MITSUBISHI GAS CHEMICAL COMPANY, INC.

Mitsubishi Building, 5-2 Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8324, Japan

Corporate Communications Division
Tel: +81-3-3283-5041 Fax: +81-3-3287-0833

Environment and Safety Division
Tel: +81-3-3283-4828 Fax: +81-3-3283-4840

URL http://www.mgc.co.jp/eng/

VOC FREE T&K

VEGETABLE OIL INK

森の町内会 間伐に寄与する紙 www.mori-cho.org

Printed on paper made with wood from forest thinning. "Morino Chonai-Kai" (Forest Neighborhood Association)–Supporting sound forest management.

CSR Report 2013

MITSUBISHI GAS CHEMICAL COMPANY, INC.

Contents

Responsible Care

At every stage of their operations, companies dealing with chemicals must ensure that the environment, safety and health are safeguarded. This starts with the development and manufacturing of chemicals, and goes all the way through to distribution, use and final disposal after consumption. It also involves publishing the results of those activities, being engaged and willing to communicate with society. The chemical industry refers to this conscientious activity as Responsible Care (RC).

Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

About This Report

The purpose of the 'CSR Report 2013' is to promote our CSR activities and to provide information about Mitsubishi Gas Chemical Company, Inc. (MGC), especially in the areas of Responsible Care (RC), corporate ethics and compliance, and our relations with our stakeholders.

In April 2012, the Ministry of the Environment revised its Environmental Reporting Guidelines. This occurred against the backdrop of ISO 26000 (guidelines for corporate conduct regarding social responsibility) gaining more international prevalence, and from an increased necessity for consistency with GRI (the Global Reporting Initiative), a set of international CSR Report instructions referred to by many companies. In response to these guidelines and instructions, MGC furnishes information to various stakeholders. In addition, we are committed to promoting ever-greater communication by fulfilling our duty to society for proper disclosure.

We have put great effort into making this report easy to understand, and look forward to your honest opinion and feedback.

Scope of This Report

Organizations included

All offices in Japan. In the case of MGC Group companies, reference will be made where necessary.

Reporting period

April 1, 2012 through March 31, 2013 (includes some activities after April 2013).
However, Responsible Care (RC) activities are included from January 1, 2012 – December 31, 2012 (includes some RC activities in 2013).

Reference Guidelines

- Ministry of the Environment, "Environmental Reporting Guidelines (2012)"
- Ministry of the Environment "Environmental Accounting Guidelines 2005"
- Global Reporting Initiative (GRI) "Sustainability Reporting Guidelines Version 3.1"
- ISO 26000

Publication Information

Date of publication: December 2013
Date of next scheduled publication: October 2014

Message from the President

In FY 2012, Japan's economy showed some recovery in business sentiment in the second half of the year due to corrections in the over-valued yen. However, challenging conditions still persist in light of the long-term European financial difficulties, lagging growth in China, and sluggish demand inside and outside Japan. Amidst this economic climate, the MGC Group has continued to work on its medium-term management plan "MGC Will2014" launched in April 2012, to promote a basic policy of strengthening our core businesses and developing new businesses. As for the loss-making businesses that show no signs of future recovery, we are determined to shrink our production capacity and, if necessary, withdraw from these projects. This will help accelerate our business restructuring in response to changing economic conditions.

The MGC Group's philosophy for being is, "To contribute to societal growth and harmony by creating a wide range of value through chemistry." And, our Group Vision, as stated in our medium-term management plan is, "To develop and grow sustainably on the global stage as a leading chemicals group with major presence and a strong platform of proprietary technology, while taking CSR in all our activities." In this way, by holding an unwavering course in our management even as severe changes unfold throughout the world, we will make efforts to raise our presence within society as a company deemed truly necessary by our stakeholders.

It is our pleasure to issue our CSR Report again this year. In FY 2012, we have responded appropriately to diverse regulations while making improvements; for example, improving energy consumption efficiency, reducing green house gases and waste products, securing chemical and product safety, and improving logistical safety. In the areas of occupational health and safety, and process safety and disaster prevention, we are working to strengthen our worksite competency, striving toward the mandate of zero accidents and zero occupational injuries.

We are also making all-out efforts to meet the demands of the era in addressing corporate governance, compliance, and risk management. Specifically, we are strengthening first-responder and communications infrastructure in the event of a large-scale natural disaster, while enhancing our BCP and promoting the accumulation of contingency supplies.

In this way, we believe that working through the PDCA cycle and making improvements with each issue is the essence of CSR activity. While following the principle of sustainable development and always considering the impact of our business activities on future generations, we will continue in the future to supply original and high-performance materials.

We hope that everyone reading this report will gain a deeper understanding of the MGC Group's CSR activities. We welcome your honest opinions and suggestions.

Toshikiyo Kurai
President and
Representative Director
October 2013

Providing the Technology and Products That Help People Increase Their Quality of Life While Supporting Sustainable Development of the Global Community

Corporate Information (as of March 31, 2013)

Company name
MITSUBISHI GAS CHEMICAL COMPANY, INC.
Corporate Logo MGC

Head office address
Mitsubishi Building, 5-2 Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8324, Japan

Established January 15, 1918

Incorporated April 21, 1951

Capital ¥41.97 billion (as of the end of March, 2013)

Number of employees
5,323 (consolidated), 2,399 (non-consolidated)

Number of consolidated subsidiaries 41

Main business sites in Japan

Branches Osaka branch

Overseas offices Shanghai Office, Taiwan Office

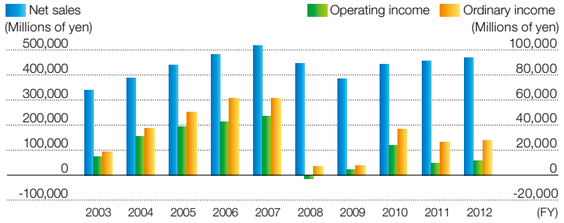
Research institutes
Tokyo Techno Park (Tokyo Research Laboratory, MGC Chemical Analysis Center), Niigata Research Laboratory, and Hiratsuka Research Laboratory

Plants
Niigata Plant, Mizushima Plant, Kashima Plant, Yokkaichi Plant, Yamakita Plant, Naniwa Plant, and Saga Plant

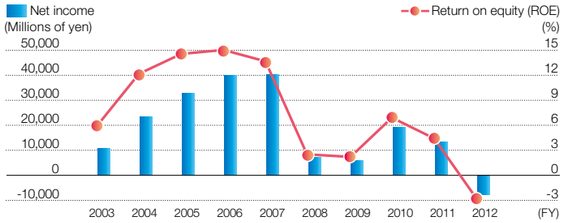
Tokyo Techno Park (TTP), an urban research and development center for the study of specialty chemicals and advanced materials.

Financial highlights (Consolidated)

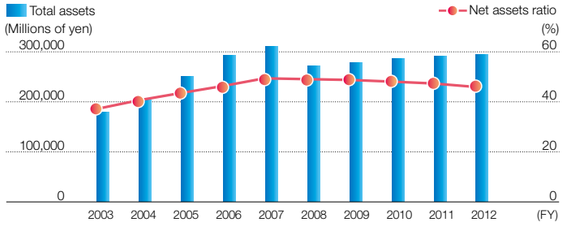
Net sales / Operating income / Ordinary income



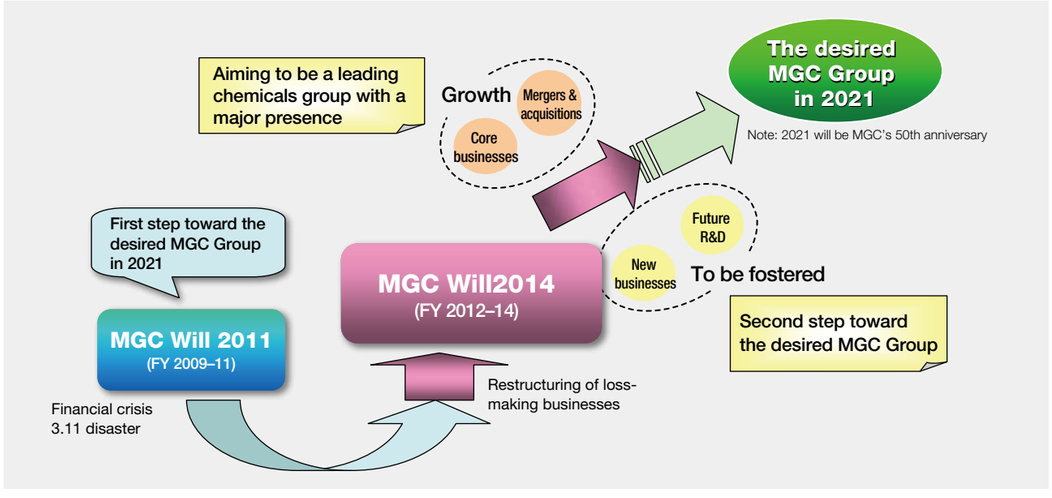
Net income / Return on equity (ROE)



Total assets / Net assets ratio



Medium-Term Management Plan "MGC Will2014"



Major Products and Business Lines—Six Businesses Operated by Four Companies

Natural Gas Chemicals Company

Starting from the raw material of natural gas, deploys the methanol chain and ammonia chain across a wide field ranging from basic chemicals to functional materials. Also promoting the use of biotechnology and the development of energy and resources.

Major products
Methanol, Formalin, Methanol synthesis catalyst, Ammonia, Amine, Polyols, Methyl methacrylate, Dimethyl ether (DME)

Aromatic Chemicals Company

Develops aromatic products centered on the metaxylene chain, including aromatic aldehydes and aromatic polycarboxylic acids, which are used as intermediates in pharmaceuticals, agrochemicals and fragrances, monomers, and additives. One of our core products, Nylon-MXD6, is a resin with gas barrier properties that is made from metaxylene and contributes to lighter containers and to preservation of freshness in foods and beverages.

Major products
Metaxylene, Metaxylenediamine, Nylon-MXD6, Aromatic aldehydes, Aromatic polycarboxylic acids, Purified isophthalic acid (PIA), Plasticizers

Specialty Chemicals Company

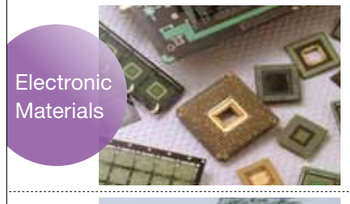
Based on the hydrogen peroxide chain, which has a low environmental impact and offers diverse functions in applications including bleaching, sterilization, oxidation, and metal polishing, we are developing a range of products from industrial-use hydrogen peroxide to chemicals for use in the electronics industry and environmental agents. We are also involved in resinous material for functional thermal curing, including monomers for high refractive index plastic lenses and photoresist monomers.

Major products
Hydrogen peroxide, Chemicals for use in the electronics industry, Persulfates, Organic titanates, Water treatment agents, Environmental agents, Monomers for high refractive index plastic lenses, Adamantane derivatives

Our development is focused on engineering plastics with mechanical strength and heat resistance, such as polycarbonate and polyacetal, which contribute to lighter weight in automotive and machine components as replacement materials for metals. Special polycarbonates for optical and other applications, as well as polycarbonate sheets (film) using our strengths in surface coating technology, are another area of development.

Major products
Polycarbonate lupilon®, Polyacetal lupital®, High-performance Polyamide MXD6 Reny®, Polycarbonate sheet lupilon® sheet, Special polycarbonate lupizeta®

Information & Advanced Materials Company



We are expanding this business with a focus on laminate materials for printed circuit boards and entry sheets used in mechanical drilling of printed circuit boards, and are putting efforts into halogen-free environmental materials. Our BT-related materials for printed wiring board are the pioneer of plastic semiconductor packages, contributing to higher-density semiconductors.

Major products
Laminate materials for printed circuit boards (epoxy-related materials, BT-related materials), entry sheets ("LE sheets") used for the mechanical drilling of printed circuit boards

Expanding the business with a focus on oxygen absorber AGELESS® which was developed based on the idea to create an oxygen-free packaging environment that prevents food deterioration by oxidation. Currently it is not only used for preserving food freshness but also in other areas as a total solution for maintaining quality, including for pharmaceuticals, medical devices, electronic/metal parts, and important cultural artifacts.

Major products
Oxygen absorber AGELESS®, PharmaKeep®, RP System®, anaerobic cultivation system AnaeroPack®, desiccant AGELESS DRY®

To Contribute to Societal Growth and Harmony by Creating a Wide Range of Value through Chemistry

R&D Strategy

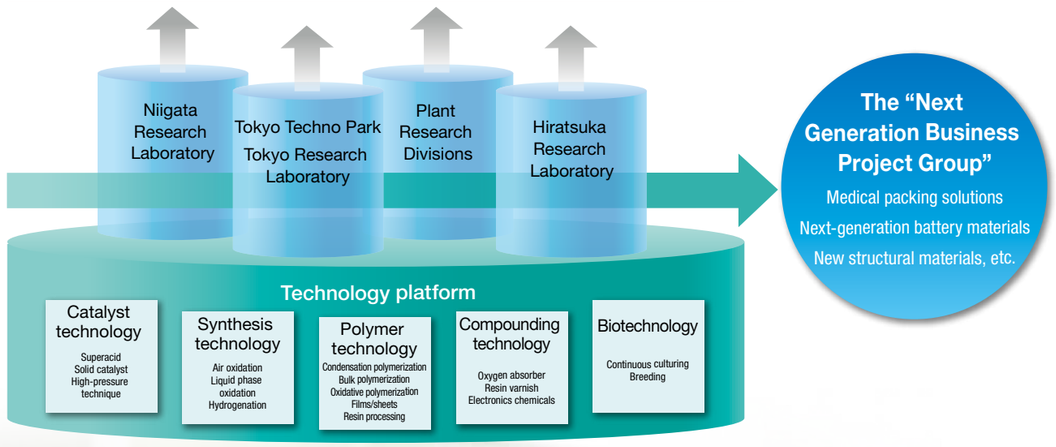
MGC positions its research and development as an important means of becoming a distinctive and excellent chemical company. Under this concept, we are handing down a corporate culture that values original technology and continues to answer the needs of society.

In our existing businesses, MGC is utilizing its technology platform based on the core technologies of catalysts, synthesizing processes, polymers, and biotechnology to advance research and development into: methanol, xylene, and xylene derivatives, a wide variety of engineering plastics and their processed products, product groups using hydrogen peroxide to reduce environmental load, an oxygen absorber that revolutionized food distribution, and many more products that we provide to society.

We are also boosting activity under the Next Generation Business Project Group, which was established in 2011 and is under the direct supervision of the President. This project, a research and development organization, is aimed at creating new core businesses at MGC.

R&D goals and targets

Creation of new businesses peripheral to existing businesses / brushing-up production processes / environmental impact reduction



Research and Development Sites and Structure

MGC's research and development sites comprise laboratories, plant research technology sections, and development and technology centers, each of which carries out research related to its overseeing company. Research and development is divided into Company R&D and Corporate R&D. Company R&D assesses changing market needs, and brings research and development divisions, manufacturing, and marketing together to undertake research and development in line with companies' business strategies. Corporate R&D aims to create core technologies from a mid- to long-term perspective, with the Next Generation Business Project as its main activity.

The MGC Analysis Center performs analysis and safety testing for the entire company.

Research and development sites		Tokyo Research Laboratory	Niigata Research Laboratory	Hiratsuka Research Laboratory	Niigata Plant	Mizushima Plant	Yokkaichi Plant	Yamakita Plant	Kashima Plant	Tokyo Techno Park: Electronics Materials R&D Center	Tokyo Techno Park: Oxygen Absorbers Techno Center	Tokyo Techno Park: MGC Chemical Analysis Center
Company R&D	Natural Gas Chemicals Company		●	●	●	●						●
	Aromatic Chemicals Company		●	●	●	●						●
	Specialty Chemicals Company	●					●	●	●			●
	Information & Advanced Materials Company	●								●	●	●
Corporate R&D	Corporate Division (Next Generation Business Project Group, etc.)	●	●	●		●						●

Mizushima Plant

In order to quickly take research results and use them in real applications, the Research Group, Production Technology Group, and Development Testing Division are all interlinked.

Niigata Plant

The plant is promoting upgrades to existing processes, new plant design, and construction projects as it considers ways to scale up its operations.

Niigata Research Laboratory

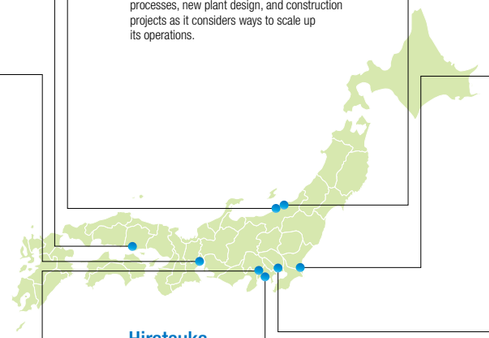
The Plant utilizes its development process in catalysts and biotechnology as one of the world's top hubs for high value-added product research and development.

Yokkaichi Plant

As a production hub for inorganic chemical products, synthetic resins, and chemicals for use in the electronics industry, the Plant is bringing on line mass production of new OPE (oligo-phenylene ether) resin materials for electronic components.

Kashima Plant

The Plant is devoting its energy to hydrogen peroxide process upgrades and the development of new polycarbonates for a variety of applications.



