

Production Management and Socially Responsible Sourcing

Basic Approach

MGC aims to balance ensuring safety, which is the origin of its production activities, with environmental protection and efficient production. We are constantly pursuing our targets for all of these by raising the level of technical capability of employees engaged in production activities and keeping facilities (hardware) and systems (software) up-to-date.

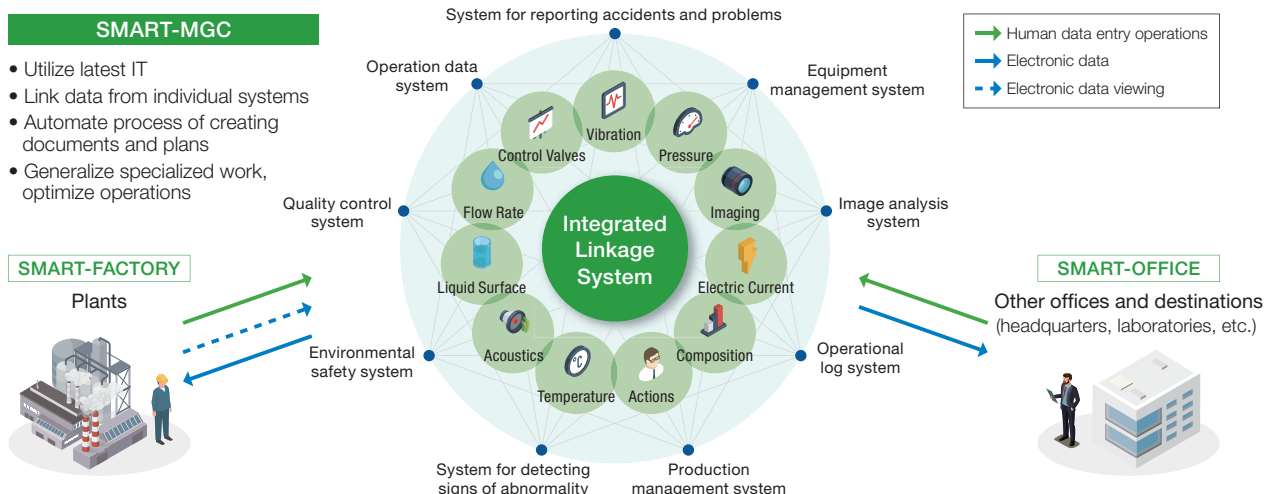
By focusing on reactions that are the starting point of chemistry, we have developed a variety of new technologies such as oxidation reactions, hydrogenation reactions and polymerization reactions. The development of catalysts for dramatically improving efficiency is also a pillar of our in-house technology. We are continuing to enhance our facilities and operating technologies for stable production of high-quality products manufactured using these in-house technologies.

We have endeavored to ensure the safety and stability of production activities through the technical improvement of processes and facilities, and will focus on initiatives

aimed at the realization of SMART-FACTORY to promote the utilization of DX technologies such as sensors, systems and mobile devices to realize an even higher level of stability.

With SMART-FACTORY, we will build a data management system that can be utilized in real time in any location by collecting information on all aspects of the condition of production facilities as digital data. This data is then utilized effectively for purposes such as the early detection of anomalies through the latest technology such as AI to achieve ultra-stable plants, and members of all divisions — including research and development, production management, equipment operation, facility maintenance, logistics management and business management — play a role in the Company's overall supply chain by utilizing this system with the aim of implementing SMART-MGC that will encompass the entire company.

Advance SMART-MGC Project



Production sites and major products



Niigata Plant

- Methanol and ammonia derivatives
- Meta-xylenediamine (MXDA)
- MX-Nylon (MXD6)
- Biotechnology products



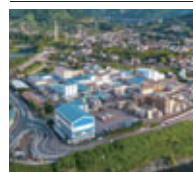
Kashima Plant

- Hydrogen peroxide
- Polycarbonate resin
- Optical polymer



Mizushima Plant

- Xylene isomers
- Meta-xylene derivatives
- Special aromatic products
- Polyols



Yamakita Plant

- Hydrogen peroxide derivatives
- Persulfates
- Chemical polishing solution



Yokkaichi Plant

- Hydrogen peroxide and other industrial chemicals, polyacetal resin
- Naniwa Plant: Plastic lens monomer
- Saga Plant: Super-pure hydrogen peroxide



