

## Results and Plans for RC Activities

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

|                                | RC Medium-term Plan 2020 (2018-2020)  | 2018 RC Activity Plan  | 2018 RC Activity Results   | Assessment | 2019 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"> <li>• Implement regular safety activities and ensure all personnel are informed of them</li> <li>• Share and utilize information about cases of occupational injuries</li> <li>• Maintain healthy workplace environments and make improvements when necessary</li> </ul> | (1) Invigorate day-to-day safety activities characteristic of business sites               | <ul style="list-style-type: none"> <li>• 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.</li> <li>• Conducted campaigns and other initiatives to invigorate these activities.</li> </ul>   | ○          | (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"> <li>• Shared accident case studies from inside the Company, Group companies, and other companies.</li> <li>• Analyzed examples of past accidents, implemented additional countermeasures when necessary, and took action to prevent reoccurrences.</li> <li>• Produced posters to raise levels of care, conducted campaigns, and took measures to prevent accidents involving getting caught in or pulled in by equipment.</li> </ul>   | △          | (2) Eliminate similar occupational accidents (getting caught in or pulled in by equipment) |
|                                |   | (3) Undertake measures to prevent human error (unsafe conduct)                             | <ul style="list-style-type: none"> <li>• Conducted training courses taught by outside instructors.</li> <li>• Set priority targets for the pointing-and-calling occupational safety method, appointed pointing-and-calling leaders, and firmly established other innovations.</li> <li>• Further promoted the introduction of PLM<sup>1</sup> companywide and reinforced work communications in plants.</li> <li>• Held safety clinics.</li> </ul>   | △          | (3) Undertake measures to prevent human error (unsafe conduct)                             |
|                                |   | (4) Formulate the MGC Safety and Accident Prevention Guidelines (Safety Culture)           | <ul style="list-style-type: none"> <li>• Prepared the MGC Safety and Accident Prevention Guidelines Safety Culture Version.</li> </ul>   | ○          | (4) Put the MGC Safety and Accident Prevention Guidelines (Safety Culture) into practice   |
|                                |   | (5) Provide support for preventing occupational injuries at partner companies              | <ul style="list-style-type: none"> <li>• Reinforced communication with partner companies by holding accident prevention and other conferences, providing occupational accident information from other business sites and other companies, and mutual participation in health and safety committees.</li> <li>• Supported safety activities including holding experience-based hazard training for employees of partner companies.</li> <li>• Reviewed the content of educational materials (DVDs) for visitors.</li> </ul> | ○          | (5) Provide support for preventing occupational injuries at partner companies              |
|                                |   | (6) Assess and improve worksite environments   | <ul style="list-style-type: none"> <li>• Took environmental measurements at worksites and conducted patrols by health managers and others.</li> <li>• Conducted risk assessments relating to chemical substances when establishing new facilities and updating existing facilities.</li> <li>• Reviewed the layouts of control rooms and break rooms and invigorated communications.</li> </ul>  | ○          | (6) Assess and improve worksite environments   |

