Management’s Discussion and Analysis

Results of Operations

1. Management Policies, Operating Environment and Challenges to Be Addressed

Forward-looking statements contained herein are based on MGC Group’s judgment as of March 31, 2023.

1) Progress in Priority Initiatives during Fiscal 2022

Our Medium-Term Management Plan launched in fiscal 2021 set two objectives in accord with the MGC Way, the new MGC Group philosophy system: shift to a profit structure resilient to changes in the business environment, and balance social and economic value. MGC is implementing a three-pronged strategy to achieve each objective.

Medium-Term Management Plan

●Objective 1
Shift to a Profit Structure Resilient to Environmental Changes: Business Portfolio Reforms

■Strategies
- Further strengthen competitively advantageous (“differentiating”) businesses
- Accelerate creation and development of new businesses
- Reevaluate and rebuild unprofitable businesses

To move forward with business portfolio reforms under the Plan, the MGC Group has reevaluated its business categories, classifying those businesses with both competitive advantage and growth potential as “differentiating businesses.” The MGC Group is developing a broad range of differentiating businesses. In chemicals and materials, these include Meta-xylenediamine (MXDA), MX-Nylon, aromatic aldehydes and polyacetal (POM); specialty products include electronic chemicals, BT materials, optical polymers and ultra-high refractive lens monomers. The MGC Group will continue to focus management resources on these differentiating businesses, further strengthening profitability.

During the fiscal year under review, we promoted plans to build a new MXDA plant in Europe, and a program of new construction and expansion for electronic chemicals facilities in Japan, North America, China and Taiwan. In addition, we completed work to increase production capacity of BT materials at MGC Electrotechno (Thailand) Co., Ltd., and granted supervisory functions for the POM business to Global Polyacetal Co., Ltd. to create an integrated system of management for production, sales and development.

MGC also forged ahead with active R&D investment in order to accelerate creation and development of new businesses. Specifically, we increased the number of research personnel, established DX team along with AI, and MI promotion teams to encourage initiatives to accelerate research activities through the promotion of DX, began operation of a new stage-gate system, and promoted the strategic use of the IP landscape. In order to put in place an environment in which companies of the Group can work together to promote innovation, we made the decision to construct a new building for the Hiratsuka Research Laboratory.

In terms of initiatives to reevaluate and rebuild unprofitable businesses, the Company terminated production of formalin at the Yokkaichi Plant in the fiscal year under review, and is aiming to terminate production of formalin, paraform, and hexamine at the Niigata Plant during the first quarter of fiscal 2023. Following termination of trimethylolpropane production at the Mizushima Plant, we are proceeding to reevaluate and rebuild the formalin and polyol product lines. In April 2022 subsidiaries J-Chemical, Inc. and Yutaka Chemicals Corporation merged with the objective of establishing a competitive advantage through the building of an integrated production system that ranges from formalin raw materials to wood adhesives, and converting the formalin business to a base for stable earnings.

By implementing these strategies, the MGC Group attempts to shift to a profit structure that is resilient to changes in the business environment. Specifically, by fiscal 2023, the Group aims to have more than 40% of overall sales come from differentiating businesses, and for unprofitable businesses or those needing rebuilding to represent less than 3% of total sales.

●Objective 2
Balance Social and Economic Value: Toward Sustainable Growth

■Strategies
- Solve social issues through business
- Harmonize shared-value creation with environmental protection
- Strengthen discipline and foundation supporting business activities

Three strategies will be executed with the goal of balancing social and economic value.

In April 2020, MGC identified materiality --priority issues for management-- in line with the formulation of a medium-term management plan. It has also established fiscal 2030 targets to allow the Company to make steady progress in materiality management, and has set key performance indicators (KPIs) for fiscal 2023 as milestones on the road to achieving those targets. Specifically, KPIs have been set for GHG emission reductions aimed at air quality control, investments and R&D expenditures aimed at solving energy and climate change-related problems, and cultivating a corporate culture of job satisfaction. During the fiscal year under review we took various steps, including acquiring ISCC PLUS certification for MX-Nylon and methanol, investing in the Abashiri Biomass Power Plant, investigating the manufacture of methanol and polycarbonate using CO_2 as a raw material, and beginning construction of “MGC Commons” as a center for human resource development and innovation. MGC will continue to tie materiality management to sustainable growth.

Materiality KPIs and SDG targets: Pursuing Creation of Value to Share with Society

Materiality: Category	Materiality: Elements	KPIs	Fiscal 2023 targets	Fiscal 2030 targets	Relationship to SDGs (Targets)
Creating Shared Value (CSV)	Contribution through business operations • Contribute to development of ICT/mobility society • Solve energy and climate change problems • Solve medical and food problems	Sales from ICT and mobility applications	¥320.0 billion (Consolidated)	Create new businesses that accelerate digital innovation	3.6, 9.4
		Contribution to solving energy and environmental problems	Investment: ¥12.0 billion (Consolidated: 2021-2023 cumulative) Investment: Acquisition; Financing: Approval basis	Commercialize carbon-negative technology	9.4
		Sales from medical and food applications	¥50.0 billion (Consolidated)	• Advances in preventive and predictive medicine, enhanced healthy life expectancy • Further advance food preservation technology	3.8, 12.3
Foundation for shared-value creation (S)	Cultivating a corporate culture of job satisfaction	Percentage taking fewer than 10 days of annual paid leave*1,2	0%	0%	8.5 8.8
	Occupational safety and health/Process safety and disaster prevention	Serious occupational accidents*1,3	0	0	3.9
		Serious accidents*1,4	0	0	
	Highly energy-and resource-efficient production	GHG emissions intensity Baseline: fiscal 2013*1	19.9% reduction	28.0% reduction	7.3
	Promotion of innovative R&D	R&D investments devoted to solving climate change problems*1,5	5% or higher	7% or higher	9.5
Harmonization of shared-value creation with environmental protection (E)	Proactive response to environmental problems • Air quality control • Water and biodiversity conservation • Reduction of industrial waste	GHG emissions Baseline: fiscal 2013*1	28.0% reduction	36.0% reduction	13.2
		Renewable energy as percentage of electric power purchased*1	10%	50%	7.2
		Zero waste emission rate*1,6,	0.3% or less	0.15% or less	12.5

*1 On non-consolidated basis
*2 For employees granted 20 days of annual leave
*3 Accidents resulting in lost work days eligible for disability compensation, including death and permanent disability, or potential disability, and those with four or more lost work days
*4 Accidents that threaten third parties, including those resulting in environmental pollution involving community or that cause damage to local residents, and other accidents involving serious damage
*5 R&D investments including basic research, pilot plants, technical testing, etc.
*6 Amount of final disposal/total amount of waste generated

2) Future Initiatives

With the advance of global inflation, monetary tightening, and geopolitical risks such as the situation in Ukraine, the business environment remains difficult to read, but going forward the MGC Group will continue to work together as one to achieve the management objectives set out in the plan.

