The three strategic domains for JSR Group are petrochemical products, fine chemicals, and life sciences. In each of these areas, we are developing business activities based on medium- and long-term perspectives.



Display Materials

Bioprocess

Materials



Sales at segments and key businesses (Millions of yen)



* Note: FY means year ended March 31

Petrochemical Products Business

Elastomers





General-Purpose Synthetic Rubbers • Solution Polymerization Styrene-Butadiene Rubber (SSBR), Emulsion polymerization Styrene-Butadiene Rubber (ESBR) Polybutadiene Rubber (BR)

Special-Purpose Synthetic Rubbers

- Nitride Rubber (NBR), Butyl Rubber (IIR)
- Ethylene-Propylene Rubber (EPM/EPDM)

Thermoplastic Elastomers (TPEs)

- Syndiotactic 1, 2-Polybutadiene "JSR RB™"
- Hydrogenated polymer "JSR DYNARON™"
- Styrene-butadiene thermoplastic elastomers "JSR TR™"
- Styrene-isoprene thermoplastic elastomers "JSR SIS™," etc.

Emulsion Products

• Paper coating latex, SB latex, Acrylic emulsions, etc.

Performance Chemicals

- High-functional dispersant "DYNAFLOW™"
- Organic/Inorganic hybrid coating materials "GLASCA™"
- Battery materials
- •Thermal management materials



Styrenic Resins

- Acrylonitrile-Butadiene-Styrene (ABS) plastic
 Acrylonitrile-Ethylene-Propylene-Styrene (AES)
 plastic
 - MaterialsCMP slurries and pads

Lithography Materials

Packaging Materials Thick-film photoresists, photosensitive insulation materials, etc.

·Photoresists, multilayer materials, etc.

CMP (Chemical Mechanical Planarization)

Semiconductor Materials

Fine Chemicals and Other Products Business

Fine Chemicals

Display Materials



LCD Materials

 Alignment films, protective coatings, color pigment dispersed resists, photosensitive spacers, etc.

New FPD Materials • Optical coatings, OLED, etc.

Optical Materials



Precision Materials and Processing Business

Heat-resistant transparent resin "ARTON™"
ARTON™ optical films, etc.

Optical Materials

• High-performance UV curable resins, etc.

Life Sciences and Others

Life Sciences Materials



in-vitro Diagnostic and Research Reagents Beads for clinical diagnostics Research reagents Magnetic beads Size standard beads

Bioprocess Materials

Protein A affinity material
Ion-exchange material

Lithium Ion Capacitors



Cells • Laminate cell • Prismatic cell

Modules

Laminate cell module
Prismatic cell module

PETROCHEMICAL PRODUCTS BUSINESS

Elastomers

Performance Overview

Net Sales



Operating Profit

8.3 billion **+11.3%**

- While automobile tire and automobile production grew mildly year on year at the global level, domestic automobile tire production fell against the previous year.
- Total elastomer sales volume increased year on year.
- Total elastomer sales also rose against the previous year on a large increase in SSBR sales volume reflecting export growth and a high operating rate at the first-phase plant producing SSBR at JSR BST Elastomer Co., Ltd. (JBE), the Thai joint venture.
- Despite tighter margins on a stronger yen and deterioration of market conditions in the first half, operating profit rose year on year on higher sales volumes and improved margins on the second-half market recovery.

The SSBR Business Strategy

We expect annual average growth in global SSBR sales volume to be 6%-8% attendant with expanding demand for fuel-efficient tires due to growing environmental awareness. JSR's aggregate SSBR production capacity in Thailand and Japan is 160,000 tons at present. Moreover, a new plant in Hungary is to commence production in 2018, increasing JSR's capacity to 220,000 tons. Utilizing this capacity, we aim to expand sales volumes at over 10% per annum, outpacing overall market growth.

Also, we established JSR Elastomer Europe GmbH in Germany to reinforce the Group's sales bases in Europe, where SSBR demand will increase, and built a Tianjin technical center in China, where market needs exist. Although we are now introducing fourth-generation SSBR, we are also establishing the technology for a fifth-generation product. In addition, we are working to introduce a product for the high-volume segment with the aim of increasing JSR's global market share for SSBR.