Yamakita Plant

Focusing development on functional chemicals for cutting edge electronic components, the Plant works on developing new applications for existing products and on global technology support.

Hiratsuka Research Laboratory

As a preeminent Japanese research hub, the Laboratory works on the development and application of new engineering plastics.

Tokyo Techno Park, Tokyo Research Laboratory

The Park and Laboratory explore the new themes that will carry MGC into the future, centered on development of functional materials and research into applied technologies for existing products.

Products and Technologies That Contribute to Our Daily Life and Address Environmental Problems

Products and technologies that contribute to our daily life

Functional materials

Materials that are the key to product functionality.

1. **PQQ (pyrroloquinoline quinone): in development**
   A new dietary ingredient with diverse functions such as antioxidative effects and strengthening effects for nerve growth factor (NGF).
2. **Nylon-MXD6**
   An engineering-plastic with high rigidity for machinery compounds and packaging materials with high gas barrier properties.
3. **Monomers for eyeglass lenses**
   High refractive lenses resistant to breakage and smudging.
4. **Polycarbonate resin**
   The most prevalent engineering plastic with high transparency and resistance to breakage; used in all types of lifestyle products.
5. **Special polycarbonate resin**
   Resin that adds novel, specialized functionality (such as a high refractive index, heat resistance, and friction resistance) to the basic properties of polycarbonate resin.
6. **RP System®**
   A preservation system that prevents deterioration of electronic parts and cultural artifacts by creating oxygen free conditions.

RP System®

Contributing to the rescue and restoration of cultural artifacts damaged in the Great East Japan Earthquake

Cultural artifacts such as paintings and artifacts can increasingly deteriorate from the growth of mold or the progression of rust, depending on their storage environment. The RP System® that MGC has developed helps to prevent this type of degradation. The system can provide a simple storage environment free from mold and rust through oxygen absorption technology.

A great many precious cultural artifacts have been exposed to the risk of degradation by submersion in seawater and from damage to their storehouses because of the Great East Japan Earthquake. It is the responsibility of our current generation to protect these precious artifacts and pass them on to future generations. MGC provided the RP System® to municipalities in the affected areas, while also participating in volunteer rescue operations for cultural artifacts. With electricity and water infrastructure still interrupted, the RP System® has been used to rescue damaged cultural artifacts by storing them in an oxygen-free environment.

MGC received a letter of appreciation in March 2013 from the Commissioner for Cultural Affairs, in recognition of this effort.

Finishing preservation work for damaged cultural artifacts

Special Polycarbonate Resin "Iupizeta® EP Series"

A special resin supporting high resolution cameras for smartphones

Cellular phones and smartphones have already become an indispensable tool for our daily lives. MGC's special polycarbonate resin "Iupizeta® EP series" is used in the camera lenses of these devices.

With annual leaps in the specifications of cellular phones and smartphones, resolution exceeding 10 megapixels has already become commonplace. Our special polycarbonate resin "Iupizeta® EP series," synthesized from special materials, excels in optical performance, including high transparency, a high refractive index, and low double refraction, while also possessing the manufacturing merits of high fluidity and low stainability. This product's features play a crucial role in ever-increasing camera resolutions.

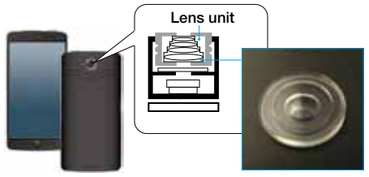


Image of the smartphone camera and high refractive lens created from molded Iupizeta®

PQQ (pyrroloquinoline quinone)

Providing dietary ingredients in response to aging societies across the world

PQQ (Pyrroloquinoline quinone) is a new dietary ingredient under development by MGC using our microbial fermentation technology. This ingredient is a water-soluble quinone compound first identified in microbes in 1979 as a coenzyme of oxidoreductase. It is present in trace amounts in daily foods and beverages, as well as within the human body, in breast milk for example. In 2003, PQQ attracted particular attention after RIKEN (Japan) reported in the British journal *Nature* that PQQ could be the 14th vitamin.

PQQ is a unique substance that has benefits such as neuroprotection, nerve growth factor enhancement, antioxidation, and mitochondrial biogenesis. In 2008, the U.S.A. Food and Drug Administration accepted the notification of PQQ as a new dietary ingredient, with new products now on the market using the ingredient provided by MGC. Studies conducted in humans have established improvement in brain functions such as short-term memory and cognitive capabilities, raising expectations for PQQ as an ingredient meeting the demands from an aging society.

An example of a dietary supplement containing PQQ in the US

Products and technologies that address environmental problems

Green energy

MGC's products and technologies contribute to the spread of renewable energy and the development of green energy.

1. **Geothermal power generation**
   Geothermal power generation has been in progress since 1995 at Hachimantai, in Kazuno City, Akita Prefecture.
2. **DME (dimethyl ether): market development in progress**
   This clean fuel releases low NOx, SOx, and particulate matter, and can be used in power plants, automobiles, and other applications.
3. **MXDA (meta-xylenediamine)**
   As a raw material of epoxy resin hardener, MXDA is used widely in applications such as heavy-duty anticorrosion paint, and bonding and curing agents for wind turbine blades.

Water and air purification

A variety of water treatment agents and environmental agents are used to preserve air-conditioning equipment, treat wastewater and contaminated water, and deodorize and prevent odor.

1. **Water treatment agents, environmental agents**
   We provide water treatment agents for circulating cooling water systems, such as air-conditioning equipment piping, which contributes to reducing water usage and to maintaining the equipment's performance. These products remove oils, fluorine compounds, coloring ingredients, and other contaminants contained in industrial wastewater.
2. **Deo-Power® (deodorizer), scrubber chemicals**
   We provide deodorizers for removing the offensive odor from sludge and drainage tanks. We also remove polluted air through specialized chemicals for scrubbers.

MXDA (meta-xylenediamine)

Contributing to the proliferation of wind power generation by providing raw ingredients for high performance materials

Wind power generation is a relatively inexpensive form of renewable energy that utilizes the power of nature and has favorable generating efficiency. These benefits have led wind power, primarily in Europe, but also around the world, to continue to claim a greater share of overall power generation in recent years. As wind power generation plants proliferate, the demand for improvements in the power output of turbines and ever-larger turbines increases. Recently, carbon-fiber-reinforced plastic is used in turbine blades for its light weight and high strength.

MXDA manufactured by MGC, and 1,3-BAC (an MXDA derivative), are used as curing agents for the increased strength, chemical resistance, and weather resistance attributes that they add to this epoxy resin.

By supplying constituent products for high performance materials, MGC contributes to the proliferation of wind power generation, which is expected to see greater and greater demand in the future.

MXDA is used for curing agents for turbine blades

Close up

Delivering a Diverse Variety of Functions while Considering Environmental and Safety Aspects

Research and Development

Environment-related expenses in R&D
(FY 2012)

For environmentally friendly products:

2.8 billion yen

For environmentally friendly production methods:

1 billion yen

- Development of energy saving technologies
- Development of environmentally friendly products
- Product design using safe raw materials
- Process design, development of production techniques
- Assessments of product safety

Manufacturing

CO_2 emissions reduction[*1]:

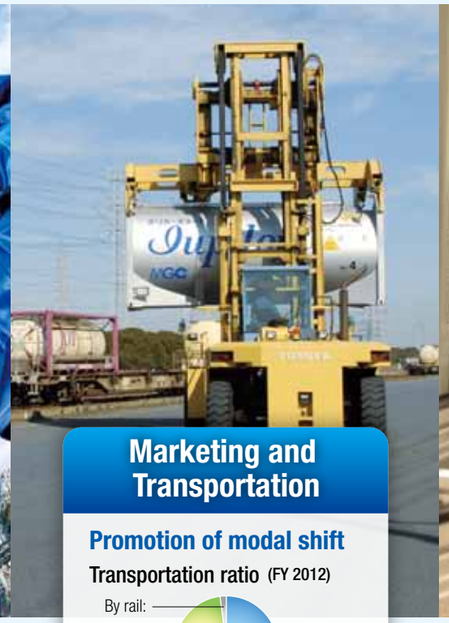
22% (over FY 1990 levels)

Chemical substance management and air pollutant emissions reduction[*2]:

52% (over FY 2010 levels)

*1 GHG emission rate index (CO_2 equivalent)
*2 PRTR substances

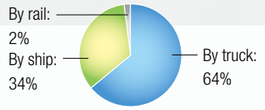
- Procurement of safe raw materials
- Appropriate management of chemical substances
- Safe production and accident prevention
- Emergency response training
- Energy efficiency
- Environmental preservation
- Global warming prevention



Marketing and Transportation

Promotion of modal shift

Transportation ratio (FY 2012)



Reducing logistics costs

1% annual reduction in energy consumption rate index

- Modal shift
- Reducing logistics costs
- Ensuring safe distribution
- Training for responding to logistics accidents
- Fair marketing practices
- Quality assurance practices

Customer Companies

Customer companies[*3]:

approx. **13,000** (domestically)

Providing products and technologies, through our broad-based business in basic chemical products and specialized products, not only in the chemical industry, but also in a diversity of other industries, including the electrical machinery, electronic device, vehicle, fiber, paper pulp, food packaging, and pharmaceutical industries.

*3 The number of manufacturers, domestically, who use and consume MGC products. Trading companies not included.

- Providing safety information (issuing SDS)
- Technological services and complaint handling
- Response to the PL Law
- Guidance for safe disposal methods (issuing SDS)

Consumers

Providing functionality and security to end users through products of our customer companies

- Risk assessment within the supply chain
- Product planning based on risk assessment
- Manufacture and supply of products in line with product plans
- Appropriate safety assessment of new products
- Providing the most up-to-date safety information to customer companies

Safety testing during development

As part of our supply chain management, MGC is committed to environmental and safety assurance over the entire life cycle of products. We have testing facilities in order to provide basic safety information on our chemical substances. From the research and development stage, we conduct animal testing for acute oral toxicity, primary skin irritation, and skin sensitization in order to assess the hazards of ingredients, intermediates, and new products. In addition, we conduct Ames mutagenicity testing using microbes to screen for primary carcinogenicity, as well as biodegradability tests within the environment.

The information gained from these tests is noted on Safety Data Sheets (SDS) and provided as safety awareness information to customers (see p. 36 for details).

Working toward zero occupational injuries and accidents

Establishing a culture of safety and reducing operational trouble

In order to eradicate accidents and abnormal events, as well as to establish a culture of safety, MGC promotes discussion on ideal plant operations, encourages small working groups, strives to improve communication, and works toward better information exchange between plants, all based on our Safety Philosophy that, “The top priority of our business activity is ensuring safety.” We are also promoting the adoption of TPM (Total Productive Maintenance) practices, safety management systems, and enhanced equipment management education as part of our accident and trouble prevention measures.

Enhancing disaster prevention systems with neighboring affiliates

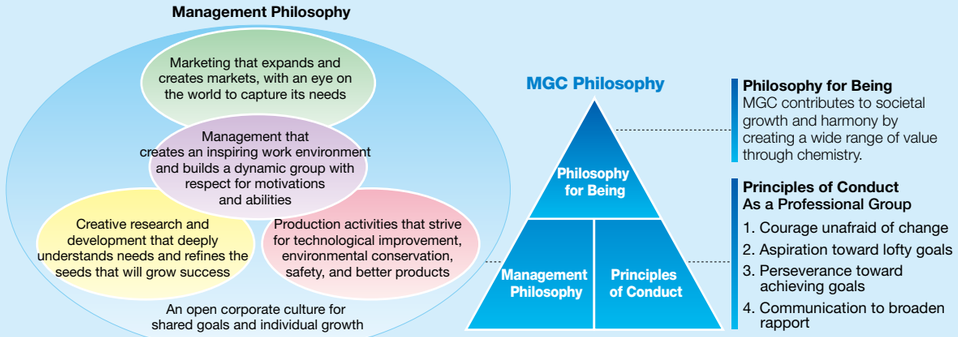
MGC plants located in industrial complexes participate in the joint disaster prevention associations of those complexes, and strive to prevent the occurrence of, and reduce the spread of, accidents and occupational injuries. Other MGC plants form joint disaster prevention associations with neighboring affiliates in order to implement regular reviews of their disaster prevention preparedness and communication systems. In addition, emergency response training is carried out not only through unannounced drills, joint drills with public fire departments, ad hoc free-form drills, and media response drills, but also through specially devised drills, such as blackout drills that use actual pre-planned blackout opportunities to carry out a response in total darkness.

MGC's Efforts in CSR

In October of 1991 we established the "MGC Philosophy for Being," and in December of 1997 the "MGC Corporate Behavior Guidelines," as a guide for our company to gain the trust and understanding of society and to lead our employees to foster confidence and pride in working for MGC. In November 2007, we undertook a major revision of the "MGC Corporate Behavior Guidelines" to carry out a more assertive Corporate Social Responsibility (CSR) action and ensure MGC's continued development as a healthy company.

In addition, we are committed to the CSR activities based on our medium-term management plan—MGC Will2014—launched in FY 2012.

MGC Philosophy



MGC Corporate Behavior Guidelines

MGC aims to be a company that acts with sound judgment and maintains the trust and understanding of society. The Company operates under six behavioral principles, presented and explained below, and will share knowledge of these principles widely throughout Group companies.

Senior managers recognize that it is their role to embody the spirit of these principles, and while ensuring that they have a full understanding of the necessary information inside and outside the Company, they will take the initiative to promote a high level of corporate ethics, and strive to develop and operate an effective framework for this purpose through the internal control system. Furthermore, if an incident takes place in contravention of these guidelines, they will take command and fulfill their obligations for internal and external disclosure, strive to identify the cause of the incident and prevent its recurrence, and deal with the matter strictly and fairly in respect to all parties, including management itself.

(1) MGC will ensure customer and consumer satisfaction and trust by providing high-quality products and services that are useful, safe and reliable.
(2) MGC will voluntarily and proactively address environmental issues.
(3) MGC will comply with laws, regulations and rules, and will conduct fair, transparent, appropriate and open business activities.
(4) MGC will endeavor to ensure broad-ranging communication with society through appropriate disclosure of information.
(5) MGC will engage in business activities that are useful for society, and actively contribute to society as a responsible corporate citizen.
(6) MGC will provide comfortable and productive working conditions for employees, and will ensure a safe and rewarding working environment.

For entire guidelines, please refer to our website; http://www.mgc.co.jp/eng/about/compliance/

MGC Group Vision

"The MGC Group aims to develop and grow sustainably on the global stage as a leading chemicals group with major presence and a strong platform of proprietary technology while taking CSR in all its activities."

Corporate Governance

Maintaining a sound and transparent management system is a key management issue, and a number of measures are being pursued to improve transparency, ensure fairness, and accelerate decision-making.

Basic Approach to Corporate Governance

MGC has adopted an executive officer system aimed at a sound and highly transparent management structure. The Board of Directors is positioned as the organization responsible for making decisions on critical management issues, including basic management policies, and for overseeing business execution by MGC directors. This has strengthened governance and enhanced the operational framework by clarifying functions and responsibilities.

MGC has also adopted an internal company system for its business divisions, which has clarified responsibility and improved management performance.

MGC aims to enhance the transparency and fairness of management through internal audits performed by Audit & Supervisory Board members and will develop effective corporate governance through appropriate disclosure of management information.

Any important matters affecting MGC are to be reviewed and decided with a broader perspective at the Management Council where management policy may be discussed, and at the Operations Council where definitive action plans may be discussed. In addition, MGC draws upon the expertise of legal counsel and other experts when required in the decision-making process and the business execution of the company.

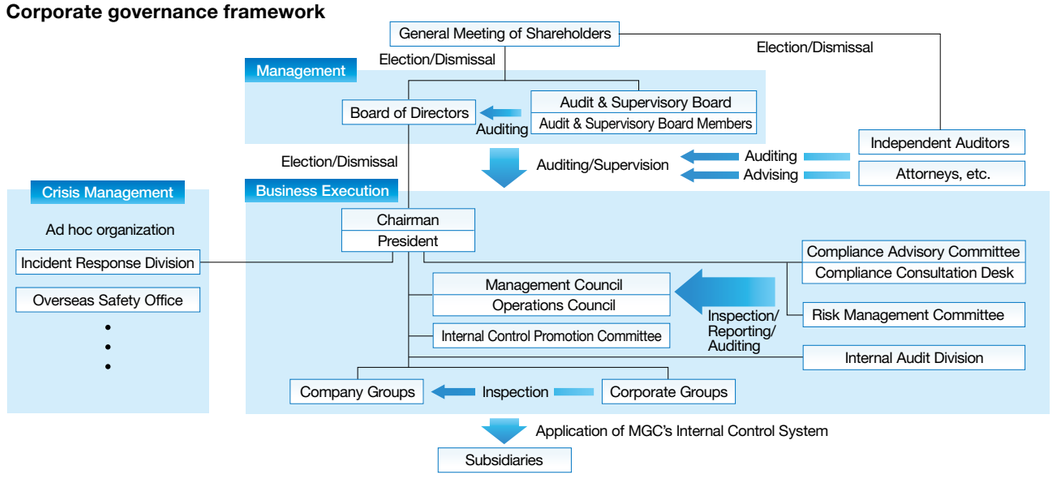
There are four Audit & Supervisory Board members, two of whom are external. They attend important meetings as well as board meetings, conduct audits of departments, inspect subsidiaries, and strive to understand the decision-making process and status of business execution. In addition to ensuring a rational decision-making process and compliance with the law and corporate ethics, the Audit & Supervisory Board members conduct inspections of our business operations. They hold regular meetings with the representative director and receive status reports on business execution from other directors and employees on a regular basis. When important matters arise, the members may request prompt reports and explanations as required. They also inspect important documents concerning business execution, and require information from directors and employees.