Specifically, with regard to achieving the first objective of “Shift to a profit structure resilient to environmental changes,” we will continue to invest proactively in differentiated products including MXDA, electronic chemicals, and BT materials, and prioritize allocation of management resources to these areas. In addition, for other foundation products, including PC products and methanol, we will also promote measures to further increase added value and improve efficiency. For businesses with profitability issues, we aim to move forward with further structural changes and overhauls with the goal of removing businesses from the list of those classified as unprofitable businesses or those needing rebuilding. In addition, we will actively commit R&D resources with the aim of creating and nurturing new/next-generation businesses.

In order to achieve objective 2, “Balance social and economic value,” we will link our mission of “Creating value to share with society” to sustainable growth via materiality management. Particularly with regard to initiatives for carbon neutrality, this is one of the most important issues for the management strategy of the Company. This is one that, while working to reduce greenhouse gas emissions, we will pursue through the use of our unique and distinctive technology by developing products and technologies that will contribute to decarbonization, such as investigating circular carbon methanol projects that use green hydrogen and CO_2, planning pilot projects for gasification and methanol conversion of waste plastic, and developing of direct air capture systems.

This Management Policies, Operating Environment and Challenges to be Addressed contains forward-looking statements, including ones pertaining to plans and targets, based on information available at the time these materials were prepared, and certain assumptions deemed reasonable. They involve uncertainty. Actual performance may differ significantly from such forward-looking statements as a result of various factors.

2. Sustainability Approach and Initiatives

MGC Group's approach to sustainability and our sustainability initiatives are as follows.
Forward-looking statements contained herein are based on MGC Group's judgment as of March 31, 2023.

(1) Matters Related to Sustainability in General

1) Corporate Governance

Important sustainability issues are examined by the advisory body Sustainability Promotion Committee attended by corporate sector heads, based upon which they are reviewed and approved by the Sustainability Promotion Council. This is chaired by MGC's president and is comprised primarily of directors, including outside directors, with audit & supervisory board members also attending.

Particularly important sustainability issues are deliberated by the Sustainability Promotion Council before being resolved by the Board of Directors.

2) Risk Management

As described in "1. Management Policies, Operating Environment and Challenges to Be Addressed" under "Results of Operations," the MGC Group has set an objective of "Balance Social and Economic Value," and manages risk by identifying priority issues for management (materiality) and gaining an understanding of associated risks and opportunities.

When identifying the priority of the materiality, we assess many social issues from the standpoint of their importance to stakeholders and to the MGC Group. These are then deliberated by the Sustainability Promotion Council before being resolved by the Board of Directors.

3) Strategy

As described in "2) Risk management," the MGC Group first identifies the Materiality, gains an understanding of associated risks and opportunities, and works to mitigate risks while also aiming to help achieve a sustainable society and sustainable corporate growth by creating a new business model that resolves social issues.

4) Indicators and Targets

The MGC Group has set KPIs for each Materiality, and monitors the progress of materiality management.

Using the frameworks set out in "1) Corporate governance" and "2) Risk management," the MGC Group has designated tackling climate change and addressing human capital as particularly important issues, and has drawn up strategies and set indicators and targets for each as follows.

For details of strategies, and indicators and targets for other issues, please refer to the Integrated Report (https://www.mgc.co.jp/eng/corporate/report.html).

(2) Response to Climate Change (Initiatives Based on TCFD Recommendations)

1) Strategy

The MGC Group has set targets for cutting greenhouse gas (GHG) emissions, and is working steadily on reduction initiatives. While developing existing businesses with strengths in such initiatives, MGC is leveraging R&D capabilities and promoting cooperation with other businesses, other group companies and external third parties. During the transitional stage we will promote the use of electricity generated from LNG, which has low GHG emissions, and the adoption of renewable energy, as well as taking specific steps toward achieving carbon neutrality by establishing and installing a variety of carbon-free energy systems, CCUS*, and recycling systems.

*CCUS: CO_2 capture, utilization and storage; involves technologies to both capture/store CO_2 and use stored CO_2 as, e.g., a chemical feedstock.

To gain a quantitative understanding of climate change risks, MGC has also introduced an internal carbon pricing system. In capital investment plans involving an increase or decrease in CO_2 emissions, the cost or effect of applying and converting the internal carbon price (10,000 yen/Mt-CO_2 equivalent) will be used to help make investment decisions. We encourage the creation of technologies and products that promote CO_2 emission reductions and contribute to building a low-carbon society.

MGC has also declared its support for the Task Force on Climate-related Financial Disclosures (TCFD). MGC has assessed the risks and opportunities climate change represents for the Group, and we are working to strengthen resilience through scenario analysis while also engaging in healthy dialogue with our stakeholders.

For the foundation/differentiating businesses of MXDA, MX-Nylon, hydrogen peroxide, polycarbonate, optical materials, and oxygen absorbers, the MGC Group has conducted analyses of the impacts of climate change using two scenarios, and examined measures to address them.

Under a scenario in which the increase in temperature is controlled to +2°C of the pre-Industrial Revolution level, the introduction of carbon taxes to encourage decarbonization and cost increases driven by increasingly stringent GHG regulations could lead to the Group's operating results being adversely affected. In such a scenario, the MGC Group would take steps to control the impact of such risks by rebuilding its business portfolio, adopting energy-saving measures and using renewable energy, and utilizing electricity generated from LNG, which has low GHG emissions. In addition, our analysis suggests that measures taken by a decarbonizing society to further reduce product weight through the substitution of metals and conventional materials, renewable energy infrastructure development, and the growth of the market for high value-added-products offer opportunities for the MGC Group to expand its business.

Under a scenario in which global warming cannot be sufficiently prevented and the temperature increases to +4°C of the pre-Industrial Revolution level, soaring prices for fossil resources, rising utility costs, and the impact on factory operation of increasingly severe natural disasters could lead to the Group's operating results being adversely affected. The MGC Group is seeking to mitigate the impact of such risks by shifting away from fossil resources, bringing higher added value to its products, and strengthening business continuity planning. We accelerate market development as the population of emerging countries increases significantly.

