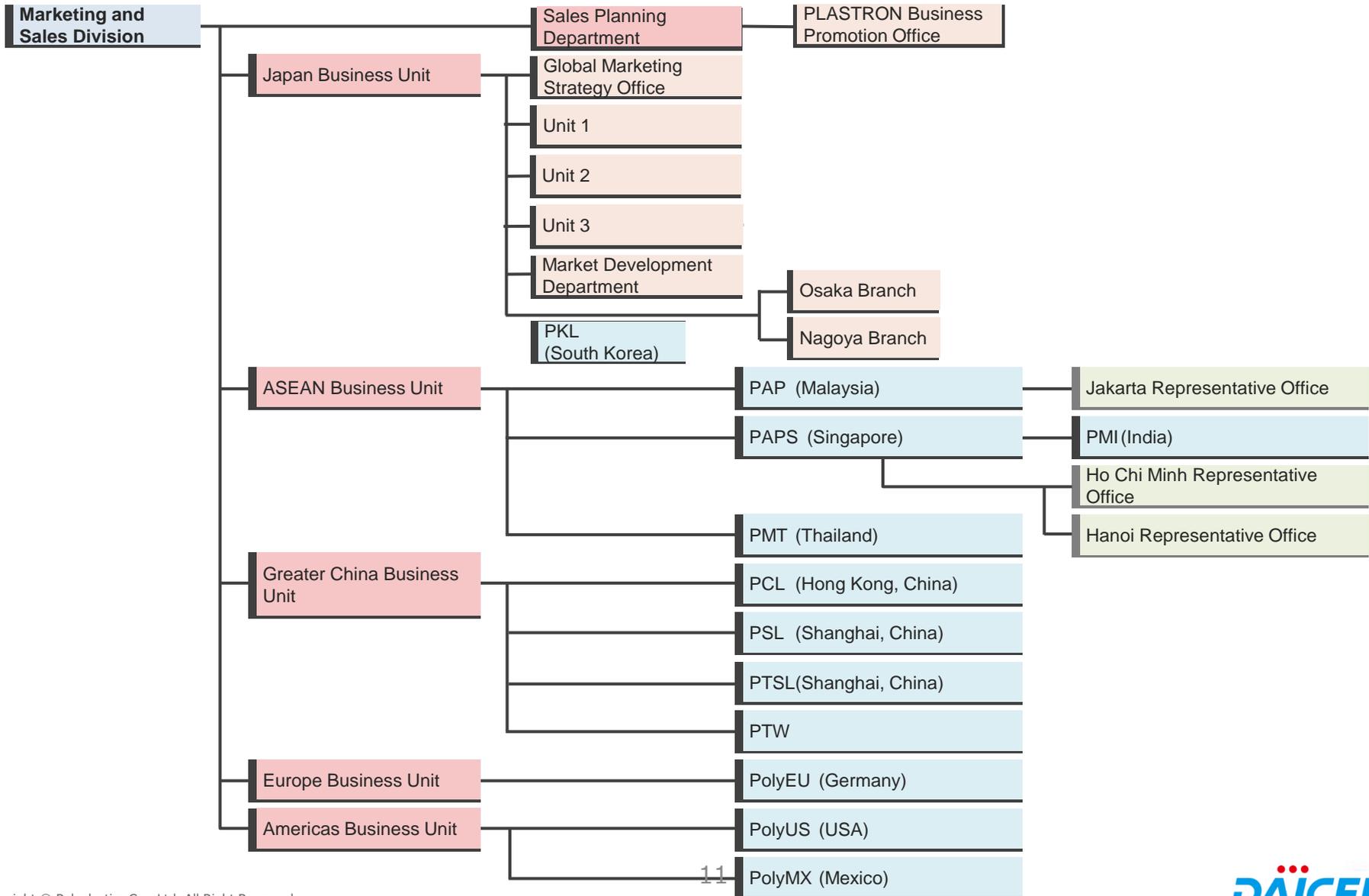


This background indicates Polyplastics Group companies.

Organization Chart



Organization Chart (Sales)



