

CSR Report 2014

Corporate Social Responsibility Report

PDF Ver.



INDEX

Message from the CEO	2
The Mitsubishi Chemical Group's Corporate Social Responsibility	5
Targets, Results, and Assessments for Fiscal 2013	10
Special Feature For the Realization of KAITEKI	23
Management Structure	48
Responsible Care (RC) Activities	68
Together with Stakeholders	108
About Mitsubishi Chemical Corporation	133

Editorial Policy

Mitsubishi Chemical issues the Mitsubishi Chemical CSR Report with the aim of reporting to all stakeholders on the initiatives to realize KAITEKI being undertaken as a member of the Mitsubishi Chemical Holdings Group.

The pages of the CSR Report 2014 are arranged based on Sustainability [Green], Health and Comfort, the criteria by which we judge our business activities aimed at achieving KAITEKI, as well as the Management of Sustainability (MOS) indexes that visualize the progress of these initiatives.

In the three sections for Management Structure, Responsible Care Activities (safety and disaster prevention, occupational health and safety, environmental conservation, quality assurance and chemical products management) and Together with Stakeholders, measures that form the foundation to support innovative technologies and products are also featured.

CSR Report

To disclose the CSR information to a greater number of stakeholders while at the same time considering the environment, we have changed the reporting method since fiscal 2010 from printed reports to website-based publication.

The website offers CSR Report 2014 (PDF version so the entire CSR information can be downloaded) and the CSR Report 2014 Data Section that compiles detailed data on safety, environment and society.

Reporting period

Fiscal 2013 (April 2013 to March 2014)

* Part of the contents also relates to fiscal 2014

Scope covered in the Report

The scope covered in the Report is Mitsubishi Chemical Corporation and domestic and overseas Group companies. However, the scope for compiling performance data related to RC activities is limited to Mitsubishi Chemical (including Group companies located on the same premises of Mitsubishi Chemical production bases), and those companies implementing Mitsubishi Chemical Group RC Activities that are subsidiaries of Mitsubishi Chemical as stipulated by the Japanese Companies Act (domestic). The scope of social skills data includes employees of Mitsubishi Chemical Corporation (including employees transferred to Group companies).

Referenced guidelines

Ministry of the Environment: Environmental Reporting Guidelines 2007
Global Reporting Initiative (GRI): Sustainability Reporting Guidelines (Ver. 3.1)
Ministry of the Environment: Environmental Accounting Guidelines 2005

Issuance

September 2014

Previous issuance: September 2013; next issuance: September 2015 (planned)

Inquiries

Mitsubishi Chemical Holdings Corporation
Public Relations and Investor Relations Office
1-1 Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-8251
Palace Building
TEL: +81-3-6748-7161

Disclaimer

This report contains not only past and present facts about the Mitsubishi Chemical Group, but also forecasts related to social situations, business plans, policies and estimates of their outcomes. These forecasts and estimates are assumptions or judgments based on the information available at the time of statement. As such, there are possibilities that the future social situations and outcomes of business activities could differ from the forecasts and estimates.



Message from the CEO

Mitsubishi Chemical is well on the road to the realization of *KAITEKI* together with its stakeholders by focusing the power of chemistry.

Hiroaki Ishizuka
Representative Director, Member of the Board,
President and Chief Executive Officer
Mitsubishi Chemical Corporation



In response to such wide-ranging social issues of a global scale as climate change, environmental concerns, population growth and an aging society coupled with an uneven supply of energy, food and water resources, humankind recognizes its obligation to draw on its collective wisdom and lay out a roadmap for a better future.

As a core operating company of the Mitsubishi Chemical Holdings (MCHC) Group, Mitsubishi Chemical Corporation (MCC) is not only seeking to solve these social issues, it is also seeking to contribute to the sustained growth of people, society, and the planet, in other words, the realization of *KAITEKI*. It is therefore pushing forward initiatives in each of the performance products and industrial materials domains based on its molecular and functional design technologies that have been nurtured over many years and epitomize the power of chemistry.

**KAITEKI* is the MCHC Group's original concept that transcends time, crosses generations, and expresses a state of comfort for people, society and the planet.

Progress of business activities aimed at the realization of *KAITEKI*

The MCC Group positions Sustainability [Green] (the environment and resources), Health and Comfort as the decision criteria for its corporate activities, and having established contribution to the realization of *KAITEKI* through its corporate activities as a social responsibility, it is developing a diverse range of businesses.