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| Process<br>Safety and<br>Accident<br>Prevention | <p>Aim to eliminate accidents in the workplace</p> <ul style="list-style-type: none"> <li>• Ensure proper management of equipment and facilities</li> <li>• Share and utilize information about cases of workplace accidents</li> <li>• Improve the ability of employees to ensure safety and manage workplaces through MGC's Bridge-II activities</li> </ul>  | (1) Enhance facility management  | <ul style="list-style-type: none"> <li>• Improved weaknesses identified through safety proficiency assessments.</li> <li>• Began full-scale implementation of periodic inspection of high pressure gas facility opening and took measures to enhance the skills of inspectors.</li> <li>• Introduced on a trial basis and evaluated advanced technologies such as advanced control systems, online abnormality forecasting systems, and plant information management systems to promote safe and stable operations using the IoT and AI.</li> <li>• Reviewed facility priority rankings and reflected the results in instrumentation device maintenance plans.</li> </ul> | ○          | (1) Enhance facility management  |
|   |  | (2) Eliminate similar abnormal phenomenon (respond to leak accidents)                        | <ul style="list-style-type: none"> <li>• Shared accident case studies from inside the Company, Group companies, and other companies.</li> <li>• Analyzed examples of past accidents, implemented additional countermeasures when necessary, confirmed operation in other divisions, and took action to prevent reoccurrences.</li> <li>• Took measures to eliminate leak accidents, such as reinforcement of external corrosion countermeasures, equipment maintenance, P&amp;ID management, and regular and nonregular operational management.</li> </ul>  | △          | (2) Eliminate similar abnormal phenomenon (respond to leak accidents)  |
|   |  | (3) Implement and respond to risk assessments  | <ul style="list-style-type: none"> <li>• Implemented risk assessments for regular and nonregular processes with a focus on HAZOP<sup>2</sup></li> </ul>   | ○          | (3) Implement and respond to risk assessments  |
|   |  | (4) Put into practice the MGC Safety and Accident Prevention Guidelines (Safety Foundations) | <ul style="list-style-type: none"> <li>• Systematically improved weaknesses identified through safety proficiency assessments.</li> </ul>   | ○          | (4) Evaluate, improve, and firmly establish the MGC Safety and Accident Prevention Guidelines (Safety Foundations) |
|   |  | (5) Enhance and expand maintenance training and courses                                      | <ul style="list-style-type: none"> <li>• Held safety clinics, process clinics, and chemistry courses and enhanced and expanded training.</li> <li>• Conducted training by making use of seminars and so on held by industry groups such as the Keiyo Rinkai Complex Human Resources Development Course, and Sanyo Human Resource Development Course</li> <li>• Conducted experience-based training relating to test equipment and other equipment handling methods at research labs.</li> </ul>   | ○          | (5) Enhance and expand maintenance training and courses  |
| Environmental<br>Conservation                   | <p>Aim to protect the natural environment and contribute positively to communities through business activities</p> <ul style="list-style-type: none"> <li>• Fully comply with environmental regulatory requirements</li> <li>• Work to achieve environmental impact reduction targets</li> <li>• Contribute to improving MGC's credibility and reputation in society with respect to environmental conservation</li> </ul> | (1) Improve the total energy intensity   | <ul style="list-style-type: none"> <li>• Reduced problems with equipment at each business site, improved equipment, and improved the total energy intensity.</li> <li>• Measured the amount of energy used and announced the results in corporate reports and on the environmental report page of the Website.</li> </ul>   | ○          | (1) Improve the total energy intensity   |
|   |  | (2) Improve the GHG emissions intensity and reduce emissions                                 | <ul style="list-style-type: none"> <li>• Reduced problems with equipment at each business site, improved equipment, and improved the GHG emissions intensity.</li> <li>• Measured the amount of greenhouse gasses emitted and announced the results in corporate reports and on the environmental report page of the Website.</li> </ul>  | ○          | (2) Improve the GHG emissions intensity and reduce emissions   |

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|                             | <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)<br/>Reduce total GHG emissions (CO<sub>2</sub> 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> | (3) Encourage recycling of waste material and efficiently use resources to reduce the waste final disposal volume  | <ul style="list-style-type: none"> <li>Collected and tabulated data relating to the volume of waste.</li> <li>Confirmed the results at a conference of environmental managers and provided feedback to business sites.</li> <li>Announced the results on the environmental report page of the Website.</li> </ul>  | ○          | (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"> <li>Collected and tabulated data relating to reducing substances subject to PRTR.</li> <li>Confirmed the results at a conference of environmental managers and provided feedback to business sites.</li> <li>Announced the results on the environmental report page of the Website.</li> </ul>                                  | ○          | (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"> <li>Collected and tabulated data relating to intake of water and releases of waste water.</li> <li>Confirmed the results at a conference of environmental managers and provided feedback to business sites.</li> <li>Announced the results in corporate reports and on the environmental report page of the Website.</li> </ul> | ○          | (5) Encourage efficient use of water of resources  |
|                             |  | (6) Undertake measures concerning eco-friendly products  | <ul style="list-style-type: none"> <li>Announced one product (a foaming agent) from Eiwa Chemical Ind. Co., Ltd. and two products (a thermosetting resin for use with CFRP and a bioplastic) from Japan U-Pica Co., Ltd. as concerning eco-friendly products on the Website.</li> </ul>  | ○          | (6) Undertake measures concerning eco-friendly products  |
|                             |  | (7) Undertake measures to conserve biodiversity  | <ul style="list-style-type: none"> <li>Decided to participate in activities involving donation of books on biodiversity as an activity appropriate for MGC.</li> <li>Conducted cleanup activities around plants.</li> </ul>  | ○          | (7) Undertake measures to conserve biodiversity  |
|                             |  | (8) Continuously improve environmental management systems (EMS)  | <ul style="list-style-type: none"> <li>Confirmed the status of environmental management using RC audit check sheets. There were not particular problems.</li> </ul>  | ○          | (8) Continuously improve environmental management systems (EMS)  |
| Chemical and Product Safety | <p>Work to consistently maintain safety across the entire lifecycle of chemical products</p> <ul style="list-style-type: none"> <li>Stay updated on chemical-related safety information and distribute such information when necessary</li> <li>Practice risk management of chemical products</li> <li>Comply with chemical management regulations in each country of operations and international rules and regulations</li> </ul>  | (1) Increase the use of IT from management of chemical substances to preparation and release of safety information | <ul style="list-style-type: none"> <li>Narrowed candidate systems.</li> </ul>  | △          | (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"> <li>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.</li> <li>Conducted environment-related substance surveys.</li> </ul>  | ○          | (2) Continuously assess and management the risks of handled chemical products  |
|                             |  | (3) Comply with final registration under EU-REACH (international rule and regulation compliance 1)                 | <ul style="list-style-type: none"> <li>Completed registration by the final deadlines for substances planned to be registered by MGC and Group companies.</li> </ul>  | ○          | (3) Reliably comply with overseas chemical substance management regulations and create regional information collection systems |
|                             |  | (4) Comply with initial registration under current K-REACH (international rule and regulation compliance 2)        | <ul style="list-style-type: none"> <li>Completed registration by the final deadlines for substances planned to be registered.</li> </ul>   | ○          |  |

