

Mid-term Management Plan



Current Status

ZEON
ZEON CORPORATION

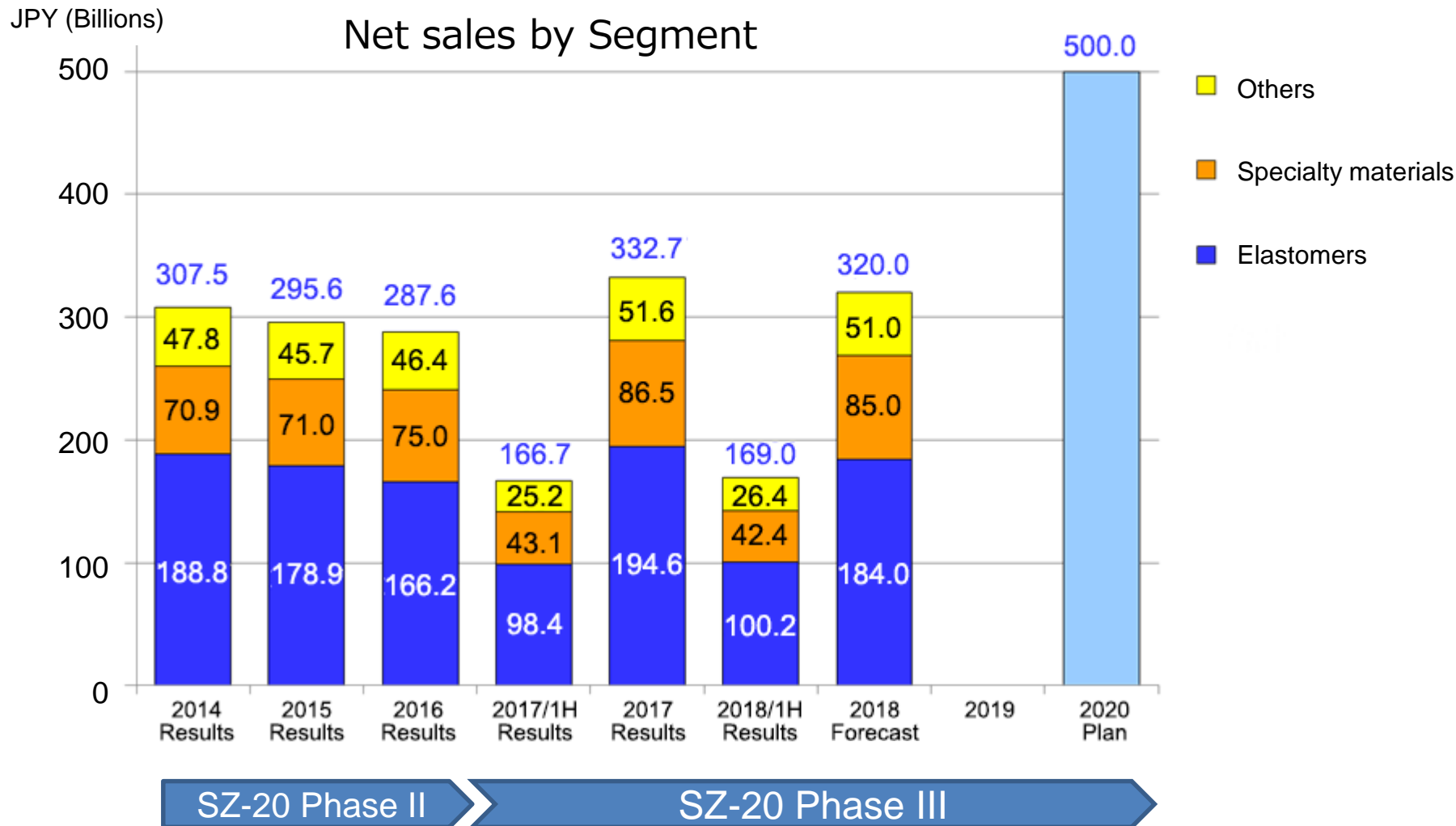
Kimiaki Tanaka
President

October 31, 2018

1. Consolidated Net Sales by Segment

2. Business Topics

Reported higher sales and lower profits in 1st Half of FY2018
Decisions made for building new plants for manufacturing synthetic rubbers and optical films in FY2020



Corporate Philosophy

Zeon CSR Policy

Vision

Enterprise Blueprint for 2020

Zeon makes the Future Today through the Power of Chemistry.
Zeon will continue to contribute to the realization of customer dreams and a prosperous society through employees' individual growth.

Key Sense of Value

Speed

Dialogue

Social contribution

Treasured Characteristics of Zeon

Mutual trust and Confidence among Zeon Members

**SZ-20
(2011–13)**

**Phase II
(2014–16)**

**Phase III
(2017–20)**

Corporate Philosophy

Zeon is contributing to the preservation of the Earth and the prosperity of the human race.

Zeon, with its name from the words signifying the Earth (geo) and eternity (eon), is committed to responsible stewardship of the global environment as the foundation for human prosperity through the development and application of unique, world-leading technologies.

Zeon CSR Policy

- **We will ensure compliance and meet society's needs for safety and security**
- **We will contribute to sustainably developing society and protecting the global environment through our corporate activities**
- **We will ensure that each and every Zeon person is aware of CSR and acts accordingly**

SZ-20 Phase III: Groupwide Strategy

Growth

1. **Reinforce** the combined strengths of the Zeon Group. **Explore** ways of going beyond boundaries and collaborating with external players to provide **solutions** globally as a contribution to society.
2. **Accelerate the pace of new business creation and product development** in key development areas: global environment, smart devices, and health and living.

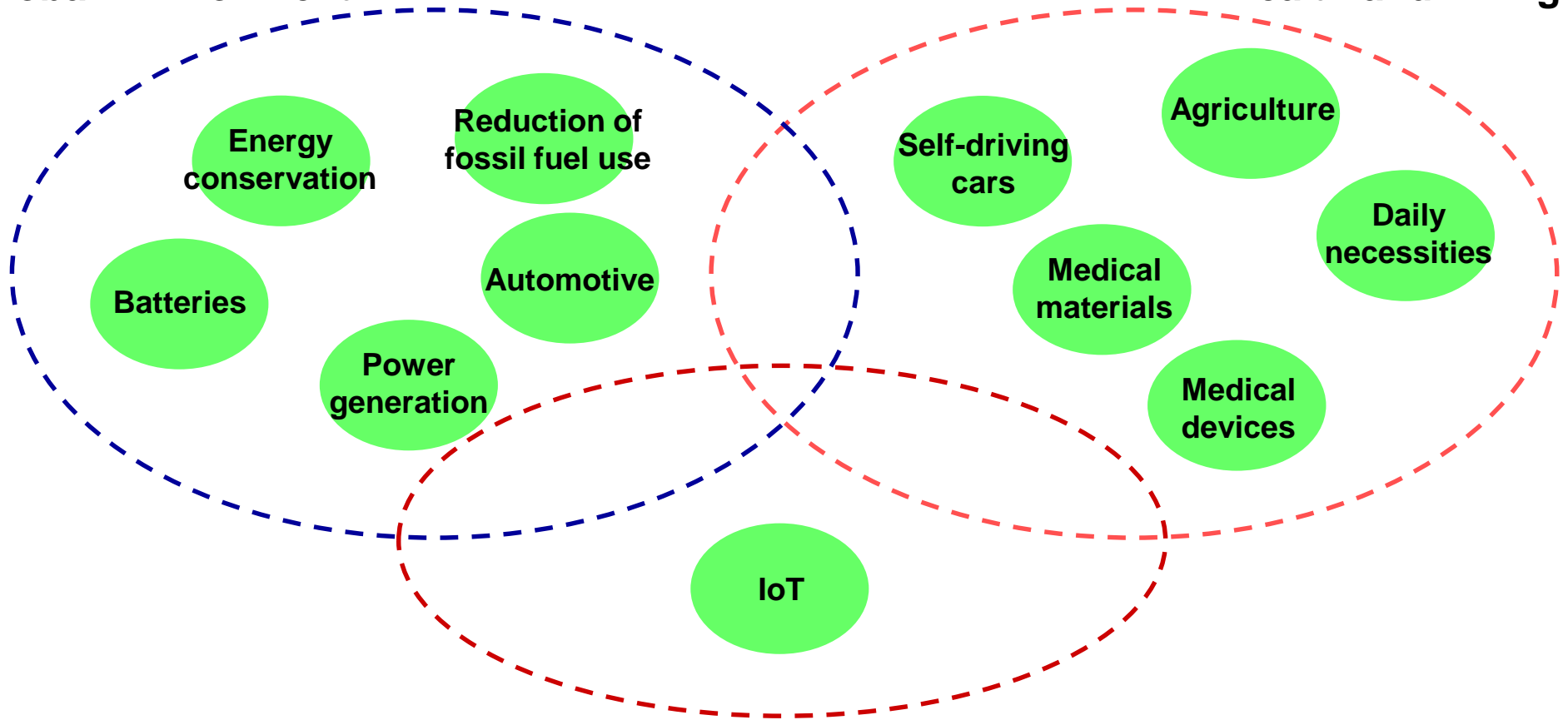
Culture

3. **Cultivate a corporate culture that places value on taking proactive action by harnessing diverse ideas and implementing them.**

Key development areas: high potential for growth and innovation

Global Environment

Health and Living



Smart Devices

Strategy by Business Segment

Elastomer Business

- Reinforce competitive businesses by responding globally to growth markets and raising cost effectiveness.
- Explore new opportunities and achieve growth based on the Zeon's reputation in the market and relationships with customers.