Moreover, in order to enhance internal controls and improve efficiency of business management, MGC has established an Internal Audit Division that is separate from the statutory auditors. This division oversees the execution of MGC and MGC Group companies to ensure appropriate practices, and conducts internal audits in accordance with our annual plan.

Overview of Corporate Governance Structure

For the sake of management oversight and counsel from an external perspective, and to raise our management transparency and fairness to an even greater level, MGC appointed one new external director at our June 2013 regular General Meeting of Shareholders. With this addition, our current management structure now consists of 11 directors and 22 executive officers (including people who concurrently serve as directors).

Corporate governance framework



Compliance and Risk Management

In our aim to earn the trust and understanding of the community, MGC practices compliance while readying and strengthening systems for responding to any manner of risk.

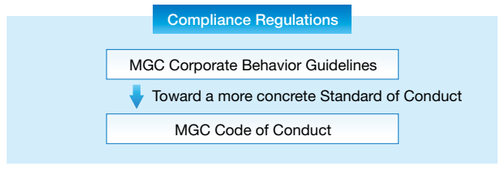
MGC Group Compliance

MGC established its “MGC Corporate Behavior Guidelines” in 1997 in an effort to strengthen its compliance system. In 2002 it established a Compliance Committee and a Compliance Consultation Desk. Moreover in 2004, the company laid down its “MGC Code of Conduct” and “Compliance Regulations,” and worked with its Group companies to ensure that they were aware of the policies and adhered strictly to the compliance rules.

Within the MGC Group we strive to proactively meet the needs of society by not limiting “compliance” to a set of laws and internal rules, but by embracing a broader belief in “complying with the law, internal rules, and social norms, as well as recognizing our corporate social responsibility to create a company with fair, transparent and open business practices.”

MGC Compliance Handbook

MGC compliance concepts



Compliance System and Initiatives

MGC has established a Compliance Committee to supervise matters concerning the Group’s compliance program, headed by the Chief Compliance Officer and reporting directly to the President. The Compliance Committee also includes a director (as vice-chairperson), heads of compliance-related departments, and others. The roles of the Committee are as follows:

1. **Formulating and deliberating on the framework, policies, and implementation measures of MGC Group compliance.**
2. **Understanding the implementation status of MGC Group compliance, and providing necessary guidance and supervision.**
3. **Inspecting instances of noncompliance, and formulating and deliberating on measures for rectification and prevention of recurrence.**

Compliance implementation measures, guidance and supervision, and steps taken to rectify and prevent recurrence of noncompliance, which are formulated and deliberated on by the Compliance Committee, are reported to the MGC President and Audit & Supervisory Board, then implemented after following specified internal procedures.

In addition, MGC has set up a “Compliance Consultation Desk” as an internal whistleblowing system for highly effective self-corrective functions, in order to achieve early detection and undertake preventative steps against unethical practices. Reports and consultations brought to the attention of the Consultation Desk and deemed as potentially serious compliance violations are promptly reported to the Compliance Committee chairperson. The Compliance Committee decides on necessary rectification or recurrence prevention measures after investigating the related facts. Investigation results and the details of said measures are also conveyed to the party responsible for the report or consultation.

In FY 2012, we strove to make reporting and consulting with the Consultation Desk even easier, and hired several expert attorneys (including female attorneys) well versed in compliance issues. These expert attorneys were tasked not only with acting as external contacts, but also took on the role of advising the Compliance Committee and carrying out education for related Divisions.

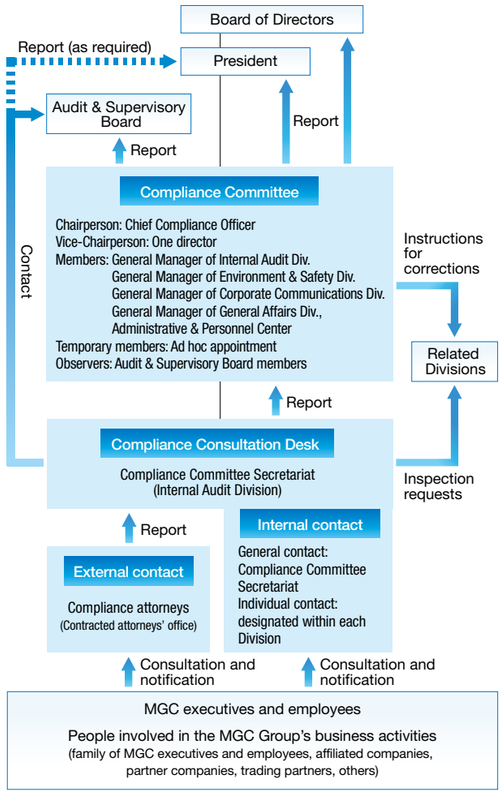
As a result of reviewing internal regulations, we clarified related regulations, including confidentiality duties for compliance managers, prohibitions against the unfair treatment of whistleblowers, and the elimination of parties with conflicts of interest.

Compliance Education

MGC sets aside October each year as “Ethics Month” and conducts compliance training for employees. Again in FY 2012, we chose specific items of timely nature (given current events, etc. in society) from among the 40 different types of compliance training materials contained on our intranet. These items were provided to employees, through our e-learning system, for focused compliance training purposes. In an effort to raise awareness of “Ethics Month,” the President actively promotes the program by communicating the details to all of our offices.


Screenshot from the e-learning system

MGC compliance structure



Risk Management in the MGC Group

In response to the various risks related to our business activities, MGC launched company-wide, comprehensive risk management activities in 2006 with the establishment of a Risk Management Committee.

To disseminate knowledge at the start of our activities, we conducted seminars for top management and for employees at all workplaces on the topics of the importance and practice of risk management. Following this, we listed and evaluated risks in each workplace and department, considered countermeasures, and conducted business continuity planning (BCP) with respect to those listed risks that call for prioritized response.

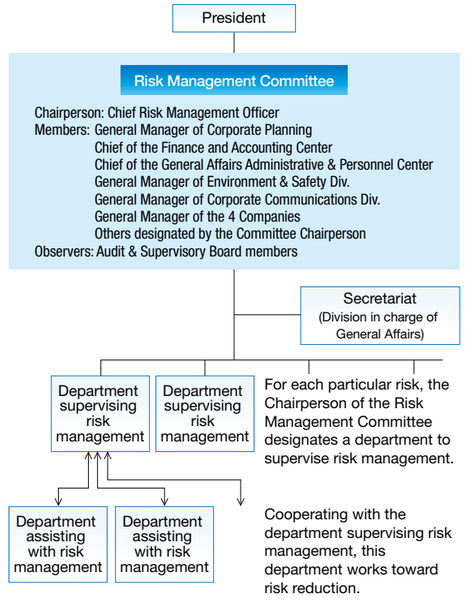
Currently, every year we set key themes such as supply chain risks and information leak risks, and conduct risk surveys. At the same time, we work to extend risk management more deeply into the company, including Group companies. On an ongoing basis, we consider and implement measures to reduce latent risks and conduct BCP reviews.

Risk Management Framework

The Risk Management Committee, headed by the Chief Compliance Officer, is composed of the heads of the four Companies conducting business activities, as well as of the following departments: Corporate Planning Division; Finance and Accounting Center; Administrative and Personnel Division; Corporate Communications Division; and Environment and Safety Division. The Committee assesses risk situations from broad perspectives, and instructs and oversees departments to prioritize risks and enact risk reduction measures.

In terms of risks associated with project implementation, we have developed an action plan to identify and evaluate risks inherent in our operations or internal control systems. We then take the appropriate steps to prevent, avoid, reduce or divert the risk. In the event that a serious risk is identified, we set up a special group to cope with it according to internal rules.

Risk management promotion system



Risk Management Committee's Annual Plan for FY 2012

Among the risks that accompany our business activities, we have identified earthquakes, toxic or hazardous substance leaks, fire and explosion, and information leaks as four that must be handled with priority on a company-wide basis. Our workplaces are cooperating on formulating countermeasures and conducting BCPs.

In FY 2012, we actively pursued major annual policy points that included those listed below.

1. **To appropriately consider, in line with periodic business challenges, the risks incumbent upon MGC to treat as management targets, and for those risks that we must regard as significant and of priority status, to enact measures that will address them quickly and effectively.**
2. **Based on lessons from the Great East Japan Earthquake, to promote necessary practices to plan and prepare for the event of a major natural disaster.**
3. **To treat information leaks and countermeasures against them as significant issues, and to identify and review these risks.**
4. **To refine our completed BCP and promote the improvement of our risk response system.**
5. **To work toward further enhancement of our risk management practices in MGC and at group companies.**

Major Initiatives against Significant Risks

MGC has deployed company-wide a safety confirmation system to cope with a major natural disaster such as an earthquake in the northern part of Tokyo Bay, which is assumed by the Cabinet Office to be a possible occurrence. In addition, we have provided offices with emergency devices, such as wireless communication devices, so as to enable communication among workplaces even when regular telephone communications become disabled or restricted. As part of our BCP, we conduct emergency training sessions using these systems and equipment each year, so that even if headquarters becomes paralyzed, each of our facilities such as plants and research centers may continue supporting customers and maintaining other services, supplementing the headquarters' function.

We also are pushing forward initiatives for first-responder training at each workplace, as well as gathering stocks of reserve supplies. To cite examples of other initiatives, we have planned for scenarios in which working employees and visiting guests face difficulties returning to their homes after a disaster. We have stocked food, drinking water, and other materials to allow persons in the company to remain in offices for at least three days.

In FY 2012, we centrally filed, with the Risk Management Committee Secretariat, BCPs drafted by each Division regarding their individual business operations. These BCPs on file are also available for cross-referencing between each Division.

In addition, regarding the prevention of information leaks—one of the risk issues we have targeted for priority treatment—we went over whether there was any vital information in each division, and discussed conditions of its safekeeping. We are also confirming policies for centralized management, etc. of personal computers used within the company. Above and beyond issuing warnings and strengthening our information management practices, we are treating actual cases of information leakage, initiatives for minimizing risks of information leakage, and preventative measures against information leakage from retired employees as pertinent issues to address.

As a risk management measure including Group companies, we are carrying out requests for evermore enhanced risk management, while also exchanging information after surveying and reporting on each company's initiatives and practices.

Wireless communication device for emergency use

Disaster reserve supplies

Together with Stakeholders

As a member of society MGC contributes to the community, and by fulfilling its responsibilities to various stakeholders, the company will earn society's trust and sympathy.

Together with the Community

Participation in local dialogue meetings

To explain our environmental conservation and process safety activities to local communities and deepen mutual understanding, MGC has continued to participate in local dialogue meetings held by the Japan Chemical Industry Association (JCIA). As just one example, MGC served as the chair company at the dialogue meeting held in the Okayama region.

Additionally, in November, we participated in thinning and pruning work on coastal pine forests, owned by the local ward, near our Niigata Plant.

Mizushima Plant / Okayama District Local Dialogue Meeting

Niigata Plant / Participating in coastal forest conservation work near the plant

Interaction with local communities

In response to requests from nearby schools, we conduct workplace study tours at various locations. We also deepen our interactions with local residents by participating in summer festivals, conducting blood drives, and engaging in other activities.

In addition, we are working on process safety and disaster prevention at each workplace.

Environmental cleanup activities at workplace surroundings

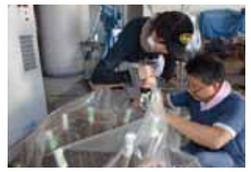
At each of its sites, MGC participates in voluntary cleanup activities for roads, nearby riverbeds, and other areas.

Yokkaichi Plant / Cleanup work inside and outside the plant

Hiratsuka Research Laboratory / Cleanup work around the Sagami River

Support for the earthquake recovery effort

Since the Great East Japan Earthquake that struck in 2011, we have worked to help preserve damaged cultural artifacts in five areas (including Tochigi, Ibaraki, Iwate, and Miyagi prefectures) using our oxygen-absorbing packaging technology named RP system®. This effort was recognized by the Commissioner of the agency for Cultural Affairs, and MGC received a commendation from the Cultural Affairs Agency Chief in March 2013.



Preservation work on damaged cultural artifacts at the Science Museum in Iwate prefecture

Receiving a commendation from the Commissioner for Cultural Affairs

Donation of chemistry experiment kits

To boost interest in chemistry, since 2008 we have provided junior high schools near our facilities with chemistry kits to make their own pocket heating pads. These kits help students understand the oxidation of iron, which generates heat and makes the pads warm. Since 2011, we have also donated these kits to middle schools in areas affected by the earthquake. We provided 13,275 kits to 87 schools in FY 2012, helping to convey the wonders of chemistry.

Affiliated company in South Korea receives a Social Responsibility Award

Korea Engineering Plastics Co., Ltd. is engaging in regional social contribution activities such as sponsoring student scholarships and engaging in volunteer projects. These initiatives were recognized by an organization affiliated with South Korea's Ministry of Knowledge Economy with a Social Responsibility Award in May 2012.

Award ceremony for the Social Responsibility Award given to Korea Engineering Plastics Co., Ltd.

Together with Stakeholders

Together with Our Business Partners

In order to provide customer satisfaction to all our clients, from our direct business partners to end users, the Sales & Marketing, R&D, Quality Assurance, and Environment & Safety Divisions all collaborate to provide safe and reliable products and services.

In addition, when problems related to the Product Liability Law arise, the designated staff person in charge of complaints at each Company confirms the details, determines which division needs to pursue the matter (choosing from among the business division in question, the Production Division, Research Division, or Logistics Division), and investigates the source of the problem. There is also a Product Liability Committee, which is structured to deliberate on and implement response measures.

In addition to these company-wide practices, we are also striving to raise customer satisfaction in each particular business division. As a result, in April 2013, we received the Supplier Continuous Quality Improvement (SCQI) Award from Intel Corporation (in the U.S.A.) for our efforts towards costs, quality, supply infrastructure, technical prowess, and environmental, social, and governance programs.

Receiving the Supplier Continuous Quality Improvement (SCQI) Award from Intel Corporation (U.S.A.)

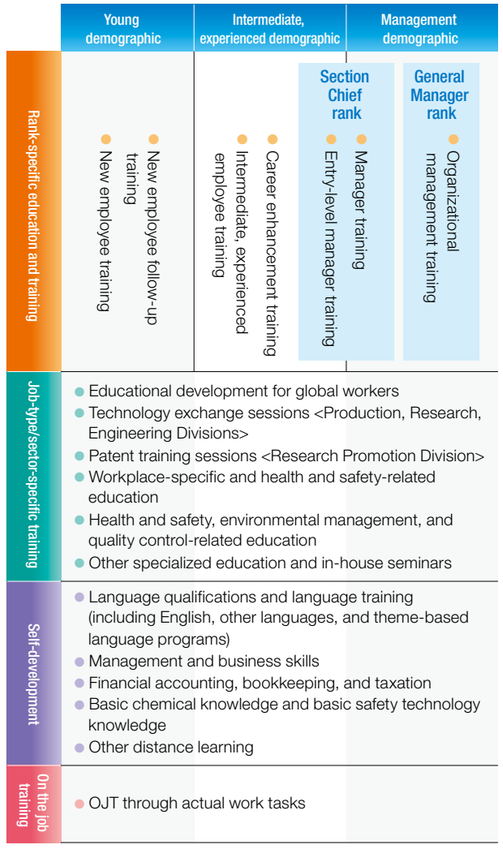
Together with Employees

MGC's human resource development

MGC maintains "fostering small numbers attentively" as its human resource development policy and aims to realize what we call our 'Philosophy for Being,' which is to "MGC contributes to societal growth and harmony by creating a wide range of value through chemistry." Our desire is to create a work environment that fosters each employee as a professional in a system that raises personal intelligence and capacity while furthering individuality.

Development of human resource capabilities

In order to create an environment for each employee to achieve individual goals, we are working to enhance self-development programs for each rank and sector using tools such as skill-development training and distance education.



■ Features of rank-specific education and training

Training based on the employee's specific rank within the company, from new employees to management-level employees, encompasses education tailored to the knowledge, capabilities, manner of working, approach to working, business skills, and management skills necessary for each rank. It provides a valuable opportunity for employees to give thought to the future course of their own career. In recent years, this has also included life/career training regarding individual work and lifestyle issues for employees who have reached the age of 50.

■ Features of job-type / sector-specific training

Training based on the employee's specific job or department within the company is an opportunity for workers to acquire the necessary, specialized knowledge and skills for their division, which cannot be addressed well in larger general training sessions.

■ Features of self-development education

The company offers language learning training courses customized to each employee's level, in addition to a selection of over 270 types of distance learning courses (from fields as diverse as management, business skills, financial accounting, chemistry, foreign languages, career planning, and health) ranging from subjects directly related to employees' work tasks to subjects of personal interest. Employees who finish a distance learning course within a specified time period are eligible for a 50% tuition subsidy.

