

Results and Plans for RC Activities

○ : Achieved △ : Mostly achieved × : Further efforts required

	RC Medium-term Plan 2020 (2018-2020)	2019 RC Activity Plan	2019 RC Activity Results	Self-assessment	2020 RC Activity Plan
Occupational Health and Safety	<p>Aim to eliminate occupational injuries at the worksites of MGC and its partner companies</p> <ul style="list-style-type: none"> • Implement regular safety activities and ensure all personnel are informed of them • Share and utilize information about cases of occupational injuries • Maintain healthy workplace environments and make improvements when necessary 	(1) Invigorate day-to-day safety activities characteristic of business sites	<ul style="list-style-type: none"> • As day-to-day safety activities, conducted hazard prediction activities, near-miss incident identification activities, the pointing-and-calling occupational safety method, the 5Ss, workplace patrols, and other activities. • Continued safety patrols led by plant managers; each plant adopted measures to maintain onsite alertness, such as the wearing of safety vests. • Conducted fixed-period campaigns and other initiatives to prevent the routinization of safety and health activities. 	○	(1) Invigorate day-to-day safety activities characteristic of business sites
		(2) Eliminate similar occupational accidents (getting caught in or pulled in by equipment)	<ul style="list-style-type: none"> • Shared accident case studies from inside the Company, Group companies, and other companies. • Analyzed examples of past accidents, implemented additional countermeasures when necessary, and took action to prevent reoccurrences. • Produced posters and conducted campaigns to raise awareness; took measures to prevent accidents involving getting caught or pulled in by equipment at each business site. 	○	(2) Eliminate similar occupational accidents (response to fall on the same level, fall from a height)
		(3) Undertake measures to prevent human error (unsafe conduct)	<ul style="list-style-type: none"> • Each business site promoted appropriate activities to prevent human error, such as setting priority targets for the point-and-call safety method, appointing point-and-call leaders, and improving methods of transmitting information by digital technology. • Conducted training courses taught by outside instructors, expanded educational facilities, etc. 	○	(3) Undertake measures to prevent human error (unsafe conduct)
		(4) Operate the MGC Guidelines (Safety Culture)	<ul style="list-style-type: none"> • Incorporated the content of the MGC Guidelines (Safety Culture) into this year's RC audit checklist and evaluated conditions at each business site. From now on, we will endeavor to make improvements by incorporating the results in in each site's RC activity plan. 	○	(4) Utilize the MGC Guidelines (Safety Culture)
		(5) Provide support for preventing occupational injuries at partner companies	<ul style="list-style-type: none"> • Endeavored to strengthen communication with partner companies by holding accident-prevention and other conferences, providing occupational accident information from other business sites and other companies, mutually participating as observers in health and safety committee meetings, etc.; continuously supported safety activities by positively opening the MGC's internal educational facilities, etc. 	○	(5) Provide support for preventing occupational injuries at partner companies
		(6) Assess and improve worksite environments	<ul style="list-style-type: none"> • Implemented work environment measurement and conducted patrols by health managers and others steadily. • Conducted risk assessments relating to chemical substances steadily. • Endeavored to vitalize communication. 	○	(6) Assess and improve worksite environments

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Process Safety and Accident Prevention	<p>Aim to eliminate accidents in the workplace</p> <ul style="list-style-type: none"> • Ensure proper management of equipment and facilities • Share and utilize information about cases of workplace accidents • Improve the ability of employees to ensure safety and manage workplaces through MGC's Bridge-II activities 	(1) Enhance facility management	<ul style="list-style-type: none"> • Improved weaknesses identified through safety proficiency assessments. • Took steps to enhance the competence of high-pressure gas internal inspectors and RC inspectors. • Introduced and evaluated state-of-the-art technology, such as advanced control systems, online abnormality forecasting systems, and plant information management systems, at some sites on a trial basis toward the promotion of safe and stable operations using the IoT and AI. • Endeavored to improve equipment management by revising equipment importance ranking, etc. 	○	(1) Enhance facility management