Specialty Materials Business

- Expand business in step with the speed of market growth and technological progress through focused investment of resources and stronger collaboration with outside players.

Strategy by Business Segment

Elastomer Business

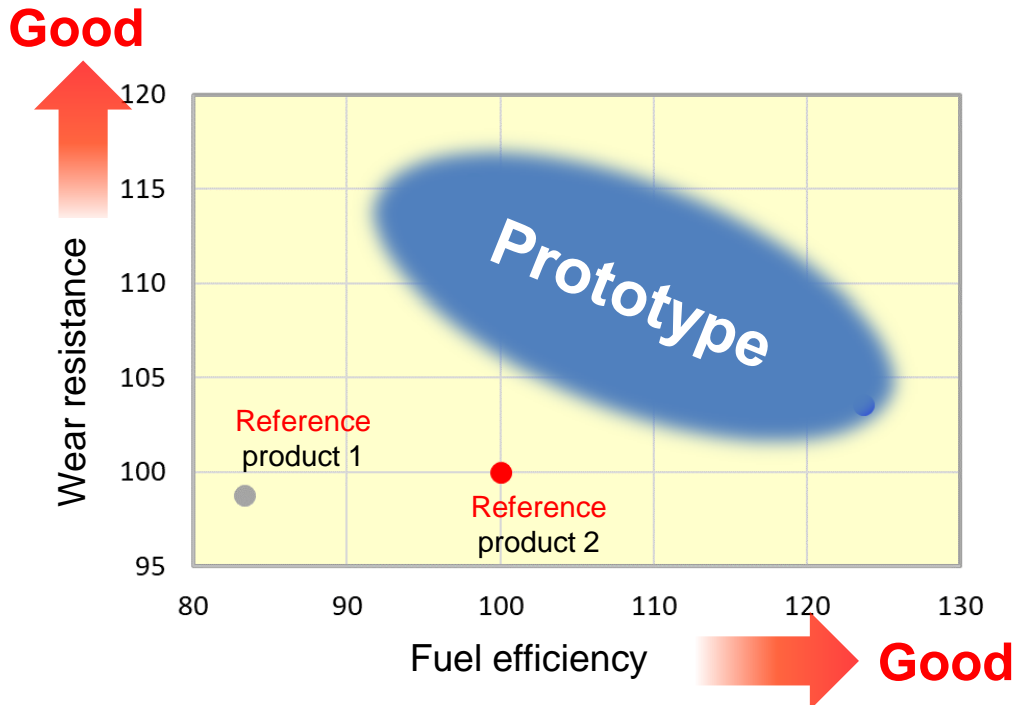
- Reinforce competitive businesses by responding globally to growth markets and raising cost effectiveness.
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Specialty Materials Business

- Expand business in step with the speed of market growth and technological progress through focused investment of resources and stronger collaboration with outside players.

Leveraging synergetic effects in technology and production derived from Sumitomo Chemical and Zeon for creating value;

- ZS Elastomers is committed to providing products that meet Tire Customers' requirements such as
- Low fuel consumption (Low rolling resistance)
- Safety (Good wet grip)
- Longer service life (Good abrasion resistance)
- Cornering stability (Good mechanical properties)



S-SBR Sales Forecast

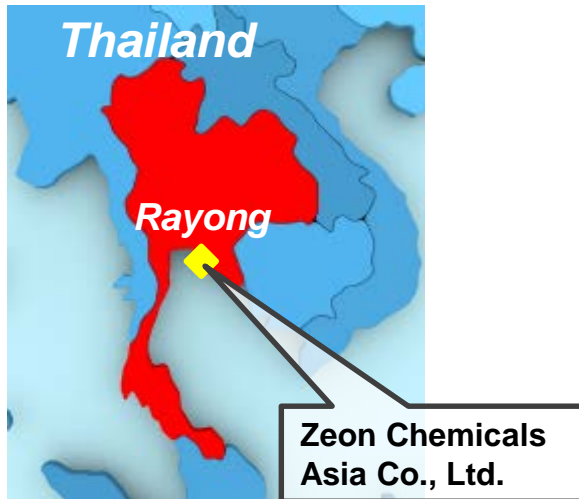


Reinforce Acrylic Rubber production in Asia to capture growing market demand

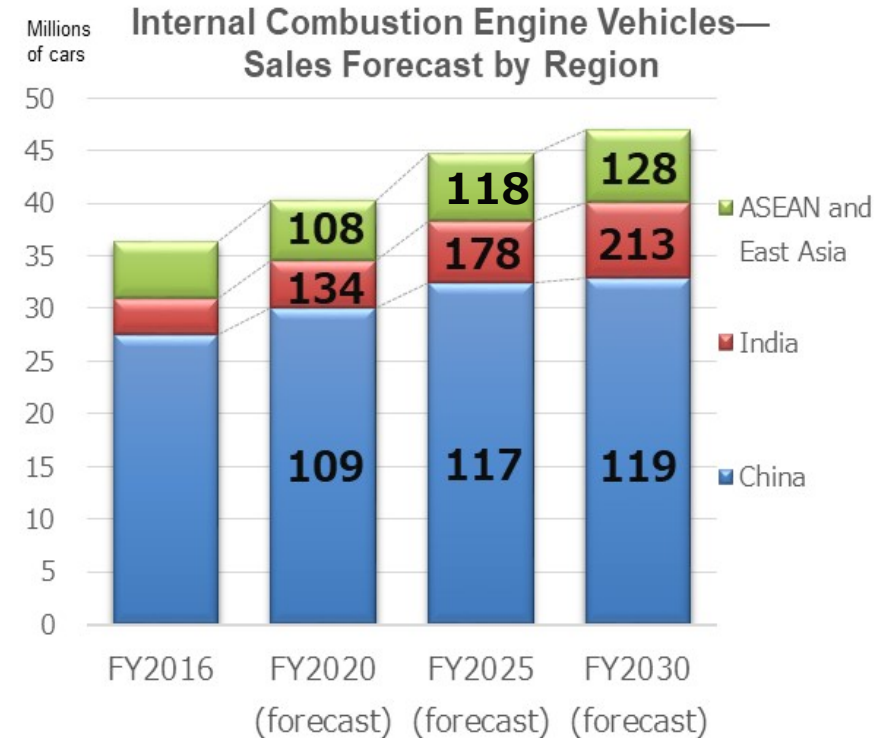
- Cover the demand expected to expand steadily in the Asian region, led by production growth of internal combustion and turbo charged engine powered automobiles.
- The Thailand operation joins Zeon's existing Acrylic Rubber manufacturing capabilities in Japan and USA.

Company Name : Zeon Chemicals Asia Co., Ltd.

- Location : Rayong Province, Thailand
- Paid-in capital : THB 1,250 million
- Capacity: 5,000 tons/year
- Mechanical completion: 2020 Spring (plan)



Source: Pixta



Source:

1. For ASEAN, East Asia, and China, "2018 In-depth Analysis Survey of HEV, EV-related markets" was published by Fuji Keizai Co., Ltd. (a total of HEV, PHEV, 48 V M-HV, and internal combustion engine vehicles).
2. For India, the figures are based on Zeon's estimate.