Initiatives to promote diversity

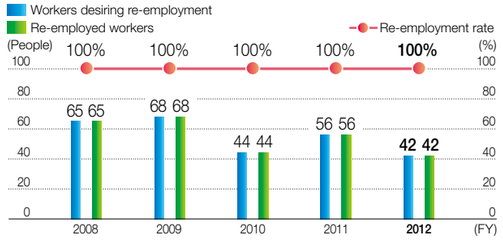
Our people are our greatest asset. We are putting effort toward promoting diversity (in terms of different working styles), so that our employees, who themselves are diverse individuals, can display their unique capabilities and approach work with a sense of purpose and meaning. Our number of female managers has also increased as their work options continue to expand.

In addition, we are hiring more employees of foreign nationality, accompanying the globalization of our business. We continue to strive for a work environment where various individuals, including older aged workers and workers with disabilities, are able to actively contribute to MGC.

■ Re-employment

In response to measures that raise the eligibility age for payments from the public pension program, we have introduced a retiree re-employment scheme to support a stable life for workers after retirement. Providing all employees the opportunity to continue working if they are healthy and desire to do so contributes to creating a vibrant workplace. In addition, we introduced a "part-time job system" from FY 2013 that allows workers to keep their work hours to half the normal level and answers individual needs for more diverse work options.

Re-employment of retirees

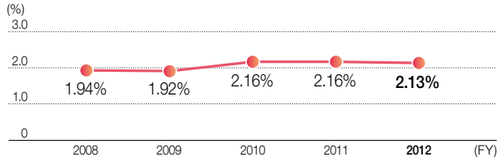


* Fiscal year = end of September + end of March

■ Employment of persons with disabilities

MGC's employment rate for persons with disabilities was 2.13% as of the end of FY 2012, which exceeded the legally mandated rate raised to 2.0% in April 2013. We maintain a workplace environment that allows persons with various disabilities to display their individuality, and will continue actively working to employ persons with disabilities.

Employment rate for persons with disabilities (at end of fiscal years)



Creating worker-friendly workplaces

■ Personnel system

MGC's personnel system is a multi-stream vocational qualification grading system based on management by objectives. Up to the standard age of 28, employees belong to the same basic career path regardless of gender or educational background, and then move on to select courses that will help them in their career. It is a system that treats all employees equally, providing them with a range of career opportunities in line with individual aspirations that meet their role, achievements and capabilities.

Employee tenure (as of March 2013)

	Male	Female	Total
Average age	41 years old and 0 months	40 years old and 0 months	40 years old and 11 months
Number of years worked	18 years and 2 months	17 years and 5 months	18 years and 1 month

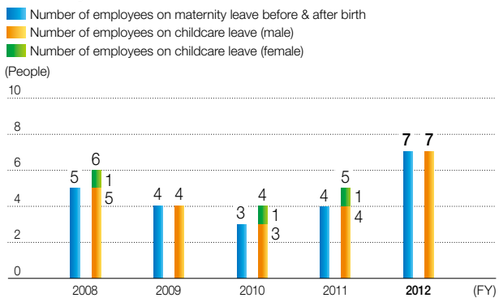
Together with Stakeholders

■ Consideration for work-life balance

We believe that work-life balance is indispensable for job satisfaction. To help promote this idea we have implemented a no-overtime day, encouraged our employees to take their paid leave, and introduced systems such as flextime as well as a system that allows employees to roll-over expired annual leave.

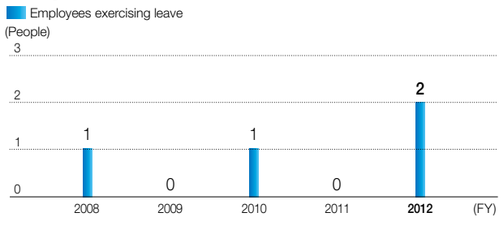
In order to support employees with children or aging parents who need assistant care, we continue to enhance our childcare leave and nursing-care leave systems, in addition to a system allowing shorter working hours, to help employees balance work with family life. In FY 2011, we revised the childcare leave system, and in FY 2012 we revised our nursing-care leave system, expanding the applicable period of both.

Maternity leave



* For women, the fiscal year of child care leave is determined by the first day of maternity leave.

Family care leave



■ Support for social contribution activities

We strive to enhance our support systems and create a work environment where employees are able to engage in a variety of social contribution activities as part of their daily lives.

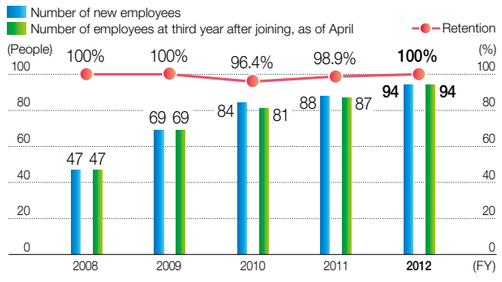
In FY 2009, we introduced paid “volunteer leave” and paid “donor leave” as special paid leave options. We also provide employees with paid leave for public service activities such as participating in the saibanin (jury) system or the Committee for the Inquest of Prosecution.

■ Care for mental health

It is important that our employees maintain their physical health, at MGC we have implemented programs to ensure mental health as well. The Employee Assistance Program (EAP) is one of these, in which employees can freely contact external professional institutes by e-mail, telephone or in person to discuss concerns. In addition, we conduct an annual “mental health” test to assess stress conditions and provide opportunities for self-evaluation while striving to raise stress awareness through workshops.

We also conduct mental health training during sessions designed for new employees and employees receiving a promotion. For new employees in particular, we have follow-up training two years after they join MGC and offer support to help them continue a stable work life.

Retention of new employees (three years after joining)



Respect for human rights and promotion of human rights awareness

At MGC, we strictly adhere to our Corporate Behavior Guidelines and MGC Code of Conduct, to respect individual personality and human rights, to not hurt anyone by discriminating against them based on their race, gender, nationality, age, religion or place of origin. We provide separate training courses on human rights for new employees and managers to raise awareness of human rights among all employees.

Our Code of Conduct also articulates that sexual harassment and power harassment are prohibited. We are committed to preventing them within our company, and reinforce this principle through training sessions, internal communications and a special consultation desk.

These guidelines and code—along with guidelines for the prohibition of child labor and forced labor—have been communicated to our Group companies overseas.

Union / labor-management relations

Over the years MGC and the Mitsubishi Gas Chemical Workers Union have built up mutual trust and respect between each other based on positive labor-management relations, which allows them to work together to solve various issues. We regularly hold management council meetings to discuss issues related to management, and organize a joint management committee for more specific agendas. Together we have revised the personnel system, the re-employment system, and retirement plans. Other issues such as wages and bonuses are determined through yearly collective bargaining and other negotiations.

With Shareholders and Investors

Basic policy on profit distribution

Returning profits to shareholders is considered one of MGC’s most important management issues. Distributions are determined by a combination of performance-linked factors and stable dividends.

General meeting of shareholders

The annual shareholders meeting is held avoiding peak days so that as many shareholders can attend as possible. MCG is also endeavoring to send the convocation notice earlier to give shareholders more time to consider what to vote, and adopt an electronic voting system for better convenience.

Information disclosure

MGC engages in appropriate information disclosure as required by rules and regulations stipulated by the Tokyo Stock Exchange and by legal ordinances.

Briefings for institutional investors and securities analysts; presentations on MGC’s business

For institutional investors and securities analysts, we hold earnings briefings, as well as facility tours and business briefings. In FY 2012, we held a presentation explaining our engineering plastics (synthetic resins) business to investors. In addition, we posted reference material from our earnings briefings, as well as business reports, on our website in an effort to share information about MGC in a timely fashion.

Presentation explaining our engineering plastics business

Earnings briefing

Environment and Safety Management

Sustainable development, building a recycling-based society, and safe operations are the three critical business challenges that MGC faces. Responsible Care (RC) is our response to both the environmental and safety issues, and has been rolled out in MGC and is understood by the entire Group.

The MGC Group Policies on Environment and Safety

The MGC Group, as an important member of the community, makes an effort to earn social trust by recognizing our responsibility to contribute to the community, to secure the environment and safety of the community, and to put our corporate activities in harmony with the protection of the global environment under the principle of sustainable development.

Environmental and Safety Targets
Fundamental Policies

Zero Accidents, Zero Occupational Injuries, and Environmental Preservation

- Ensuring health and safety in our operations
- Ensuring security management of facilities and increasing self-protection technologies and skills
- Reducing the environmental burden of business activities
- Ensuring safety in use, handling, and disposal of products
- Development of environmentally-friendly and safety-conscious products and technologies
- Ensuring environmental conservation and safety in the logistics of obtaining raw materials, and storing and delivering our products
- Building society's confidence in us

We shall comply fully with applicable domestic laws and foreign rules and shall also cooperate with related international organizations, international and national administrative organs, and nongovernmental organizations as required.

RC Medium-Term Plan 2014

* The descriptions of distribution safety, dialogue with society, and RC in general have been omitted.

RC Code	RC Medium-Term Plan (2011–2014)
Occupational Health and Safety Process Safety and Disaster Prevention	**Working toward zero occupational injuries and accidents** ■ Establish a culture of safety. • Enhance communications. • Eradicate human error. • Identify fundamental causes of accidents and occupational injuries, and undertake active measures to improve equipment. ■ Enhance voluntary process safety inspections. ■ Enhance joint disaster prevention systems with neighboring affiliates.
Environmental Preservation	■ Reduce the energy consumption rate to below 85% of the FY 1990 level. • Implement energy saving measures and reduction of equipment problems. ■ Reduce greenhouse gas emissions intensity to below 75% of the FY 1990 level. ■ Reduce emissions of PRTR substances and VOCs. • Focus reductions on substances with high emissions volumes. ■ Achieve zero emissions of waste. (Zero emissions: Implement the 3Rs to reduce final disposal of generated wastes to 0.3% or less by weight.) ■ Workplaces that achieve zero emissions will further reduce their final disposal volume.
Chemical and Product Safety	■ Provide product safety information. • Reflect up-to-date information in SDS. ■ Conduct product risk management. • Perform risk evaluation and risk reduction. • Adapt to overseas regulations for product risk management. • Conduct appropriate assessment of new products. ■ Promote development of products with lower environmental burden and energy saving technologies.

Message from the Director in Charge of Environment and Safety

Takayuki Watanabe
Senior Managing Executive Officer

MGC is promoting a company-wide project, the AZ Project, aimed at eradicating occupational injuries and accidents, and fostering a culture of safety. This fiscal year marked the third and final year of the second stage of the project, which is divided into three-year stages. As this stage comes to a close, we are pushing forward with the initiatives of our working groups based on the gains each plant needs to make. Through initiatives aimed at improved communication, upgraded equipment, and enhanced on-site competency, we have steadfastly reduced the number of accidents.

In terms of environmental issues, we are continuing our efforts to set and meet the numerical targets in each area of: reduction of emissions of chemical, reduction of industrial wastes, and energy saving measures. As a result, we have been able to broadly cut the amount of PRTR substances and VOCs that we release.

In recent years, major accidents continued to occur in the chemical industry, and we would like to band together industry-wide to work toward the elimination of such accidents. We are carrying out risk assessment at each business site to determine the likelihood of similar accidents occurring at MGC. We are also working to identify areas of danger and hazardous processes, and pushing forward with corresponding prevention measures.

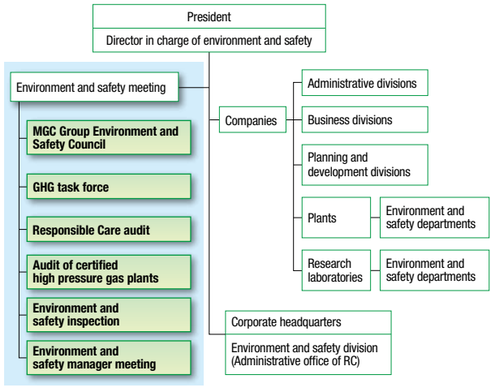
Since the March 11, 2011 Great East Japan Earthquake, damage estimates for earthquakes have been reconsidered. Based on these new estimates, we are reviewing our earthquake resistance and our disaster manuals, while also continuing with earthquake drills, so that we can safely halt our plants in the event of an earthquake.

The MGC initiatives described here have brought real results, though they are still not entirely sufficient. Going forward, MGC will aim to be a "superior and distinctive chemical company," as we continue our initiatives toward safe and secure production.

Responsible Care Promotion System

All of MGC's divisions, at both the company and corporate level, follow fundamental environmental and safety principles that promote Responsible Care. Every December, MGC holds environment and safety meetings, which are chaired by the President and consist of all executive officers, division heads, and plant managers. MGC also takes steps to make continuous improvements in the PDCA cycle based on the RC Medium-Term Plan targets and annual activity targets.

At present, we are continuing to review and implement reduction measures for latent risk, reexamine our BCP, and work to further instill risk management, including in our Group companies. At the same time, we are carrying out surveys of risk based on set annual themes, such as risk associated with information leaks and risk associated with our supply chain.



RC Audit in 2012

The director in charge of environment and safety, together with an auditing team, conducts the RC audit. This audit assesses the implementation status of RC action plans at each of our sites while deciding upon and auditing high importance audit items for the year.

In 2012, we audited the status and operation of our safety education system, as well as the operation of safety management for subcontracted work in our plants (excluding construction contractors).

■ **Audit period**

July – October, 2012

■ **Auditees**

5 plants, 3 laboratories (including Tokyo Techno Park), business divisions of 4 companies, Purchasing & Logistics Center

■ **Audit findings**

Full conformity (18 cases)　Non-conformity (no cases)
Improvement orders (9 cases)　Comments (28 cases)

■ **Follow-up issues identified in previous year**

We audited the handling of items identified at workplaces in the previous year to confirm that proper measures have been taken.