As described above, there are concerns about the adverse impact of climate change on the business of the MGC Group, but these risks can be addressed by the diverse nature of its business portfolio, which ranges from chemical products and material products to products with highly specialized functionality, and we have confirmed that the effects on the financial position of the Group can be controlled.

Going forward, we will broaden the scenario analysis to include the electronic chemicals and electronic materials businesses.

2) Indicators and Targets

The MGC Group* has set long-term targets for reducing GHG emissions in the aim of achieving carbon neutrality by 2050.

* Non-consolidated company and consolidated subsidiaries with Scope 1 and 2

2030 targets	2050 targets
Scope 1+2: reduction of 36% compared to fiscal 2013	Achieve carbon neutrality

For historical data on GHG emissions by the MGC Group, please refer to the Integrated Report (https://www.mgc.co.jp/eng/corporate/report.html).

(3) Addressing Human Capital

1) Strategy

1. Approach to human resource development

The MGC Group's philosophy for being is "creating values to share with society," and its management philosophy places importance on "creating a place with job satisfaction and a dynamic group in which motivations and abilities are respected." Each group company establishes and expands systems to achieve this, and works on education and related matters.

With the aim of realizing the MGC Group mission of "creating value to share with society" we have formulated a human resource development basic policy to enable employees to improve their knowledge and capabilities, set ambitious targets while refining their **individuality** as professionals, and through achieving this create workplaces that are infused with vibrancy through self-improvement.

The human resource vision articulated in this basic policy is for individuals to aim to be "autonomous and highly-motivated employees," "warm-hearted and sensitive employees" and "employees that think and learn through work," while the educational policy is to "provide development that makes the most of each and every employee's **distinctiveness**." The Group is working to establish an internal environment that enables a diverse range of employees to exercise their individuality through their participation in the workplace.

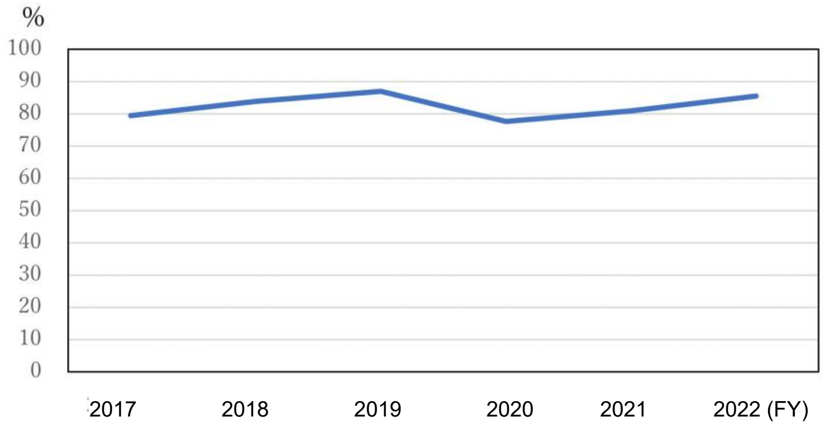
2. Specific Initiatives

• Cultivating a Corporate Culture of Job Satisfaction

MGC promotes work style reforms as an initiative that is essential for improving both employee job satisfaction and productivity, and for the creation of innovation. We have in the past implemented initiatives, such as reducing working hours by reviewing workflow and shortening meeting times, in order to enable work styles that do not rely on long work hours. In 2020 we introduced super flextime (with no core period), and have conducted trials of a system for working at home as part of efforts to establish an environment that permits more flexible work styles.

The ratio of annual paid leave taken has been fluctuating between 80% and 85% (around 90% for those in non-managerial roles), but we are working to raise awareness among employees of the need to take annual paid leave from the perspective of work-life balance, and we have set a KPI of 0% of employees taking fewer than 10 days of annual paid leave for fiscal 2023. To achieve this we are using internal newsletters and posters, which also target those who take little annual paid leave, to foster employee awareness and establish an accommodating workplace environment.

Ratio of Taking Annual Leave (all employees, %)



Note: On non-consolidated basis

Internal Newsletter Promoting Annual Paid Leave

Poster Promoting Annual Paid Leave

• Promotion of Diversity and Inclusion

MGC defines diversity and inclusion (D&I) as all employees utilizing their individuality to work together and recognize one another. The goals of the Diversity and Inclusion Basic Policy include promoting awareness about respect for diverse values and ways of thinking, creating an environment that ensures diverse work styles, diversification of human resources and the creation of an organization that optimizes the utilization of each and every human resource, development of human resources who can demonstrate individual strengths, and promoting mental and physical health. By promoting D&I, we aim to maximize the performance of people and organizations through various activities, in which diverse human resources exhibit their individuality and skills, as well as to engender innovation and improve decision-making quality through collaboration among human resources with diverse values, approaches, views and knowledge.

With the workforce shrinking as a result of the declining birthrate and aging population, we also believe that promoting women's empowerment is essential for maintaining and enhancing corporate competitiveness over the medium to long term. We are moving forward with the promotion of career development support for female employees through such measures as providing various types of training for female employees and managers who are responsible for the development of female employees. Furthermore, we perceive mid-career hires and foreign nationals with different cultures, customs, experience, and skills to be valuable diverse human resources that contribute new perspectives and ideas. We are actively promoting recruitment of foreign students and mid-career hires in order to achieve further improvements in the generation of innovation and the quality of decision-making.

2) Indicators and Targets

As described in "• Cultivating a Corporate Culture of Job Satisfaction" under "2. Specific Initiatives" under "1) Strategy," we have set the ratio of employees taking fewer than 10 days of annual paid leave as a KPI.