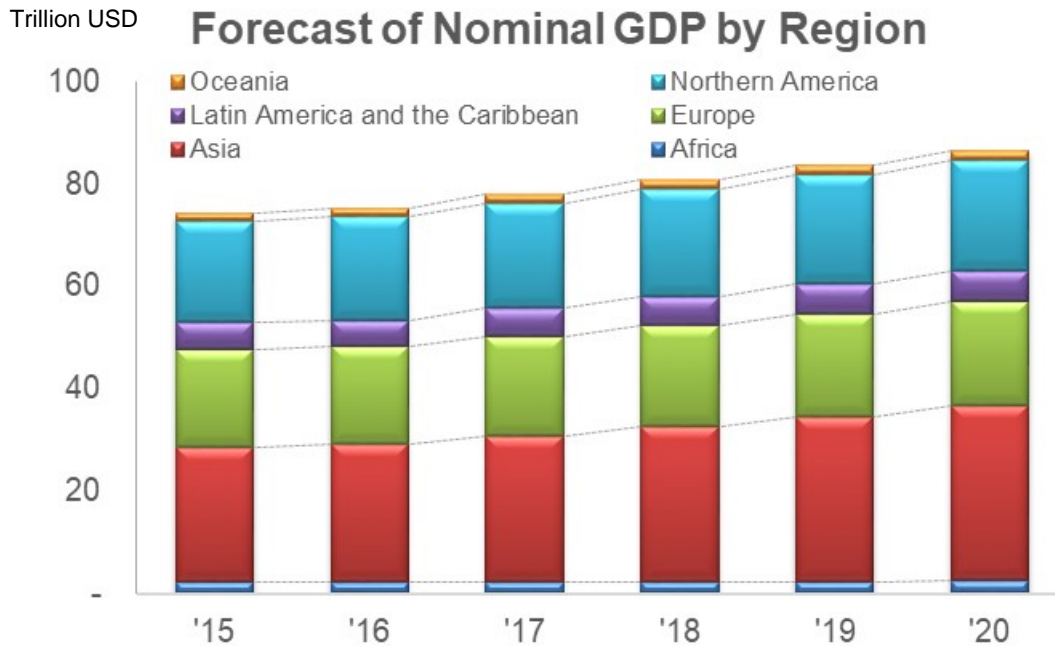
Numbers :Index as sales (actual) of each region for FY2016 = 100

To meet to demand in the growing cosmetics market

- Characteristics of Zeon's high-solids NBR latex
 - ✓ High oil resistance

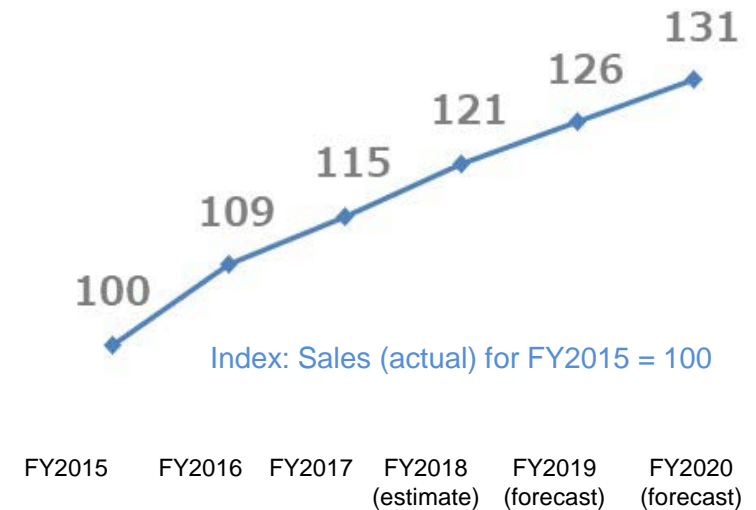


Powder puffs that use Zeon's high-solids NBR latex



Based on Zeon's survey

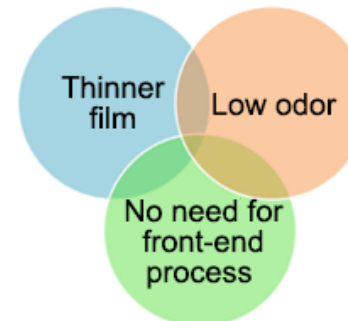
Sales Forecast for High-solids NBR Latex



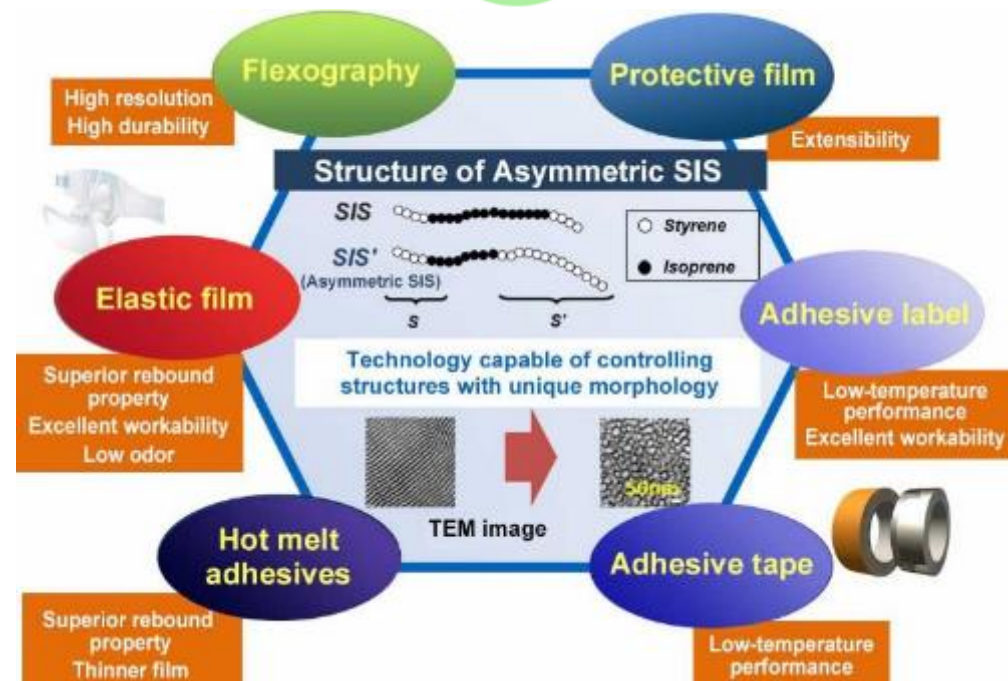
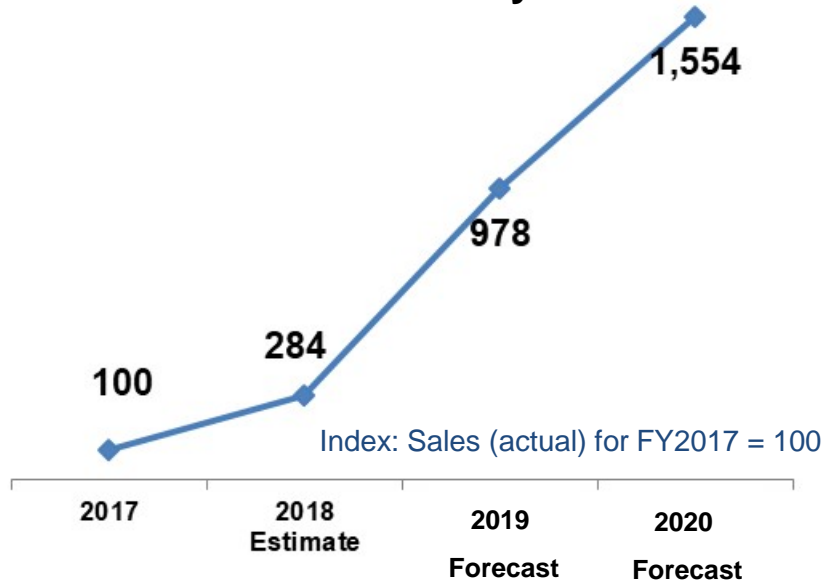
Aiming to expand business scale with our asymmetric SIS

- Extended for disposable diapers. Start a full-scale expansion in the 2nd half of 2018.
- Progressed the adoption for labels and flexographic plates.

Characteristics of Asymmetric SIS



Sales Forecast for Asymmetric SIS



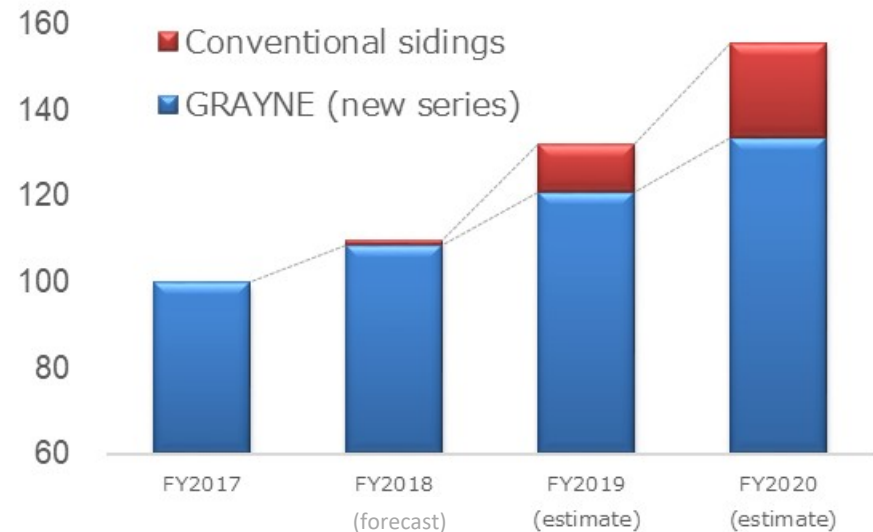
Launching “GRAYNE[®],” the new series of resin-based siding “ZEON Siding”

- Excellent design featuring realistic wood patterns and colors by hybrid structure.
- High durability against freezing and salt damage compared to ceramic siding materials.
- Superior impact resistance, which enables to resist a golf ball flying at a speed of 120 km/hr.