Kashima Plant / Overall audit

Yamakita Plant / Division audits

Results and Plans for RC Activities

★★★ : Achieved　★★ : Mostly achieved　★ : Further efforts required

RC Code	RC Medium-Term Plan 2011–2014	2012 RC Action Plan		2012 Achievements	Assessment	2013 RC Action Plan
Occupational Health and Safety Process Safety and Disaster Prevention	Working toward zero occupational injuries and accidents ■ Establish a culture of safety. • Enhance communications. • Eradicate human error. • Identify fundamental causes of accidents and occupational injuries, and undertake active measures to improve equipment. ■ Enhance voluntary process safety inspections. ■ Enhance joint disaster prevention systems with neighboring affiliates.	1. Continue daily activity (hazard prediction activities, *Hiyari-Hatto* [near miss] identification activities, 5S activities). 2. Improve evaluated risks through risk assessment. 3. Enhance communication, and link communication to eradication of human error. 4. Make use of accident and occupational injury analysis methods. 5. Enhance daily checks (inspections) and make sure that results are communicated. 6. Clarify joint disaster preparation scopes of responsibility with neighboring affiliates and partner companies, and reconfirm responsibilities through drills. 7. Enhance emergency first response. 8. Conduct activities for preventing occupational injuries at partner companies. (Enhance facility upgrades, support for the training of partners' employees, and communication with partners.)		1. Each business site is proactively engaging in its daily activities. In terms of *Hiyari-Hatto* (near misses), we are working to share information within each business site, through the use of databases and webpages, to ensure that information makes its way to all parties involved. 2. In terms of risk assessment for occupational safety, we used case studies based on *Hiyari-Hatto* (near misses). For process safety and disaster prevention risk assessment, we carried out systematic checks on newly introduced equipment and machinery, as well as on specified hazardous work tasks with existing machinery. After these two assessments, we carried out follow-up surveys for the risks identified, and confirmed that the risks were reduced by the measures taken. 3. We worked to enhance communication by utilizing the opportunities presented by workplace round-tables, patrol rounds, and safety meetings held before the beginning of work. 4. We endeavored to firmly establish causal analysis habits by holding seminars, etc. on methods for comprehensively analyzing the fundamental causes of accidents and occupational injuries. 5. We proceeded with utilizing to full effect our company-wide facility management system at each plant, and strengthened our management of tracking equipment history. We began health and safety patrols at our head office as well, checking into earthquake preparedness, evacuation routes, and orderliness. 6. During training drills for earthquakes and fires, we reexamined systems for cooperative disaster prevention and communication/alert systems at each plant. 7. Every business site devised more effective and realistic emergency response drills. 8. We worked to improve communication between partner companies at each business site, endeavoring to prevent occupational accidents.	★ ★	1. Continue daily activities (hazard prediction activities, *Hiyari-Hatto* [near miss] identification activities, 5S activities). 2. Thoroughly pursue the elimination of plant accidents. (Identify and reduce risk from abnormal reactions, explosions/fires, and risk occurring during emergency equipment stoppage.) 3. Enhance communication and link communication to eradication of human error. 4. Firmly establish accident and occupational injury analysis methods. 5. Firmly establish, utilize, and enhance M3 systems. 6. Enhance emergency response, including fire-extinguishing capabilities, for neighboring affiliates and partner companies. 7. Pursue activities for preventing occupational injuries at partner companies. (Enhance facility upgrades, support for the training of partners' employees, and communication with partners.)
Environmental Preservation	■ Reduce the energy consumption rate to below 85% of the FY 1990 level. • Implement energy saving measures and reduction of equipment problems. ■ Reduce greenhouse gas emissions intensity to below 75% of the FY 1990 level.	1. Advance energy saving measures while reducing equipment troubles to assure stable operation, and improve our energy consumption rate and greenhouse gas emissions intensity. In particular, establish concrete measures for workplaces at which steam trap check-ups and steam equipment energy conservation check-ups were performed.		1. We reduced the energy consumption rate by approx. 3% year-on-year, to 92% of the FY 1990 level. We reduced greenhouse gas emissions intensity by approx. 1% year-on-year, to 78% of the FY 1990 level. Energy-saving measures included process upgrades accompanying reform work on distillation columns, as well as measures for the optimization of operating conditions. The net result was an energy savings effect equivalent to 8,600 kl of crude oil. Results of these measures brought a reduction in GHG emissions equivalent to approx. 17,000 tons of CO_2. Noteworthy here are the concrete benefits that have resulted from check-ups on steam equipment, undertaken for the sake of greater energy efficiency at each plant since FY 2011.	★ ★	1. Advance energy saving measures while reducing equipment troubles to assure stable operation, and improve our energy consumption rate and greenhouse gas emissions intensity. In particular, establish concrete measures for workplaces at which steam trap check-ups and steam equipment energy conservation check-ups were performed.
	■ Reduce emissions of PRTR substances and VOCs. • Focus reductions on substances with high emissions volumes.	2. Set priorities for reducing emission volumes of PRTR substances and VOCs, and draft and enact reduction plans with clear target values.		2. We implemented reduction plans at business sites with high 1,2,4-trimethylbenzene and xylene emissions. We reduced our emissions of PRTR substances on the Japan Chemical Industry Association's list by approx. 14% over FY 2011 levels. We reduced our emissions of VOCs by approx. 15% over FY 2011 levels.	★ ★ ★	2. Set priorities for reducing emission volumes of PRTR substances and VOCs, and draft and enact reduction plans with clear target values.
	■ Achieve zero emissions of waste. ■ Workplaces that achieve zero emissions will further reduce their final disposal volume.	3. Sites where zero emissions of waste targets were not achieved will set a landfill target and strive to achieve zero emissions. Sites where targets were achieved will continue the practice of zero emissions, and undertake further reductions in final disposal volumes.		3. Although some business offices have yet to reach zero emissions, our 10 business sites continued to operate at zero emissions.	★ ★ ★	3. Continue to achieve zero emissions of waste. Set a waste reduction target for each business site and strive to achieve even lower emissions.
Chemical and Product Safety	■ Provide product safety information. • Reflect up-to-date information in SDS.	1. Reflect up-to-date product safety information in SDS. • Provide accurate information on hazards to customers, etc. • GHS support for in-development product SDSs. (Implement GHS support for in-development product SDSs by December 2012.) • Review of our GHS management system.		1. We reflected up-to-date information on SDS for regular products and products in development. • We provided clients with newly created or revised SDS, ensuring that they are given the most up-to-date information. • We finished aligning all in-development product SDS with GHS. We reexamined our SDS management system, implementing batch management for safety data and labels, and began operating an upgraded system for tracking revisions to SDS and labels.	★ ★ ★	1. Reflect up-to-date product safety information in SDS. • Provide accurate information on hazards to customers, etc. • Comply (by December 2015) with new JIS (JIS Z 7253) for SDS. • Reexamine and put to use the SDS/label management system.
	■ Conduct product risk management. • Perform risk evaluation and risk reduction. • Adapt to overseas regulations for product risk management. • Conduct appropriate assessment of new products. ■ Promote development of products with lower environmental burden and energy saving technologies.	2. Implement in-house education on risk evaluation. 3. Set implementation plans for risk evaluation. (Promote safety assessment during new product development.) 4. Adapt to and support overseas laws and regulations. 5. Promote development of products with lower environmental burden and energy saving technologies.		2. We carried out product liability education at all business sites regarding risk evaluation methods for chemical substances under the EU REACH regulations. 3. We tested part of the Japan Initiative of Product Stewardship (JIPS), a risk evaluation project advocated by the Japan Chemical Industry Association. We conducted 40 cases of in-house safety testing for new products in 2012; 15 related to acute toxicity, 12 to the Ames test, and 13 to primary skin irritation. (Last fiscal year, these numbers were 10, 11, and 7 cases respectively, for a total of 28 cases.) 4. We carried out support for individual cases of concern. A response team took the lead in addressing the EU regulations, pushing forward preparations in particular for substances that must be registered under REACH in 2013. 5. Regarding products with low environmental impact, we developed biomass plastic and halogen-free materials, while also promoting geothermal power generation and the development of a marketplace for dimethyl ether. Among energy-efficient products, we replaced metal and glass, putting our development efforts into high performance resin materials that bring greater energy efficiency due to their light weight.	★ ★ ★	2. Implement in-house education on risk evaluation. 3. Set implementation plans for risk evaluation. (Promote safety assessment during new product development.) 4. Adapt to and support overseas laws and regulations. 5. Promote development of products with lower environmental burdens and energy saving technologies.

Occupational Health and Safety, Process Safety, and Disaster Prevention

MGC's top priority is to ensure safety, and we have a proactive approach aimed at zero accidents and zero occupational injuries.

Safety Philosophy

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

Occupational Health and Safety Initiatives

To achieve our objective of no occupational injuries, our workplaces continually engage in everyday safety activities such as 5S activities, hazard prediction, and proposals to address near-miss incidents. Our worksites also advance various safety activities such as safety-related education and drills, and occupational health and safety risk assessments.


Niigata Research Laboratory / HAZOP (hazard and operability) training


Tokyo Techno Park / Emergency lifesaving drills


Yokkaichi Plant / RC activity presentations


Niigata Plant / Niigata West Port Industrial Complex Association's fire prevention training course


Kashima Plant / Hazard prediction training


Hiratsuka Research Laboratory / Group safety education using computer aided instruction (CAI)

Safety Performance

In 2012, occupational injury incidents resulting in lost time totaled three cases at MGC, and three cases at partner companies. The past few years, the number of incidents has stopped falling, so we will move forward with additional initiatives with the goal of achieving zero accidents.

Change in lost time injury frequency rate*1

	2008	2009	2010	2011	2012
MGC	1.43	0.57	0.28	0.54	0.80
Chemical industry	0.84	0.72	0.72	0.88	0.85
Manufacturing industry	1.12	0.99	0.98	1.05	1.00

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

Change in lost time injury severity rate*2

	2008	2009	2010	2011	2012
MGC	0.07	2.14	0.01	0.01	0.03
Chemical industry	0.07	0.13	0.04	0.04	0.12
Manufacturing industry	0.10	0.08	0.09	0.08	0.10

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

Preventing Occupational Injuries at Partner Companies

We share information on occupational injuries, perform risk assessments, provide safety education, and take other actions aimed at industrial accident prevention in partner companies, while we work to enhance our cooperative frameworks. In some plants, we also conduct audits and safety inspections of partner companies.


Mizushima Plant / Regular Maintenance Safety Assembly


Kashima Plant / Regular Maintenance Safety Assembly

Process Safety and Disaster Prevention Activities

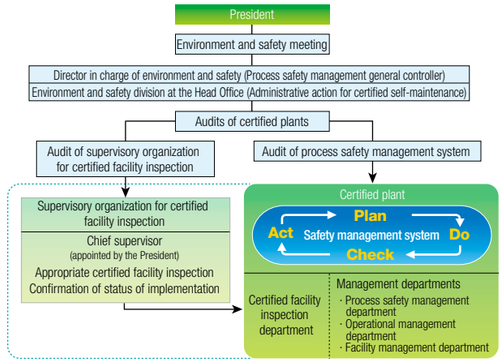
To prevent the occurrence of accidents and injuries, it is important to ensure the safety of production processes and the soundness of facilities. At each site we conduct inspections and renewal planning for facilities, and prioritize inspections, repairs and renewals according to each aging facility's risk and importance.

Considering the fact that explosions and fires continue to break out in the chemical industry, we have begun a complete inspection of our facilities and processes to determine the likelihood of similar accidents occurring at MGC.

Certified High Pressure Gas Plants

We conduct audits of our certified high pressure gas plants under the direction of the Director in charge of environment and safety (Process Safety Management General Controller). Accordingly, our Niigata Plant and Mizushima Plant are "high pressure gas safety management code certified" high pressure gas plants. The aim of our audits is to objectively evaluate the high pressure gas safety management system and the certified inspection management framework to ensure that they are working effectively.

Certified process safety management system for high pressure gas



Responding to Emergencies

As a precaution, MGC has established a disaster prevention system at each of its sites, and conducts various drills according to the annual plan.


Mizushima Plant / Disaster preparation training


Kashima Plant / Disaster preparation training


Yamakita Plant / Fire hose training


Niigata Research Laboratory / Fire hose training

Accident Zero (AZ) Project Phase II

In response to yearly increases in accidents and abnormalities, as well as a serious accident that occurred at our Niigata Plant in December 2007, MGC launched the company-wide Accident Zero (AZ) Project in February of 2008. Over the three years since, we have continued activities to strengthen education and communication under the Project.

As these activities have become formalized and established in our laboratories we ended the project, and in FY 2011 rolled out focused activities in our plants as AZ Project Phase II (hereinafter "AZ Step II"). Over its three-year period of activity, we are advancing AZ Step II under two key directions: improvement of "on-site capabilities" in individuals and organizations, and prevention of equipment and operational troubles through cooperation with the Production Engineering Division.

In FY 2012, every plant undertook working group activities across the organization and worked to resolve issues common to all plants. Furthermore, MGC worked to improve the visibility of on-site issues and our capability to respond to those, through TPM* activities and education on equipment management.

We connected these initiatives for the energizing of safety activities throughout the company, by means including liaison conferences for the special safety administrators responsible for AZ activity promotion in plants, and information exchanges through AZ activity inter-plant meetings. Through cooperation between the Environment and Safety Division and Production Engineering Division, our support for accident and trouble countermeasures at plants is showing results.

*** TPM (Total Productive Maintenance)** refers to improvement of production with the participation of all personnel.


Kashima Plant / AZ workplace get-together


Mizushima Plant / Inter-plant meeting (working group-level discussions)


Niigata Plant / Site observation tour


Yokkaichi Plant / Inter-plant meeting

Environmental Burden of Business Activities of the MGC Group

The table below displays the environmental burden of the MGC Group's domestic operations in FY 2012. The environmental burden data shown in the table for the entire Group captures over 90% of the MGC Group's domestic consolidated accounting. In addition, we began disclosing the environmental burden data of the MGC Group overseas companies from FY 2012.

Total for the domestic MGC Group*1

FY 2011*2	FY 2012
Number of business sites: 60	Number of business sites: 62

INPUTS	Units	2011	2012
Energy consumption including purchased electricity (crude oil equivalent)	1,000 kl	652	679
Water usage			
Tap water	1,000 m^3	1,038	1,073
Industrial water	1,000 m^3	26,436	25,035
Groundwater	1,000 m^3	1,566	1,519
River water	1,000 m^3	14,513	15,145
Others	1,000 m^3	1,026	1,170
Total water consumption	1,000 m^3	44,869	43,940

OUTPUTS	Units	2011	2012
Emissions to atmosphere			
Greenhouse gas emissions (CO_2 equivalent)	1,000 tons	1,511	1,614
SOx emissions	tons	148	86
NOx emissions	tons	666	680
Soot and dust emissions	tons	48	26
Released to water area			
Drainage volume	1,000 m^3	36,651	63,463
COD emissions	tons	262	229
Total nitrogen emissions	tons	253	168
Total phosphorus emissions	tons	55	71
Generation of waste			
Amount generated	tons	135,993	161,286
Amount recycled (including amount sold)	tons	45,080	40,865
Transfer to off-site	tons	32,737	31,218
Final landfill	tons	1,541	5,105
Notified substances under PRTR Law			
Emissions (air)	tons	1,453	1,499
Emissions (water)	tons	16	30
Emissions (soil)	tons	0	0
Total amount emitted	tons	1,469	1,529
Total amount transferred	tons	1,184	973

MGC alone

FY 2011*2	FY 2012
Number of business sites: 13	Number of business sites: 13

INPUTS	Units	2011	2012
Energy consumption including purchased electricity (crude oil equivalent)	1,000 kl	556	562
Water usage			
Tap water	1,000 m^3	451	539
Industrial water	1,000 m^3	23,388	21,848
Groundwater	1,000 m^3	408	393
River water	1,000 m^3	14,513	15,145
Others	1,000 m^3	917	1,049
Total water consumption	1,000 m^3	39,677	38,974

OUTPUTS	Units	2011	2012
Emissions to atmosphere			
Greenhouse gas emissions (CO_2 equivalent)	1,000 tons	1,312	1,341
SOx emissions	tons	112	66
NOx emissions	tons	606	626
Soot and dust emissions	tons	31	22
Released to water area			
Drainage volume	1,000 m^3	33,026	33,678
COD emissions	tons	232	202
Total nitrogen emissions	tons	231	149
Total phosphorus emissions	tons	53	69
Generation of waste			
Amount generated	tons	90,710	84,915
Amount recycled (including amount sold)	tons	25,725	25,021
Transfer to off-site	tons	9,027	6,755
Final landfill	tons	130	122
Notified substances under PRTR Law			
Emissions (air)	tons	327	294
Emissions (water)	tons	12	13
Emissions (soil)	tons	0	0
Total amount emitted	tons	339	307
Total amount transferred	tons	551	482

*1 The data used for the total for the domestic MGC Group is the sum of the main domestic manufacturing and processing businesses (member companies of the MGC Group Environment and Safety Council) and MGC itself.
*2 In the 2013 CSR Report, the total range has been changed to all business sites, which includes research laboratories and not only production sites. Therefore, some numerical data for FY 2011 may differ from that reported in the 2012 CSR Report.

New Data Compilation for the Environmental Burden of Overseas MGC Group Companies

We have begun compiling environmental burden data for eight overseas production companies in the MGC Group.

Not all eight companies had data available for some of the item categories. In the future, we will increase the number of companies for which we compile data and we will make the surveys more detailed.

Overseas MGC Group Companies

2011 (calendar year)	2012 (calendar year)
Business sites: 8*3	Business sites: 8*3

INPUTS	Units	2011	2012
Water usage			
Tap water	1,000 m^3	551	193
Industrial water	1,000 m^3	249	609
Groundwater	1,000 m^3	0	0
River water	1,000 m^3	0	0
Others	1,000 m^3	0	0
Total water consumption	1,000 m^3	800	802

OUTPUTS	Units	2011	2012
Emissions to atmosphere			
Greenhouse gas emissions (CO_2 equivalent)	1,000 tons	19	17
Released to water area			
Drainage volume	1,000 m^3	114	171
Generation of waste			
Amount generated	tons	2,716	2,746
Amount recycled (including amount sold)	tons	515	655
Transfer to off-site	tons	1,332	1,323
Final landfill	tons	1,252	1,273
Notified substances under PRTR (TMI) Law			
Emissions (air)	tons	96	61
Emissions (water)	tons	0	0
Emissions (soil)	tons	0	0
Total amount emitted	tons	96	61
Total amount transferred	tons	328	188

*3 Te An Ling Tian (Nanjing) Fine Chemical Co., Ltd., MGC Advanced Polymers, Inc., MGC Pure Chemicals America, Inc., MGC Pure Chemicals Singapore Pte. Ltd., MGC Pure Chemicals Taiwan, Inc., P.T. Peroksida Indonesia Pratama, SamYoung Pure Chemicals Co. Ltd., AGELESS (Thailand) Co. Ltd.

Preservation of Biodiversity

MGC sympathizes with and has signed on as a promotional partner of the Keidanren (Japan Business Federation) Declaration of Biodiversity (2009).

Biodiversity Initiatives

The nature of business activities in the chemical industry creates an intimate connection with environmental preservation, such that the task of creating a natural environment comfortable for plants and animals becomes indivisible from the pursuit of our business.

Perpetuating a healthy, abundant natural environment and preventing global warming are indispensable for preserving biodiversity. In the course of our business, we set Responsible Care as the foundation on which we continue ever greater efforts to maintain a rich natural environment and preserve biodiversity through chemical product management, environmental protection, energy efficiency, and the development of environmentally friendly products and technologies.

7 Clauses of Keidanren's Declaration of Biodiversity

1. Appreciate nature's gifts and aim for corporate activities in harmony with the natural environment
2. Act from a global perspective on the biodiversity crisis
3. Act voluntarily and steadily to contribute to biodiversity
4. Promote corporate management for sustainable resource use
5. Create an industry, lifestyle, and culture that will learn from biodiversity
6. Collaborate with relevant international and national organizations
7. Spearhead activities to build a society that will nurture biodiversity

Global Warming Prevention

At MGC, each sector—manufacturing, transportation, office and residence—is making efforts to prevent global warming.

MGC Overall Performance

FY 2012 energy consumption and greenhouse gas emissions for all of the company's business activities were as follows. Emissions from plants' manufacturing divisions account for over 97% of greenhouse gas emissions.

	Energy consumption (1,000 kl crude oil equivalent)	Greenhouse gas emissions (1,000 tons-CO_2 equivalent)
Plant Manufacturing Division	556.2	1,330.5
Transportation Sector (shipper)	10.0	26.5
Office Area	5.8	10.6
Business activities overall	**565.0**	**1,367.7**

For plant manufacturing divisions that are the focus of initiatives, we have set the following objectives for our measures.

