

Results and Plans for RC Activities

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

	RC Medium-term Plan (2015–2017)	Three-Year (2015-2017) Activity Results	Assessment	RC Medium-term Plan 2020 (2018-2020)
Occupational Health and Safety	1. Enhance everyday safety activities (Kiken Yochi: hazard prediction; Hiyari Hatto: near-miss incident identification activities; the 5Ss; etc.)	1. Adopted various measures, including incorporating hazard prediction activities, near-miss incident identification activities, the pointing-and-calling occupational safety method, and the 5Ss into small-group activities, implementing campaigns, and appointing persons responsible for undertaking each activity.	○	Aim to eliminate occupational injuries at the worksites of MGC and its partner companies <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
	2. Enhance communications.	2. Endeavored to enhance communication by conducting interdepartmental exchange meetings at sites and visits to other workplaces through patrols. At workplaces with shifts, shared information by introducing an electronic messaging system (PLM ^{*1}).	○	
	3. Prevent the reoccurrence of similar occupational injuries and incidents.	3. Shared information on cases of internal and external occupational injuries at Group companies. Each site sought to prevent reoccurrence by posting past cases on problem-solving bulletin boards or electronic bulletin boards. Also held group discussions at the Central Environmental Safety and Health Conference ^{*2} on the theme of eradicating occupational injuries.	○	
	4. Prevent occupational injuries at partner companies.	4. MGC and partner companies established a system to exchange information through mutual establishment of occupational health and safety committees and by establishing safety cooperation meetings and specialized committees. Vitalized activities by implementing campaigns and confirmed the status of activities through patrols, etc. Also strengthened activities at plants where special efforts were needed to reduce the number of accidents.	△	
	5. Implement risk assessment for handled chemicals.	5. Conducted education on risk assessment methods and established rules. In addition to newly handled chemical substances, also conducted risk assessment for chemical substances already handled at work.	○	
Process Safety and Accident Prevention	1. Establish a framework for activities (Bridge) to eliminate accidents.	1. Established a Bridge framework and made it the pillar of on-site safety activities, regularly holding safety and accident prevention meetings. Shared information on the results of bridge activities internally through leader conferences.	○	Aim to eliminate accidents in the workplace <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
	2. Introduce and operate the safety proficiency assessment system of the Japan Society for Safety Engineering (building of frameworks enabling sites themselves to practice PDCA).	2. Conducted safety proficiency assessments at all sites and took measures to improve identified weaknesses.	○	
	3. Strengthen and deepen risk assessment (entrenchment of activities to identify, reduce, and regularly review risks).	3. Implemented risk assessment of nonregular work similar to the three major accidents in accordance with the Safety and Accident Prevention Guidelines. Conducted HAZOP ^{*3} training and undertook comprehensive risk assessment of nonregular work through working groups, etc.	○	
	4. Establish PDCA in education at business sites, including OJT.	4. Held an education committee meeting, evaluated educational activities, and performed PDCA on safety training. Conducted education combining internal training through safety clinics, process clinics, chemistry courses, and operating simulations with external courses such as the Sanyo Human Resource Development Course, Keiyo Rinkai Complex Human Resources Development Course, and Industrial Safety School (Tokyo, Yokkaichi, Okayama).	○	
	5. Analyze case studies from other companies, past case studies, Hiyari Hatto (near-miss) case studies, etc. and distribute results to all relevant workplaces.	5. Shared information on examples of internal and external accidents at Group companies. Each business site sought to disseminate information and prevent reoccurrence by posting past cases on problem-solving bulletin boards or electronic bulletin boards. Conducted analysis of serious Hiyari Hatto and distribute results to all relevant workplaces.	○	
	6. Enhance disaster prevention framework.	6. In addition to the regular implementation of comprehensive disaster prevention drills, also conducted training focusing on medium-scale disasters (simultaneous occurrence of multiple disasters at the same site), blackout (total blackout) evacuation drills, etc. Reviewed the in-house emergency contact system at the time of emergencies and established a system enabling speedy contact.	○	