GRAYNE[®] is the registered trademark of TAPCO International Corporation.

Sales Forecast for “ZEON Siding”



Index: Sales (actual) for FY2017 = 100

Strategy by Business Segment

Elastomer Business

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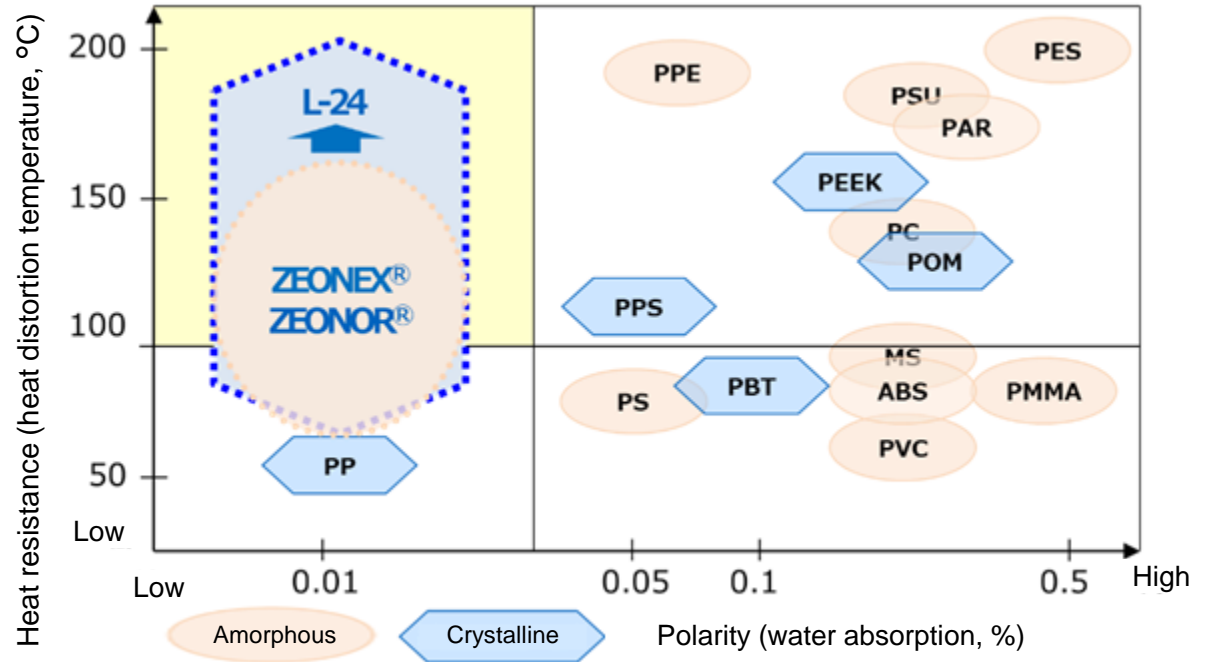
Specialty Materials Business

- Expand business in step with the speed of market growth and technological progress through focused investment of resources and stronger collaboration with outside players.

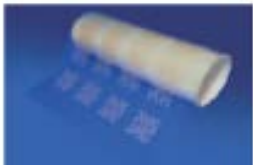
Completely new type of resin with excellent features

Characteristics of “L-24”

- Low water absorption and excellent hydrolysis resistance
- Low transmission loss
- Low specific gravity (approx. 1.0)
- High heat resistance (melting point: 265°C)
- High chemical resistance (insoluble in acid, alkali, and organic solvent)
- High flexibility



Applications



Antenna (77 GHz)



Flexible Flat Cables (FFC)



Non-woven fabric, filter



Case



Cassette



Bottles

Determined to expand the production capacity for extruded films

Respond to growing demand for high-definition displays (mobile devices, large-screen TVs, etc.)

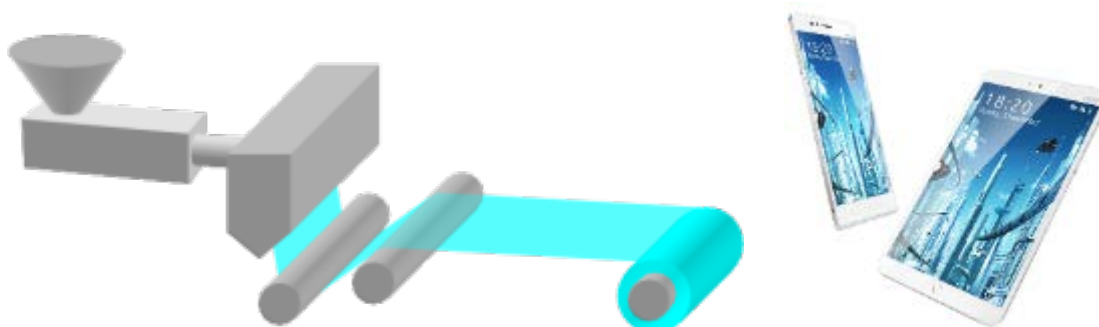


Location:

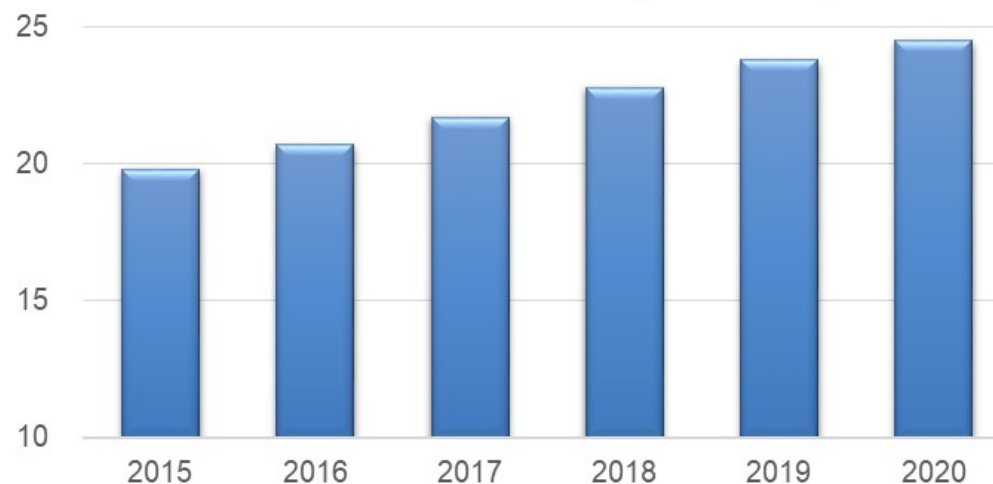
Optes Inc. (Takaoka site of the Hokuriku Plant)

Start of mass production:

October, 2019 (scheduled)



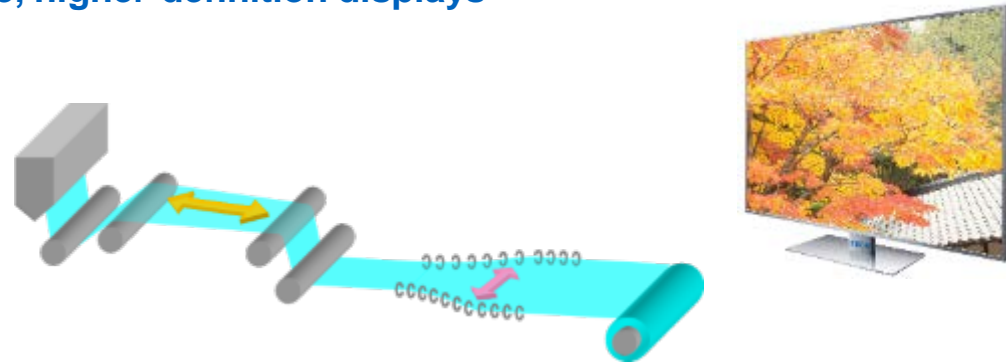
Millions m² Entire Touch Panel Market (Panel Area)