- Energy consumption rate: Reduce to 85% or lower compared with FY 1990 levels by FY 2014
- Greenhouse gas emissions intensity: Reduce to 75% or lower compared with FY 1990 levels by FY 2014

Manufacturing Plant Initiatives

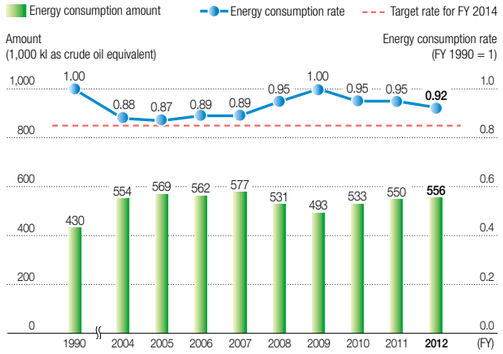
The volumes of FY 2012 energy usage and GHG (green house gas) emissions in our Plant Manufacturing Division each rose 2% year-on-year due to increased production. At the same time, our energy consumption rate per unit of production, which we have singled out as the target of specific initiatives, improved 2.7% year-on-year to 92%, using the 1990 level for base comparison, and GHG emissions intensity improved 1.2% year-on-year to 78%, also using the 1990 level for base comparison.

In our FY 2012 energy-efficiency measures, we implemented over 60 initiatives, including improving the efficiency of distillation columns, recovering heat from steam, etc., switching to inverter motors for pumps and ventilation machinery, and optimizing the operating conditions of distillation columns. The energy-saving results of these measures brought a crude oil equivalent reduction of 8,600 kl, and a reduction in GHG emissions equivalent to approx. 17,000 tons of CO_2.

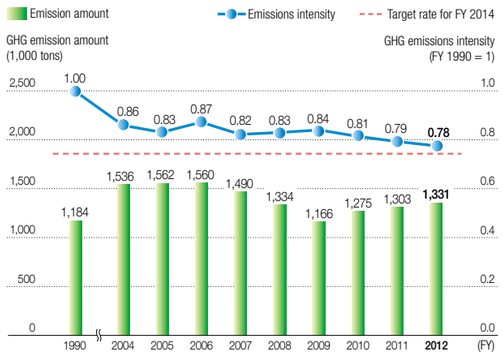
Furthermore, the promotion of new energy efficiency measures has led to check-ups run on steam equipment at the Mizushima and Niigata Plants, as well as the Kashima Plant in FY 2012. These check-ups uncovered 32 targets for new energy saving proposals, which are projected to yield a crude oil equivalent of 4,000 kl of energy reduction.

Among these targets, 18 are thought to offer relatively fast return on investment, and are under detailed review for inclusion in our energy efficiency plans in FY 2013 and beyond.

Trend of energy consumption amount and consumption rate



Trend of GHG emission amount and emissions intensity



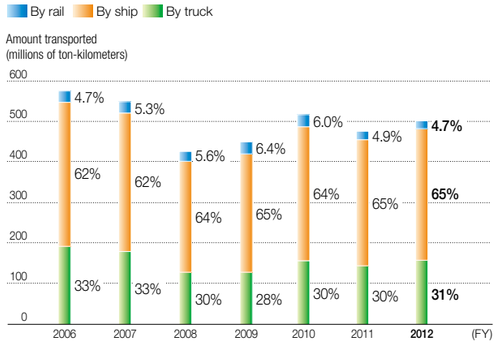
Initiatives in the Transportation Sector

As an energy-saving measure in our Transportation Sector, MGC is undertaking initiatives focused on efficiency improvements in truck transport (use of larger transport lot sizes and improvement in loading ratio) and modal shift to rail transport.

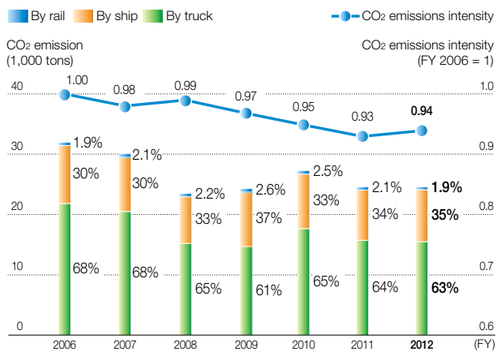
In FY 2012, our transportation volumes increased accompanying production increases, which brought a 6% rise in our ton-kilometers (transport weight × transport distance). Higher production and truck transport taking up a higher ratio led to an approx. 8% increase in CO_2 emissions as well. The result of this was a CO_2 emissions intensity increase of approx. 1.4% year-on-year, though the statistic had shown improvement of about 6% in the seven years since FY 2006.

From here out, we are planning energy-saving measures that include greater lot sizes for ship transport and a modal shift to rail from hauling on main lines.

Trend of volume of transportation



Trend of CO_2 emission



Activities in the Office and Employee Residence Area

We conduct a number of proactive measures to reduce energy consumption at our head office and laboratories. These include 'Cool Biz' during summer, 'Warm Biz' during winter, and turning off lights and computers when not in use.

We continued these measures in FY 2012 as well. With an end to the electricity shortages of FY 2011, our annual energy consumption rose 2% year-on-year but we maintained a 13% reduction over FY 2010 (before the Great East Japan Earthquake).

In the employee residence area, we called on employees to work toward energy reduction by sending e-mail messages detailing real examples of energy saving steps centered around easily implemented approaches.

Trend of energy consumption in the business operations division

FY	Energy consumption (1,000 kl crude oil equivalent)	Greenhouse gas emissions (1,000 tons-CO_2 equivalent)
2009	6.10	10.57
2010	6.68	11.05
2011	5.66	8.98
2012	5.80	10.67

Environmental Information Sharing System

In April 2012, we began full-scale operation of our Environmental Information Sharing System, which was constructed to manage information on the environmental impacts of business sites.

The system is intended to increase efficiency in the compilation of increasingly complex environmental information and in reporting tasks. We also built the system to use in understanding problem areas within each production process and in verifying the effects of energy conservation measures, particularly through assessment of per-device/per-unit data on energy consumption and GHG emissions. In FY 2012, we worked to enhance the system's functions to enable more frequent data compilation.

Going forward, we will put it to use in collection and analysis of environmental information from Group companies, including those overseas.

Global Warming Prevention

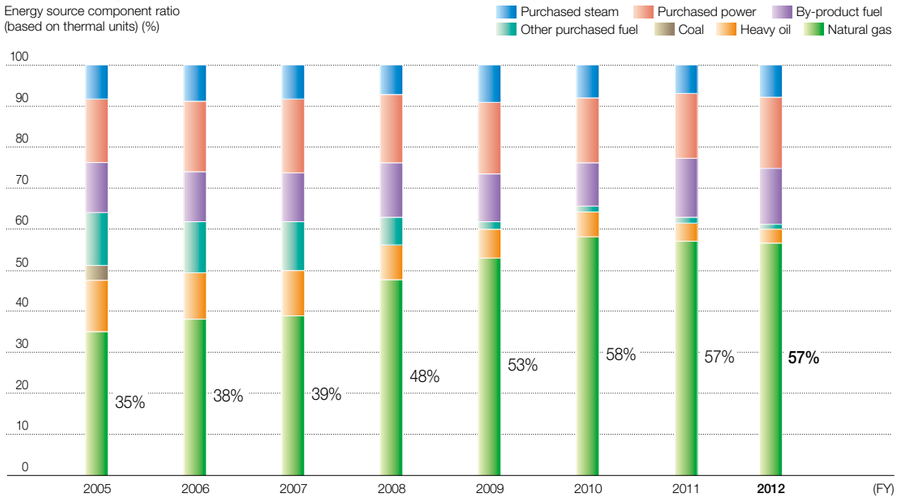
Development and Utilization of Clean Energy

In Niigata Prefecture, MGC has been actively conducting exploration and development work on natural gas, a clean fuel that has low emissions of CO_2 for each calorie of energy, as well as less sulfur and other impurities. We have deployed natural gas at our Niigata Plant, where it is used as both a raw material and an energy source.

We are also promoting the switch to natural gas-related fuels, such as city gas and LNG, at locations other than our Niigata Plant, and year by year are raising the ratio of natural gas within our energy consumption. In FY 2012, fuel conversion at our plants came to an end, with natural gas-related fuels making up the same 57% of our company-wide energy consumption as in the previous year.

In addition, MGC is participating in a project in Hachimantai, Akita Prefecture, to supply an adjacent power plant with geothermal steam, a type of renewable energy. Geothermal energy is plentiful in Japan and is expected to see further development. MGC is also taking part in a project to survey and develop geothermal resources in Yuzawa City, Akita Prefecture, with the aim of constructing a geothermal power plant.

Trend of energy source component ratio



TOPICS

MGC supported and participated in the 11th International Conference on Greenhouse Gas Control Technologies held in Kyoto in November 2012.

Chemical Emissions of the MGC Group

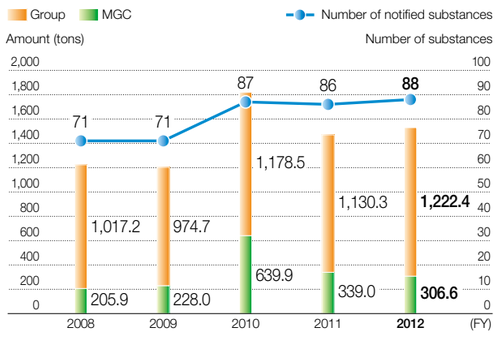
Each MGC Group company assesses and issues notifications on substances subject to the Pollutant Release and Transfer Register (PRTR), while working to reduce the amounts released and transferred.

Substances Subject to Notification under the PRTR Law

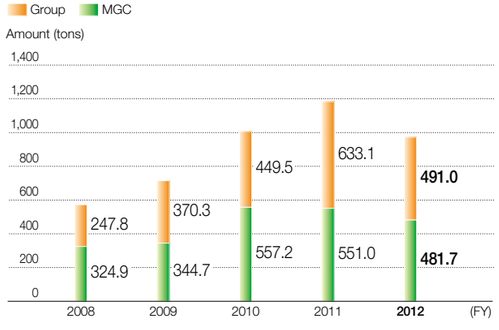
Substances subject to release and transfer notification under revisions to the PRTR Law increased to 462 in FY 2010. Group-wide, we made notifications in FY 2012 for 88 substances handled. Our annual emission of those substances totaled 1,529 tons, an approx. 4% year-on-year increase over the 1,469 tons last fiscal year. This was primarily due to our increase in production.

The amount transferred totaled 973 tons Group-wide, a reduction of approx. 18%, or 211 tons, compared with FY 2011's total. This reduction was mainly due to FY 2011 seeing a temporary surge in transfers by several Group companies, in addition to the fact that, this fiscal year, our marketable recyclables increased and our handled amounts decreased.

Trend of PRTR Law substance emissions



Trend of PRTR Law substance transfers



PRTR Law Substances with High Levels of Emissions

Among the substances registered under the PRTR Law, those listed below are emitted by the MGC Group in amounts of 10 tons or more.

- Chloromethane (1,151 tons)
- 1,2,4-Trimethylbenzene (183 tons)
- Dichloromethane (75 tons)
- Xylene (27 tons)
- n-hexane (21 tons)
- Cobalt and its compounds (13 tons)
- Toluene (13 tons)

Japan Chemical Industry Association PRTR-Targeted Substances

The Japan Chemical Industry Association, of which MGC is a single-company member, has on its own added specified substances to a subset of the substances requiring notification under the PRTR Law, and is working toward the reduction of these voluntary "PRTR-targeted substances" (422 substances plus 1 substance group).

MGC is working to assess and reduce substances at all of our business sites, including research laboratories, targeted by the JCIA. Eighty three of these substances were emitted in total, in the amount of 432 tons, in FY 2012 (an approx. 10% reduction, or 50 tons, over FY 2011).

Transferred amounts of these substances totaled 1,141 tons at all of our business sites, a reduction of approx. 48%, or 1,071 tons, compared with FY 2011's total. This reduction was primarily due to an increase in marketable recyclables and a decrease in the amount handled.

Volatile Organic Compounds (VOCs)

At MGC, PRTR Law substances, and those on the JCIA list, for which there is release into the atmosphere, are tallied as VOCs.

Amounts released into the atmosphere in FY 2012 totaled 24 substances and 362 tons at all of our business sites, a reduction of 14%, or 60 tons, compared with FY 2011's total.

Waste Reduction in the MGC Group

Each MGC Group company is striving to reduce waste, by promoting the 3Rs,* and properly dispose of waste according to applicable laws.

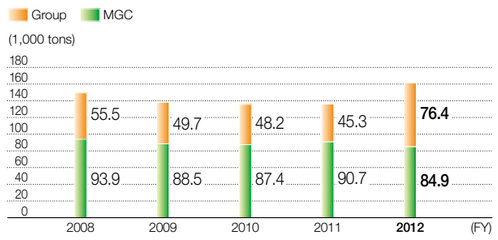
* 3Rs: Reduce, Reuse, Recycle (waste products)

Waste Reduction Achievement

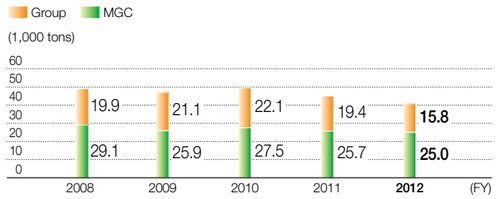
FY 2012 waste amounts totaled approx. 161,000 tons Group-wide, an increase of approx. 25,000 tons year-on-year. The primary reason for the increase was the generation of unneeded material during our reassessments of business operations. However, the effect of slimming down at each business site led to a reduced amount, approx. 1,500 tons in total, of waste released outside the sites.

Also, the final landfill amount, Group-wide, was 5,105 tons, a 230% year-on-year increase. This increase was due to one-off sludge and soil waste of approx. 3,500 tons. A similar situation occurred in FY 2008 when a one-off generation of sludge and soil increased our final landfill amount.

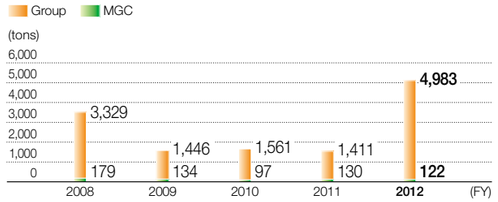
Amount of waste generated



Recycled amount



Final landfill amount

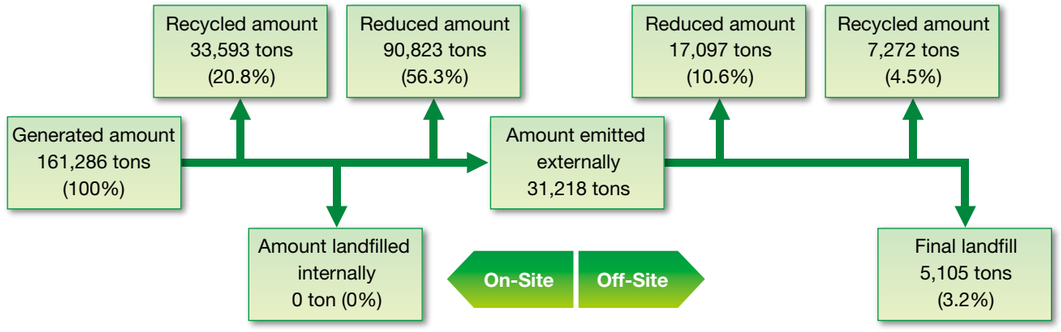


Zero Emissions at MGC

MGC itself, as a single company, strives to reduce waste and defines zero emissions as a final landfill waste amount of 0.3% or lower.

For our 10 business sites, our zero emissions intensity came to 0.14%, with 122 tons of final landfill waste out of 84,915 tons generated.

Waste Treatment in the MGC Group in FY 2012



TOPICS

At MGC Advanced Polymers, Inc. (U.S.A.), we are continuing to implement initiatives to reduce landfilled waste and prevent latent rainwater contamination in order to lessen the environmental impact of business operations.

These initiatives were recognized by VWEA (Virginia Water Environment Association) in March 2013, receiving the highest award they confer.

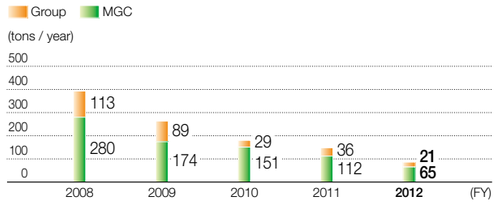
Air and Water Conservation in the MGC Group

Each MGC Group company strives to further reduce its burden on the environment by actively investing in facilities so that a natural environment conducive to plants and animals can be preserved.

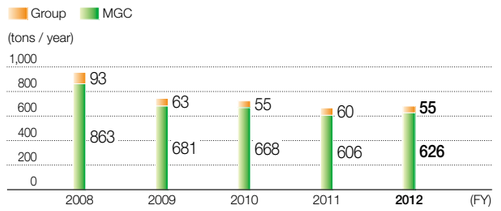
Preservation of Air Quality

We are working to preserve air quality by managing emissions of sulfur oxides (SOx), nitrogen oxides (NOx), soot and dust, and other toxic substances contained in the emission gas of combustion facilities.