		(2) Eliminate similar abnormal phenomenon (respond to leak accidents)	<ul style="list-style-type: none"> • Shared accident case studies from the Company, Group companies, and other companies. • Analyzed examples of past accidents, implemented additional countermeasures when necessary, confirmed operation in other divisions, and took action to prevent reoccurrences by using the Bridge-II Leader Conference, etc. • Took measures to eliminate leak accidents, such as reinforcement of external corrosion countermeasures, equipment maintenance, P&ID management, and regular and nonregular operational management. 	△	(2) Eliminate similar abnormal phenomenon (respond to leak accidents)
		(3) Implement and respond to risk assessments	<ul style="list-style-type: none"> • Regarding explosion and fire accidents inside MGC plants, gave instructions and promoted the implementation of process risk assessment by the executive officer in charge of environment and safety using the hazard and operability (HAZOP) method on all equipment at all five plants. • Continuously promoted risk assessment in nonregular work in consideration of equipment risk and identified order of priority. • Endeavored to inform business sites of risk assessment results through site subcommittees on safety, our intranet, etc. 	○	(3) Implement HAZOP studies on all manufacturing equipment as process risk assessment in a planned manner
		(4) Evaluate, improve, and entrench the MGC Guidelines (Safety Foundations)	<ul style="list-style-type: none"> • Conducted evaluation in last year's RC audit based on the MGC Guidelines (Safety Foundations) and, as a result, tackled the improvement of detected weaknesses in a planned manner. 	○	(4) Utilize the MGC Guidelines (Safety Foundations)
		(5) Enhance and expand maintenance training and courses	<ul style="list-style-type: none"> • Each business site energetically tackled the improvement of education and training, for example by establishing internal educational facilities relating to security and disaster prevention; efforts have begun to share this education with Group companies and partner companies. • Actively participated in outside educational activities, such as the Keiyo Rinkai Complex Human Resources Development Course and the Sanyo Human Resource Development Course. • Conducted experience-based training relating to test equipment and other equipment handling methods at research labs. • Endeavored to pass on skills and technologies by utilizing the Know-Why activities and digital technology. 	○	(5) Enhance and expand maintenance training and courses
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Environmental Conservation	<p>Aim to protect the natural environment and contribute positively to communities through business activities</p> <ul style="list-style-type: none"> Fully comply with environmental regulatory requirements Work to achieve environmental impact reduction targets Contribute to improving MGC's credibility and reputation in society with respect to environmental conservation <p>【 2020 environmental impact reduction targets 】</p> <p>1.Reduce the total energy intensity to no more than 89% of the fiscal 1990 level</p> <p>2.Reduce the GHG emissions intensity to no more than 66% of the fiscal 1990 level (or 90% of the fiscal 2016 level) Reduce total GHG emissions (CO₂ equivalent) by at least 320,000 tons compared with the fiscal 1990 level (or by at least 100,000 tons compared with the fiscal 2016 level)</p> <p>3.Reduce waste matter disposed of in landfills to no more than 0.3% of the Group's total waste (by weight)</p> <p>4.Reduce chemical substances subject to the Pollutant Release and Transfer Register system by 10% compared with the fiscal 2017 level</p>	(1) Improve the total energy intensity	<ul style="list-style-type: none"> Total energy intensity in fiscal 2019 was 0.386 kl (oil equivalent)/t, which was 85% of the fiscal 1990 level. Data on energy consumption are available in the Corporate Report and also on the Environmental Reports page of the MGC's website. 	○	(1) Improve the total energy intensity
		(2) Improve the GHG emissions intensity and reduce emissions	<ul style="list-style-type: none"> GHG emissions intensity in fiscal 2019 was 1.402 tons (CO₂ equivalent)/t, which was 66% of the fiscal 1990 level. The amount of GHG emissions in fiscal 2019 was 1.01 million tons (CO₂ equivalent), which was down by 185,000 tons from the fiscal 1990 level but up by about 45,000 tons over the fiscal 2016 level. Data on GHG emissions are available in the Corporate Report and also on the Environmental Reports page of the MGC's website. 	○	(2) Improve the GHG emissions intensity and reduce emissions