QOL Innovation Center Shirakawa

- MGC AGELESS Shirakawa Plant: Oxygen absorbers
- MGC Filsheet Shirakawa Plant: Polycarbonate sheet film
- MGC Farmix: Hydroponic vegetables using fully artificial light

Safe Operation

Based on our Safety Philosophy that “ensuring safety is the top priority of our business activities,” MGC formulated a Safety Code of Conduct and takes active measures to achieve zero accidents and zero occupational injuries among both MGC employees and the employees of our partners.

With regard to occupational health and safety, and process safety and disaster prevention, each business site implements voluntary safety measures under its own initiatives, with LINK established as a Company-wide organization to strengthen and promote improvement activities.

The specific promotion system involves holding the Environment and Safety Manager Meeting, a gathering of the heads of environmental and safety departments of each workplace, to report on and discuss the status of

RC measures, as well as meetings of the LINK Leaders Conference, which discusses LINK activities at each workplace, multiple times each year. Furthermore, at environment and safety meetings, which are chaired by the President and held annually, activities are reviewed, plans for the following year are discussed, and the PDCA cycle is implemented to continuously enhance the level of activities.

In addition, MGC systematically maintains its facilities and is stepping up TPM*¹ (total productive maintenance) activities at production plants as an effective means of not only preventing accidents but also reducing equipment breakdowns and production downtime.

*1 TPM activities: activities that continuously improve productivity and contribute to profits by eliminating all types of losses that exist in production systems.

Safety Philosophy

Ensuring safety is the top priority of our business activities

Safety is the basis of our business activity and ensuring safety is our duty to society.

Occupational Health and Safety

In order to maintain zero occupational injuries, MGC regularly conducts training, drills, and occupational health and safety risk assessments. In addition, each workplace continuously engages in tasks such as 5S activities, hazard

prediction, and proposals for addressing Hiyari Hatto (near-miss) incidents to bolster day-to-day safety measures.

In 2020, Hiratsuka Research Laboratory and Kashima Plant received awards in accordance with internal rules.

Lost Time Injury Frequency Rate*²

	2015	2016	2017	2018	2019	2020
MGC	0.27	0	0	0.29	0	0.28
Partners	0.58	1.45	0.57	2.19	1.41	1.38
Chemical industry	0.81	0.88	0.81	0.90	0.94	0.28
Manufacturing industry	1.06	1.15	1.02	1.20	1.20	1.21

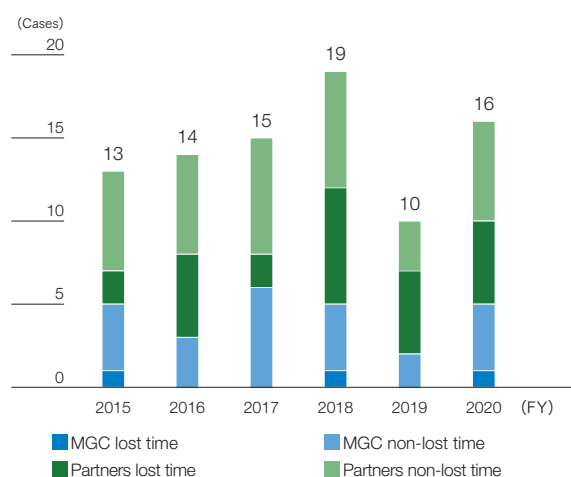
*2 Frequency rate: Number of occupational injury casualties per one million working hours

Lost Time Injury Severity Rate*³

	2015	2016	2017	2018	2019	2020
MGC	0.002	0	0	0.000	0	0.008
Partners	0.004	0.057	0.017	0.033	0.039	0.068
Chemical industry	0.040	0.030	0.090	0.060	0.020	0.110
Manufacturing industry	0.060	0.070	0.080	0.100	0.100	0.070

*3 Severity rate: Number of lost working days per 1,000 working hours

Safety Record (MGC and Partner Companies)



Received the Jury's Special Award at the Responsible Care (RC) Awards*⁴ Run by the Japan Chemical Industry Association



MGC was recognized for its “Chemical school (hands-on workshops for plant operators to gain chemical knowledge and develop safety skills)” activities to enhance the safety sensitivity of operators required for safe and stable operation of the Mizushima Plant, and received the Jury's Special Award at the 15th (2020) Responsible Care (RC) Awards from the Japan Chemical Industry Association. The Company will implement further RC activities to continue to achieve safe and stable production activities in the future.

