# **Performance Products Domain**



#### **Performance Products segment**

Sales revenue amounted to ¥1,033.9 billion, a year-on-year decrease of ¥84.2 billion, while core operating income of ¥61.3 billion maintained the previous fiscal year's level. Although demand began to recover from the second half of the year, sales revenue declined year on year, due particularly to a decrease in sales to the automotive industry of high-performance engineering plastics and other products supplied by the Advanced Moldings and Composites business. Other reasons for the decrease included the



**Performance Products segment** 

\*1 Includes differences in inventory valuation and gains/losses on equity method investments \*2 The core operating income of ¥61.3 billion for fiscal 2020 is the figure before segment change

reduced sales volume of phenol and polycarbonate chain materials in the Advanced Polymers business, arising mainly from the impact of scheduled maintenance and repairs.

The segment's core operating income, however, maintained the previous fiscal period's level thanks to the recovery in demand from the second half of the year and the improvement in the phenol and polycarbonate chain materials market, which compensated for the abovementioned negative factors.





#### Main businesses and products

(Business names were changed starting from fiscal 2021 to reflect the segment change.)



Polymers Performance polymers, sustainable polymers (biodegradable resins, bio-engineering plastics, polycarbonate, polybutylene, epoxy resins), acetyl polymers (EVOH\*1, PVOH\*2)

- Performance polymers We help our customers innovate by supplying a broad range of products for medical and industrial use as well as for consumer goods, including thermoplastic elastomers, performance polyolefins and polyvinyl chloride compounds.
- Polycarbonate Operating globally with a leading market share in Asia, we supply phenol and polycarbonate by integrating its proprietary manufacturing processes with polymer design and compound technologies.
- Coating & Additives Coating materials, functional additives, fine chemicals • Coating materials Applying advanced technologies for combining, mixing and evaluating chemical
- ingredients, we offer environmentally conscious value-added coating materials used in a variety of products, including paint, ink and adhesives. \*1 Ethylene vinyl alcohol copolymer \*2 Polyvinyl alcohol

Films Packaging (food packaging), industrial films (for manufacturing and medical uses, OPL film, etc.), polyester films

- Packaging (food packaging), industrial films (for manufacturing and medical uses, OPL film, etc.) We optimally combine our polymer design, molding, surface treatment and composite material technologies to produce films with added functions, such as gas-barrier properties, weather resistance, moisture permeability and easy-to-unseal functions. Our films are used in a wide range of industries, including the food packaging and medical products industries.
- Polyester films We are moving to secure supply capacity in response to the globally expanding market for industrial and optical polyester films, and we are promoting the evolution of a wide range of industrial products to provide prompt solutions to increasingly sophisticated needs.

Molding Materials High-performance engineering plastics, carbon fiber and composite materials, alumina fibers, functional moldings and composites, fibers and textiles

- High-performance engineering plastics As a leading global manufacturer of high-performance engineering plastics, we provide products to the industrial machinery, automotive, aircraft and medical equipment industries.
- Carbon fiber and compounds materials We have established a world-leading integrated product chain spanning from polyacrylonitrile- and pitch-based carbon fibers to intermediate materials and molded products made from such fibers.
- Advanced Solutions

Amenity Life Aqua solutions, life solutions (functional food ingredients, etc.), construction material-related products

- Aqua solutions We use membrane filters, ion-exchange resins and other functional separators to provide water treatments for all needs from drinking water supply to sewage treatment, and to offer total solutions in food and pharmaceutical manufacturing processes.
- Life solutions We also supply a range of products from vitamin E and capsules to food emulsifiers such as sugar ester, in which we have the leading share of the world market. We aim to combine good health with good taste as we expand this diverse business from food into other sectors.

Information & Electronics Semiconductors, electronics (electronic display materials, optical clear adhesive sheets, etc.), battery materials

- Semiconductors & Electronics We are also focused on developing and marketing products and services to create new value tailored to customer needs, ranging from a diverse range of materials for electronic displays to high-purity products and precision cleaning materials for semiconductors.
- Battery materials This business manufactures electrolytes and anode materials for electric vehicles lithium-ion batteries according to the latest customer specifications, leveraging its global supply network and technical expertise spanning from material development to safety assessments.

\* Figures reflect performance after segment restructuring.

## FY2020 Sales revenue ¥271.8 billion\* FY2020 Core operating income ¥15.0 billion\*

# Films & Molding Materials FY2020 Sales revenue ¥413.8 billion\* FY2020 Core operating income ¥27.6 billion\*











## 5 Financial and Non-Financial Information Overview of Business Domains

# APTSIS 25 Step 1

Policies	<ul> <li>Business model reform for business expansion</li> <li>Secure footholds in fields where growth is accelerating amid changing social needs</li> <li>Promotion of next-generation project fields likely to deliver value</li> </ul>	(Billions o _300_	f yen)
Key strategies	<ul> <li>Strengthen the ability to offer total solutions through further business expansion in the mobility sector and building of a recycling business</li> <li>Strengthen operations in growth business domains</li> <li>Enhance R&amp;D efficiency through digital technology and open innovation</li> <li>Leverage corporate venture capital to explore new business domains and create new businesses</li> </ul>	_200	

#### Key strategies in Polymers and Compounds

Our target markets in the mobility sector and other fields have diverse requirements for material properties such as strength and bending tolerance, good design, adhesiveness and gas-barrier properties. We aim to meet these demands by building a solutions business to design new value based on polymers and additives and a wide range of other product groups and technology platforms, from molecular design and compounding to evaluation and processing technologies.