		(3) Encourage recycling of waste material and efficiently use resources to reduce the waste final disposal volume	<ul style="list-style-type: none"> While our target for landfill-bound waste is zero emission, our fiscal 2019 landfill emission rate was 0.80%, so since fiscal 2014 we have not managed to achieve our target. Data on waste emissions are available on the Environmental Reports page of the MGC's website. 	×	(3) Encourage recycling of waste material and efficiently use resources to reduce the waste final disposal volume
		(4) Reduce releases of substances subject to the Pollutant Release and Transfer Register (PRTR) Act	<ul style="list-style-type: none"> Emissions of substances subject to the PRTR Act amounted to 280 tons in fiscal 2019, up about 20 tons over the previous fiscal year. This rise was mainly due to problems with exhaust gas retrieval equipment. The figure meant an increase of about 23% over the fiscal 2017 level. PRTR data are available on the Environmental Reports page of the MGC's website. 	×	(4) Reduce releases of substances subject to the Pollutant Release and Transfer Register (PRTR) Act
		(5) Encourage efficient use of water of resources	<ul style="list-style-type: none"> Collected and tabulated data relating to water use. Data on water intake and water use amounts are available in the Corporate Report and also on the Environmental Reports page of the MGC's website. 	○	(5) Encourage efficient use of water of resources
		(6) Undertake measures concerning eco-friendly products	<ul style="list-style-type: none"> Posted reference materials for a second time relating to three eco-friendly products manufactured by the MGC Group on our website and in Corporate Report 2019 (CBZ thermosetting resin and BIOMUP bioplastic from Japan U-Pica Co., Ltd. and chemical blowing agents from Eiwa Chemical Ind. Co., Ltd.). 	○	(6) Undertake measures concerning eco-friendly products
		(7) Undertake measures to conserve biodiversity	<ul style="list-style-type: none"> Participated in a program to donate books on biodiversity, making donations to the Hiratsuka City Central Library and the Ibaraki Kasumigaura Environmental Science Center. Participated in activities supporting the maintenance of forests overseas by the Umibe no Mori Maintenance Council. Conducted garbage cleanup activities around plants. 	○	(7) Undertake measures to conserve biodiversity
		(8) Continuously improve environmental management systems (EMS)	<ul style="list-style-type: none"> Confirmed the status of environmental management using RC audit check sheets. There were not particular problems. 	○	(8) Continuously improve environmental management systems (EMS)

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Chemical and Product Safety	Work to consistently maintain safety across the entire lifecycle of chemical products <ul style="list-style-type: none"> Stay updated on chemical-related safety information and distribute such information when necessary Practice risk management of chemical products Comply with chemical management regulations in each country of operations and international rules and regulations 	(1) Increase the use of IT from management of chemical substances to preparation and release of safety information	<ul style="list-style-type: none"> Decided on introduction of a safety data sheet (SDS) automatic compilation system; finished transferring existing SDS data and commenced trial operation. Introduced an information search service making it easy to find the latest information on national legal restrictions. 	○	(1) Increase the use of IT from management of chemical substances to preparation and release of safety information
		(2) Continuously assess and management the risks of handled chemical products	<ul style="list-style-type: none"> Conducted safety testing of new products; prepared and corrected SDS. Conducted market surveys for products currently on the market. Reviewed company rules concerning product safety assessment. Conducted environment-related substance surveys. 	○	(2) Continuously assess and management the risks of handled chemical products
		(3) Reliably comply with overseas chemical substance management regulations and create regional information collection systems	<ul style="list-style-type: none"> Regarding the REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) regulation of the European Union, conducted procedures to transfer substances under the jurisdiction of our only representative in the UK to our only representative in the EU. Conducted a survey of the UK's direct import volumes and made preparations for registration in post-Brexit UK. Regarding the Act on Registration and Evaluation of Chemicals of Korea ("K-REACH"), designated an only representative and completed pre-registration of substances under the revised law by June. Made preparations for registration and application for exemption toward full registration. Concluded contracts with investigative bodies in order to collect information relating to chemical substance restrictions in other regions and to respond to registration systems. 	○	(3) Reliably comply with overseas chemical substance management regulations and create regional information collection systems