Group Companies

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

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

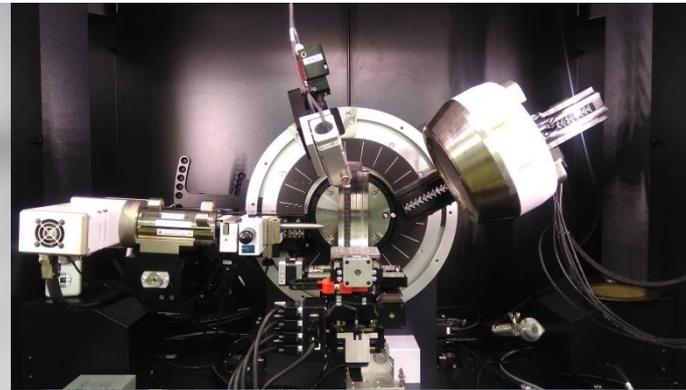
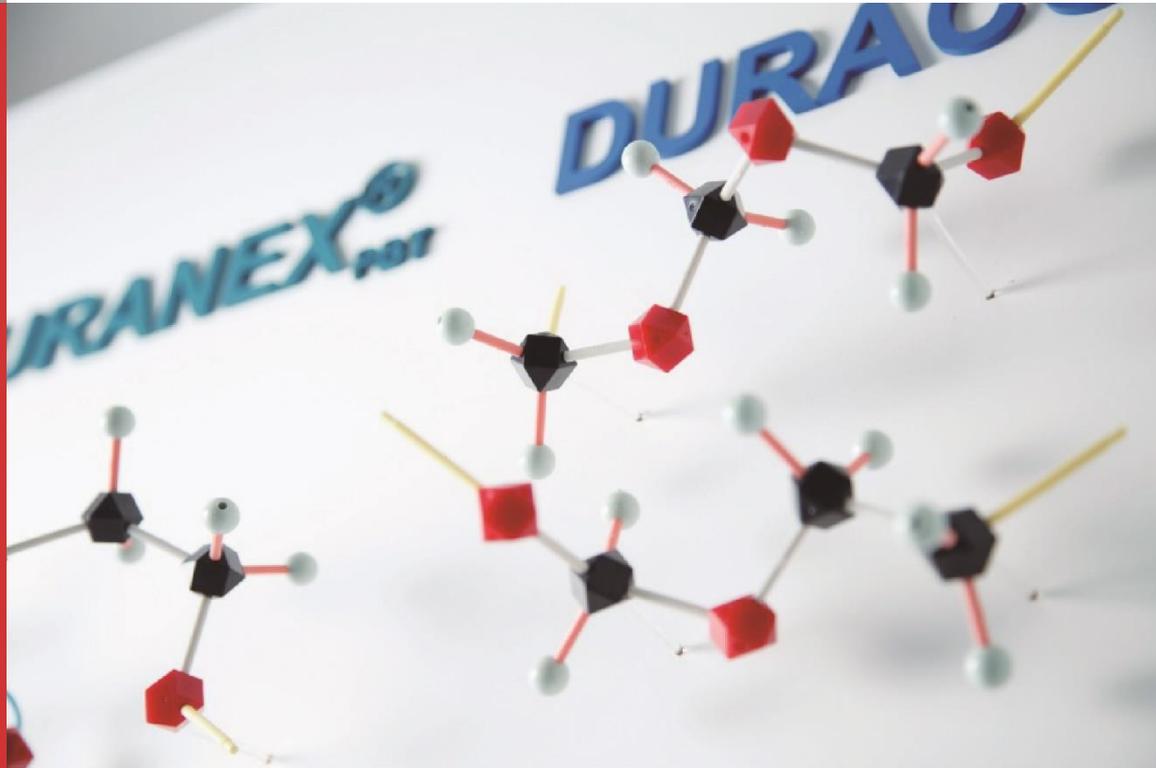
2010s

- | | | | |
|------|------|---|--|
| 2011 | Sep. | ■ | 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

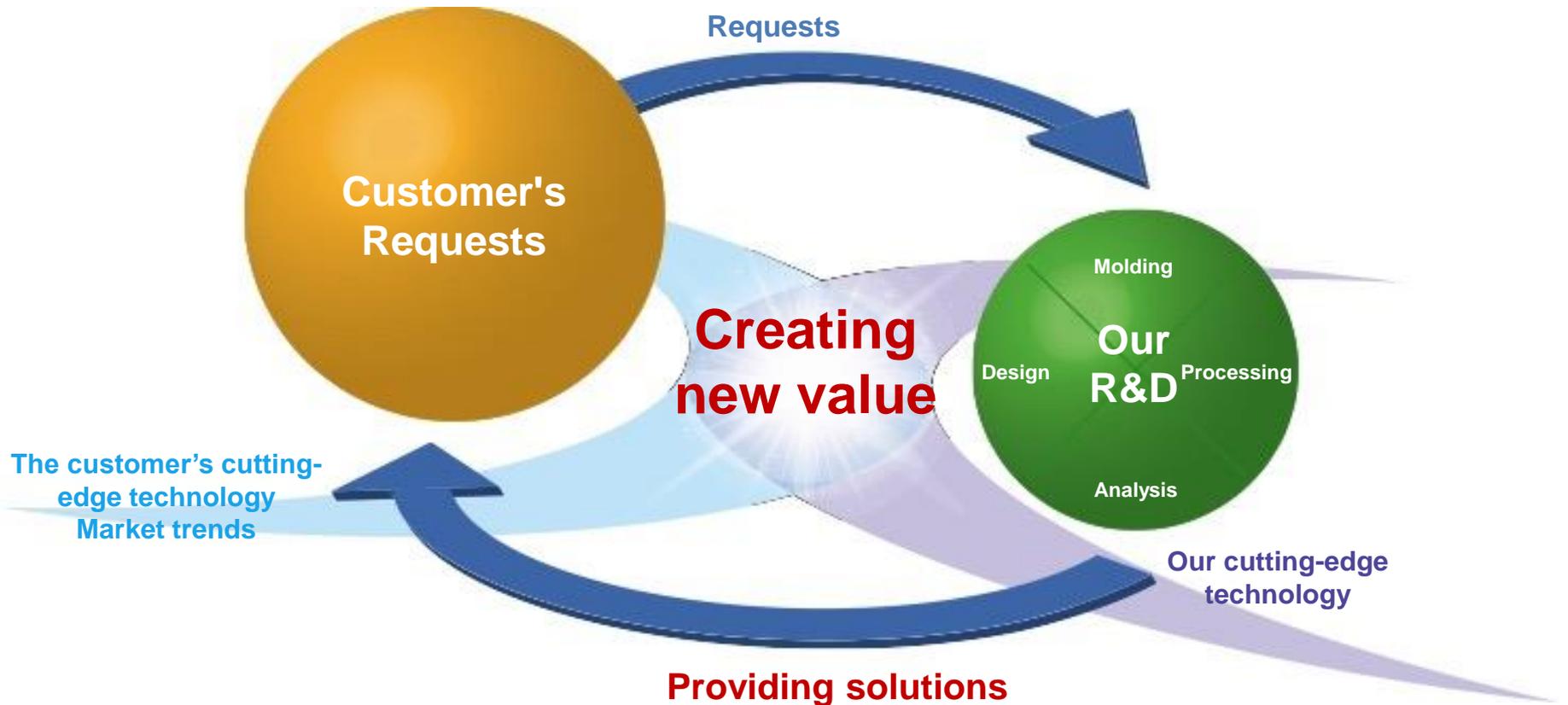
- | | | | |
|------|------|---|---|
| 2020 | Oct. | ■ | Daicel acquires 100% of ownership of Polyplastics Co., Ltd. |
|------|------|---|---|