Ratio of Employees Taking Fewer Than 10 Days of Annual Paid Leave

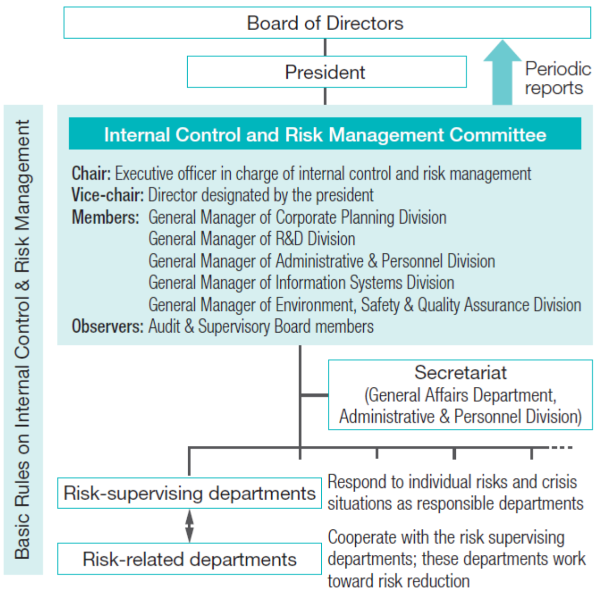
	Targets		Results		
	Fiscal 2023	Fiscal 2030	Fiscal 2020	Fiscal 2021	Fiscal 2022
Ratio of employees taking fewer than 10 days of annual paid leave	0%	0%	15.1%	11.7%	4.0%

Note: On non-consolidated basis

3. Business and Other Risks

MGC Group defines “risk” as possibilities or hazards that, if they were to manifest, could inflict economic losses on MGC due to human casualties, property damage, reputational damage, opportunity losses or other such detriments. The Group has built a risk management regime designed for both routine and exigent circumstances. Specifically, it has established Basic Rules on Internal Control & Risk Management, formulated risk management/mitigation policies and established an Internal Control & Risk Management Committee chaired by the officer in charge of internal control and risk management as a decision-making body that reports directly to the president. The committee makes decisions on matters related to risk management policies, initiatives and plans; matters related to business and operational risk management and guidance, direction and oversight incidental thereto; and matters related to guidance, direction and oversight related to business continuity planning. Additionally, it periodically reports to the Board of Directors on the state of risk management.

The main foreseeable risks that could affect the Group’s business results, share price, or financial condition are enumerated from 1) through 13) below. They are all risks that the Group deems to be a realistic possibility, though specifics such as the degree and timing of their manifestation and their impacts are impossible to estimate as of the end of fiscal year ended March 31, 2023 (however, they do not necessarily include every risk to which the Group is exposed).



1) Endogenous Business Risk

Nature of Risk

MGC Group is primarily a manufacturer. With many of its products used as raw materials, intermediate goods or pharmaceutical inputs in customers’ business activities, its sales are sensitive to economic conditions in the countries and regions where its customers’ products are sold, and to the operating environment in its customers’ business areas. In particular, market-priced commodities such as methanol, methanol derivatives, general-purpose aromatic chemicals and polycarbonate resins are generally prone to declines in unit sales and sales prices during economic downturns. Some specialty and high-value-added product markets are also subject to the silicon cycle and other drivers of ebbs and flows in customer demand, and reduced volumes could adversely affect the Group’s operating results and/or financial condition.

In specialty and high-value-added product markets, the Group competes on multiple dimensions, including price, quality, functionality, delivery time and customer service. Intensification of competition due to, for example, the advent of products offering alternative functionality, could adversely affect the Group’s operating results and/or financial condition. For example, products that are supplied mainly to the electronics industry, which includes advanced semiconductors, typically have a short product lifecycle and are constantly exposed to competition through technological innovation. The Group’s sales consequently could decline as a result of existing products’ obsolescence or product development delays. Additionally, some of the Group’s products are sold to only a limited number of customers. If one customer stops using such a product, the Group’s sales could decrease.

MGC Group externally sources electric power and raw materials like xylene, and is constantly performing maintenance on existing production facilities and installing new equipment. Its manufacturing operations could be disrupted if a required input, material, or facility were to become unavailable. Its operating results and/or financial condition could be adversely affected by a sharp rise in input prices also.

MGC Group's operations depend on the work of many and diverse employees across multiple areas of business, including research and development, production, sales, distribution, planning, and administration. The impact of increasingly fluid movement of human resources and of the declining birthrate and aging population in Japan could make it impossible or excessively burdensome to secure such personnel. In such an event, the Group's operating results and/or financial condition could be adversely affected.

Main Risk Mitigation Measures

In order to achieve further improvements in productivity, MGC Group endeavors to develop new, high-added value markets and businesses as well as conducting basic and applied research to develop new products and manufacturing processes and improve existing ones. Other risk mitigation measures include close communication and collaboration, inclusive of R&D, with customers, use of long-term supply contracts with both suppliers and customers, and sourcing of raw materials and other inputs from multiple suppliers.

We are working to utilize IT systems and other new technologies to improve productivity not only in manufacturing operations but in all the business activities of MGC Group. In order to secure human resources we create workplace environments in which employees mutually respect each other's individuality, and in which they can fully participate and grow as people. To this end we are working to nurture an invigorated culture of collaboration between individuals with diverse values that is of new ideas and technological innovation, and establishing dedicated departments in addition to implementing various other measures.

2) Overseas Business Risk

Nature of Risk

MGC Group sources, manufactures, and sells either directly from Japan or through its subsidiaries in Asia, North America, South America, the Middle East and elsewhere. Depending on country-specific conditions or the geopolitical situation, such overseas operations and funds or dividend remittances from overseas subsidiaries could be disrupted by political instability or societal or economic turmoil due to a natural disaster, war, infrastructure failure, a widespread infectious disease outbreak or other unforeseeable circumstances. Other risks that could adversely affect the Group's operating results and/or financial condition include problems due to differences in legal systems, investment restrictions imposed by foreign governments, nationalization or expropriation of assets, and personnel or labor issues.

Main Risk Mitigation Measures

To respond to overseas risks as effectively and expeditiously as possible, while monitoring the latest developments in the global situation, MGC Group endeavors to gather information from various sources, including locally stationed expat personnel, joint venture partners, attorneys and government authorities. MGC Group works to tailors its response to the specifics of each business or region in order to achieve its objectives, which include ensuring the safety of those working locally.

3) Joint Venture Risk

Nature of Risk

MGC Group has numerous manufacturing joint ventures in not only Japan but also foreign countries such as Saudi Arabia, Venezuela, Thailand, China, South Korea, and Trinidad and Tobago. It sources and sells products such as methanol and engineering plastics through its joint ventures. The Group's joint venture partners are not under the control of the Group. There is consequently no assurance they will make decisions in the best interests of the Group or even the joint ventures themselves. In the event of a joint venture's dissolution or other such circumstances, the Group's operating results and/or financial condition could be adversely affected.

