

## Strategies by Business: Specialty Chemicals

### Explanation of Strategy by Executive Officer in Charge

Matching needs with seeds  
to create highly functional  
differentiated products

Director, Managing Executive Officer  
In charge of Specialty Chemicals  
Business Sector

**Yasushi Kosaka**



#### **Obtaining information in a position close to the end user, leading to the development of advanced products**

The Specialty Chemicals Business Sector handles many products close to end users, and operates a business directly connected to market needs. We take pride in the fact that we have contributed to people's lives while resolving customer issues through the development and sale of advanced products that follow changes in the market.

In order to provide products that resolve social issues and match the potential needs of users, it is necessary to secure a position where it is easy to obtain high-quality information related to changes in the market. The optimal means for achieving this is obtaining and maintaining the top market share. For example, thanks to holding the leading global share in BT materials and super-pure hydrogen peroxide, we are able to utilize the wealth of information obtained from there in development of new products, expanding the range of our offerings.

Furthermore, this business sector places emphasis on technical service. For example, optical components for smartphone camera lenses have become thinner in recent years, and the difficulty of forming materials has become increasingly difficult. To address this, MGC's planning and development personnel and researchers visit customers' production sites to provide thorough service after products have been delivered. Such activities not only ensure the trust of customers, but also provide numerous hints for the development of the next generation of products. Our strength is that we are able to create ideas from multifaceted perspectives as long as we are able to accurately determine the issues faced by customers. Seeing things with our own eyes is vital for remaining competitive.

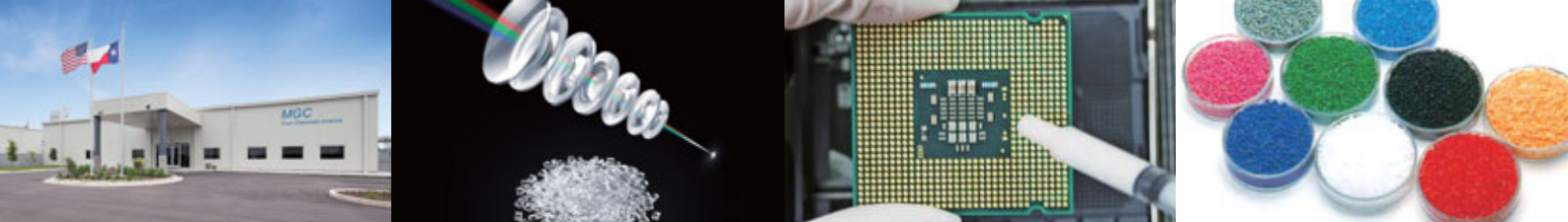
The MGC Group gives members much discretion in respect for autonomous action and proposals, and

has established a culture that is tolerant of failure. We believe this culture is a vital element for fostering technical innovation not constrained by existing frameworks.

#### **Increasing the ratio of differentiated products to become the one and only supplier**

The centerpiece of the medium- to long-term strategy drawn up by the Specialty Chemicals Business Sector is to utilize the characteristics of the aforementioned business model to match the requirements of the market (needs) with our unique technology and resources (seeds) in order to create differentiated products with higher functionality. We aspire to become the industry's top supplier while increasing the ratio of differentiated products utilizing our unique technology and corporate culture by following the measures set forth in the new Medium-Term Management Plan. In addition, we aim to be a business sector boasting high profitability and growth, high ROIC, and the ability to generate stable cash flow. We also aim to be a "global company" in the true sense by accelerating overseas operations aimed at business expansion. We will establish a globally competitive foundation while further expanding our local production capacity and strengthening partnerships with local companies.

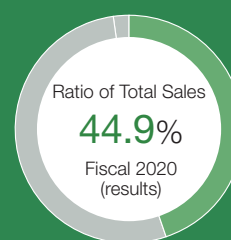
Looking ahead, the most important theme will be how to ensure the advanced products we work on can contribute to society while working to minimize the environmental impact of production activities. Over a year has passed since the organizational reform implemented in 2020, and we are proceeding to consciously exchange information across businesses. Having a broader perspective, including gaining deeper insight into other areas and working to resolve shared social issues, has great significance. We would like to demonstrate to the world our reason for existence as a chemical manufacturer while constantly verifying that our everyday activities lead to "creating value to share with society."