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|   |   | (5) Comply with other regional registration systems and implement chemical management that conforms to international agreements (international rule and regulation compliance 3) | <ul style="list-style-type: none"> <li>• Held a briefing on the revised TSCA conducted by a consultant company. Gathered other materials.</li> <li>• Conducted public relations on two type 1 specified chemical substances under chemical assessment laws pursuant to the POPs Convention. Conducted public relations concerning revisions to the enforcement regulations of the marine Pollution Prevention Act pursuant to the MARPOL Convention.</li> </ul> | △          |   |
| Safe Transport and Storage of Chemicals     | <p>Aim to eliminate accidents and problems when transporting and storing chemicals</p> <ul style="list-style-type: none"> <li>• Regularly analyze problems that occur when transporting and storing chemicals, and distribute results to all relevant workplaces</li> <li>• Share information on the safe transport and storage of chemicals with the logistics departments of each group company</li> <li>• Closely monitor shipments of chemicals to final destinations and make improvements when necessary</li> </ul> | (1) Analyze transport problems and continuously apply the results at all relevant workplaces   | <ul style="list-style-type: none"> <li>• Collected and analyzed data on transport problems and distributed the results to relevant division and transportation companies each month.</li> </ul>   | ○          | (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"> <li>• Exchanged information on individual accidents and the status of responses when natural disasters occurred.</li> <li>• Conducted training with logistics companies in anticipation of accidents during materials deliveries and product transportation.</li> </ul>  | ○          | (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"> <li>• Gathered sales personnel, conducted briefings on agreements for safe shipments of chemical to final destinations, and encouraged the conclusion of agreements.</li> </ul>  | △          | (3) Encourage the conclusion of safety agreements on shipments of chemicals to final destinations                             |
| Stakeholder Relations                       | <p>Implement initiatives for gaining the trust of stakeholders</p> <ul style="list-style-type: none"> <li>• Proactively disclose information</li> <li>• Expand opportunities for dialogue with members of local communities</li> </ul>  | (1) Enhance the Corporate Report   | <ul style="list-style-type: none"> <li>• Issued a Corporate Report in place of a CSR report.</li> </ul>   | ○          | (1) Enhance the Corporate Report and Websites   |
|   |   | (2) Encourage issuance of environmental and safety reports by individual business sites  | <ul style="list-style-type: none"> <li>• Distributed environmental and safety reports issued by business sites at events for engaging in dialogue with local communities. Updated site reports posted on Websites.</li> </ul>   | ○          | (2) Encourage issuance of environmental and safety reports by individual business sites                                       |
|   |   | (3) Expand opportunities for dialogue such as RC regional dialogues and tours  | <ul style="list-style-type: none"> <li>• Held meetings with self-governing bodies and conducted business site briefings and tours.</li> <li>• Participated in festivals at shrines, prefectural traffic safety campaigns, industrial complex committee meetings, RC liaison committees, JCIA dialogues, and other events.</li> </ul>  | ○          | (3) Expand opportunities for dialogue such as RC regional dialogues and tours   |
| Responsible Care Initiatives and Management | <p>In order to promote environmental and safety activities through the MGC</p> <ul style="list-style-type: none"> <li>• Reinforce communications within the Group</li> <li>• Promote environment management as a Group</li> </ul>   | (1) Refine Group systems for sharing information on accidents and incidents and expand application to relevant business sites  | <ul style="list-style-type: none"> <li>• Review the scope of information sharing by the domestic group and overseas group and reliably collect and share information.</li> </ul>  | ○          | (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"> <li>• Reviewed the frequency and details of Group audits and enhanced audits.</li> <li>• Conducted active exchanges of information through conferences, liaison committees, and so on.</li> </ul>  | ○          | (2) Enhance Group company safety audits, conferences, and liaison committees  |
|   |   | (3) Support the achievement of Group environmental targets   | <ul style="list-style-type: none"> <li>• Released various types of environmental information and shared information on undertakings by individual companies to support the achievement of Group environmental targets.</li> </ul>   | ○          | (3) Support the achievement of Group environmental targets  |

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|  | Continuously improve RC management systems | (4) Continuously improve RC management systems by reinforcing collaboration among relevant divisions including production technology, logistics, purchasing, and plant quality control divisions | <ul style="list-style-type: none"> <li>Each division collaborated from plan formulation to implementation and internal auditing and operated PDCA management systems relating to RC.</li> </ul> | ○          | (4) Continuously improve RC management systems through collaboration among company and business site organizations. |

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