Main Risk Mitigation Measures

MGC Group seeks to maintain and further improve good communication, share targets and objectives and maintain relationships with its joint venture partners while mitigating risks through joint venture agreements and other operational agreements.

4) Product Quality Risk

Nature of Risk

As noted above, MGC Group manufactures many products that are used as raw materials, intermediate goods or pharmaceuticals in customers' business activities and that conform to specifications agreed upon with the customer. However, if it sells a qualitatively defective product, it may have to compensate customers that used the defective product, end-product users and/or other parties for not only direct damages but also opportunity losses. Its societal reputation also may be impaired. In such an event, the Group's operating results and/or financial condition could be adversely affected.

Main Risk Mitigation Measures

Even though most MGC Group manufacturing sites operate in conformance with globally recognized quality control standards, the Group has liability insurance coverage that includes product liability insurance as a precaution against risk. Other means by which the Group mitigates risk include explicitly limiting the scope of its liability as necessary in agreements with customers.

5) Natural Disaster and Accident Risks

Nature of Risk

MGC Group has numerous manufacturing sites in Japan and elsewhere. Their production activities could be disrupted by earthquakes, storms, flooding or other natural disasters, war, terrorism, civil unrest, labor actions, communication infrastructure failures, lockdowns and other measures taken in response to outbreaks of infectious diseases, equipment malfunctions, human error or other unforeseeable circumstances. Given that MGC Group handles hazardous chemical substances on a daily basis, it cannot completely eliminate the possibility of explosions, fires, toxic gas leaks or other accidents that damage production facilities, harm employees, inflict losses on neighboring property owners or customers, pollute the environment or otherwise inflict damages. Additionally, many MGC Group manufacturing sites have multiple production facilities that share utilities such as electricity, water and steam. Interruption of utility service to a manufacturing site consequently could shut down the site's entire production operations. In such an event, the Group's operating results and/or financial condition could be adversely affected.

Main Risk Mitigation Measures

While pursuing continuous improvement based on the promotion of Responsible Care activities as part of its comprehensive environmental safety management, MGC Group diligently strives to upgrade its safety and disaster preparedness regime through better risk assessment and thorough safety training. In addition to, of course, endeavoring to maintain and ensure stable operation of its manufacturing facilities, the Group also formulates business continuity plans and builds redundancy into its network of production sites, including those overseas. Additionally, the Group mitigates risk with broad insurance coverage that includes fire, business interruption, oil pollution and liability insurance.

As a response to the COVID-19 pandemic, MGC Group swiftly set up a Crisis Response Headquarters and expeditiously implemented anti-pandemic measures. Measures taken to improve productivity, such as the usage of online video conferencing throughout the Group, also contributed to initiatives to address the spread of infectious disease. In addition to continuing their use going forward, we will customize thoroughgoing measures to prevent infection to specific operations, on a workplace-by-workplace basis.

6) Information Security Risk

Nature of Risk

MGC Group possesses confidential and personal information required for its business activities and uses various information systems in its operations amid ongoing digitalization of its businesses. In the event of a leak of such information, an information system failure, a cyberattack, fraud committed by a malicious third-party or other such event, the Group's business activities and/or operating results could be adversely affected.

Main Risk Mitigation Measures

MGC Group has established an information security regime and internal regulations based on various guidelines and educates its employees to increase their information-security literacy. It also conducts ongoing initiatives to ensure the adequacy of and upgrade its information security.

7) Compliance Risk

Nature of Risk

MGC Group handles toxic and otherwise hazardous chemical substances, including high-pressure gases, as an inherent aspect of its operations. As such, it is globally subject to various legal and regulatory restrictions at every stage from manufacturing to storage, distribution and sales. In all its business activities and transactions, the Group is required to not only comply with laws and regulations but also to fulfill social responsibilities that are not limited to such rules. However, in the event that an infringement of laws and, regulations, or social norms, including the rules described above, is deemed to have occurred, the Group's operating results and/or financial condition could be adversely affected as a result of incurring legal liability and rectification costs, social sanctions and loss of trust.

Main Risk Mitigation Measures

In addition to establishing specialized organizational units to oversee environmental and other regulatory compliance, MGC Group has built a compliance regime, including an internal whistleblowing system, and endeavors to fully comply with laws and regulations. It also implements various measures to foster a general compliance consciousness among its personnel.

The Group takes a broad view of compliance, one that involves not only abiding by laws but also upholding the fair, transparent, and flexible conduct of business, while respecting social and other norms, in acknowledgment of its responsibilities to society, and makes this known to all employees.

8) Human Rights Risk

Nature of Risk

Awareness of human rights continues to increase, primarily in developed nations, and companies are now being required to make efforts at a global level to respect and protect human rights in the course of business, including the supply chain. In the event that the Group does not address these issues appropriately, the Group's operating results and/or financial condition could be adversely affected by not only legal and regulatory responsibility but also the termination of transactions, social sanctions, and loss of trust.

Main Risk Mitigation Measures
The MGC Corporate Behavior Principles and the MGC Group Code of Conduct call for respect for human rights, and the Group is also a signatory of the UN Global Compact. On its own initiative, MGC promotes responsible business, which includes protection of human rights, through such actions as showing the “Mitsubishi Gas Chemical CSR Procurement Guidelines” and other documents to its supply chain partners in order to gain their understanding and cooperation.

9) Climate Change Risk
Nature of Risk
MGC Group recognizes that climate change caused by greenhouse gases emitted in the course of its business and other activities, and a variety of related changes that occur in the natural and business environments constitute material risk factors. In the event that the Group’s initiatives to address greenhouse gas emissions are inadequate, social sanctions and loss of trust may result. In addition, for example, if various emissions control measures are introduced, such as new carbon taxes or emissions trading systems, the Group’s operating results and/or financial condition could be adversely affected.

Main Risk Mitigation Measures
In May 2019, MGC declared its support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). Risks and opportunities posed to MGC Group by climate change are examined by an advisory body attended by general managers of the head office’s corporate sector, based upon which they are reviewed and approved by a Sustainability Promotion Council chaired by MGC’s president and comprised primarily of directors, including outside directors, but also attended by audit & supervisory board members and others.

In addition to mitigating risks due to climate change through analyses based on decarbonization scenarios and scenarios in which no specific action is taken, the Group will strengthen its resilience to be better able to transform risks into business opportunities. In fiscal 2022 the Group implemented scenario analyses for the optical materials and oxygen absorber businesses, and confirmed the potential for mitigating financial impacts in the decarbonization scenario through enhancing product performance, strengthening the lineup, and other measures.