**Business Lines:** inorganic chemicals, engineering plastics, optical materials, electronics materials, oxygen absorbers

**Major Group Companies:** Taixing Lingsu Specialty Materials Co., Ltd., SAMYOUNG PURE CHEMICALS CO., LTD., MGC PURE CHEMICALS AMERICA, INC., MGC PURE CHEMICALS SINGAPORE PTE. LTD., MGC PURE CHEMICALS TAIWAN, INC., MGC Filmsheet Co., Ltd., THAI POLYACETAL CO., LTD., MITSUBISHI GAS CHEMICAL ENGINEERING-PLASTICS (SHANGHAI) CO., LTD., Mitsubishi Engineering-Plastics Corporation, MGC Electrotechno Co., Ltd., MGC AGELESS Co., Ltd.

**Number of Employees:** 3,533

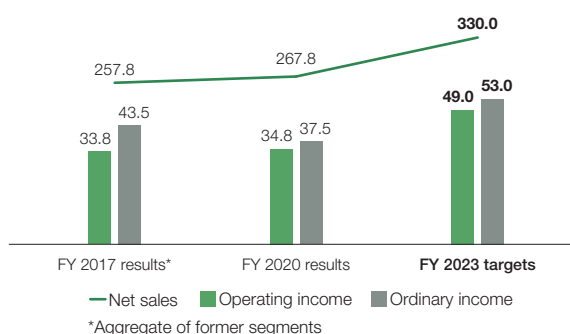


## Medium-Term Management Plan

### Overall Policy

- Increase ratio of high-added-value products, strengthen cost competitiveness
- Continue capital investments in growth markets

Numerical Targets (Billions of yen)



## Key Points of Strategy

### Further strengthen differentiating business

#### Electronic Chemicals

##### Strengthen global expansion in super-pure hydrogen peroxide

- Establishment of new sites: [China] Establish raw materials plant (scheduled to go on line in 2022), super-pure hydrogen peroxide plant (by fiscal 2023)
- Strengthening existing sites: [Taiwan] Establish raw materials plant (scheduled to go on line in 2023), [Japan] Increase production by eliminating bottlenecks (by fiscal 2023)

#### Optical Polymer

##### Ensure a solid response to strong demand

- Boost production capacity at Kashima Plant (commercial operation scheduled to start in July 2022)

##### Build a strong supply chain

- Ensure smooth launch of raw material monomer plant, a joint venture with Taoka Chemical Co., Ltd. (commercial operation scheduled for January 2023)

##### Promote recycling

- Reduce environmental impact by collecting and recycling residual materials generated by customers

#### BT Materials for IC Plastic Packaging

##### Capture new demand as 5G progresses

- Promote sales expansion strategies, such as by introducing new BT materials to the expanding Antenna in Package (AiP) market

##### Ensure solid response to strong demand

- Boost production capacity at Thailand Plant (commercial operation scheduled for April 2022)

##### New product and market development

- Joint development of IC substrate materials compatible with requirements of the semiconductor market, through joint venture with ITEQ of Taiwan

#### Polyacetal

##### Enhance market presence through business restructuring

- Make Korea Engineering Plastics Co., Ltd. (KEP) manufacturing company and establish new company in Korea to handle sales of KEP products

##### Develop new grades and expand sales

Continuous improvement of low-VOC grade and expand product line-up to extend sales into mobility field

### Bring higher added value and higher efficiency to foundation businesses

#### Polycarbonate, Sheet Film

- Build technology for efficient mass production of environmentally friendly polycarbonate using CO<sub>2</sub> as raw material
- Increase ratio of sales of high-added-value polycarbonate

#### Hydrogen Peroxide

- Relocation and start of commercial operation of hydrogen peroxide plant in China