	7. Enhance equipment management and improve self-maintenance technologies.	7. Conducted maintenance level evaluations and made efforts to improve identified weaknesses. Created an external corrosion control system, identified parts where external corrosion might occur, and made repairs. With regard to high-pressure gas, upgraded skills by training high-pressure safety chiefs and high-pressure gas safety staff.	○	
	8. Formulate "MGC Safety Standards" applicable to the entire MGC Group.	8. Formulated the MGC Safety and Accident Prevention Guidelines based on the safety proficiency assessments (safety foundations).	○	
Environmental Conservation	1. Reduce the ratio of total energy consumption to 85% or lower compared with FY 1990 level (implementation of energy-saving measures and decrease of equipment trouble).	1 & 2. As a result of efforts to reduce energy consumption and greenhouse gas emissions in the plant manufacturing segment, reduced energy consumption by 3% and greenhouse gas emissions by 7% in FY 2016. The ratio of total energy consumption was 91% compared to the FY 1990 level, 0.4 points better than the previous fiscal year, and the ratio of greenhouse gas emissions was 74% compared to the FY 1990 level, an improvement of 0.5 points compared to the previous year. For energy-saving measures, such steps as changing compressor energy sources and changing heating method were taken. FY 2017 estimates are for the ratio of total energy consumption to be 86% compared with the FY 1990 level, and the ratio of greenhouse gas emissions to be 70%.	△	<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> <ol style="list-style-type: none"> Reduce the ratio of total energy consumption to no more than 89% of the fiscal 1990 level Reduce the ratio of greenhouse gas emissions to no more than 66% of the fiscal 1990 level (or 90% of the fiscal 2016 level) <p>Reduce total greenhouse gas 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> <ol style="list-style-type: none"> Reduce waste matter disposed of in landfills to no more than 0.3% of the Group's total waste (by weight) Reduce chemical substances subject to the Pollutant Release and Transfer Register system by 10% compared with the fiscal 2017 level
	2. Reduce the ratio of greenhouse gas emissions to 72% or lower compared with FY 1990 level.			
	3. Reduce emissions of PRTR substances by 10% compared with FY 2014.	3. MGC's non-consolidated results in FY 2016 for emissions of substances subject to the Pollutant Release and Transfer Register (PRTR) Act were 256 tons, approximately 14% lower than the FY 2014 level. It is expected that targets will continue to be met in FY 2017.	○	
	4. Maintain zero emissions of wastes (zero emissions at MGC: 0.3% or less final disposal of generated wastes, by weight).	4. The zero emissions rate for FY 2016 was 1.34% for MGC non-consolidated, and zero emissions have not been achieved since FY 2014. In FY 2016, the amount of final disposal increased due to temporary waste disposal treatment at some sites, and the MGC Group did not achieve the zero emissions standard value. Zero emissions in FY 2017 will depend on whether temporary waste generation ends.	△	
	5. Reduce generated waste volume by 10% compared with FY 2014.	5. The amount of waste generated by MGC non-consolidated in FY 2016 was approximately 78,600 tons, which is about 3% lower than the FY 2014 level. It is believed that further reduction will be possible in FY 2017.	△	
	6. Promote initiatives related to the conservation of biodiversity.	6. Carried out such activities as tree planting at sites and participation in cleanup activities in surrounding areas.	○	
	7. Formulate methods for evaluating environment-friendly products.	7. Established the MGC Group Environmental Contribution Product Certification Criteria in November 2016. As the first MGC Group Environmentally Contributing Products, selected seven products and projects of the MGC Group that contribute to reducing environmental impact. And announced them on websites and in the CSR report.	○	
Chemical and Product Safety	1. Provide safety information for chemical products handled (reflecting the latest safety information in SDSs, etc.)	1. Established a system that can determine the revision status of SDSs and made all SDSs compatible with the new Japan Industrial Standards (JIS Z 7253: 2012) by the end of 2015. In cases where applicable laws and regulations were revised or when safety information was obtained from safety tests and so on, SDSs were promptly revised and the latest information provided. Conducted PL ⁴ training, new employee education, etc. regarding the need for SDS distribution and comprehensively provided SDSs. Obtained the latest version of the SDS for raw materials, conducted risk assessments for chemical substances, and ensured the safety of chemical substance handlers.	○	<p>Work to consistently maintain safety across the entire lifecycle of chemical products</p> <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
	2. Risk management for handled chemical products. • Participation in JIPS. • Risk management for new products.	2. Participated in JIPS ⁵ and created safety summaries. Conducted safety testing of new products. In addition, tests for acute toxicity, mutagenicity Ames, primary skin irritation, and pathogenicity were conducted at in-house testing facilities.	○	
	3. Adapt to EU REACH and other overseas regulations.	3. Drew up an analysis report to prepare for registration by MGC of substances scheduled for final registration (to be registered in 2018) under the EU REACH regulations and provided support for Group company registration.	○	