By developing existing MGC businesses with strengths in carbon-neutral initiatives and leveraging R&D capabilities, we are promoting the use of electricity generated from LNG, which has low greenhouse gas emissions, and the adoption of renewable energy in the transition stage, while working in collaboration with other MGC Group businesses and external entities. Going forward, we will take specific steps toward helping to achieve carbon neutrality by 2050 in the form of establishing and installing a variety of carbon-free energy systems, CCUS, and recycling systems.

10) Investment Risk
Nature of Risk
MGC Group invests in capital assets and R&D to grow its businesses and increase its competitiveness. In doing so, it focuses its efforts on strengthening existing businesses and developing new businesses aligned with prospective market needs. The Group also invests and intends to continue investing in business expansion in Japan and overseas through such means as establishing or co-founding new companies, including joint ventures, and acquiring existing companies.

If the Group fails to earn adequate returns on such investments or if the value of securities that it holds declines significantly, leading to impairments on non-current assets, securities valuation losses or equity-method investment losses, its operating results and/or financial condition could be adversely affected.

Main Risk Mitigation Measures
MGC Group has established and carries out internal investment screening procedures and performs additional due diligence as warranted by the nature of the prospective investment. Additionally, involved organizational units endeavor to devise appropriate risk mitigation measures.

11) Currency Risk
Nature of Risk
Export, import, and other transactions denominated in foreign currencies could adversely affect MGC Group’s operating results and/or financial condition, including by reducing sales revenues or exacerbating losses, as a result of exchange rate movements.

Additionally, financial statement accounts denominated in the Group overseas subsidiaries’ local currencies are translated into yen to prepare MGC’s consolidated financial statements. Such currency translation could adversely affect the Group’s operating results and/or financial condition depending on then-prevailing exchange rates.

Main Risk Mitigation Measures
MGC Group partially hedges currency risk associated with foreign-currency receivables and payables, mainly using currency forward contracts, in accord with internal regulations.

12) Financing and Interest Rate Risks
Nature of Risk
MGC Group partially meets its financing needs by borrowing from financial institutions. In the event of a precipitous change in the financial environment, the Group’s operating results and/or financial condition could be adversely affected, including by inability to access funding or increased interest expense due to a rise in interest rates.

Main Risk Mitigation Measures
MGC Group strives to maintain adequate financial soundness as measured by indicators such as debt/equity ratio and shareholders' equity ratio. It also endeavors to optimize its mix of fixed- and variable-rate debt and maintain healthy, favorable relationships with financial institutions and other sources of capital.

13) Litigation Risk

Nature of Risk
In the event of an unfavorable outcome to litigation or other legal proceedings brought against MGC Group in connection with its domestic or overseas operations, the Group's operating results and/or financial condition could be adversely affected. For example, the Group seeks to protect its intellectual property through such means as applying for and obtaining patents in Japan and overseas. It also endeavors to avoid infringing on other parties' rights. However, if litigation pertaining to intellectual property rights was to be decided against MGC, the Group's operating results and/or growth could be adversely affected.

Main Risk Mitigation Measures
MGC Group endeavors to not only comply with all laws and regulations applicable to its operations but also avoid disputes through such means as researching other parties' rights and drafting proper agreements that explicitly delineate rights and obligations with the assistance of attorneys and other expert advisors.

4. Management's Analysis of Financial Position, Business Results and Cash Flows

1) Summary of Operating Performance

The fiscal-2022 financial position, business results and cash flows (collectively referred to below as "operating performance") of MGC Group (MGC and its consolidated subsidiaries and equity-method affiliates) are summarized below.

(1) Consolidated Business Results
During the fiscal year ended March 31, 2023 (April 1, 2022 – March 31, 2023), the global economy was supported by the gradual normalization of socio-economic activities in step with the relaxation of movement restrictions aimed at preventing the spread of COVID-19 infection. However, the prolongation of Russia's invasion of Ukraine led to surges in prices of raw materials, fuels and other items. Around the world, countries have thus been stricken with steep inflation, prompting the financial authorities of the United States, EU members and other nations to continue with monetary tightening. This policy trend, in turn, resulted in a looming sense of vigilance against major recessions and negatively affected capital expenditure and personal consumption. Because of these and other factors, the economic situation remained unstable.

Although the MGC Group has benefitted from the depreciation of the yen, the business environment surrounding it remained harsh under the influence of surges in raw material and fuel costs, slower-than-expected recovery in demand in China, declining demand in the United States and Europe in the face of anxiety over economic deceleration, and other factors. Furthermore, sales of PCs, smartphones and other electronic devices have dropped as demand for these items ceased to be strong due to the end of temporary surge seen during the pandemic, with inflation now leading to sluggish consumption. In addition, there has been notable stagnation in demand for semiconductor-related and other products in the second half of the fiscal year due mainly to the growing volume of supply chain inventories.

Against this backdrop, the MGC Group has promoted a medium-term management plan launched in April 2021. In line with this plan, the Group aims to shift to a profit structure resilient to changes in the business environment. To this end, the Group is striving to:

- "Further strengthen competitively advantageous ("differentiating") businesses,"
- "Accelerate creation and development of new businesses," and
- "Reevaluate and rebuild unprofitable businesses."

These efforts will help push ahead with business portfolio reforms.

In addition, the Group is countering surges in raw material and fuel prices and transportation costs by revising sales prices upward to align with an overall increase in costs. Through these and other initiatives, the Group is endeavoring to maintain and enhance its earnings power.

As a result, the MGC Group's net sales increased, despite lower sales of electronic materials and other offerings, due mainly to the impact of foreign exchange fluctuations and upwardly revised sales prices aligned with higher raw material and fuel prices and growing transportation costs, along with the recent inclusion of a South Korea-based polyacetal sales company into the scope of consolidation.

However, operating profit decreased, despite the depreciation of the yen, robust polyacetal sales and other positive factors, due primarily to surges in raw material and fuel prices and transportation costs, along with lower sales of electronic materials and other offerings as well as growth in repair costs and R&D expenses.

In the face of downturns in methanol market prices, ordinary profit decreased despite an increase in equity in earnings of affiliates in light of such positive factors as the reversal of deferred tax liabilities at an overseas methanol producing company. This decrease was mainly attributable to a decline in equity in earnings of affiliates related to engineering plastics and the decrease in operating profit.