Source: 35th IHS Display Japan Forum / July 2018 (© 2018 IHS)

Determined to construct a new production line for optical films for large-screen TVs

Respond to growing demand for ultra-wide, higher-definition displays mainly for large-screen TVs



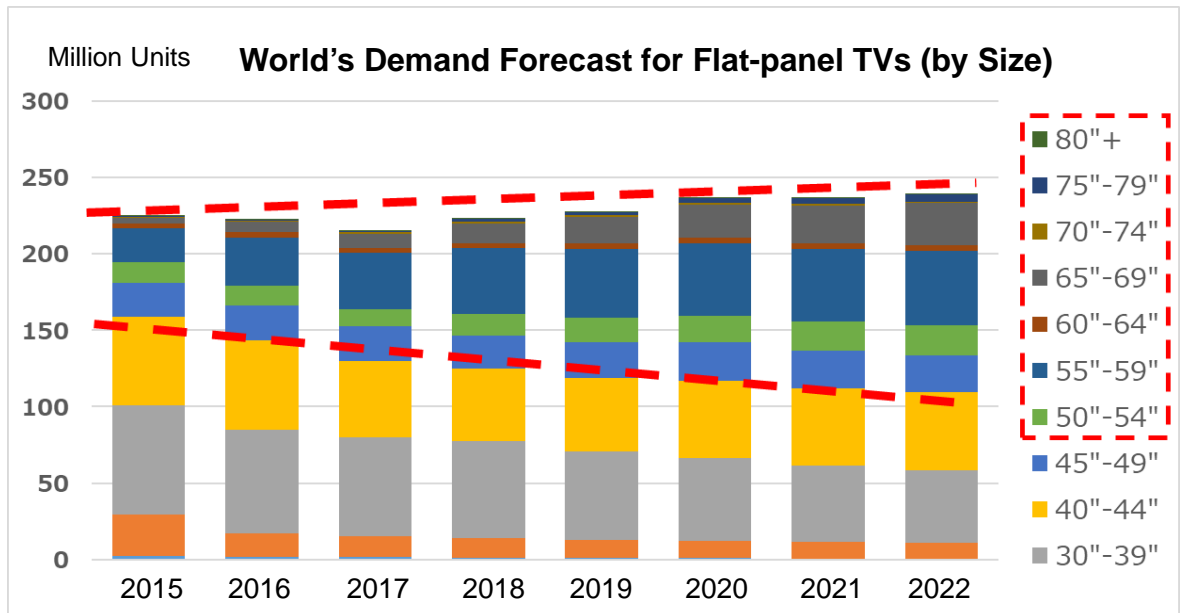
Location: Optes Inc.

(Tsuruga site of the Hokuriku Plant)

Production capacity: 50 million m²/year

Start of mass production: April 2020
(scheduled)

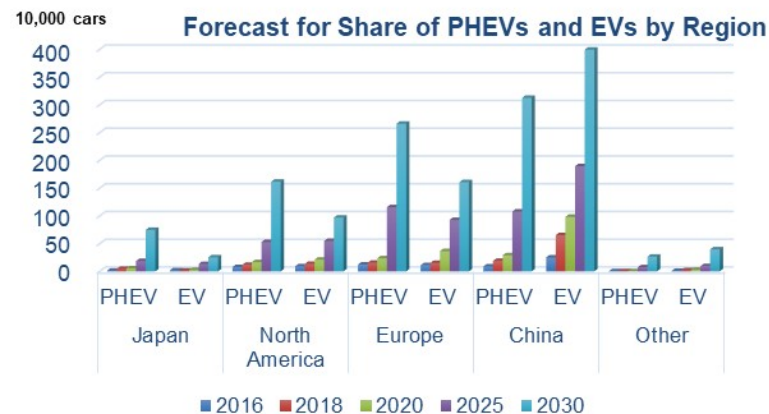
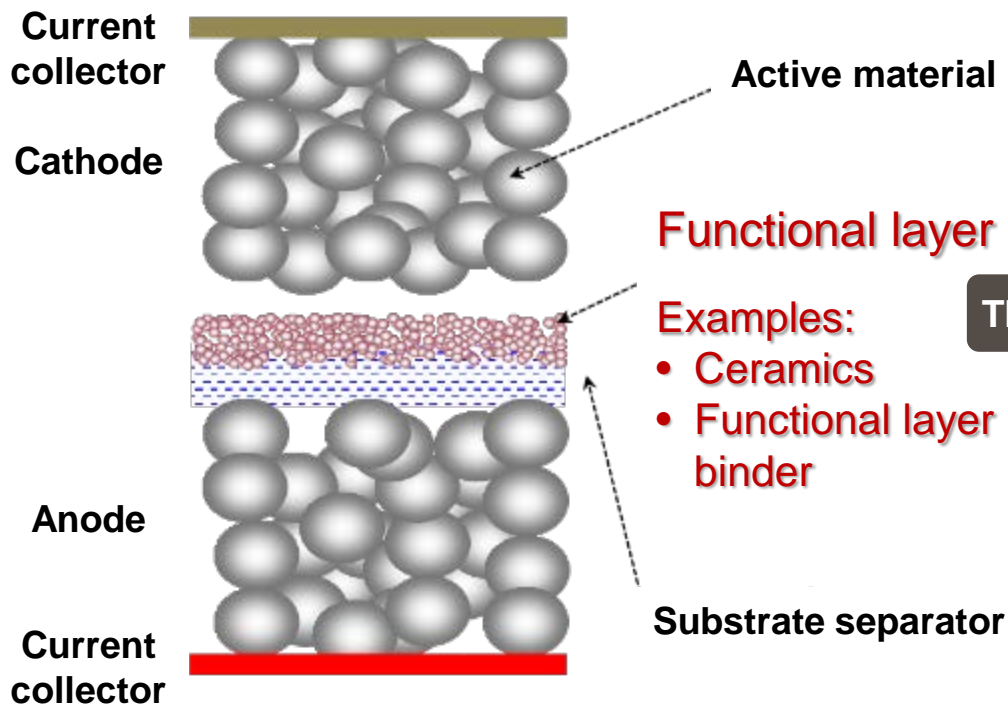
World's greatest width (approx. 2,500 mm)



Applying a “functional layer” (heat-resistant layer) to lithium-ion batteries

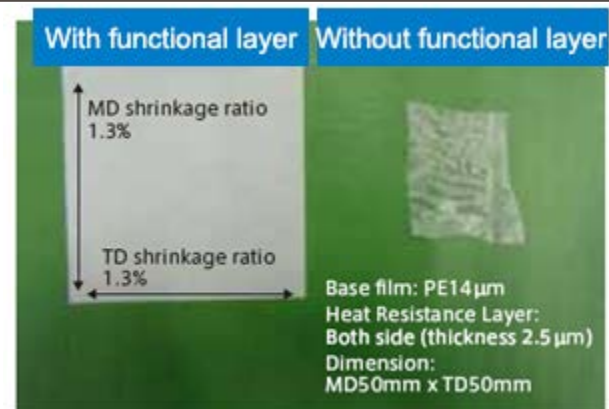
Separators featuring functional layers are fast becoming widely used to improve the safety of batteries

- Higher capacity
- Larger numbers of cars with LiB

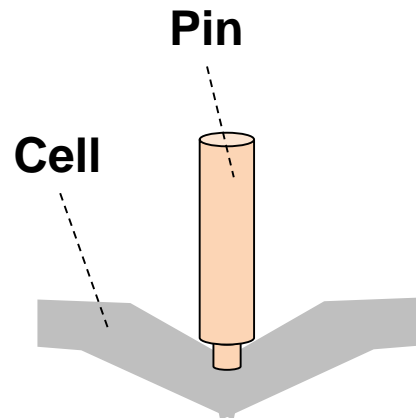


Source: “2018 In-depth Analysis Survey of HEV, EV-related markets,” published by FUJI KEIZAI CO., LTD.

Thermal Contraction Test of separator (150°C for 1 hr)

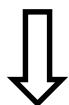
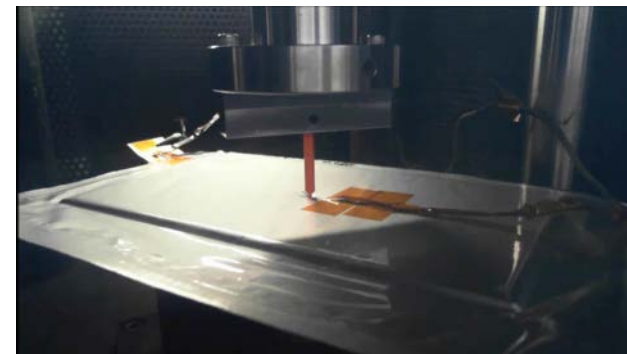


Example of Safety Assessment (Pin Crush Test)

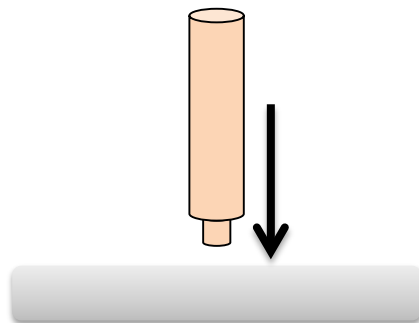


Without functional layer

Substrate separator



With functional layer



Functional layer

Substrate separator



Functional layer will contribute to improving safety of lithium-ion batteries.