R&D/Technical Solution Center

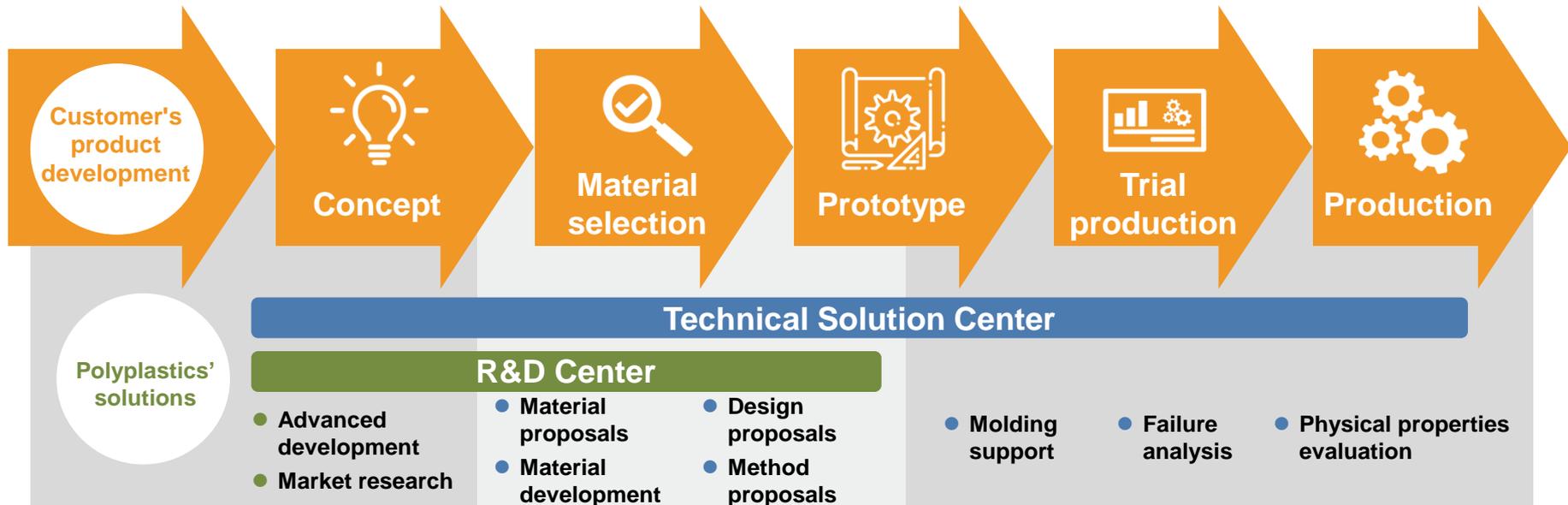


The Research and Development Division (located in Fuji, Shizuoka) is the heart of the Group's R&D and technical support operations.

**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.

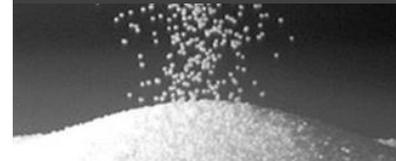


Basic research

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



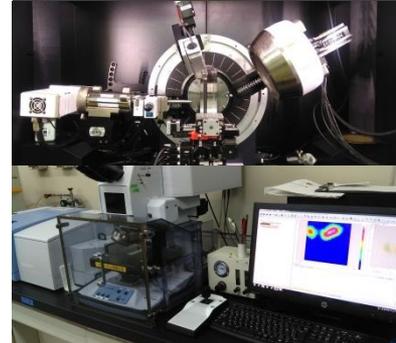
Grade development



- New grade development



Analysis



- Analysis of all types
- Analysis technology development

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



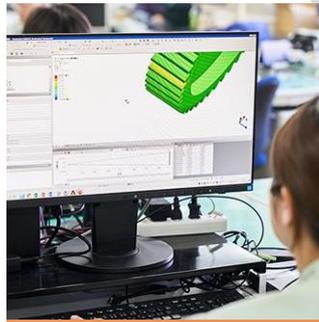
- Clarifying desired properties
- Providing property data
- Providing test pieces

- 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 topography

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.