#### Proposed business flow in the Polymers and Compounds domain



### Key strategies in Films & Molding Materials

Lightweight, thinness, strength, and flexibility. With unique products and services that bring together these qualities, we will lead the way to fulfilling future lifestyles and a recycling-oriented society.

In the polyester film business, we will draw on the membrane and materials technologies accumulated globally in the course of our long history to develop electronic displays, industrial labeling systems and other optics and industrial applications. We will also target global business growth by offering solutions in a wide range of industrial product sectors to meet social needs connected with the shift to electric vehicles, high-speed telecommunications and the reduction of environmental impact. We will additionally contribute to realizing a circular economy by developing and supplying environment-friendly products based on the special properties of highly recyclable polyester resins.

In the molding materials business, we will work for business growth through global delivery of high-value-added products such as high-performance engineering plastics and carbon fiber composite materials to serve a wide range of industrial applications in the automobile, aerospace, building construction and medical device industries. In the carbon fiber business, by acquiring recycling companies and other strategies, we have become the only player with a business model integrating all stages from raw material to recycling, thus contributing to realizing a circular economy.

Core operating income targets

174.7

2020

To realize a circular economy, we are working on the

development of readily recyclable materials and technologies.

In sectors where recycling is considered impractical, we aim to

reduce environmental impact in other ways, such as expanding

Through business activities such as these, we will continue

our offer of biodegradable products and developing

biodegradability function control technologies.

contributing to the resolution of social issues.

Health Care Others

Performance Products Chemicals Industrial Gases

250.0

2022 (FY)

#### Building a carbon fiber recycling business model > P. 29



### Key strategies for Advanced Solutions

By delivering products and services that increase customer value, we aim to expand our business and realize KAITEKI.

In the food and water supply sector, we are focusing on further development of technologies that will help to improve the taste of fresh and processed food products and reduce food loss. Another focus is enhancing decentralized water supply and treatment systems and water treatment-related services using total water treatment technologies that cover all needs, from drinking water supply to sewage treatment. We provide

## **FOCUS** Key strategy example: Expansion of the semiconductor-related business Helping to build the infrastructure of the digital society

MCHC is working to enhance solutions across a wide range of products and services for semiconductor manufacturing.

To drive expansion of the semiconductor-related business, in October 2018 we acquired Cleanpart Group GmbH, a leading company in the provision of precision cleaning and coating services to semiconductor manufacturers and other business operators in Europe and the United States. This gives us the capability to deliver semiconductor precision cleaning services on a global basis, in addition to our existing operations in Japan and Asia. In April 2020, we centralized the MCC Group's semiconductor-

# Expansion of the semiconductor-related solutions business through a combination of advanced materials development with services to reduce environmental impact



\*1 For crucible use

\*2 ArF (argon fluoride): Exposure light source with 193nm wavelength EB: Electron beam as exposure light source EUV (extreme ultraviolet): Exposure light source with 13.5nm wavelength

#### Solutions to environmental and social issues

# Coating-free bio-engineering plastics that contribute to the reduction of volatile organic compounds (VOCs) and a gain of additional functionality

MCC's DURABIO is a bio-engineering plastic made with the renewable plant-based raw material isosorbide. With its good dyeability, simply mixing it with pigment allows the creation of smooth and glossy surfaces. As the surface is tough and resistant to scratch marks, no painting or coating process is required, which not only reduces the VOCs generated by coating agents during manufacture but also removes the risk of the coating material interfering with radio waves.

These functional and environment-friendly features have received a strong positive reception especially from the automotive industry, which has adopted the product for use in interior and exterior finish materials and in the housings of truck radar devices that detect other vehicles, pedestrians and so on. MCHC will continue contributing to environment-friendly vehicle design by promoting further applications for *DURABIO*.

solutions in the healthcare domain, including pharmaceutical raw materials and pharmaceutical capsules, and develop products that help create healthy living environments.

In the electronic display sector, the focus is on developing optical components such as optical clear adhesive sheets and products for use in liquid crystal and OLED displays. In the battery materials sector, we are working to further boost the competitiveness of our lithium-ion battery materials and to strengthen our global supply system, focusing mainly on the automotive sector, where advanced functions and safety are key.

related business and at the same time established a global organization, enabling us to promote one-stop, semiconductor-related solutions under a unified brand. Meanwhile, we are driving the creation of synergies with the semiconductor-related businesses and technologies of

Gelest, Inc., which we acquired in October 2020.

Our medium- to long-term basic management strategy, KAITEKI Vision 30, declares digital society infrastructure as one of our growth business domains, and we will continue working to expand our semiconductor-related business.

Step 2
component cleaning systems for next-generation processing systems
aning agents and etchants for use in next-generation pre-processing
ic quartz powder*1
ist materials for EUV*2
Materials compatible with microwiring and multilayering
it of high heat-dissipation materials (special boron nitride)
general second

The Group's Material Issues

•GHG reduction •Sustainable resource management •Circular economy

Example of use of coating-free DURABIO in automotive interior and exterior finish materials

Manufacturer	Daihatsu Motor Co., Ltd.		
Vehicle make	Rocky		
Component	Steering wheel switch bezel		