Expansion of SSBR Production Capacity



FY ended March 31, 2019 **220,000** tons per year +Hungary:

60,000 tons

60,000 tons Thailand: 100,000 tons

PETROCHEMICAL PRODUCTS BUSINESS

Plastics

Performance Overview

Net Sales



Operating Profit

3.8 billion **0**-26.2%

- Against a backdrop of steady global automobile production, total plastics sales volume grew year on year with sales volume for automobile applications increasing.
- Total plastics sales, however, fell year on year reflecting the large impact of product price declines due to a stronger yen and lower raw materials prices.
- Operating profit also plunged year on year on margin erosion reflecting the large impact of lower product prices.

Preparing for a Leap Forward in Plastics

JSR, Ube Industries, and Mitsubishi Chemical are proceeding with integration of the ABS resin businesses of their respective resins subsidiaries through the merger of Techno Polymer, a wholly-owned subsidiary of JSR, and UMG ABS, in which Ube Industries and Mitsubishi Chemical each holds a 50% equity interest.

On March 30, 2017, the three companies signed an agreement to integrate the ABS resin businesses of Techno Polymer and UMG ABS and are to jointly operate the newly integrated company, with a scheduled effective date of October 1, 2017. Annual production capacity at the integrated new company will be 400,000 tons. In addition to improving manufacturing efficiencies and securing cost competitiveness so as to provide a stable product supply in Japan, the integrated new company will strive to expand sales in high-end markets overseas.

Overview of New Company





FINE CHEMICALS AND OTHER PRODUCTS BUSINESS

Performance Overview

Net Sales **159.2** billion **+2.6%**

Operating Profit **20.3** billion **0**-7.1%

- Sales rose and operating profit decreased on price declines stemming from a stronger yen and fiercer competition in display materials.
- Sales at the life sciences business, a new business pillar, grew sharply.

Semiconductor Materials

Performance Overview



- Semiconductor demand grew steadily.
- Total semiconductor materials sales volume expanded, driven mainly by leading-edge photoresists.
- With the stronger yen having a large impact, total semiconductor materials sales declined year on year.

Preparing for Commercialization of EUV Resists

While remaining the market share leader in leading-edge lithography materials for 14nm and 16nm processes, JSR aims to secure commercial rights for 10nm generation patterns. Moreover, JSR seeks to be the first to mass produce EUV lithography materials for next-generation sub-7nm processes in an ongoing effort to expand sales as the industry frontrunner.

In March 2017, the EUV Resist Manufacturing & Qualification Center NV (EUV RMQC), a joint venture between JSR Micro NV, a leading materials company, and imec, the world-leading research and innovation hub in nanoelectronics and digital technology, announced the completion of a new manufacturing facility in Belgium, enabling manufacturing and quality control of EUV photoresists for the semicon-ductor industry. The new facility is equipped with four sizes of vessels in its clean-room environment and is run by a team of trained staff.

We are also working to expand sales of semiconductor peripheral materials such as CMP materials, cleaning solutions, and packaging materials, and with both lithography and peripheral materials, we strive to expand sales of a widerange of semiconductor materials.

EUV Joint Venture: EUV Resist Manufacturing & Qualification Center N.V. (EUV RMQC)





FINE CHEMICALS AND OTHER PRODUCTS BUSINESS

Display Materials

Performance Overview

Net Sales



- The trend in panel production was steady.
- Total display materials sales fell year on year on a stronger yen and selling price declines on stiffer materials market competition.

Development of the Display Business in the Chinese Market

JSR entered the Chinese market, where continued high growth is expected, ahead of competitors and will proceed steadily with sales expansion in China. Specifically, we are constructing a plant at JSR Micro (Changshu) Co., Ltd. (JMCH), a joint venture established in China to manufacture display materials, and plan to start operation in 2017. In response to the commoditization of liquid crystal panels, we are working to secure business profit through operational reforms and are pursuing expansion of the product line related to mobile products, from which continued growth can be expected. Furthermore, we will work to maintain profit from the business overall through drastic structural reform of operations at each production site and aim to continuously expand the product portfolio.