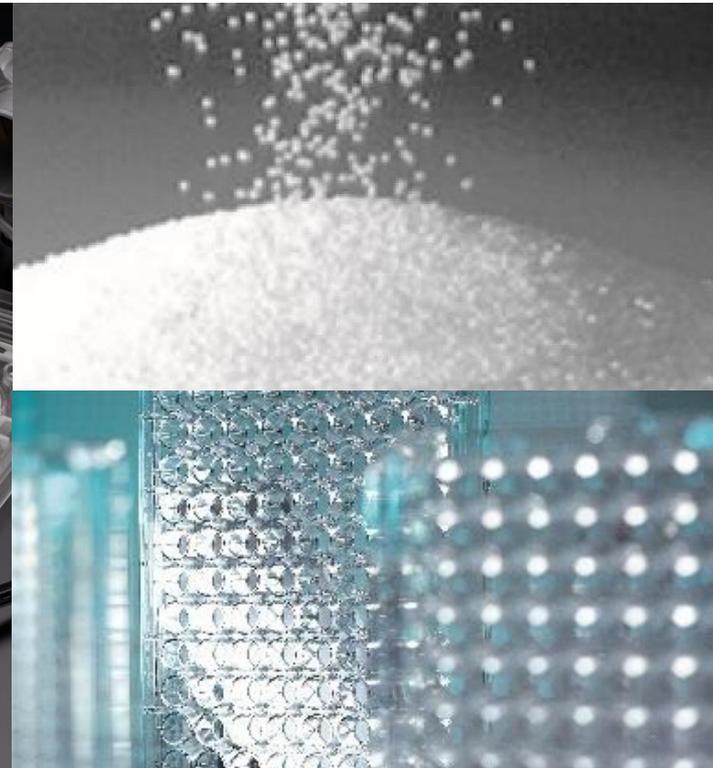
Group Plant Facility Capacity

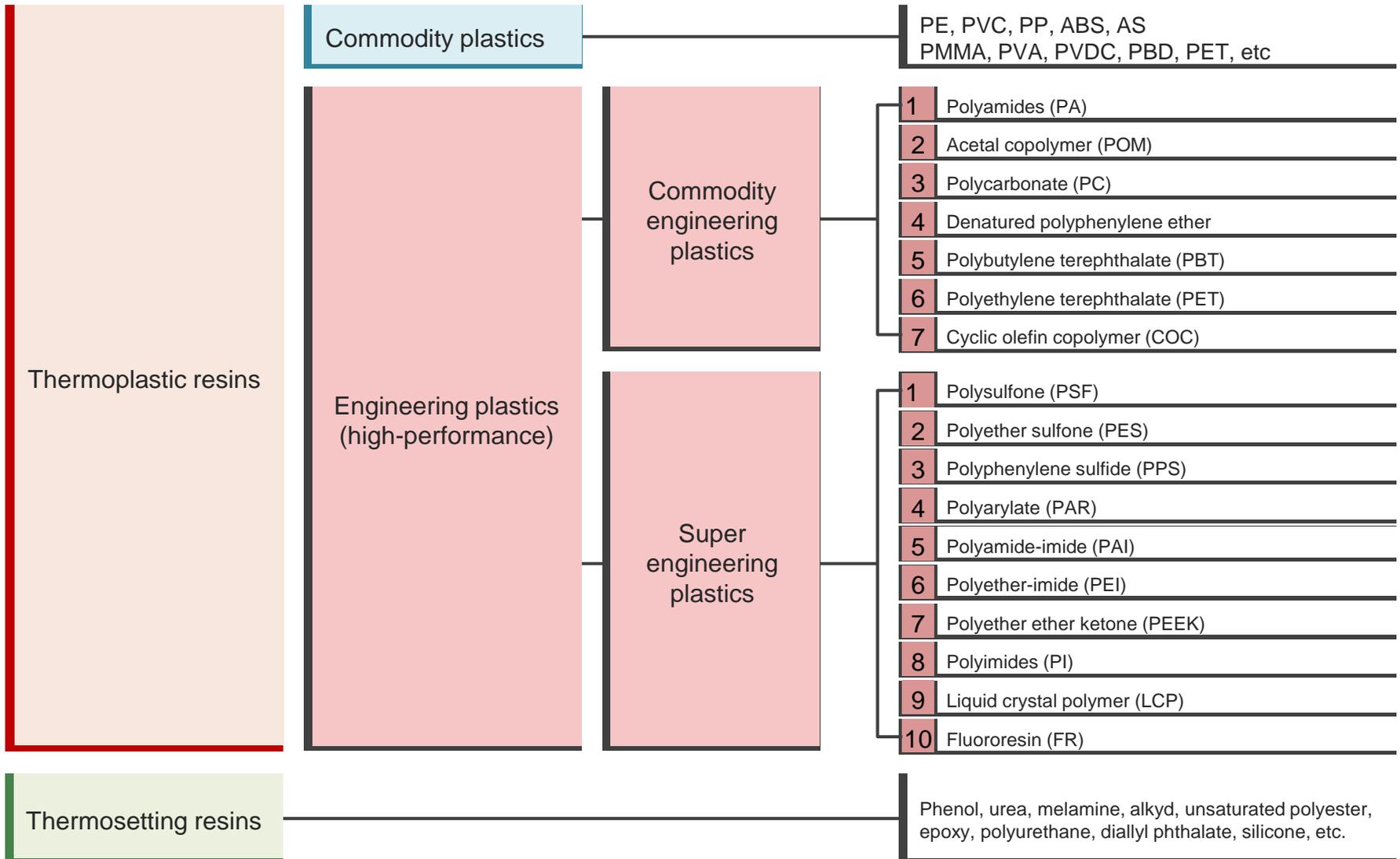
Company name		PPC	PTW	PAP	PTM	PNL	TAP
Location		Shizuoka, Japan	Kaohsiung	Pahang, Malaysia	Jiangsu, China	Jiangsu, China	North Rhine-Westphalia, Germany
Plant name		Fuji Plant	Dafa Plant	Kuantan Plant	Nantong Plant	Nantong Plant (Compounds)	Oberhausen Plant
Start of operations		September 1968	March 1992	March 2000	October 2005	October 2013	October 2000
Site area		200,000m ²	75,560m ²	303,000m ²	220,000m ²	20,000m ²	10,343m ²
Production capacity	POM	100,000t	25,000t	123,000t	60,000t	—	—
	PBT	21,000t	—	—	—	—	—
	LCP	15,000t	—	—	—	—	—
	Compounds	71,000t	35,000t	45,000t	—	9,000t	—
	COC	—	—	—	—	—	30,000t