		Prepared for initial registration of subject materials under the Korean chemical assessment criteria (K-REACH) (to be registered in 2018) by drawing up reports as a representative or member. Operated a consultation organization regarding substances for which the company is registered as a representative.		
Safe Transport and Storage of Chemicals	1. Analyze transport problems.	1. Collected and analyzed data on transport problems and distributed the results to relevant division and transportation companies each month.	○	<p>Aim to eliminate accidents and problems when transporting and storing chemicals</p> <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
	2. Expand communications through audits and other means.	2. The head office distribution group conducted an audit of original transportation companies and business sites audited logistics companies. Participated in information liaison meetings with shipping companies and transportation subcommittees as an observer. Conducted on-site confirmation of outside warehouses and strengthened safety management.	○	
	3. Reduce environmental impact in logistics.	3. Took measures to reduce the environmental impact through modal shifts and larger lots.	○	
Stakeholder Relations	1. Information disclosures (reports, business site reports)	1. Issued a CSR report and business site environmental reports. All plant site reports included environmental performance data.	○	<p>Implement initiatives for gaining the trust of stakeholders</p> <ul style="list-style-type: none"> Proactively disclose information Expand opportunities for dialogue with members of local communities
	2. Provide information to related organizations and gathering of information.	2. Participated in the Safety Promotion Council of the Japan Petrochemical Industry Association, exchange meetings of the Japan Chemical Industry Association, regional dialogues, and so on and provided and gathered information.	○	
	3. Promote communication with local communities.	3. Each business site participated in local cleanup activities, road crossing patrols, and festivals and other events.	○	
Responsible Care Initiatives and Management	1. Make appeals to management.	1. Made appeals regarding environmental preservation activities to managers at company-wide improvement announcement meetings.	○	<p>Promote environmental and safety activities across the entire MGC Group</p> <ul style="list-style-type: none"> Raise awareness of environmental initiatives throughout the Group Practice environmental management on a group-wide basis <p>Continuously make improvements to responsible care management systems</p>
	2. Comply with responsible care related requirements. • Definite implementation of security trade controls.	2. Conducted thorough export screenings, implemented practical export control training, and conducted internal audits. Conducted Group company training and surveys of current conditions.	○	
	1. Promote environmental and safety activities as the MGC Group. • Reinforce communications with Group companies in Japan and overseas (meetings, inspections, liaison committees). • Practice accident prevention and occupational safety activities as a Group. • Practice environmental management as a group.	1. Shared safety information such as occupational and other accidents in the MGC Group and distributed results to all relevant workplaces. The domestic Group undertook environmental safety activities as a Group through the Environmental Safety Promotion Committee, inspections and liaison meetings. Visits were made to Group companies at the QOL Innovation Center Shirakawa, which opened in 2017, to confirm environmental safety activities. Visited overseas Group companies, conducted inspections, and exchanged information. As support of Group companies, some Group companies evaluated the status of PSM ⁶ development and conducted safety meetings with the mother factory and licensees, held technical meetings, etc. Set Group environmental targets (reduction target for waste final disposal amount) and conducted environmental management as a Group.	○	
	1. Continuously improve responsible care management system.	1. Conducted responsible care audits and continuously improved management systems. Internal and Group observers participated in the RC audits and exchanged opinions on system improvement. Business sites improved their management systems by conducting internal audits.	○	
	2. Appropriate management and development of company rules and regulations.	2. Conducted regular reviews and revised company rules and regulations.	○	

*1. Abbreviation for Plant Log Meister, a communication tool for operations departments that can effectively accumulate messaging information in shift work and utilize the information in conjunction with various types of related information.

*2. The Central Environmental Safety and Health Conference is a forum where the company and the labor union deliberate on environmental health and safety.

*3. Abbreviation of Hazard and Operability Studies. A method of conducting risk assessment on processes.

*4. Abbreviation for product liability.

*5. Abbreviation for Japan Initiative of Product Stewardship, a voluntary effort to strengthen chemical management promoted by the Japan Chemical Industry Association. It is the Japanese version of GPS (Global Product Strategy), a voluntary measure for international chemical management.

*6. Abbreviation for Process Safety Management.