Expanding sales by launching new gastrointestinal system devices

Balloon Catheter for Removing Bile Duct Stones

Released on May 30, 2018



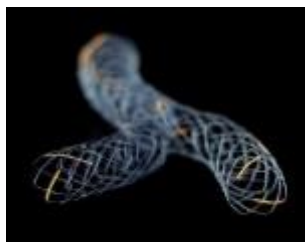
Short-wire lumen type that allows the operator to replace catheters easily while the guide wire is in use



We are aiming for the second largest market share in Japan.

HILZO Biliary Stent Products

Released on August 22, 2018

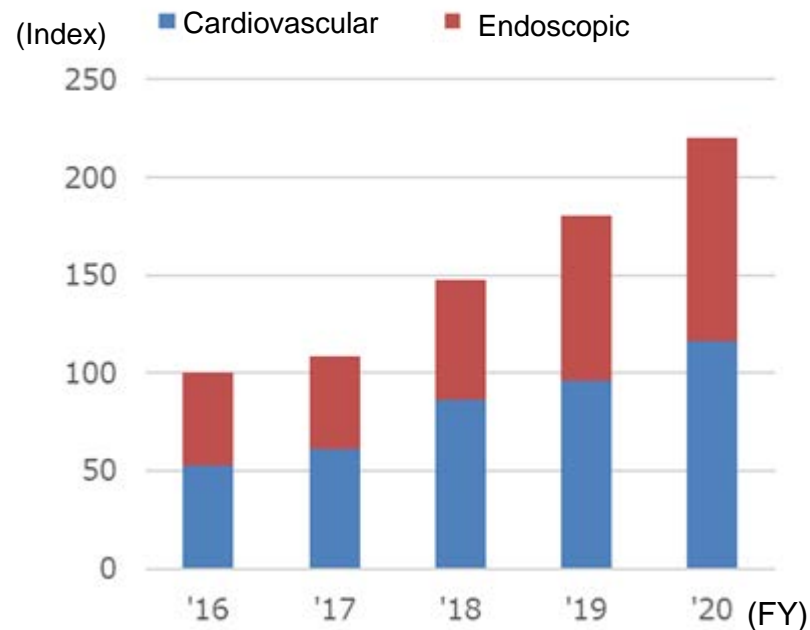


Moving cell structure that allows cells to expand easily (interweaving type)



We are aiming for larger market share by selling both stents of this braided type and the laser cut-type.

Zeon Sales of Medical Devices



(Index) Sales for FY2016 = 100

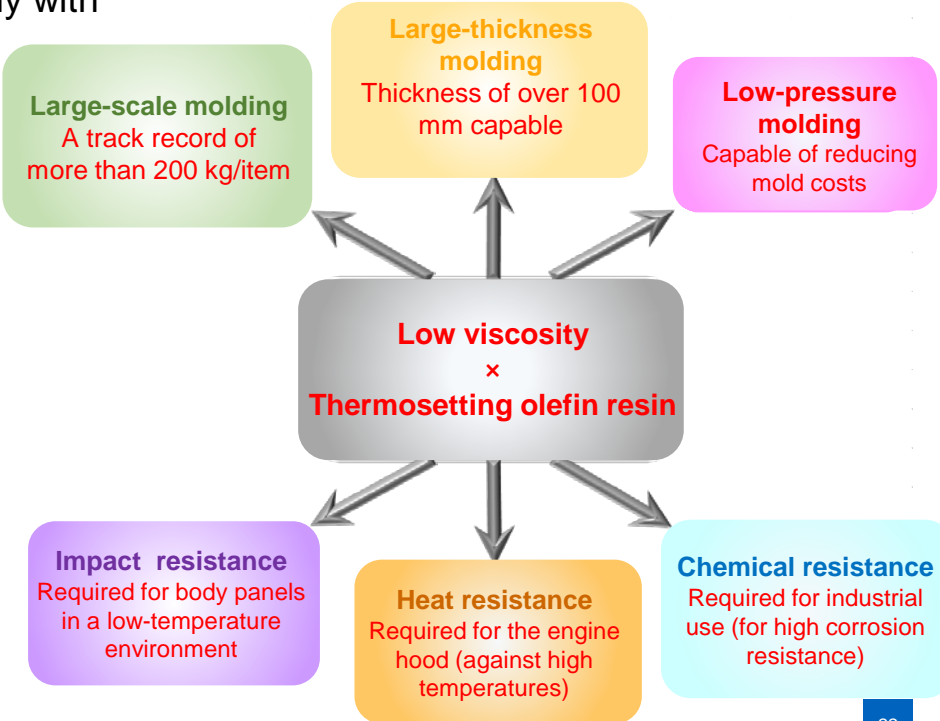
Growing demand in large trucks and buses

Advantage of DCP-RIM

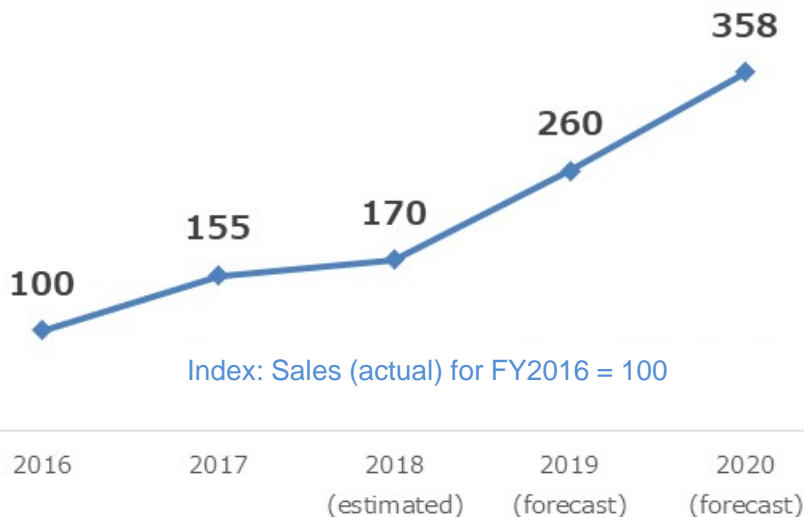
- Enables the manufacture of a single-piece large-size molding product with a good physical balance, without using reinforcement metal or glasses.
- Enables a wide variety of distinctive designs that take note of aerodynamic characteristics, which respond to market needs.
- Enables to replace from metals and FRP materials for weight reduction to improve fuel efficiency and comply with the regulations against overloading.