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

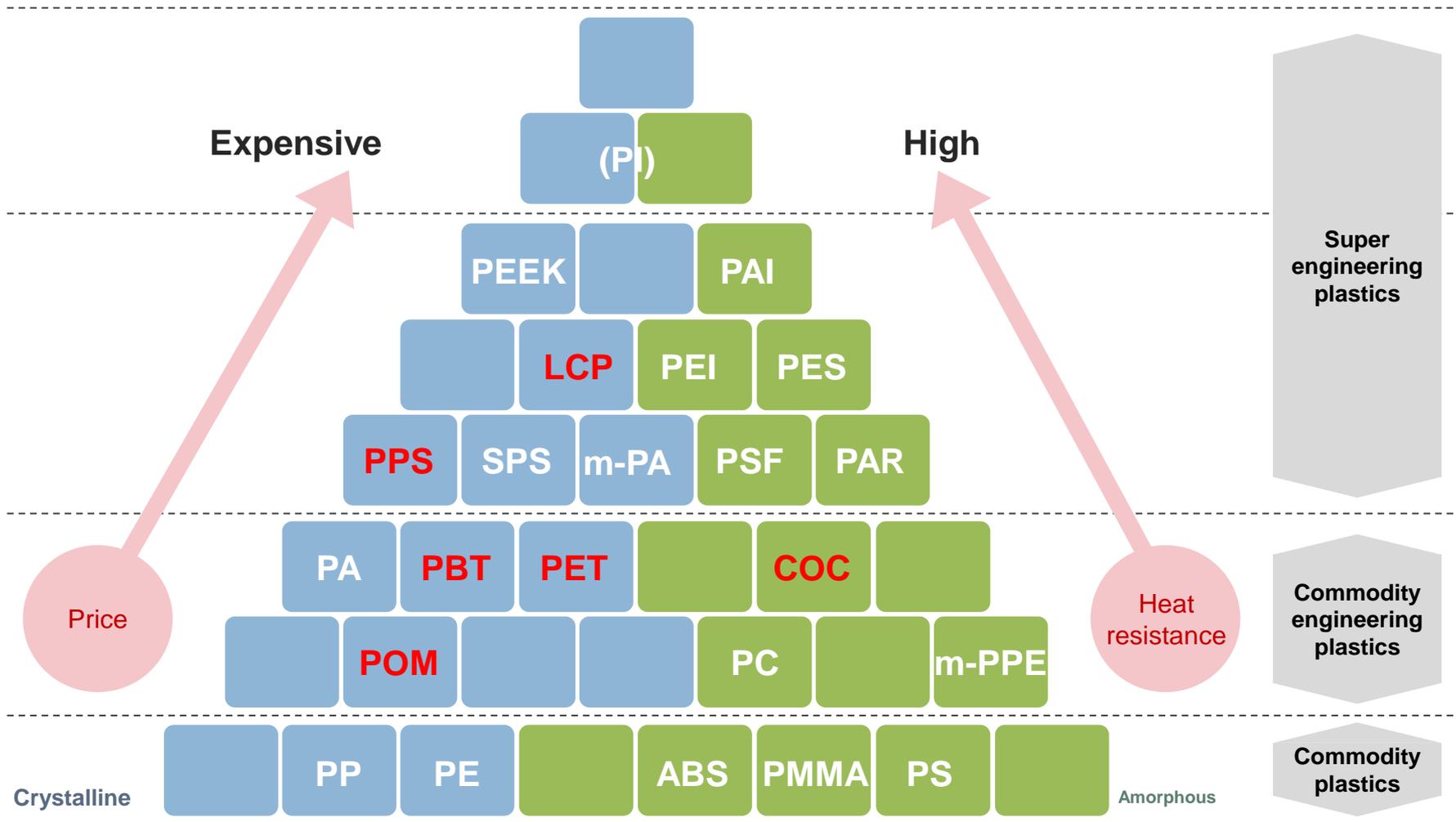
▶ <https://www.polyplastics-global.com/en/aboutus/certification.html>

Product lines





Positioning of Crystalline and Amorphous Resins



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

DURACON[®]

Acetal copolymer (POM)

DURANEX[®]

Polybutylene terephthalate (PBT)

DURAFIDE[®]

Polyphenylene sulfide(PPS)

LAPEROS[®]

Liquid crystal polymer(LCP)

TOPAS[®]

Cyclic olefin copolymer (COC)