- Further development of environmental chemicals such as peracetic acid and water treatment agents

#### Oxygen Absorbers

- Increase ratio of sales overseas and expand adoption in non-food fields
- Reduce environmental impact through more compact products and through adoption of environmentally compatible raw materials

## Strategies by Business: Basic Chemicals

### Explanation of Strategy by Executive Officer in Charge

Focusing on specific areas of business through organizational reform, with the aim of building a more competitive position

Director, Managing Executive Officer  
In charge of Basic Chemicals  
Business Sector

Naruyuki Nagaoka



#### Operating a wide-ranging business from methanol to specialty products

The Basic Chemicals Business Sector operates downstream starting with natural gas and mixed xylene.

In the natural gas chain, we manufacture products supporting the base of a wide range of industries, such as methanol, ammonia and their derivative organic chemicals. Securing raw materials at low cost and having production sites in proximity to markets are key sources of competitiveness. In particular, the methanol business has established a competitive position through active overseas expansion and a total business model encompassing the manufacturing process, catalyst technology and a global sales network. Furthermore, in Japan we operate diverse businesses, such as the life science business, which applies technology developed in research on microbial protein using methanol as a raw material, and the geothermal business, which leverages our experience in gas field development. Moreover, since its expansion into Saudi Arabia in 1980, MGC has expanded its production sites in countries with natural gas reserves, such as Venezuela and Brunei. In December 2020, methanol production commenced in Trinidad and Tobago, strengthening the global supply structure.

Meanwhile, in the mixed xylene chain, we are focusing on the provision of products as the only company able to industrially utilize the superacid  $\text{HF-BF}_3$ . In the specialty chemicals centered on meta-xylene derivatives, we have a lineup of differentiated products able to address a variety of issues in the industry. For example, meta-xylenediamine (MXDA) is used as heavy-duty anticorrosive paint on bridges, etc. exposed to harsh natural environments, contributing to prolonging the lifespan of social infrastructure.

The business sector's business model may tend to reinforce seeds-oriented ideas. We are strengthening our ties with Mitsubishi Gas Chemical Trading, Inc., which was formed through the merger of three trading companies in 2020, and working to build a structure that is fully aware of market needs.

#### Implementing organizational reform for the purpose of becoming more competitive and contributing to decarbonization

In April 2021, the business sector implemented organizational reform to develop characteristic products and increase the speed of structural reform. The High-performance Products Division was established to handle highly unique products such as MXDA and aromatic aldehydes, and active investment is being made into new applications and the expansion into new areas. We operate a unified business with Group companies, such as Japan U-PiCA and FUDOW for the Neopulim™ transparent polyimide resin and high-performance thermoplastic and thermoset CFRP products that we have developed, in an effort to seek synergies and differentiation, as well as to increase development efficiency. Although not included in the category of “differentiation” positioned in the Medium-Term Management Plan at this time, we intend to continue investment into products that make a large contribution to profit to maintain and increase competitiveness.

This organizational reform positioned businesses such as the geothermal power business that have been handled by the Energy & Resources Division as “environmental businesses” aimed at becoming carbon neutral, and strengthens the system for promoting such initiatives. Furthermore, we will focus more on resolving social issues through utilizing the Group's strengths, such as the circular carbon methanol concept converting  $\text{CO}_2$  and waste plastic into methanol, thereby recycling them for use as chemicals, fuel and power generation.

The series of measures linked to organizational reform are aimed at increasing the ratio of sales of high-value-added products by focusing on specific areas of the Basic Chemicals Business. We will conduct detailed monitoring of changes in management indicators conscious of capital efficiency such as ROIC, including structural reform such as withdrawing from businesses not expected to be profitable in future, and suspending development of advanced technology that is mismatched with the needs of the time. We will forge the path of “an excellent company with uniqueness and presence” while increasing the speed of executing measures.