Under its current medium-term management plan, *APTSIS 15*, which covers the period from April 2011 to March 2016, has identified sustainable resources, agribusiness solutions, organic photovoltaic (OPV) modules and materials, white LED lighting and materials, organic photo-semiconductors and lithium-ion battery materials as growth driver businesses. Each of these businesses is consistent with the activities undertaken by the Company in the Sustainability, Health and Comfort fields and is expected to contribute significantly to solving social issues and to drive the MCC Group's sustainable development. In each of these businesses, particular emphasis will also be placed on further honing key material and technological capabilities, core strengths of the MCC Group. At the same time, we will channel our energies toward quickly securing stable profits in each business while undertaking proper and timely investments and entering into alliances with best-fit partners. In fiscal 2013, there were promising developments including the adoption of the bio-based engineering plastic, DURABIO, a key product for sustainable resources, in automobile interior components, increasing examples of "Plant PlantTM" artificial light-type growing systems for plants, trial start of zero energy building adopting organic photovoltaic modules and materials, and mass production of organic EL lighting modules in collaboration with Pioneer Corporation.

Looking at developed and mature products, generally strong progress was made in growth businesses and cash-generating businesses, including polyvinyl alcohol/ethylene-vinyl alcohol copolymer, food ingredients, specialty chemicals, performance polymers, and carbon fibers and composites, which continue to enjoy extensive use across a broad spectrum of industries. We will continue to work to expand our market share and better differentiate our lineup by shifting to high performance and value-added development and greater collaboration within and outside the MCHC Group.

With the objective of conducting stable management, we have attempted to shift to a corporate structure that is unaffected by complex and dramatic changes in the external environment. The key initiative for this shift is the restructuring of the petrochemicals business. The reorganization of the derivative products business, a task that began in fiscal 2008, was completed. Meanwhile, the consolidation of the ethylene center is soon coming to an end, as we discontinued one ethylene production facility of Mitsubishi Chemical's Kashima Plant in May 2014 and plan to functionalize only one ethylene production facility in the Mizushima area in 2016. In the terephthalic acid business and the phenol polycarbonate business, we are continuing to improve the sales terms and thoroughly reduce costs at overseas facilities. We will carry out these measures with strong leadership which is committed to achieving our objectives in this field.

Manufacturing that is based on safety and reliability is fundamental to a company's survival

The MCC Group places the utmost importance on manufacturing that is based on safety and reliability in its efforts to fulfill its corporate social responsibility through corporate activities geared toward realizing *KAITEKI*.

Since the fire at our Kashima Plant in 2007, which led to the loss of several precious lives, we have taken steps to further raise awareness and adhere strictly to a policy that places an absolute premium on safety through to the present day. To this end, we have engaged in education focusing on areas that help improve employee mindsets and conducted simulation-based training that is designed to heighten our ability to predict danger. Moreover, we have taken steps to verify and share a variety of accident and incident data within the Group. Despite these endeavors, a series of major incidents has continued to plague the chemical industry in recent years.

As the Chief Executive Officer, I will repeatedly declare that safety is our top priority and that we will conduct rigorous compliance. Moving forward, the MCC Group will continue to promote safety and compliance as its most important values. With this in mind, we will allocate sufficient resources to the field of industrial safety. This will include human resource development as well as capital investment in an effort to maintain and improve our ability to ensure security and safety.

Creating an environment in which employees can make the most of their capabilities

Our employees are both the cornerstone and wellspring for our abilities to pursue sustained development and to bring the *KAI TEKI* concept to fruition worldwide. Based on this understanding, the MCC Group is working to create a workplace environment and foster culture that enables each and every employee to go about their duties with excitement and energy. In a bid to support our employees to continuously develop and grow, we are promoting the hiring and application of a diverse range of personnel, upgrading and expanding our education and training systems and promoting work-life balance.

Recognizing its purpose and mission within the international community, the MCC Group will work together with all stakeholders and continue on the path toward the realization of *KAI TEKI* under the banner of the *KAI TEKI* Company that the MCHC upholds.

As we work toward achieving our established goals, we kindly request the continued support and understanding of all stakeholders.