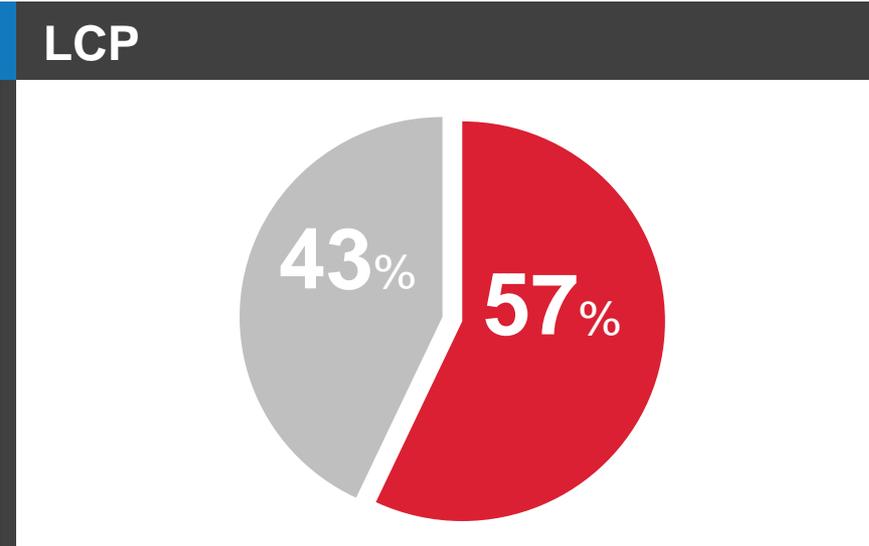
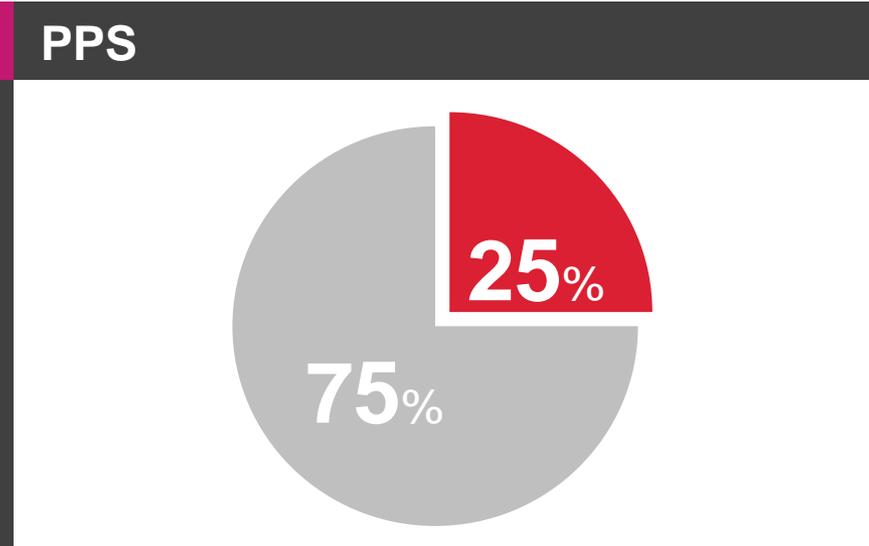
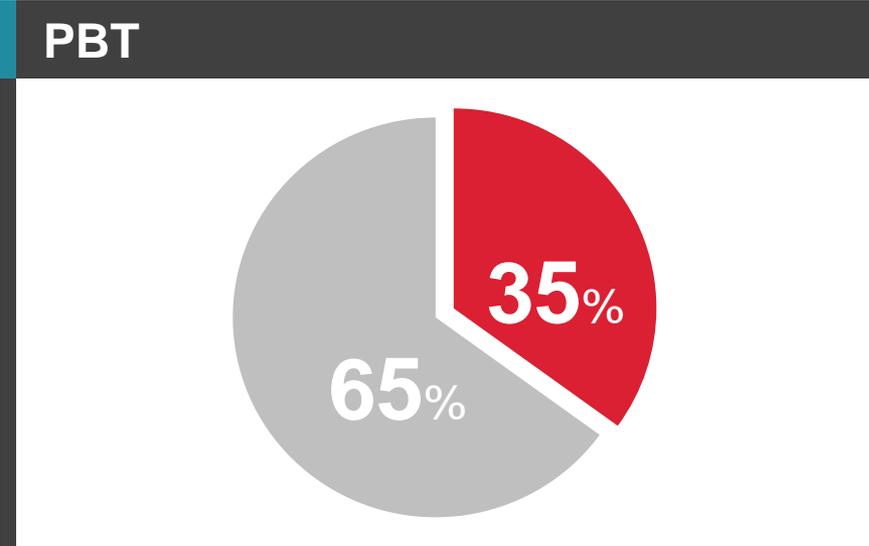
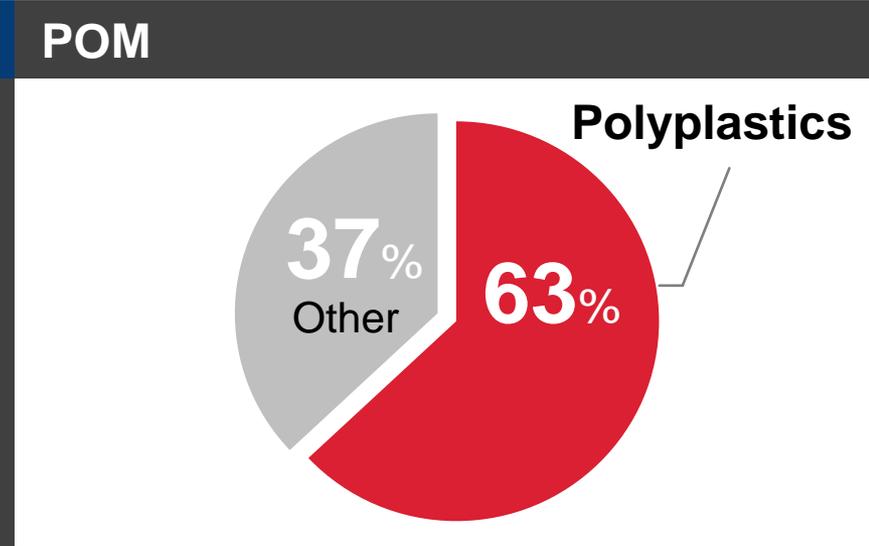
RENATUS[®]

Polyethylene terephthalate (PET)

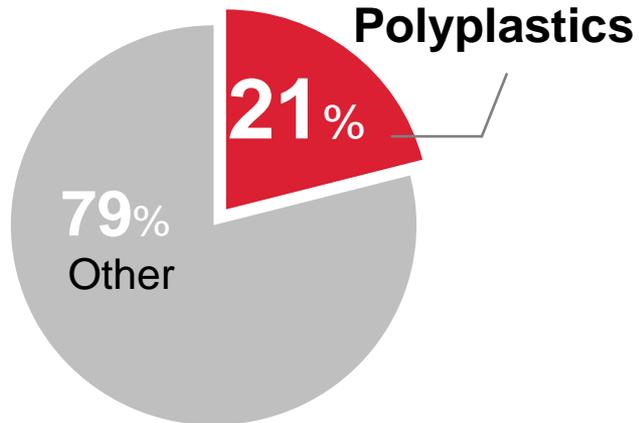
PLASTRON[®]

Long Fiber Reinforced Thermoplastics
(LFT)