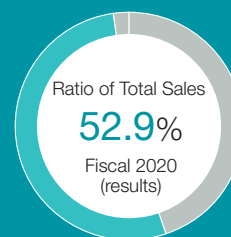




**Business Lines:** natural gas chemicals, xylene chemicals, energy resources and the environment, life science

**Major Group Companies:** JAPAN FINECHEM COMPANY, INC., JSP CORPORATION, JSP International Group LTD., MGC Terminal Company, Inc., TOHO EARTHTECH, INC., Japan Saudi Arabia Methanol Company, Inc., METANOL DE ORIENTE, METOR, S.A., BRUNEI METHANOL COMPANY SDN. BHD., Japan Trinidad Methanol Company, Inc.

**Number of Employees:** 5,016

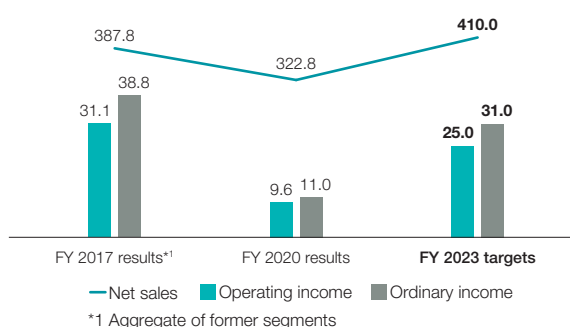


## Medium-Term Management Plan

### Overall Policy

- Turn products and businesses that respond to societal demands into “Business”
- Reduce volatility through portfolio reforms and rebuilding of unprofitable businesses

**Numerical Targets** (Billions of yen)



## Key Points of Strategy

### Further strengthen differentiating business

#### MXDA

**Advance expansion of sales strategy in anticipation of future new construction of production facility (Europe)**

- Accelerate sales expansion in emerging markets: promote expansion of MXDA sales targeting in emerging countries in South America and elsewhere
- Development aimed at environmentally friendly products: focus on R&D and expanding sales in environmentally-friendly products including wind power generator blades, water-based paints, etc.

#### Aromatic Aldehydes

**Respond to future increases in demand**

- Demand for aromatic aldehydes is growing at an annual rate of 4-5%; respond to future increases in demand

**Boost production capacity at Mizushima Plant**

- Plan to boost production capacity in 2022 through debottlenecking; consider constructing new production facilities to respond to mid- to long-term increases in demand

#### MX-Nylon

**Expand sales in priority regions**

- Extend existing applications to priority regions, including Europe, the U.S., China, Southeast and South Asia, the Middle East and Central and South America

**Efforts to reduce environmental impact**

- Improve recyclability, develop materials derived from biomass, contribute weight saving through metal substitutes

### Reevaluate and rebuild unprofitable businesses

#### Formalin and Polyol Products

- Build integrated production system extending from formalin to downstream (adhesives)
- Progress with business portfolio reforms to create base for stable earnings

### Bring higher added value and higher efficiency to foundation businesses

#### Methanol

- Define methanol produced from diverse raw materials including CO<sub>2</sub> as a circular carbon product, and promote development of manufacturing technology
- Strengthen competitiveness in terms of logistics

#### Energy Resources and Environmental Businesses

- Achieve stable operation of low CO<sub>2</sub>-emitting geothermal power plants and investigate new promising regions
- New development of water-soluble natural gas and iodine

#### Ammonia and Amines/MMA Products

- Work with overseas joint venture companies to cooperate in investigations on CCUS\*2 aimed at use of CO<sub>2</sub>-free ammonia, and consider preparing infrastructure in Japan to accommodate this
- Strengthen sales of MMA-based derivatives and expand offering of new derivatives

\*2 Technology for capturing and storing emitted CO<sub>2</sub> and technology using the stored CO<sub>2</sub> in chemical raw materials, etc.

#### Foamed Plastic (JSP)

- Increase sales of differentiating environmental products focused around the SDGs
- Position new materials and new applications as priority objectives in developing new markets in the mobility sector

#### Xylene Separators and Derivatives

- Plan to rebuild business structure with goal of stabilizing earnings from high-volatility product lines