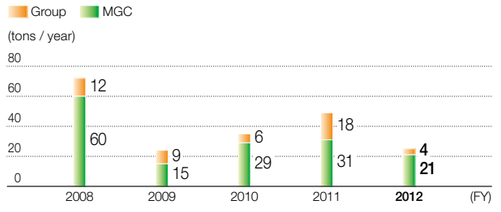
Emission of SOx



Emission of NOx



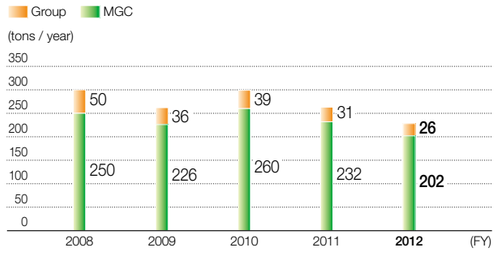
Emission of soot and dust



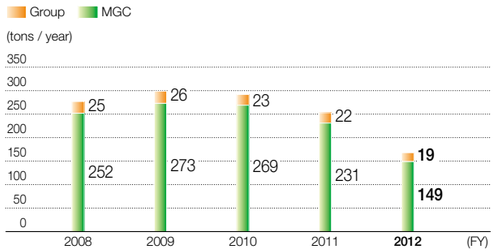
Preservation of Water Quality

We are endeavoring to preserve water quality by managing chemical oxygen demand (COD), total nitrogen, total phosphorus, and other chemicals within our wastewater.

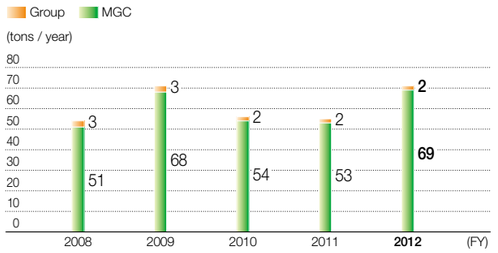
Emission of COD



Emission of total nitrogen



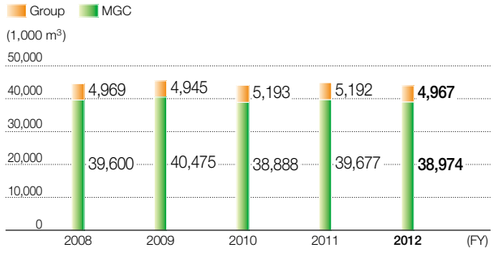
Emission of total phosphorous



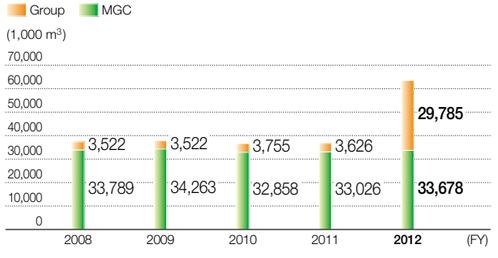
Water Consumption / Wastewater Volume

The increase in wastewater was a one-off event due to the intensive processing of wastewater stored in tanks.

Trend of water consumption



Trend of wastewater



Safety Management of Chemicals and Products

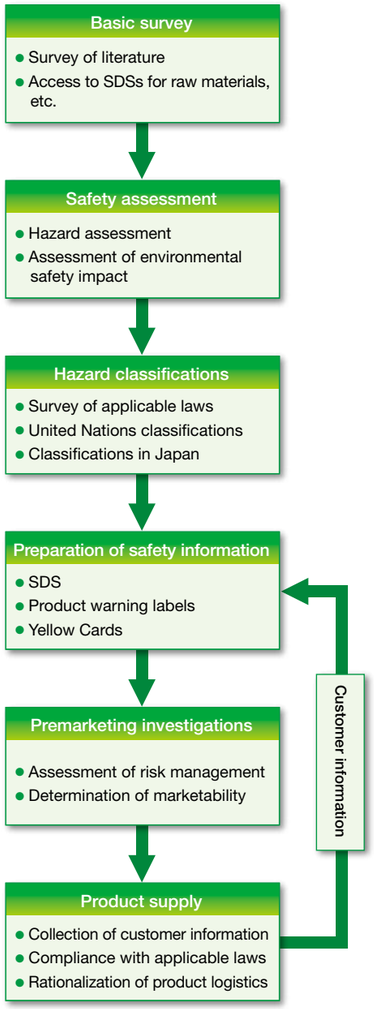
As a responsible provider of chemical products, MGC clearly explains properties, safety, and handling of its chemical products, as well as deploying various activities to protect the environment and to ensure the health and safety of all who use our products.

Safety Assessment of Chemical Substances and Products

At the development stage of products, MGC first conducts basic surveys and safety assessments. When products pertain to new chemical substances, we submit the notifications required by law and conduct necessary safety testing. We then classify products according to whether they do or do not come under each legal regulation, as well as according to their degree of hazard under standards such as GHS,[*1] and create safety information such as safety data sheets (SDS[*2]). Based on these, we perform risk evaluations (of the hazards of the substances themselves, as well as of exposure) for all product processes, from manufacture to disposal, and offer the products after appraisal of their market feasibility.

***1 GHS:** The Globally Harmonized System of Classification and Labeling of Chemicals. Chemical hazards are classified under fixed standards and are indicated clearly with pictograms on labels and SDS documentation. Ultimately, the information contributes to accident prevention, human health, and environmental preservation.

***2 SDS:** Safety Data Sheets



Providing Safety Information

MGC provides safety information on chemicals through means including submission of product SDS, placement of product warning labels on containers, and distribution of Yellow Cards.

SDS (Safety Data Sheets)

SDS are documents that convey detailed information about the handling and safety of chemicals, and are submitted to companies that handle our chemicals, such as customers, sales agents, and shipping companies. We submit SDS for both regular products and in-development (trial) products in compliance with GHS, and are in the process of reviewing them in accordance with the new JIS (JIS Z 7253).

Labels

Easy to understand warnings and safety information for users are printed on labels affixed to our chemical products. This information shows that our regular products as well as products in development are in compliance with GHS. At present, we are in the process of updating and reviewing SDS in accordance with the new JIS (JIS Z 7253).

Yellow Cards

A Yellow Card is a card readied in preparation for an accident during domestic shipment. It briefly lists a product's properties, laws that apply to the product, and emergency response measures, as well as contact information including fire departments, police departments, and our company. We distribute these cards to shippers of chemicals, and ensure that they are carried during product shipments.

Chemical and Product Safety Education

MGC conducts chemical and product safety education within its PL (product liability) training at each business site. In FY 2013, we are giving overview explanations of the EU REACH regulations.

Additionally, we are carrying out education for our hands-on workers, in order to address the new JIS (JIS Z 7253) on SDS and labels in accordance with GHS.

Head Office / PL education

Compliance with EU REACH Regulations

MGC and MGC Group companies are steadfastly responding to the EU REACH chemical product management regulations, and have organized task forces in order to share information.

The task forces primarily work to register substances shipped to the EU, and to employ a system for faithfully reflecting the registration information on SDS and labels. In the future, we predict that an increased response will be necessary toward "substances of high concern" that require permission for their use and marketing. Consequently, we are working hard to procure relevant information on these products and to provide it to our customers.

Emergency Responses in Distribution

At MGC workplaces, we have set up a wide-area support system that includes supplying emergency goods and equipment to production sites and establishing communication between sites to facilitate emergency responses to accidents that occur during transportation. Because of our preparation of response systems and supplies, we cooperate with local police or fire departments upon request, should an accident occur during another company's transport of product in the vicinity of our workplaces.

We conduct training for scenarios that include terrorism, logistics accidents, and shipping accidents with marine spills that require oil barrier deployment.

Mizushima Plant / Training for deploying oil barriers in Mizushima Port

Kashima Plant / Logistics accident scenario drill (truck accident)

Kashima Plant / Logistics accident drill HQ (truck accident)

GLP Certified Testing Facility

The MGC Niigata Research Laboratory is recognized by the Japanese government as conforming to GLP* test facilities for Ames mutagenicity testing and biodegradability testing. As GLP test reports can be used in notifications under the Industrial Safety and Health Law and the Law concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., we conduct GLP tests when notifications are necessary for new chemical substances that are part of our product development. GLP test reports command high confidence internationally as well.

We conduct testing to assess the safety of the chemicals handled by the MGC Group, including acute oral toxicity tests, primary skin irritation tests, and pathogenicity tests.

*** GLP (Good Laboratory Practice):** GLP is a system which ensures the reliability of test results, through government recognition of excellent testing facilities that demonstrate GLP standards-based management, testing equipment, test planning, internal auditing systems, reliability assurance systems, and compliance with test result standards.

Environmental Accounting

Using the Ministry of the Environment's guidelines on environmental accounting, the cost of environmental preservation through MGC's (individual, non-Group) business activities and the economic result of those activities have been calculated quantitatively, and published for the public's review.

Environmental Preservation Cost

The cost of environmental preservation activities includes the investment costs of installing environmental preservation facilities and the expenses associated with running and managing those facilities, as well as the cost of research and development into environmentally friendly products.

Investments

The total of investment in environmental preservation activities in FY 2012 was 1.06 billion yen. The main items of that investment were the upgrading of tank vent gas collection equipment at the Mizushima Plant, and the enhancement of wastewater processing facilities at the Yokkaichi Plant.

Expenses

Total expenses related to environmental conservation activities in FY 2012 were 8.33 billion yen. Of these, the highest expense was 3.3 billion yen for research and development, accounting for 40% of the total. The next highest was 1.6 billion yen for prevention of water pollution, representing 19% of the total.

Benefits of Environmental Preservation Activities

In addition to the reduction in the environmental burden that resulted from our environmental preservation efforts, we realized positive economic benefits, such as income from the sale of waste products.

Environmental preservation benefits

Compared to FY 2011, our energy consumption rate per unit of production in our Plant Manufacturing Division, and our GHG emissions intensity, showed improvement in FY 2012. The results are shown on the Global Warming Prevention initiatives pages.

Economic benefit

We generated additional revenue by selling valuable waste for recycling and re-use by other companies, and through cost savings from reduced energy consumption.

Economic benefit

Title	Item	Amount (millions of yen)
Income	Profit on sale of valuable waste, etc.	36.9
Reduction of expenses	Effects due to energy saving	197.2

Environmental preservation cost (Breakdown of investment and cost by business)

Breakdown			Main areas of activity	(millions of yen) Investment	Expenses
Onsite cost	Pollution prevention cost	Air pollution prevention	Renewal, repairs, and maintenance of emission gas recovery equipment	120.4	612.8
		Water pollution prevention	Renewal, repairs, and maintenance of wastewater treatment facilities	344.4	1,605.1
		Soil, Noise	Prevention of soil infiltration; PCB concentration analysis	11.1	0.2
	Global environmental preservation cost		Maintenance of cogeneration facilities; replacement of ozone layer-destroying substances	28.7	1,176.6
	Resources recycling cost		Material and thermal recycling of waste	0.0	815.2
Up or down stream cost			Retrieval and reuse of product containers	0.0	41.2
Management activity cost			Maintaining green spaces; maintaining environment management systems	72.9	600.7
R&D cost			Research and development of energy-saving technologies and environmentally friendly products	487.6	3,345.4
Social contribution cost			Clean-up and greening of surrounding areas; support for environmental conservation organizations	0.0	9.6
Environmental damage cost			Compensation for environmental preservation	0.0	126.1
Total				**1,065.1**	**8,333.0**

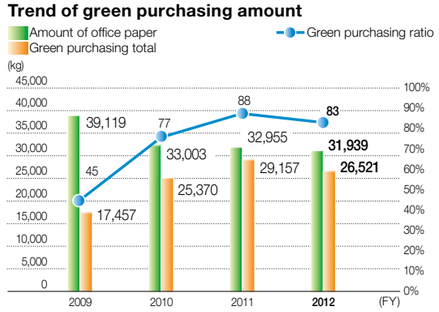
Compliance with the Ministry of the Environment's Environmental Accounting Guidelines 2005
Period: From April 1, 2012 to March 31, 2013
Scope: MGC only
Methods: Investments are proportionally related to the approved or enforced amount of capital expenditure to environmental preservation. Expenses are proportionally related to the ratio of environmental preservation and include depreciation allowance.

Green Purchasing

We have continued to follow a "green purchasing" policy for the sake of promoting the effective utilization of our limited natural resources. In 2012, we instituted this policy as a formal company regulation, adding further emphasis to our efforts.

Additionally, we are using paper from the Forest Neighborhood Association for our printed material, such as the Company Guide and our CSR Report. This is in support of productive forest thinning, a cause promoted by the Association, which aims to cultivate healthy forests.

Trend of green purchasing amount



RC Activities at Business Sites

Niigata Plant

Address: 3500 Matsuhama-cho, Kita-ku, Niigata-shi, Niigata 950-3121, Japan Tel: +81-25-258-3474
ISO 14001 certification: June 1998 (certification body: DNV)

Message from the Niigata Plant Manager

The Niigata Plant is blessed with rich resources that include the abundant waters of the Agano River and Niigata's own natural gas reserves, which have seen us in business for a half-century.

As emphasis is being increasingly placed on environmental issues, we have pushed forward in recent years with the commercialization of dimethyl ether (DME), a new, eco-friendly type of energy, and LEXTER®, a biomass plastic using materials derived from plants. We are refining our activities as we enter our second year of total productive maintenance (TPM), which we promote as a comprehensive improvement philosophy. We aim for new heights of progress through safe and stable operations.

Masato Inari
Plant Manager

Main products

- Methanol, Ammonia, and their derivatives
- m-Phenylenebis (methylamine)
- MX Nylon
- Bio-related products

Environmental burden data (FY 2012)

Water consumption (1,000 m^3)	12,543
GHG emissions (1,000 tons-CO_2)	495
NOx emissions (tons)	396
SOx emissions (tons)	0
Total drainage volume (1,000 m^3)	9,809
BOD emissions (tons)	33
Waste transferred offsite (tons)	2,671
Final landfill (tons)	110

PRTR substances	Emissions (tons)	Transfers (tons)
Ethylene oxide	2.1	0
Methyl methacrylate	0.3	0

Facilities tour by students of the Niigata fire fighters school

Niigata Research Laboratory

Address: 182 Tayuhama Shinwari, Kita-ku, Niigata-shi, Niigata 950-3112, Japan
Tel: +81-25-259-8211

Message from the Research Laboratory Director

We at the Niigata Research Laboratory recognize that it is our responsibility to contribute to society and to provide for the environment as well as safety. We are pursuing research activities aimed at new products that give due consideration to harmonizing with the global environment. Collaborating with the Niigata Plant, which sits adjacent to us, we promote enhanced communication and the reduction of "near misses" (by physically pointing to areas of concern). Now and in the future, we will continue to push forward RC activities, with the participation of the entire staff, as we pursue our goals of zero accidents, zero occupational injuries, and environmental preservation.

Yoshikazu Shima
Laboratory Director

Main research themes

- Process development
- Catalysts
- New energy-related research
- Biotechnology
- Life science

Tsunami evacuation drill

Local festival (with a portable shrine for children)

RC Activities at Business Sites

Mizushima Plant

Address: 3-10 Mizushima Kaigan Dori, Kurashiki-shi, Okayama 712-8525, Japan Tel: +81-86-446-3822
ISO 14001 certification: May 2000 (certification body: JCQA)

Message from the Mizushima Plant Manager

We are pursuing various initiatives at the Mizushima Plant under the slogan, “Striving for environmental preservation, safety, and stable operations!” We are actively working to optimize the efficiency of energy usage at the entire industrial complex, minimize substances that impact the environment, pursue process safety and disaster prevention, and follow through with our responsibility as one corporation dedicated to reducing atmospheric, water, and industrial waste emissions.

In addition, over the past few years, we have undergone a generational change, with larger numbers of younger workers coming into the plant. In order to supplement any decline in our process safety and disaster prevention know-how, we are carrying out enhanced disaster prevention safety education and drills as all plant workers participate in activities toward our goal of zero accidents and occupational injuries.

Kenji Inamasa
Executive Officer
Plant Manager

Main products

- Xylene isomers
- m-Xylene derivatives
- Specialty aromatic products
- Polyols

Environmental burden data (FY 2012)

Water consumption (1,000 m^3)	12,011
GHG emissions (1,000 tons-CO_2)	561
NOx emissions (tons)	183
SOx emissions (tons)	64
Total drainage volume (1,000 m^3)	10,690
COD emissions (tons)	104
Waste transferred offsite (tons)	1,570
Final landfill (tons)	0

PRTR substances	Emissions (tons)	Transfers (tons)
Xylene	8.7	5.1
Isobutyraldehyde	8.7	0
Boron compounds	4.8	0.1
n-hexane	4.2	0

Practicing stacking sandbags

Hiratsuka Research Laboratory

Address: 6-2 Higashiyawata 5-chome, Hiratsuka-shi, Kanagawa 254-0016, Japan
Tel: +81-463-21-8600

Message from the Research Laboratory Director

Located in the eastern part of Hiratsuka city, the Hiratsuka Research Laboratory is engaging in research and development primarily of resins and resin processing technology. We are also actively engaging in community outreach and contribution activities, such as cleanup activities of the nearby Sagami River, and the acceptance of local students for laboratory tours. We pursue our research and development after ensuring safe operating conditions through “near miss” vigilance and risk reduction through proper risk assessment. It is our aim to be a laboratory that contributes to society by our research and development of new products and technologies related to resins.