(Billions of yen)

	Fiscal 2021	**Fiscal 2022**	Change
Net sales	705.6	**781.2**	75.5
Operating profit	55.3	**49.0**	(6.3)
Equity in earnings of affiliates	14.8	**17.5**	2.6
Ordinary profit	74.1	**69.7**	(4.3)
Profit attributable to owners of parent	48.2	**49.0**	0.7

Operating results by segment are as described below.

[Basic Chemicals]

The methanol business saw increases in both net sales and earnings thanks to the depreciation of the yen, an increase in equity in earnings of affiliates and other positive factors, despite somewhat lower market prices compared with the previous fiscal year.

Methanol and ammonia-based chemicals posted a decrease in earnings due mainly to deterioration in neopentyl glycol market prices and an increase in repair costs, despite progress in profitability adjustments offsetting the negative impact of higher raw material and fuel prices.

High-performance products posted a decrease in earnings due mainly to the lower sales volume of meta-xylenediamine, despite the higher sales volume of aromatic aldehydes.

Xylene separators and derivatives saw a decrease in earnings due to rises in raw material and fuel prices, and resulting deterioration in the profitability of purified isophthalic acid (PIA).

Foamed plastics posted a decrease in earnings due mainly to rises in raw material and fuel prices outpacing the timing of product price revisions.

(Billions of yen)

	Fiscal 2021	**Fiscal 2022**	Change
Net sales	419.9	**472.1**	52.2
Operating profit	25.7	**18.8**	(6.9)
Ordinary profit	30.0	**30.5**	0.4

[Specialty Chemicals]

Inorganic chemicals posted a decrease in earnings despite progress in the upward revision of sales prices to align with rises in transportation costs and prices for raw materials and fuel, with sluggish semiconductor demand leading to the lower sales volume of chemicals for use in semiconductor manufacturing in some market regions.

Engineering plastics saw increases in net sales and earnings, despite lower sales volumes of polycarbonates and polycarbonate sheet films, thanks to constantly robust sales of polyacetal as well as the inclusion of a South Korea-based polyacetal sales company into the scope of consolidation.

Optical materials posted a decrease in earnings amid stagnant demand for smartphones, a primary application of optical polymers, despite the disappearance of the negative impact of inventory adjustments carried out by customers in the prior fiscal year.

Electronic materials saw decreases in net sales and earnings. This reflected such factors as declining demand for general-purpose materials for use in PC-related devices and home appliances, which constitute a part of BT materials for IC plastic packaging, the core product category for electronic materials. Other negative factors included stagnation in demand for highly functional materials for use in smartphones and memory devices.

Earnings from oxygen absorbers such as AGELESS™ declined due mainly to rises in raw material prices and transportation costs.

(Billions of yen)

	Fiscal 2021	**Fiscal 2022**	Change
Net sales	285.4	**308.9**	23.4
Operating profit	33.6	**32.6**	(0.9)
Ordinary profit	45.4	**38.7**	(6.6)

[Other]

(Billions of yen)

	Fiscal 2021	**Fiscal 2022**	Change
Net sales	0.2	**0.1**	(0.1)
Operating profit	(0.0)	**(0.0)**	(0.0)
Ordinary profit	0.0	**(0.0)**	(0.0)

(2) Financial Position

Consolidated assets at March 31, 2023, totaled ¥1,029.3 billion, a ¥100.6 billion increase from the previous fiscal year-end.

Current assets rose ¥31.0 billion to ¥483.2 billion. The increase was mainly due to an increase in merchandise and finished goods.

Non-current assets totaled ¥546.0 billion, a ¥69.6 billion increase. This was mainly due to an increase in investment securities.

Total liabilities rose ¥60.3 billion to ¥358.0 billion. Current liabilities increased ¥21.4 billion, driven mainly by short-term borrowings. Non-current liabilities increased ¥38.8 billion, driven mainly by long-term borrowings.

Net assets totaled ¥671.2 billion, a ¥40.3 billion increase largely due to growth in retained earnings.

The Group consequently ended the fiscal year with an equity ratio 59.0%.

(3) Cash Flows

Cash and cash equivalents at March 31, 2023, totaled ¥101.1 billion, an ¥8.9 billion increase from the previous fiscal year-end.

(Cash Flows from Operating Activities)
Operating activities provided net cash of ¥55.2 billion, a ¥3.1 billion increase from the previous fiscal year. This was mainly due to a decrease in trade receivables.

(Cash Flows from Investing Activities)
Investing activities used net cash of ¥64.0 billion, ¥0.8 billion less than in the previous fiscal year. This was mainly due to a decrease in purchase of investment securities.

(Cash Flows from Financing Activities)
Financing activities provided net cash of ¥7.9 billion, compared using net cash of ¥3.6 billion in the previous fiscal year. This was mainly due to an increase in proceeds from long-term borrowings.

2) Discussion and Analysis of Operating Performance from Management's Perspective

The following discussion and analysis of MGC Group's operating performance from management's perspective contains forward-looking statements based on management's judgment as of March 31, 2023.

(1) Assessment, Discussion and Analysis of Operating Performance

Operating results for the first and second years of the Medium-Term Management Plan, and targets for the final year of the plan (fiscal 2023) are as follows.

(Billions of yen)

Consolidated KPI	Fiscal 2021 results	**Fiscal 2022 results**	Fiscal 2023 target
Net sales	705.6	**781.2**	730.0
Operating profit	55.3	**49.0**	70.0
Ordinary profit	74.1	**69.7**	80.0
ROIC	10.4%	**8.8%**	≥ 10%
ROE	8.8%	**8.3%**	≥ 9%

Note: ROIC = Ordinary profit/invested capital

Management perceptions of operating results in the fiscal year under review are presented in "(1) Consolidated Business Results" under "1) Summary of Operating Performance."

Medium/long-term challenges to be addressed include the two objectives in the Medium-Term Management Plan and their respective three-pronged strategies discussed above in "1. Management Policies, Operating Environment and Challenges to Be Addressed" under "Results of Operations." Additionally, we plan to invest a cumulative ¥240 billion and spend a cumulative ¥73 billion on R&D during the plan's three-year term. In addition to proactively making strategic investments in differentiating businesses, we will maximally leverage intra- and extra-Group technologies and human resources through our newly reorganized R&D system to progress as a unified group toward our top priorities: shifting to a profit structure resilient to changes in the business environment and balancing social and economic value.