Advantage of DCP-RIM

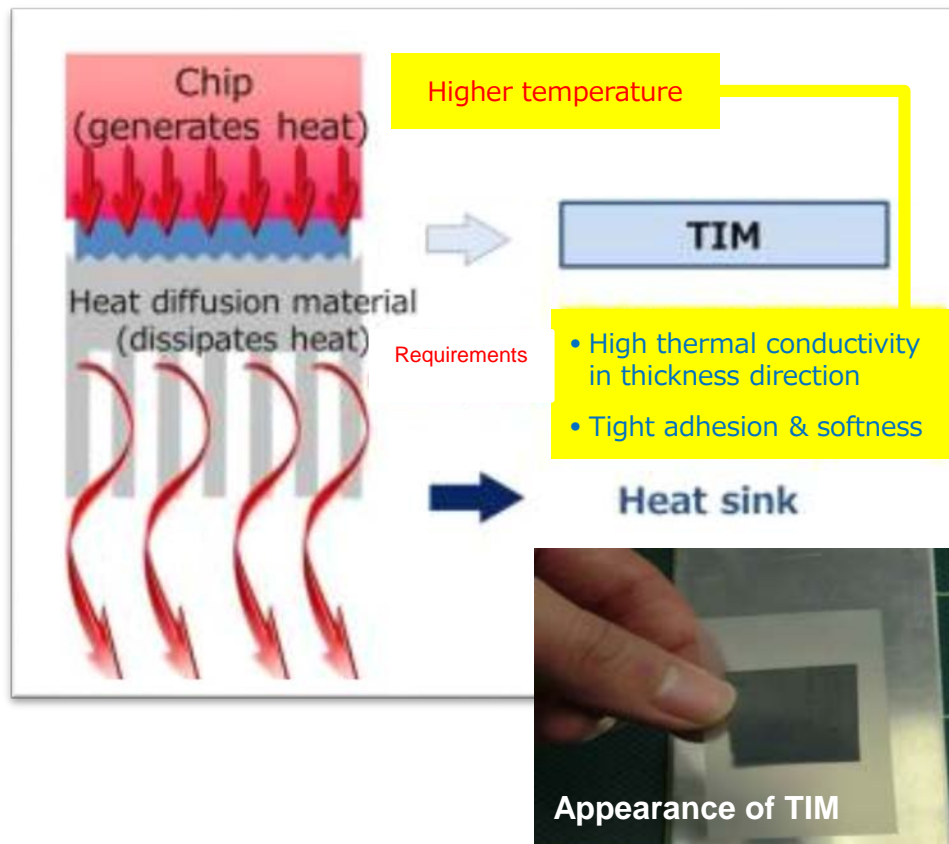


Use Volume of DCP-RIM for Trucks and Buses

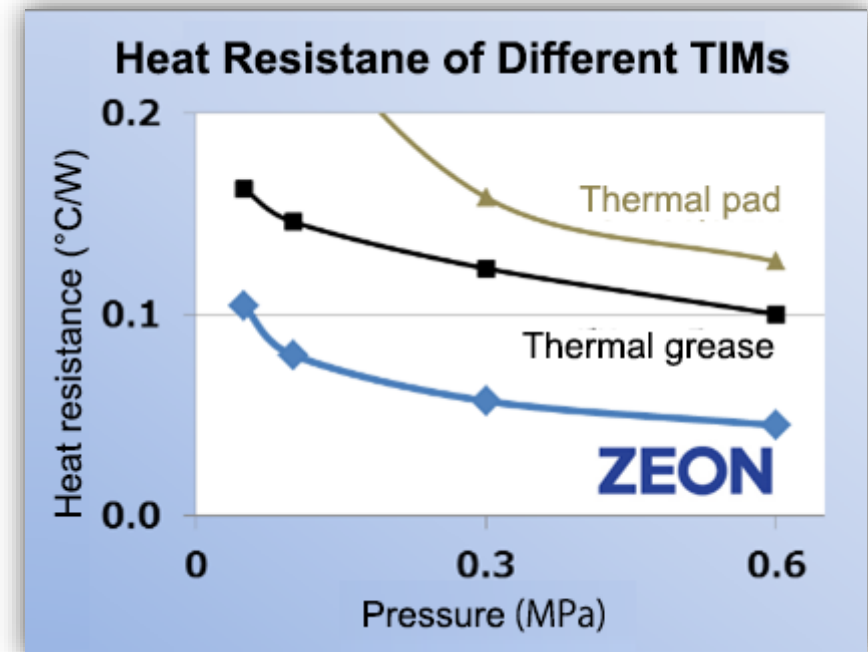


A solution in thermal management for power devices

Developed a high-performance pad-type thermal interface material (TIM) with high thermal conductivity.



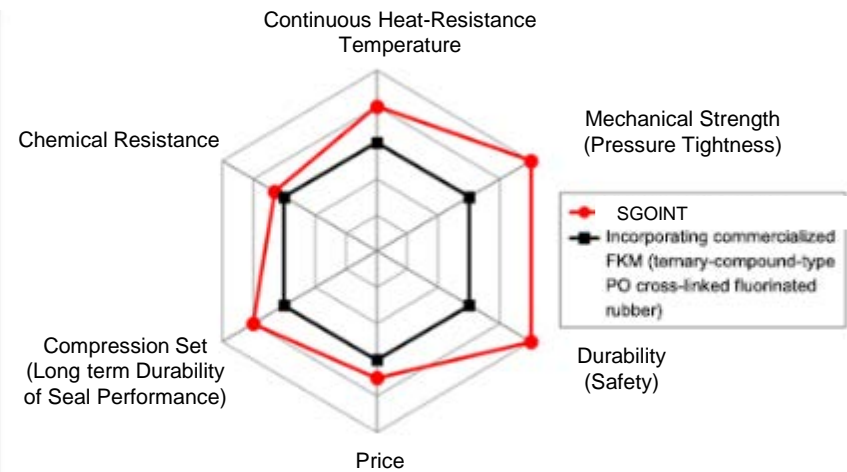
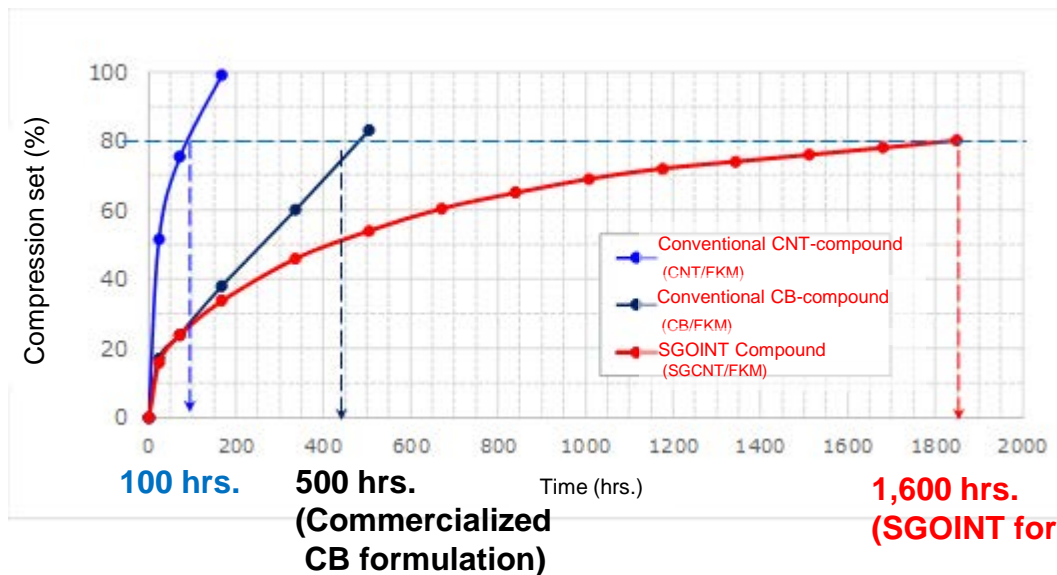
Achieving lower heat resistance under wider range of pressure



Developed and launched **SGOINT® O-rings** that incorporate **ZEONANO® SG101**

The result of R&D activities by the Team of Application for Carbon nanotubes Composite (TACC), jointly established by Zeon, SUNARROW, and the AIST. (The AIST published a news release about the product on September 13, 2018.)

- Superior resistance to high temperatures and pressure
- Cost effective



Source: The news release of the AIST

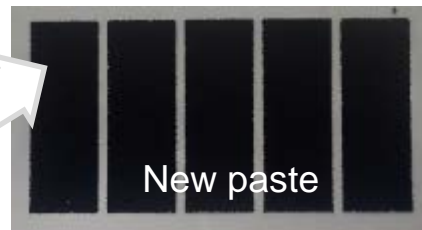
- Manufacture the composite of **ZEONANO® SG101** and ternary-compound-type **PO cross-linked fluorinated rubber**.
- Provide high-performance O-rings at a reasonable price by eliminating “compression set,” a major problem in manufacturing CNT composite.
- Built a mass production system for **SGOINT O-rings** at **SUNARROW LIMITED** using a master batch provided by Zeon.