Shojiro Kuwahara
Laboratory Director

Main research themes

- Specialty plastics
- Packaging materials
- Resist materials
- High heat-resistant film

Earthquake training using an earthquake simulation truck

Forklift lecture

Yokkaichi Plant

Address: 4-16 Hinagahigashi 2-chome, Yokkaichi-shi, Mie 510-0886, Japan Tel: +81-59-345-8800
ISO 14001 certification: August 1999 (certification body: JQA)

Message from the Yokkaichi Plant Manager

The area in which the Yokkaichi Plant sits was once characterized by the negative image of a polluted area with “Yokkaichi asthma,” etc. However, with remedial efforts from corporations under the guidance of government authorities, the natural environment of the area has been restored to one with blue skies and clean water. Our plant follows a philosophy of safety and security, identical to the local administration’s policy of environmental conservation, and goes about business in a way that garners trust from local residents for our RC and environmental risk assessment activities.

In addition, as the presiding company of the Yokkaichi Industrial Complex Region’s Disaster Prevention Council, we have a special mission, which we have placed at the forefront of our business this year.

Motoyoshi Onobori
Executive Officer
Plant Manager

Main products

- Hydrogen peroxide, other industrial chemicals
- Polyacetal plastics

Environmental burden data (FY 2012)

Water consumption (1,000 m^3)	6,374
GHG emissions (1,000 tons-CO_2)	84
NOx emissions (tons)	28
SOx emissions (tons)	0
Total drainage volume (1,000 m^3)	5,568
COD emissions (tons)	45
Waste transferred offsite (tons)	566
Final landfill (tons)	4

PRTR substances	Emissions (tons)	Transfers (tons)
1,2,4-Trimethylbenzene	130	0
Hydrazine	4.1	0
1,3-Dioxolane	1.0	0

Hands-on training, with our partner companies, using an industrial-sized foam fire extinguisher

Yamakita Plant

Address: 950 Kishi, Yamakita-machi, Ashigarakami-gun, Kanagawa 258-0112, Japan Tel: +81-465-75-1111
ISO 14001 certification: May 2000 (certification body: JQA)

Message from the Yamakita Plant Manager

The Yamakita Plant lies near the Sakawa River, in a verdant and fertile area west of the Tanzawa mountains and east of Mt. Fuji. Because of this special location, our plant places the highest priority on maintaining the health of the environment and the trust of the local community as we go about our daily business. In addition to our commitment to continue safety and environmental preservation efforts in our plant, we also participate in local festivals, meetings, cleanup and beautification activities, etc. We strive to be a plant that wins the trust and affinity of our regional community.

Masamichi Mizukami
Executive Officer
Plant Manager

Main products

- Derivatives of hydrogen peroxide
- Persulfates

Environmental burden data (FY 2012)

Water consumption (1,000 m^3)	5,942
GHG emissions (1,000 tons-CO_2)	21
NOx emissions (tons)	2
SOx emissions (tons)	0
Total drainage volume (1,000 m^3)	5,740
COD emissions (tons)	5
Waste transferred offsite (tons)	389
Final landfill (tons)	0

Grand festival at the Hachiman Shrine

RC Activities at Business Sites

Kashima Plant

Address: 35 Higashi Wada, Kamisu-shi, Ibaraki 314-0102, Japan Tel: +81-299-96-3121
ISO 14001 certification: February 1999 (certification body: JQA)

Message from the Kashima Plant Manager

While endeavoring to be a plant that prevents occupational injuries and safety and environmental accidents, the Kashima Plant devotes its energy to developing environmentally conscious materials, products, and processes. We actively engage in initiatives to reduce our environmental burden, conserve resources and energy, reduce emissions, and prevent environmental pollution.

Now and in the future, we will strive to reach a higher level of environmental preservation and to create harmonious coexistence, at all levels of our business activities, with the environment and between the companies of the eastern Kashima industrial complex. We hope that cooperation with these companies and with the local community will allow us to be a plant that contributes to building an affluent society and a sustainable global future.

Tsuneaki Iwakiri
Executive Officer
Plant Manager

Main products

- Hydrogen peroxide
- Polycarbonate plastics

Environmental burden data (FY 2012)

Water consumption (1,000 m^3)	1,788
GHG emissions (1,000 tons-CO_2)	157
NOx emissions (tons)	4
SOx emissions (tons)	0
Total drainage volume (1,000 m^3)	1,682
COD emissions (tons)	14
Waste transferred offsite (tons)	494
Final landfill (tons)	0

PRTR substances	Emissions (tons)	Transfers (tons)
Dichloromethane	74.4	2.9
1,2,4-Trimethylbenzene	49.3	2.6

Patrol rounds as part of advanced safety inspections

Tokyo Techno Park

Address: 1-1 Niijuku 6-chome, Katsushika-ku, Tokyo 125-8601, Japan Tel: +81-3-3627-9411

Message from the Tokyo Techno Park General Manager

As the hub of MGC research and development, Tokyo Techno Park is constantly engaged in leading edge research activities. Under the banner of "Our work and RC are one and the same," we actively strive for zero accidents and occupational injuries, supported by the three pillars of strict adherence to regulations, awareness of hazards, and ever-safer operations. In this context, we have also established KYT and specific individual goals in line with the particularities of our work tasks. We strive to create a new culture of safety through a hearty respect for individual research initiative. Additionally, as a research facility located within the Tokyo metropolitan area, we carry out emergency disaster training, in cooperation with the local fire safety departments, and take measures to prepare our facilities for a possible earthquake in the immediate proximity. We strive to be a research facility that is solidly prepared in the event of a natural disaster.

Osamu Kondo
Executive Officer
General Manager

TTP internal organization

- Management Center
- Oxygen Absorbers Techno Center
- Electronics Materials R&D Center
- Tokyo Research Laboratory
- MGC Chemical Analysis Center

Outdoor fire extinguishing drill

Electricity safety education

13 Member Companies of the MGC Group Environment and Safety Council

Thirteen domestic partner companies of the MGC Group that handle chemical products are promoting environmental and safety initiatives within the MGC Group Environment and Safety Council. In addition, the director in charge of the environment and safety carries out environmental and safety audits on domestic and overseas affiliates.

RC Medium-Term Plan	2013 RC Action Plan
■ Expanding target Group companies for environmental and safety activities (support to include terminals, transport, etc.) ■ Promotion of the sharing of safety information with domestic and overseas Group companies	■ Enhancement of the MGC Group Environment and Safety Council ■ Sharing and horizontal deployment of information on abnormal occurrences and occupational injuries (Member companies of Council, three additional companies, and a portion of overseas Group companies)

MGC Group Environment and Safety Council

The Council meets twice a year to exchange ideas and to report on topics including MGC's and member companies' annual plans for environmental and safety activities, the results of the activities, and the status of accidents and occupational injuries.

Fudow Co., Ltd.'s Fujinomiya Plant / Meeting of the MGC Group Environment and Safety Council at a member company plant

Environmental and Safety Audits

With the director in charge of the environment and safety as team leader, we conduct three or four domestic and two or three overseas environmental and safety audits each year in support of the Group companies' environment and safety activities.

In FY 2012, the seven companies below were audited.

- Japan Circuit Industrial Co., Ltd.
- Japan Pionics Co., Ltd., Hiratsuka Plant
- Yonezawa Dia Electronics Co., Inc.
- Eiwa Chemical Industry Co., Ltd., Kinuura Plant
- Te An Ling Tian (Nanjing) Fine Chemical Co., Ltd.
- Suzhou MGC Suhua Peroxide Co., Ltd.
- Mitsubishi Gas Chemical Engineering-Plastics (Shanghai) Co.,Ltd.

Japan Pionics Co., Ltd. audit

A.G. International Chemical Co., Inc.

Manufacture of purified isophthalic acid (PIA)

Address: Mitsubishi Building, 5-2 Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8324, Japan Tel: +81-3-3283-4916
URL: http://www.agic.co.jp/e_agic/index.html

Yoshihiro Yamane
President & CEO

The Matsuyama Plant started new operations from 2012 as a self-operated plant. At AGIC, we are committed to reducing our environmental impacts through safe and stable operations, and to preserving the environment through recycling and the reduction of landfill wastes.

In terms of safety, we wrestle for the achievement of zero accidents and zero occupational injuries by unifying our intentions regarding the safety of all the employees through the promotion of "near miss" awareness and daily meetings.

Safety rally on the first day of periodic repair work

13 Member Companies of the MGC Group Environment and Safety Council

Eiwa Chemical Industry Co., Ltd.

Manufacture and sale of blowing agents

Address: Daido Seimei Co. Kyoto Bldg. 9F, 595-3 Manjuya-Cho, Sanjo-sagaru, Karasuma-dori, Nakagyo-ku, Kyoto-shi, Kyoto 604-8161, Japan Tel: +81-75-256-5131
URL: http://www.eiwa-chem.co.jp/en/

Hirotsugu Yamamura
President & CEO

We are the only company in Japan synthesizing organic blowing agents, and we are pushing forward with measures to respond to environmental regulations for wastewater and safety management so that we can continue these domestic manufacturing operations long into the future.

Our contingency plans include examining the quality of raw materials procurable from substitute sources in various counties around the world, and promoting suppliers' compliance with environmental regulations, so that we can continue our operations uninterrupted.

Basic lifesaving training

MGC Filsheet Co., Ltd.

Manufacture of polycarbonate film and sheet

Address: 4-2242, Mikajima, Tokorozawa-shi, Saitama 359-1164, Japan Tel: +81-4-2948-2151
URL: http://www.mgcfs.jp/en/

Kuniaki Jinnai
President & CEO

Our Tokorozawa Plant is located in a corner of the Musashino Uplands, while the Osaka Plant lies on the Kanzaki River, a tributary of the Yodo River. We pursue our business operations while striving for environmental safety and coexistence with this local region. Through risk assessment activities and work improvement activities, with mandatory attendance for all employees, we aim for a safe and productive plant atmosphere. At the same time, we devote effort to preparatory steps for responding to emergency situations, while also carrying out various training drills for unexpected disasters.

Training using water from a fire hydrant

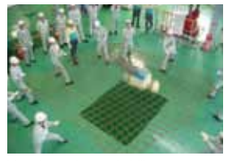
MGC Electrotechno Co., Ltd.

Manufacture of copper-clad laminates

Address: 9-41, Aza-Sugiyama, Oaza-Yone, Nishigo-mura, Nishishirakawa-gun, Fukushima 961-8031, Japan Tel: +81-248-25-5000

Yuh Miyauchi
President & CEO

With an eye toward future expansion, and in consideration of our business continuity plan, we constructed MGC Electrotechno Thailand and have begun trial operations there. We believe it is vital to ensure safety management and environmental preservation at even greater levels than before. To this end, each and every employee shares an awareness of the MGC Safety Philosophy that, "The top priority of our business activity is ensuring safety." Together we strive for zero accidents and occupational injuries as we aim to become the most trusted supplier of copper-clad laminates in the world.



Hands-on hazard drill

JSP Corporation

Manufacture and sale of foamed plastics

Address: Shin-Nisseki Bldg., 4-2 Marunouchi 3-chome, Chiyoda-ku, Tokyo 100-0005, Japan Tel: +81-3-6212-6300
URL: http://www.jsp.com/en/

Kozo Tsukamoto
President & CEO

As a foamed plastics manufacturer, we provide products with great promise in line with current trends of energy efficiency, resource conservation, and environmental safety in a variety of lifestyle and other fields. Our products include cushioning materials and other components for vehicles, packing and cushioning materials for industrial applications, home insulation materials, and building materials for construction and engineering. Going forward, we will strive to contribute to society as we continue to pursue environmentally friendly foamed plastic technologies.

Training using actual fire extinguishers

Japan Finechem Co., Inc.

Manufacture and sale of fine chemicals, for industrial use, and electronic products

Address: Uchisaiwaicho Tokyu Bldg. 9F, 3-2 Uchisaiwaicho 1-chome, Chiyoda-Ku, Tokyo 100-0011, Japan Tel: +81-3-5511-4600
URL: http://www.jfine.co.jp/eng/

Shigenobu Ono
President & CEO

Based upon the principle that prioritizing safety is the core premise of our business activities, our company endeavors to ensure safe and secure production through operations that strive for voluntary conservation activities, risk assessment, 5S, hazard prediction activities, helpful proposals for improvements, and reductions in risks to equipment and to work processes. As we move into the future, we will work to avoid complacency and achieve zero accidents and zero occupational injuries.

Training for deploying oil barriers, Sakaide Plant

Toyo Kagaku Co., Ltd.

Resinous molding processing

Address: 51-497 Aza-Doudou, Oaza-Morowa, Togo-cho, Aichi-gun, Aichi 470-0151, Japan Tel: +81-561-39-0531
URL: http://www.toyo-kagaku.co.jp/

Shinichi Takahashi
President & CEO

Our company manufactures and markets resinous molded plastic products in Aichi, Gifu, and Okayama Prefectures, in Guangdong Province in China, and, from May 2013, in Thailand as well.

In terms of safety, we identify and work to improve hazards uncovered in on-site patrols. And, in terms of the environment, we strive to reduce waste by improving our yield rate for materials, and to conserve energy by adopting energy-efficient machinery.

Training using water from a pump truck

13 Member Companies of the MGC Group Environment and Safety Council

Shin Sanso Kagaku Co.

Manufacture of hydrogen peroxide

Address: 148-58 Yufutsu, Tomakomai-shi, Hokkaido 059-1372, Japan Tel: +81-144-55-7337
URL: http://www.sskc.co.jp/

Tsukasa Sawai
President & CEO

As the only manufacturer in Hokkaido producing the environmentally friendly chemical product hydrogen peroxide, we have been in operation in the beautiful, green city of Tomakomai since 1987. With environmental preservation activities, such as continuous improvement of our energy consumption rate and minimization of waste, plus health and safety initiatives pursued through individual safety goals adopted by each department, we strive for ever greater environmental and safety awareness. Additionally, we will continue to work toward stable production with zero accidents and occupational injuries.

Cleanup activities

Japan Circuit Industrial Co., Ltd.

Manufacture and sale of printed circuit boards

Address: 2-1236 Kamiike-cho, Toyoda-shi, Aichi 471-0804, Japan Tel: +81-565-88-3718
URL: http://www.jci-jp.com/

Hidenobu Fujimori
President & CEO

Fifty years have passed since our company's lead plant was constructed in its present location and the region's environment has seen considerable transformation during that time. In consideration of CSR, noise, odor, and damage to our neighboring residents are to be avoided at all costs, which we strive for as we work toward unwavering environmental preservation. In addition, we are nearing a landmark 5,000 workdays without occupational injury incidents resulting in lost time. We will strive for continuous incident-free operations with an ever-higher awareness of safety.

Autumn Safe Driving Campaign with 3,000 sentries participating

Japan Pionics Co., Ltd.

Manufacture and sale of gas purifiers and abatement system

Address: 3-32 Tamura 3-chome, Hiratsuka-shi, Kanagawa 254-0013, Japan Tel: +81-463-53-8300
URL: http://www.japan-pionics.co.jp/en/

Yukio Sakai
President & CEO

Our company considers the achievement of zero accidents and zero occupational injuries as fundamental to CSR. We work to create a culture of safety where all employees share an awareness that "the top priority of our business activity is ensuring safety."

In terms of environmental preservation, we promote energy efficiency in products and the reduction of substances detrimental to the environment, while also actively participating in regional activities.

Disaster prevention training at the Isehara Plant

Fudow Co., Ltd.

Manufacture and sale of molding resin

Address: NOF Shin-Yokohama Bldg. 5F, 15-16 Shin-Yokohama 2-chome, Kouhoku-ku, Yokohama-shi, Kanagawa 222-0033, Japan Tel: +81-45-548-4210
URL: http://www.fudow.co.jp/e-index.html

Takahisa Furuya
President & CEO

Our company is primarily engaged in the manufacture, molding, and secondary processing of molding resin materials. We try to pursue this business in such a way that it is one and the same with environmental preservation and the promotion of safety. We try to firmly establish environmental initiatives such as the use of solar power, and safety initiatives such as hazard prediction, recognition of "near misses," and safety education videos made in-house. In terms of occupational health, we endeavor to improve the work environment and to further refine our culture of safety and environmental awareness.

Installing photovoltaic panels on rooftops

Japan U-PiCA Co., Ltd.

Manufacture and sale of unsaturated polyester resin and coating resins

Address: Madre Matsuda Bldg., 4-13 Kioi-cho, Chiyoda-ku, Tokyo 102-0094, Japan Tel: +81-3-6850-0241
URL: http://www.u-pica.co.jp/en/

Kuniaki Ageishi
President & CEO

As a member of the MGC Group, our company is actively pursuing RC operations. In addition to striving for zero accidents through the promotion of risk assessment, 3S, and by the practice of physically pointing out areas of concern, we are working to increase our productivity through our "Double Productivity Project." At the same time, we are striving to reduce our CO_2 emissions intensity.

Going forward, we are setting a course to roll out more biomass products as we contribute to improving the global environment.

Voices united in safety awareness during morning meetings

Yonezawa Dia Electronics Co., Inc.

Manufacture of printed circuit boards, auxiliary materials for processing

Address: 446-3 Hachimanbara 3-chome, Yonezawa-shi, Yamagata 992-1128, Japan Tel: +81-238-28-1345

Yuh Miyauchi
President & CEO

Located in the rich natural environment of Yonezawa, which was built in the shadow of a former castle, our company engages in business operations with a solid awareness of safety management and the prevention of environmental pollution. We hone our awareness through occupational health and safety patrols, environmental patrols, and emergency training for each individual work site. In the process, we strive for stable production with zero accidents and occupational injuries as we work to co-exist with society and win the trust of the community.

Greening / beautification project in the industrial park