

Innovation

Innovation Strategy

Accelerating growth by combining in-house R&D with open innovation

At the Mitsubishi Chemical Group, a strong R&D capability is our cornerstone, but we define innovation much more broadly than this. We promote innovation by strategically combining in-house R&D with open innovation, including collaboration with academia, startup companies, corporate partners, and government agencies.

We emphasize four key points to further enhance the quality and speed of our innovation.

Guiding principles for innovation

End-Market Focus

- Integrated innovation strategies driving an optimal balance of internal R&D and open innovation for each focus market
- Agile product development in collaboration with end customers to deliver value at speed
- Flexibility to meet the changing demands of key markets: today, tomorrow, and the day after tomorrow

New Digital Capabilities

- Next-generation computational technologies enabling large-scale and high-throughput simulations
- Materials informatics to accelerate the introduction of new materials and products
- Quantum computing and AI for the information-driven chemical industry of the future

More Efficient Processes

- Seamless transition between long-term research platforms and late-stage product development
- Experimental data platform to create a virtual research organization that transcends physical location

New Business Fields

- Systematic creation of the next generation of high-profit, high-growth business clusters
- "Innovation Sandbox" to rapidly test the validity of new ideas beyond the scope of our current business

Strategic partnerships with startups around the world to accelerate innovation

The MCG Group creates opportunities for group-wide business growth through strategic investments and partnerships with promising startup companies worldwide.

Overview of collaboration with startups receiving Group investment

Startup company	Specialty and scope of collaboration
 AddiFab ApS	Specialty: Agile manufacturing solution combining additive manufacturing and injection molding for specialty products Collaboration: Joint development of additive materials Exit: Acquired by Nexa3D
 DAIZ	Specialty: Plant-based proteins and products as a substitute for traditional food products Collaboration: Development of alternative protein ingredients
 DIGILENS	Specialty: Holographic waveguide display technology for next-generation Augmented Reality/Virtual Reality devices Collaboration: Development of plastic waveguides for AR/VR devices
 ERIDAN	Specialty: 5G radio frequency communication technology leveraging gallium-nitride semiconductors for energy and spectrum efficiency Collaboration: Development of applications for gallium-nitride substrates in 5G communications networks
 Fluence Analytics	Specialty: Continuous monitoring and optimization of industrial and laboratory systems Collaboration: R&D efficiency and continuous process improvement Exit: Acquired by Yokogawa Electric
 Lactips	Specialty: Water-soluble and biodegradable bio-derived polymer raw material substitute for film and plastic applications Collaboration: Development of green materials for customer needs
 Lingrove	Specialty: Plant-based sustainable composites and materials to replace wood in automotive and industrial applications Collaboration: Development of bio-based composite solutions
 Myoridge	Specialty: Custom-made, serum-free cell culture media for pharmaceutical, regenerative medicine, and food applications Collaboration: Material development for cell culture-related markets
 PRIME ROOTS	Specialty: Koji-based food products as a substitute for traditional meat products Collaboration: Development of alternative protein ingredients and geographic expansion

3 Chapter 1 Our Vision

22 Chapter 2 Sustainable Growth Strategy

23 Members of the One Global Leadership Team

24 Executable Plan Based on the "Forging the future" Management Policy

31 Message from the CFO

Business Strategy

34 Message from the Business Unit Heads

35 Specialty Materials

39 Industrial Gases

40 Health Care

41 MMA

42 Petrochemicals and Carbon Products

43 Message from the Chief Supply Chain Officer

Innovation

44 Message from the CTO

45 Innovation Strategy

47 Intellectual Property Strategy

Digital

48 Message from the CDO

49 Digital Strategy

52 Message from the Chief Strategy Officer

53 Building an In-House Understanding of the Management Policy

56 Chapter 3 Strengthening ESG Activities

95 Chapter 4 Financial/Non-Financial Information

- 3 Chapter 1 Our Vision
- 22 Chapter 2 Sustainable Growth Strategy
- 23 Members of the One Global Leadership Team
- 24 Executable Plan Based on the “Forging the future” Management Policy
- 31 Message from the CFO
 - Business Strategy
- 34 Message from the Business Unit Heads
- 35 Specialty Materials
- 39 Industrial Gases
- 40 Health Care
- 41 MMA
- 42 Petrochemicals and Carbon Products
- 43 Message from the Chief Supply Chain Officer
 - Innovation
- 44 Message from the CTO
- 45 Innovation Strategy**
- 47 Intellectual Property Strategy
 - Digital
- 48 Message from the CDO
- 49 Digital Strategy
- 52 Message from the Chief Strategy Officer
- 53 Building an In-House Understanding of the Management Policy
- 56 Chapter 3 Strengthening ESG Activities
- 95 Chapter 4 Financial/Non-Financial Information

Innovation

Innovation Strategy








Leveraging our technology advantage in key focus markets

We have developed our technology portfolio over many decades, and the resulting intellectual capital is a principal driving force of our Company.

As part of our transformation into a world-leading enterprise supplying specialty materials and solutions, the MCG Group will concentrate its technical strengths in relevant areas.

In addition to these technology platforms that embody our long-term competitive advantage, we will build on existing products and technologies, creating new innovations to strengthen our presence in each of our focus markets.

MCG Group technologies and products matched to focus markets

							
	EV/Mobility	Digital	Food	Medical	Building/Infrastructure	Consumer Goods	Industrial
Key Trends	<ul style="list-style-type: none"> • Electrification • Lightweight materials • Modern design 	<ul style="list-style-type: none"> • Speed and complexity • Miniaturization • Smart homes and applications 	<ul style="list-style-type: none"> • Nutrition and health • Reducing food waste • Processability 	<ul style="list-style-type: none"> • Longevity • Quality of life • Tailored implants 	<ul style="list-style-type: none"> • Energy efficiency • Modular construction • Insulation 	<ul style="list-style-type: none"> • Personalization • Sustainability • Renewable resources 	<ul style="list-style-type: none"> • Smart materials • Remote operation • Robotics and automation
MCG Group Products and Technologies	<ul style="list-style-type: none"> • Battery materials • Composite materials • Specialty polymers and compounds 	<ul style="list-style-type: none"> • Semiconductor materials, equipment, and components • Fab cleaning services • Display films and materials 	<ul style="list-style-type: none"> • Emulsifiers • Vitamins and nutrition • Gas barrier films • Probiotics 	<ul style="list-style-type: none"> • AI-powered drug discovery • Biomodality-related technologies • Biocompatible materials 	<ul style="list-style-type: none"> • Construction materials • Additives for adhesives and coatings • Façade design materials 	<ul style="list-style-type: none"> • Carbon fiber composites • Water soluble polymers • High-performance water filtration 	<ul style="list-style-type: none"> • Industrial processing films and membranes • Oxygen combustion technology • Additive manufacturing technology