Project LNES

LNES

Creating a new lifestyle by offering new energies and environments that lead to the next connected society.
(Leading, Next, Engaging, Society) (Leading, New, Energy/Environment, Solution)

New printing technology that enables to create of Nanocarbon Hybrid Solar Cells



Change solar light into small light (sensory value)

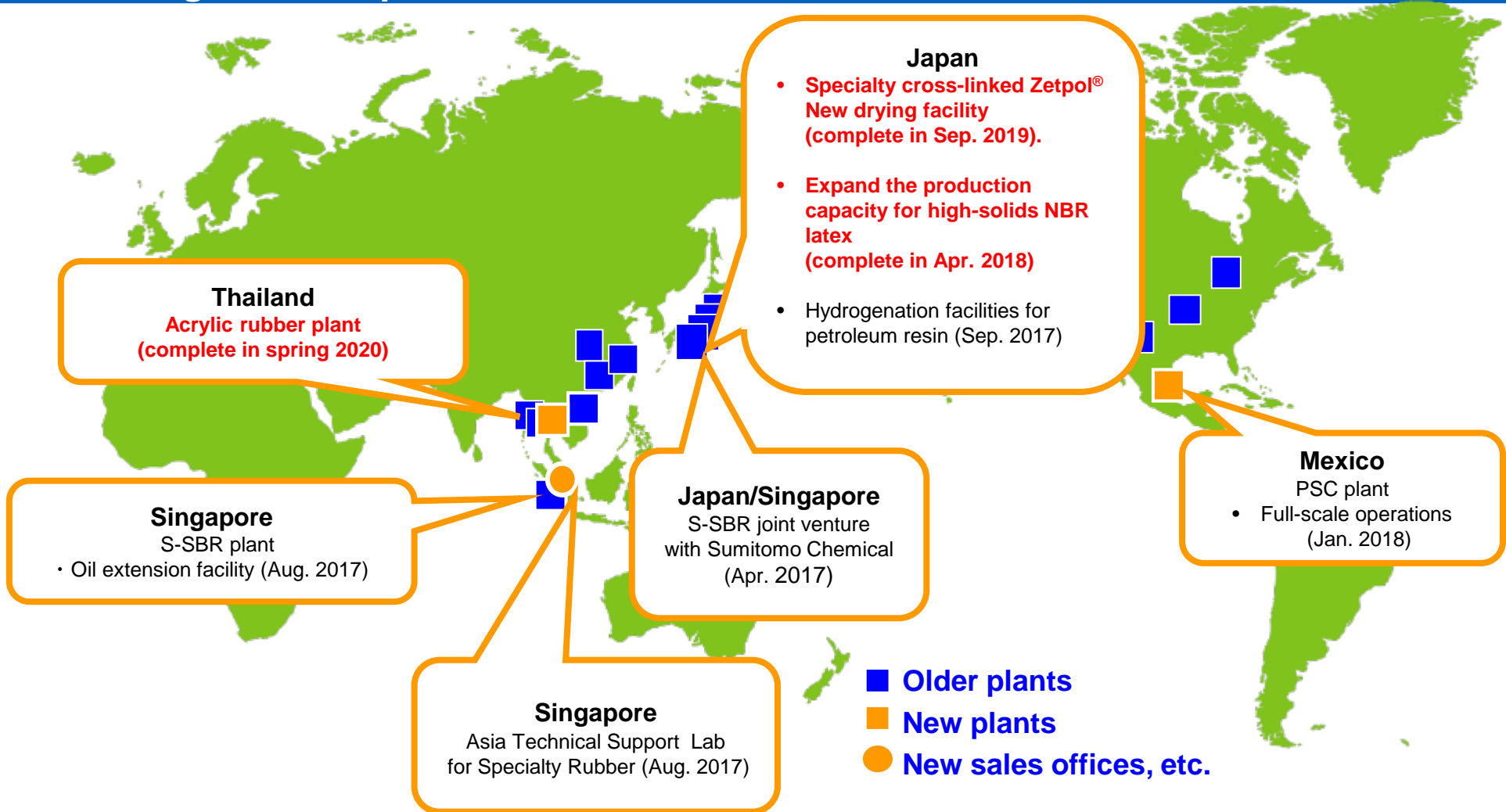


Connected (functional value)



Offer creative lives and cultures using a small amount of energy, which we tend to ignore.

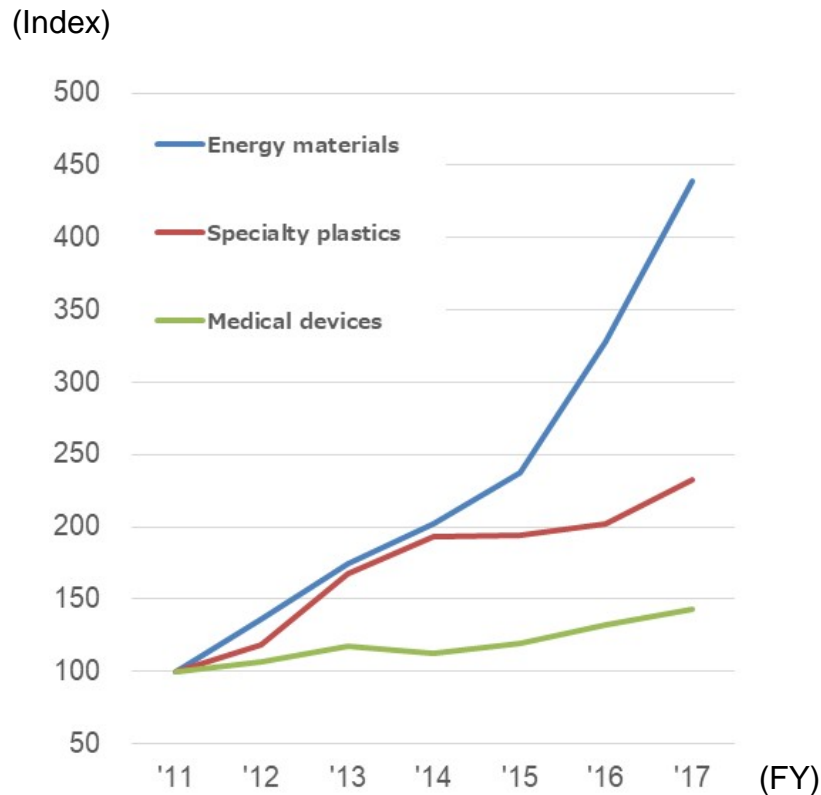
Further reinforce Zeon's strengths by responding to growth markets globally and enhancing cost competitiveness



Expand the business through a focused investment of resources and stronger collaboration with outside partners

Sales of Specialty Materials

(FY2011 = 100) consolidated



Topics on Specialty Materials

- ★ **Expand Production Capacity for Optical Films**
 - **Retardation films for LCD TVs**
 - Himi Plant: 24 million m²/year (began operations in October 2017)
 - **Tsuruga Plant: 50 million m²/year (scheduled to begin operations in April 2020)**
 - **Extruded films**
 - Takaoka Plant (scheduled to begin operations in October 2019)**
- ★ **Development of New Products**
 - **COP resins**
 - ZEONEX[®]T-62R for highly heat-resistant optical lenses
 - **L-24 (new product): Highly heat-resistant/ low water-absorption resin**
 - **Medical devices**
 - Large-diameter balloon catheter for removing bile duct stones**
 - **Carbon nanotubes**
 - O-rings, SOLAR CARD**

Production Innovation*

Intelligent manufacturing system

Operation Standardization

Field Load Down,
Unified Wording

Corporate Culture Reform

Top-down approach

Strengthening cost competitiveness

Developing human resources

Reforming corporate culture

Bottom-up approach

ZΣ Activities

- ★ Cost reduction activities
- ★ Small group activities
- ★ Raising cost awareness and education

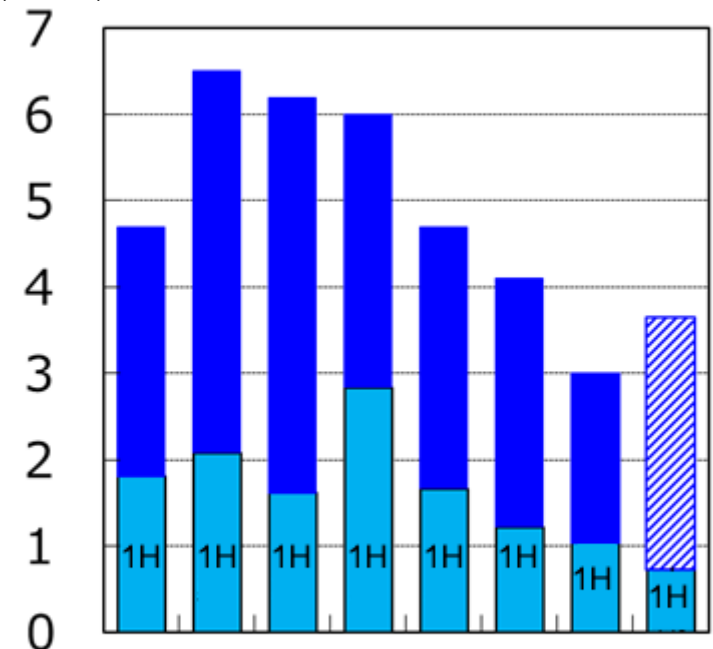
Approved themes

Continuing Efforts for Innovation and Improvement

*Production Innovation:
Daicel Production Innovation

ZΣ Activities, Monetary Effect

JPY (Billions)



'11'12'13'14'15'16'17'18

(FY)

Enterprise Blueprint for 2020

**Zeon makes the Future Today
through the Power of Chemistry.**

Zeon will continue to contribute to the realization of customer dreams and a prosperous society through employees' individual growth.

**Targeting consolidated net sales of
over 500 billion yen in FY2020**

Speed

Dialogue

**Social
Contribution**

Mutual trust and confidence among Zeon members