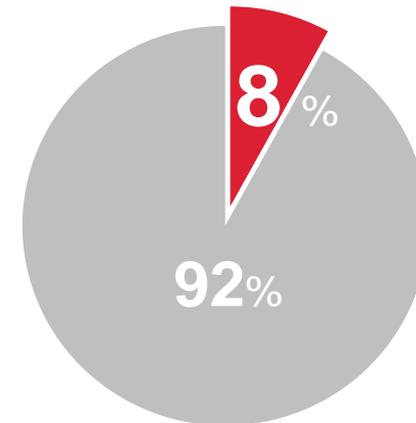
Market Share in Japan



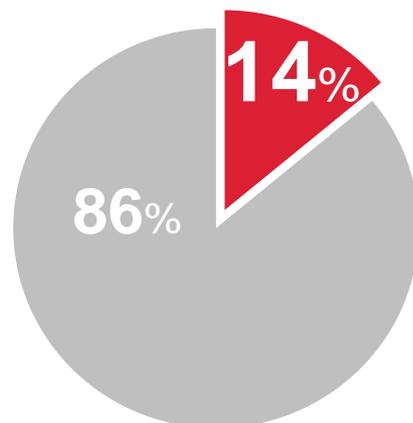
POM



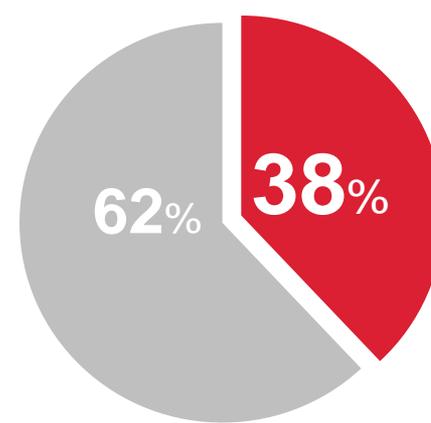
PBT



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

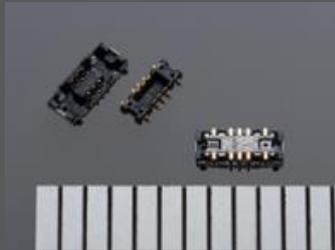


Bread makers

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

Characteristics

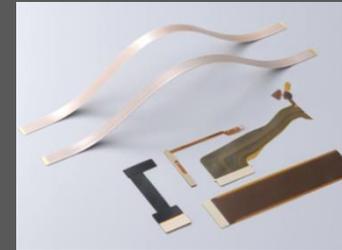
- Ultra-thin and high flowability
- High rigidity
- SMT-compatible heat resistance



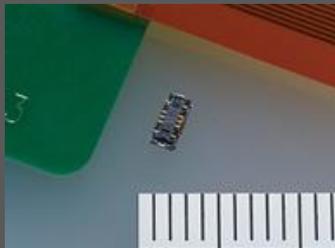
Narrow pitch connectors



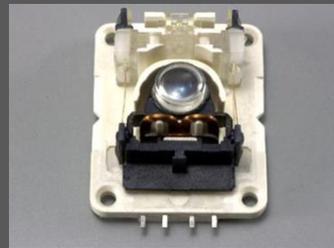
Micro USB connectors



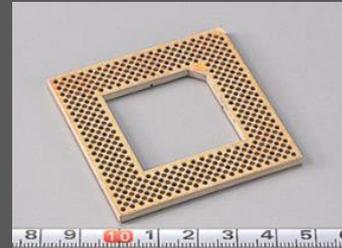
Substrate films



Narrow pitch connectors



Optical pick-up units



PGA sockets

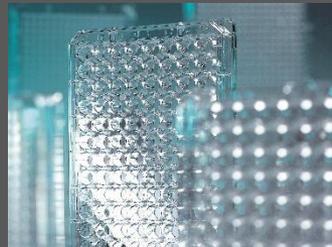
Excellent transparency and high safety, suitable for medical and food packaging fields

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



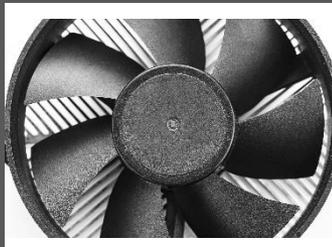
Bicycle



Pump housings



Motorcycle



Fans



Baitcasting reels



Pneumatic tool bodies

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)