*4 An award granted to individuals or groups who contribute to the spread and promotion of RC activities.

Process Safety and Disaster Prevention

MGC set average unplanned down time per year per plant as a measure of success, and takes action to reduce equipment breakdowns and production suspensions. This indicator increased in fiscal 2018 and fiscal 2019, but decreased in fiscal 2020. Furthermore, the long-term trend is downward.

In fiscal 2021, we will take action based on new key performance indicators (KPI) to reduce extended unplanned down time even further.

Average Unplanned Down Time Per Plant



Quality Assurance

MGC promotes Company-wide quality assurance activities (Q-MGC). Along with providing superior products and services with high safety and reliability, all divisions act in accordance with the MGC quality policy in order to thoroughly ensure quality control and assurance.

The Quality Assurance Conference, which is chaired by the President, is composed of directors, auditors, and workplace managers. Basic matters, such as the Q-MGC annual plan, are discussed and decided, and reports on implementation status are received. In addition, we have established the Quality Assurance Supervisors Conference, composed of the people responsible for quality assurance in each organization, where we discuss and consider the Q-MGC implementation plan, audit plan, and education/support plan.

All plants have acquired ISO9001 certification, the international standard for quality management systems. In addition, there are divisions that have acquired FSSC22000 certification for food safety management systems and ISO13485 certification for medical device quality management systems.

Furthermore, MGC conducts quality audits on divisions closely related to quality, such as research and development, manufacturing, purchasing and logistics, and sales, while the quality assurance director and the audit team evaluate the Q-MGC implementation status of all divisions. The priority audit items of 2020 were (1) transmission of information relating to quality assurance, (2) agreement of product specifications, (3) quality assurance and management of contract manufactured products and purchase sales products, and (4) confirmation of the correction of quality complaints and problems.

• Subjects of Quality Audits

5 plants, 3 laboratories, Basic Chemicals Business Sector, Specialty Chemicals Business Sector, Advanced Business Development Division, and Purchasing & Logistics Division.

• Quality Audit Findings

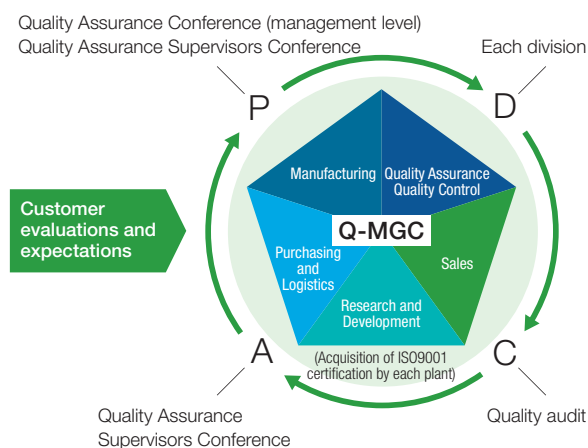
Full conformity (10 cases), non-conformity (1 case), opportunity for improvement (6 cases), comments (13 cases)
 Note: Above organization names are the previous names used in fiscal 2020.



Quality audit making use of an online meeting platform

MGC Companywide Quality Management System: Q-MGC

In addition to plants that have been managed using ISO9001 mechanisms, all research and development, manufacturing, purchasing and logistics, and sales divisions will work together to apply the PDCA cycle of Q-MGC as a company-wide and cross-divisional activity for quality assurance in order to bring about continuous improvements.



Please refer to the Sustainability website for details on the MGC Quality Policy.
<https://www.mgc.co.jp/eng/csr/society/safety/quality.html>

Chemical Management

MGC clarifies the properties, safety, and handling methods of products (chemicals) in its capacity as a responsible supplier of chemicals, and conducts a variety of activities to ensure the health and safety of all people using them in addition to the environment.