Safe Transport and Storage of Chemicals	Aim to eliminate accidents and problems when transporting and storing chemicals <ul style="list-style-type: none"> Regularly analyze problems that occur when transporting and storing chemicals, and distribute results to all relevant workplaces Share information on the safe transport and storage of chemicals with the logistics departments of each group company Closely monitor shipments of chemicals to final destinations and make improvements when necessary 	(1) Analyze transport problems and continuously apply the results at all relevant workplaces	<ul style="list-style-type: none"> Collected and analyzed data on transport problems and distributed the results to relevant division and transportation companies each month. 	○	(1) Analyze transport problems and continuously apply the results at all relevant workplaces
		(2) Share information on safe transport with the logistics departments of each group company	<ul style="list-style-type: none"> Exchanged information on individual accidents and the status of responses when natural disasters occurred. Conducted training with logistics companies in anticipation of accidents during materials deliveries and product transportation. 	○	(2) Share information on safe transport with the logistics departments of each group company
		(3) Encourage the conclusion of safety agreements on shipment of chemicals to final destinations	<ul style="list-style-type: none"> Reviewed contract templates and promoted the conclusion of contracts by offering advice on contract formulation. 	○	(3) Encourage the conclusion of safety agreements on shipments of chemicals to final destinations
Stakeholder Relations	Implement initiatives for gaining the trust of stakeholders <ul style="list-style-type: none"> Proactively disclose information Expand opportunities for dialogue with members of local communities 	(1) Enhance the Corporate Report and website	<ul style="list-style-type: none"> Issued Corporate Report 2019. 	○	(1) Enhance the Corporate Report and website
		(2) Encourage issuance of environmental and safety reports by individual business sites	<ul style="list-style-type: none"> Distributed environmental and safety reports issued by business sites at events for engaging in dialogue with local communities. Updated site reports posted on website. 	○	(2) Encourage issuance of environmental and safety reports by individual business site
		(3) Expand opportunities for dialogue such as RC regional dialogues and tours	<ul style="list-style-type: none"> Held meetings with self-governing bodies and conducted business site briefings and tours. Participated in festivals at shrines, prefectural traffic safety campaigns, industrial complex committee meetings, RC liaison committees, JCIA dialogues, and other events. 	○	(3) Expand opportunities for dialogue such as RC regional dialogues and tours

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Responsible Care Initiatives and Management	In order to promote environmental and safety activities through the MGC <ul style="list-style-type: none"> ▪ Reinforce communications within the Group ▪ Promote environment management as a Group 	(1) Refine Group systems for sharing information on accidents and incidents and expand application to relevant business sites	<ul style="list-style-type: none"> ▪ The domestic Group and the overseas Group collected and mutually shared information. 	○	(1) Refine Group systems for sharing information on accidents and incidents and expand application to relevant business sites
		(2) Enhance Group company safety audits, conferences, and liaison committees	<ul style="list-style-type: none"> ▪ Held council meetings to exchange information with Group companies. Furthermore, conducted environmental and safety audits of Group companies and confirmed the state of environmental and safety activities. 	○	(2) Enhance Group company safety audits, conferences, and liaison committees
		(3) Support the achievement of Group environmental targets	<ul style="list-style-type: none"> ▪ Collected various information, including data relating to environmental protection in Group companies. The results were posted on our website. 	○	(3) Support the achievement of Group environmental targets
	Continuously improve RC management systems	(4) Continuously improve RC management systems through collaboration among company and business site organizations.	<ul style="list-style-type: none"> ▪ Each division collaborated from plan formulation to implementation and internal auditing and operated PDCA management systems relating to RC. 	○	(4) Continuously improve RC management systems through collaboration among company and business site organizations.