Following is management's assessment, discussion and analysis of operating performance by segment.

[Basic Chemicals]

The operating results for the Basic Chemicals Business Sector are as follows.

(Billions of yen)

Consolidated KPI	Fiscal 2021 results	**Fiscal 2022 results**	Fiscal 2023 target
Net sales*	425.3	**478.9**	410.0
Operating profit	25.7	**18.8**	25.0
Ordinary profit	30.0	**30.5**	31.0

* Including intersegment sales and transfers

As described in “(1) Consolidated Business Results” under “1) Summary of Operating Performance”, operating profit in fiscal 2022 decreased due mainly to higher raw material and fuel prices, an increase in repair costs, and the lower sales volume of meta-xylenediamine, while ordinary profit increased due to a rise in equity in earnings from an overseas methanol producing company.

Going forward, we will invest proactively, primarily in differentiated products, such as by establishing new manufacturing facilities for meta-xylenediamine, aromatic aldehydes, and other specialized aromatic chemicals. In addition, we will promote the development of manufacturing technology for methanol as a circular carbon product, work on initiatives for the commercialization of CCS, reduce costs through improving the efficiency of logistics and production, and promote other measures aimed at continuing to enhance added value and improve efficiency of foundation businesses. We will take further steps to restructure and overhaul unprofitable businesses or those needing rebuilding.

[Specialty Chemicals]

The operating results for the Specialty Chemicals Business Sector are as follows.

(Billions of yen)

Consolidated KPI	Fiscal 2021 results	**Fiscal 2022 results**	Fiscal 2023 target
Net sales*	285.5	**309.0**	330.0
Operating profit	33.6	**32.6**	49.0
Ordinary profit	45.4	**38.7**	53.0

* Including intersegment sales and transfers

As described in “(1) Consolidated Business Results” under “1) Summary of Operating Performance,” net sales in fiscal 2022 grew as a result of the strong performance of a newly consolidated polyacetal sales company in South Korea, but although operating profit benefited from strong sales of polyacetal, lower sales volumes of electronic materials and polycarbonates resulted in lower profits.

Going forward, we will promote various strategies aimed at growth in differentiated products, such as strengthening the global rollout of new and existing production sites for super-pure hydrogen peroxide and other electronic chemicals, restructuring the polyacetal business to enhance our market presence, increasing production capacity for electronic materials at overseas manufacturing subsidiaries, and setting up a new plant for monomer raw materials for optical polymers. For the foundation businesses of the Specialty Chemicals Business Sector, such as the polycarbonate business, which consolidated Mitsubishi Engineering-Plastics Corporation, we will promote high value-added products to shift to a profit structure resilient to changes in the business environment.

(2) Factors that May Materially Affect Operating Performance

Factors that may materially affect operating performance are discussed in “3. Business and Other Risks” under “Results of Operations.”

As of the filing of this annual securities report the COVID-19 pandemic appears to trending towards resolution, but in the event of a resurgence in infections, declining demand and other factors could adversely affect the Group’s operating results.

(3) Capital Resources and Liquidity

MGC Group’s main uses of working capital are manufacturing expenses and operating expenses such as selling, general and administrative expenses.

Its uses of capital for investment purposes include capital expenditures, which it primarily funds with cash on hand, borrowings from financial institutions and bond issuance.

Fiscal 2022 cash flows are analyzed in “(3) Cash Flows” under “1) Summary of Operating Performance.”

MGC ended fiscal 2022 with ¥166.9 billion of interest-bearing debt and ¥101.1 billion of cash and cash equivalents.

(4) Objective Metrics for Assessing Management Policies/Strategies’ Execution Status and Management Targets’ Attainment

Objective metrics MGC Group uses to assess its management policies/strategies execution status and its management targets’ attainment are disclosed above in “1) Management Policies, Operating Environment and Challenges to Be Addressed” under “Results of Operations.” To facilitate swift management decision-making on matters such as investments in and exits from businesses, said metrics include a measure of capital efficiency in addition to net sales and profits.

(5) Significant Accounting Estimates and Their Underlying Assumptions

Significant accounting estimates used to prepare consolidated financial statements and their underlying assumptions are disclosed in “(r) Significant Accounting Estimates” under “1. Summary of Significant Accounting Policies” under “Notes to Consolidated Financial Statements.”

5. Research and Development

To coincide with the beginning of the Medium-Term Management Plan, a structure for the promotion of research was established by integrating and restructuring R&D organizations. A new Research & Development Division and Intellectual Infrastructure Center have been established and have begun operations to lead an R&D organization that will leverage the overall strength of the Group to generate innovation. Under this new structure, by taking a whole-company perspective to allocating management resources and further accelerating research and development, we enhanced the profitability of existing businesses and promoted the creation of new businesses. In addition, the assignment of a specialist DX team to handle computational chemistry and data science analysis for the three research laboratories has significantly accelerated the speed of R&D.

Through R&D activities based on cooperation with external organizations, such as collaboration with and investment in startups, joint research with public research institutions and other initiatives, the Research & Development Division (Future Strategy Group, New Business Development Group) has continued to create businesses in new business areas. It also took steps to build businesses around internally developed products, including medical packaging materials and solid electrolytes, while developing products in new domains, including allergy diagnostics, through open innovation. The factory-grown produce business in Shirakawa, Fukushima Prefecture, provides reliably safe vegetables to the public.

MGC Group inclusive of its subsidiaries employs a total of 1,048 personnel, roughly 10% of its total workforce, in research and development. Its research expenses totaled ¥23,512 million in fiscal 2022.

Fiscal 2022 research and development costs by segment were as follows:

(Millions of yen)

Segment	Fiscal 2022
Basic Chemicals Business Sector	10,471
Specialty Chemicals Business Sector	13,041

6. Capital Expenditures

Summary of Capital Expenditures

Fiscal-2022 capital expenditures of MGC Group (MGC and its consolidated subsidiaries) were as follows.

(Millions of yen)

Segment	Fiscal 2022
Basic Chemicals Business Sector	32,051
Specialty Chemicals Business Sector	28,658
Other	1
Eliminations and corporate	3,940
Total	64,650

7. Dividend

(Yen)

	Interim	Fiscal year-end	Annual
Fiscal 2021	45.00	35.00	80.00
Fiscal 2022	40.00	40.00	80.00

Breakdown of interim dividend for fiscal 2021:
Ordinary dividend: 35.00 yen
Commemorative dividend: 10.00 yen