Under its Safety Philosophy and Safe Behavior Guidelines, MGC's basic policy is to ensure the safe handling, use and disposal of chemical products. RC is implemented in all divisions in accordance with the MGC Group Policies on Environment and Safety, and improvements are continuously made by applying the PDCA cycle based on the RC management system.

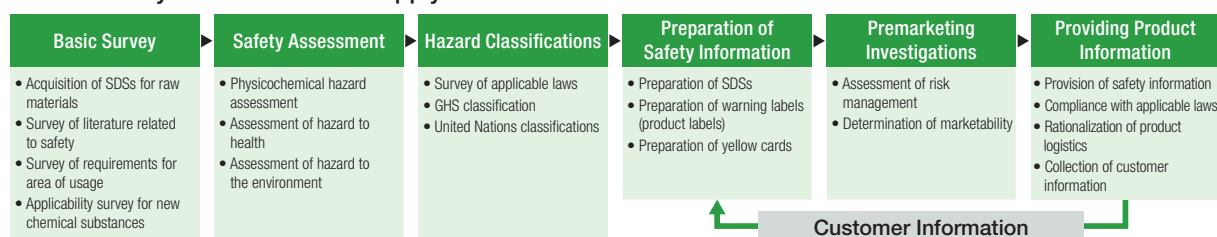
Specific activities include implementation of basic surveys and safety assessments at the product development stage. When products correspond to new chemical substances, we first conduct safety testing and then classify the products according to whether or not they come under applicable regulations, as well as according to their degree of hazard under standards such as GHS^{*5}, before preparing safety information such as

safety data sheets (SDSs). Based on these, we perform risk assessments (based on hazards of the substances themselves as well as hazards related to exposure) for every stage of a product, from manufacture to disposal. Products are offered once this screening (premarketing investigations) is complete.

Many of MGC's products are chemicals, and potential product-related accidents include fires and chemical burns. We present hazard information about chemicals with SDSs, product labels, and yellow cards given to customers and others concerned to ensure that products are handled safely. Hazard information is also provided for products aimed at overseas markets, via translated SDSs and other means.

^{*5} GHS: The Globally Harmonized System of Classification and Labelling of Chemicals. Chemical hazards are classified under fixed standards and are indicated clearly with pictograms on labels and through SDS documentation. Ultimately, this information contributes to accident prevention and to protecting human health and the environment.

Flow of Safety Assessment and Supply of Product Information



Socially Responsible Sourcing

MGC has positioned increasing the level of CSR, including with regard to the environment, labor conditions and human rights, throughout the entire supply chain from procurement of raw materials to manufacturing and sale as a management materiality.

With the understanding and cooperation of our business partners, MGC shares its requirements through the “Basic Concepts Related to Raw Material Procurement

Activities” and “Mitsubishi Gas Chemical CSR Procurement Guidelines” to promote CSR procurement. We will continue to endeavor to build safe, legally compliant and environmentally friendly supply chains.

Please refer to the Sustainability website for details on the CSR Procurement Guidelines.
https://www.mgc.co.jp/eng/csr/society/pdf/MGC_CSR_Procurement_Guidelines_en.pdf

Basic Approach Related to Raw Material Procurement Activities

In order to realize the MGC Group Mission of “creating value to share with society,” MGC complies with laws and various regulations in accordance with the MGC Corporate Behavior Guidelines, recognizes social issues in the supply chain, and strives for responsible procurement to support the development of a sustainable society.

- 1. Compliance with laws and regulations:** We comply with the laws and social norms in purchasing activities.
- 2. Fair and equitable transaction:** With fair and equitable free competition as our basis, we strive to maintain relationships with our business partners based on high principles and virtuous character, and strive to build partnerships based on mutual trust.
- 3. Selecting business partners:** When selecting business partners, we make decisions by taking into account quality, price, supply stability, technological development capabilities, and safety and environmental considerations.
- 4. Fulfilling social responsibilities:** We conduct procurement activities that recognize corporate social responsibility and that give full consideration to human rights, conservation of resources, environmental protection, and safety among others. Moreover, throughout the entire supply chain, we aim to contribute to societal growth and harmony, and seek to work together with our business partners.