Expansion of Display Materials Business in China

Beijing branch

 Sales and marketing to peripheral customers

Hefei branch • Sales and marketing to peripheral customers

Chongqing branch • Sales and marketing to peripheral customers

Shenzhen branch o • Sales and marketing to peripheral customers > JSR Micro (Changshu) Co., Ltd.
 Produces materials for LCD panel

the terms

Plans to commence production within FY2017

 JSR (Shanghai) Co., Ltd.
 Performs oversight function for display materials business
 Conducts R&D for Chinese customers



Analysis lab



FINE CHEMICALS AND OTHER PRODUCTS BUSINESS

Life Sciences Businesses

Performance Overview



• Sales grew sharply on sales growth at KBI Biopharma Inc. (KBI) and the conversion of MBL* into a consolidated subsidiary from second half of FY 2015.

* MEDICAL & BIOLOGICAL LABORATORIES CO., LTD.



Forecast of sales in the Life Science business

Life Sciences as a New Business Pillar

The Company will reposition its activities in the life sciences area, which has been positioned as a strategic business in the Fine Chemicals and Other Products Business segment, as a new pillar of the business portfolio comparable to the Fine Chemicals business. We focus on two fields: bioprocess fields and diagnostic and research reagent fields.

In the area of bioprocess materials, the Group will make efforts to increase KBI's contract development and manufacturing of biopharmaceuticals for which demand is growing year by year, in Europe as well as the United States. KBI invested \$30 million to expand its biopharmaceutical manufacturing capacity and capabilities, and it plans to commence commercial manufacturing in 2017. KBI's strong development capabilities and track record of success in clinical bulk drug substance manufacturing are the foundation for its expansion into commercial manufacturing. With these efforts, KBI is able to respond to a wide-range of customer needs from clinical tests to commercial production. KBI also plans to expand in Europe with the opening of an analytical services laboratory at JSR's subsidiary, JSR Micro NV, in Leuven, Belgium in the first quarter of 2018. This expansion will allow KBI to serve the European market with the high value analytical characterization and cGMP testing services which remain at the heart of KBI's business.

Also, we expanded production capacity of Amsphere A3 protein-A chromatography resin at JSR Micro NV to meet growing market demand. This expansion will effectively increase its production capacity by six times by the end of 2019.

The diagnostic intermediates business of J&W Beijing Biotech Co., Ltd. (J&W), a joint venture in China, is also progressing steadily.

In Japan, we are proceeding with construction of JSR-Keio University Medical and Chemical Innovation Center (JKiC), a joint research facility with Keio which is to open in October 2017. Through joint research conducted with Keio University School of Medicine and Keio University Hospital, where JKiC is sited, JSR will work to develop groundbreaking materials and products to support new medical fields.





R&D POLICY AND ORGANIZATION

With deep expertise in its core polymer and precision manufacturing technologies, the JSR Group has widened the scope of its technological domains by integrating technologies from disparate fields such as photochemistry, inorganic chemistry, precision processing, and biotechnologies. On this basis, the Group has advanced R&D activities, and its accumulated efforts have enabled it to develop unique strengths relative to chemical companies worldwide, which is our driving force to expand superior materials and technologies globally.

The JSR Group's main R&D centers are located at Yokkaichi City in Mie Prefecture and Tsukuba City in Ibaraki Prefecture. There we carry out R&D activities aimed at tracking swiftly evolving societal needs such as the changes that are emanating from the digital revolution.

Our R&D mission can be broadly divided into three categories: "support research" for business domains we are developing; "next-generation technology research" such as novel and application research for peripheral fields; and "seeds research" such as R&D for cutting-edge materials that will be necessary in the future. In promoting research, we highly value the close linkages in the Group's value chain from market development to process development and manufacturing technology development, extending out to manufacturing, sales, and distribution. In our "support research", we bring together our businesses and R&D in ways that enable our researchers to directly contact customers to delve deeper into customers' needs. Moreover, we are enhancing technical services in a number of countries and constructing a system capable of providing global and timely support for customer's businesses promotion.

For next-generation technology and seed research, it is necessary for R&D to anticipate latent market needs. Particularly in the case of new R&D fields, we promote open innovation such as joint research with universities and research institutions in Japan and overseas. We have established the JSR-Keio University Medical and Chemical Innovation Center (JKiC), a joint research facility on Keio University's Shinanomachi campus, which is to open in October 2017.

We will create innovation through investigating the wholly novel concept of fusing medicine and chemistry, which will lead to establish practical technologies that contribute to global society with people living long and healthy lives.