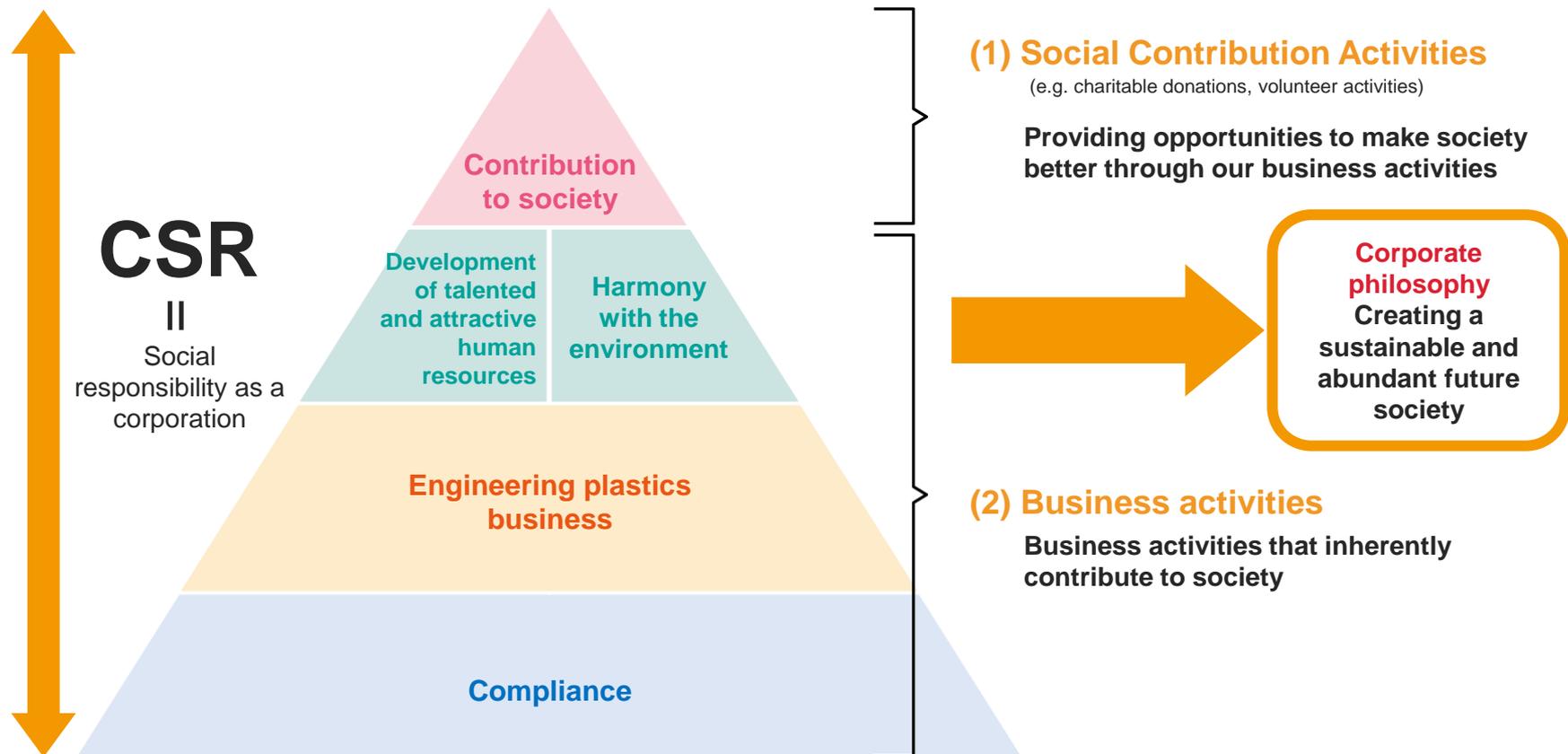
TOPAS® COC

Medical packaging
(Water Vapor Barrier Properties/Transparency)

CSR



In the aim of creating a sustainable and abundant future society,
we are taking concrete initiatives from two perspectives.



01

Highlight 01

Certification of TOPAS® COC as a “Recyclable Material”

Boosting production capacity to realize a circular economy

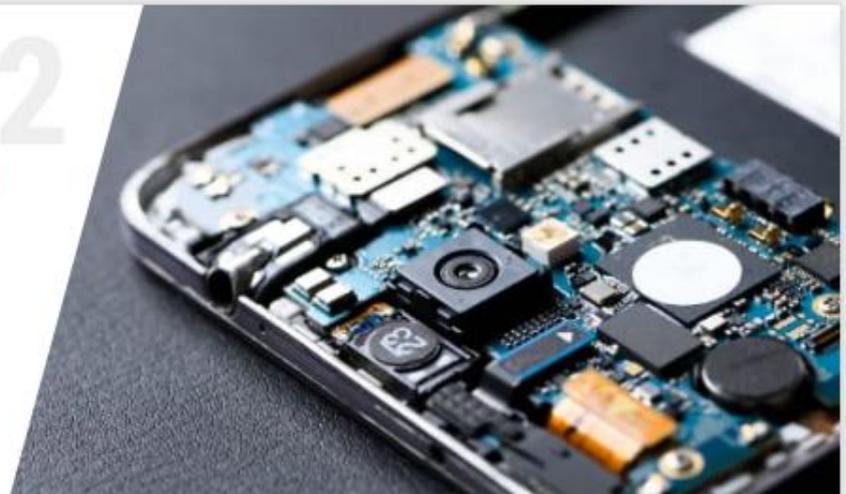


02

Highlight 02

LAPEROS® LCP Additional UL Certification for Grade S475

Providing essential product quality even at a recycled material
usage rate of 80%



<https://www.polycsr.com/en/highlight/>

Polyplastics' approach to - and initiatives to achieve - a circular economy



1 Research and develop products which effectively utilize reusable, plant-derived raw materials and mechanical/chemical recycling processes

2 Pursue market development for long-life, durable products with high added value, and improve the precision of technology used to estimate reusable lifespan

3 Explore methods for actively achieving greenhouse gas reductions in the process of production and transportation, as well as methods for communicating greenhouse gas reduction by product

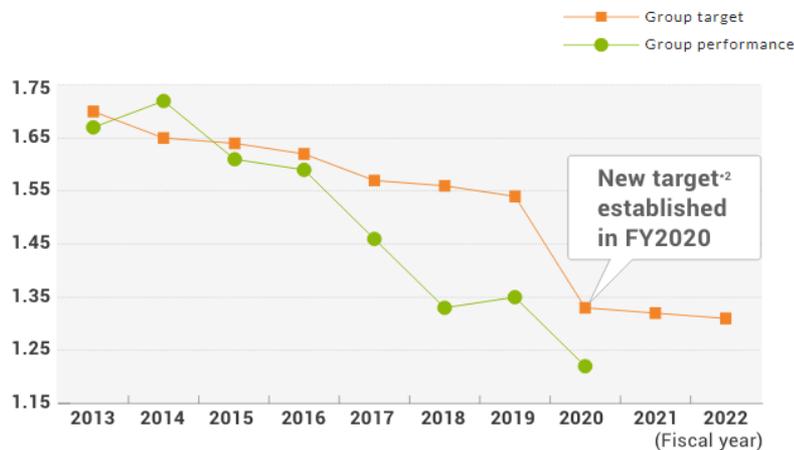
All plants across the Group continue efforts toward reducing the environmental impact.

For example, our initiatives include...

1. Reducing CO₂ emissions

CO₂ emissions Intensity
(Compared to FY2013) **27.9% down**

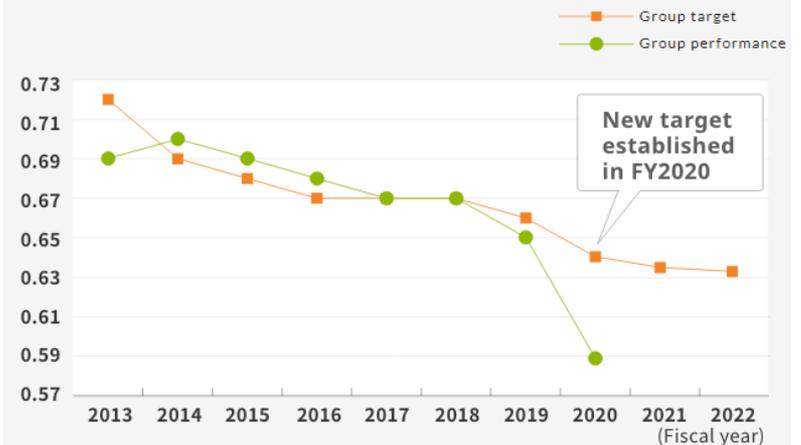
▼ CO₂ emissions intensity



2. Energy Saving Activities

Specific energy consumption
(Compared FY 2013) **9.1% down**

▼ Specific energy consumption





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