The Mitsubishi Chemical Group's Corporate Social Responsibility

The Mitsubishi Chemical Group aims to achieve *KAITEKI* as a member of the Mitsubishi Chemical Holdings Group

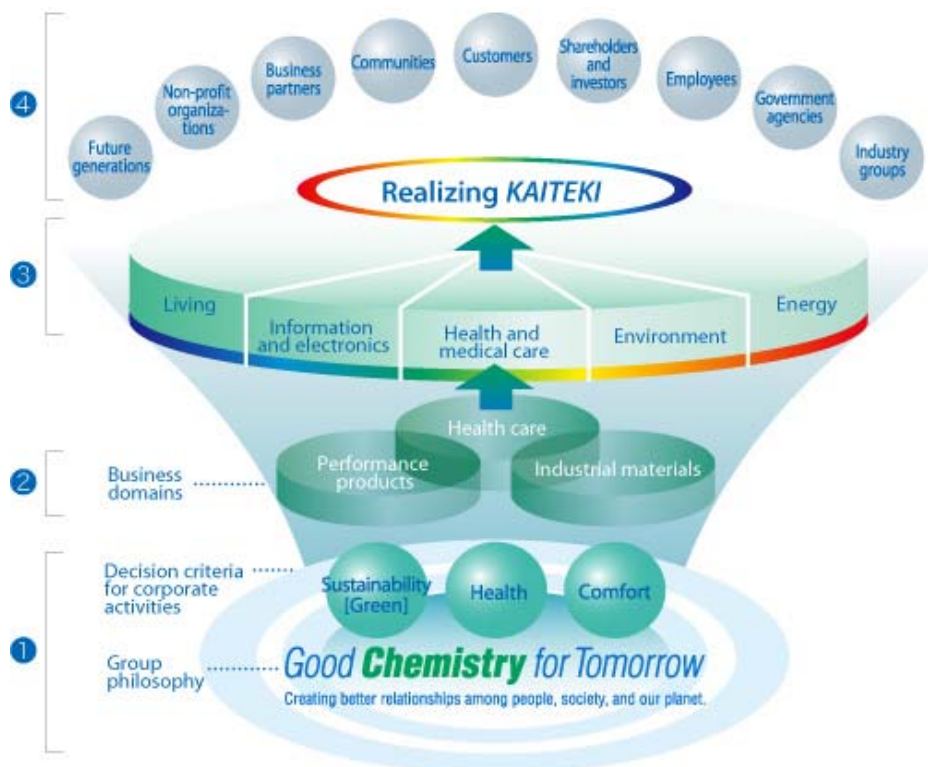
The Mitsubishi Chemical Holdings (MCHC) Group's basic approach to social responsibilities

We will contribute to achieving *KAITEKI* based on three decision criteria for our corporate activities: Sustainability [Green], Health, and Comfort.

In view of the MCHC Group's philosophy "Good Chemistry for Tomorrow - Creating better relationships among people, society, and our planet," we believe that we have a responsibility to put *KAITEKI* into practice, by disseminating the idea of *KAITEKI* value widely across society and through our corporate activities based on the three decision criteria of Sustainability [Green], Health and Comfort.

To achieve that, we will commit to maintaining and reinforcing basic corporate activities in areas that are essential to enhancing *KAITEKI* value. Based on the Mitsubishi Chemical Holdings Group Charter of Corporate Behavior, we will also promote and reinforce business and other practice activities in such areas as awareness and responsibility, accountability and transparency, legal compliance, valuing stakeholders and respecting human rights, employment and labor, and fair business practices while aiming to contribute to the sustainable development of society.

● Our aspirations here at the MCHC Group



KAITEKI means a state of true sustainability, and also represents comfort for people, comfort for society, and comfort for the earth. The MCHC Group promotes *KAITEKI* as a worthy aspiration for companies all over the world in the 21st century.

(1) Group Philosophy and the decision criteria for corporate activities

The word "chemistry" has a secondary meaning, referring to the compatibilities, relationships and connections between objects, between people and between people and objects. The MCHC Group includes these meanings in the Group's philosophy of Good Chemistry for Tomorrow, and it promotes corporate activities to create better relationship among people, society, and our planet. Based on this philosophy, the MCHC Group has debated "What is Good Chemistry that the future requires?" In other words, the MCHC Group discussed what businesses it needs to develop for the future. The MCHC Group therefore set Sustainability [Green], Health and Comfort as its decision criteria for corporate activities.

(2) Business domains of the MCHC Group

The MCHC Group is a corporate Group comprising the following operating companies: MCC, MTPC, MPI, MRC and LSII.

With its operations spread over three business domains, Performance Products, Health Care and Industrial Materials, the Group operates businesses in five segments: Electronics Applications, Designed Materials, Health Care, Chemicals, and Polymers.

(3) Realizing *KAITEKI* through our corporate activities

KAITEKI, an original concept of the MCHC Group, means "a sustainable condition which is comfortable for people, society and the earth, transcending time and generations." Through our corporate activities, we realize *KAITEKI* by proposing new value that contributes to resolving environmental and social issues in various fields including living, information and electronics, health and medical care, environment and energy. This is the corporate ideal that the MCHC Group seeks to realize.

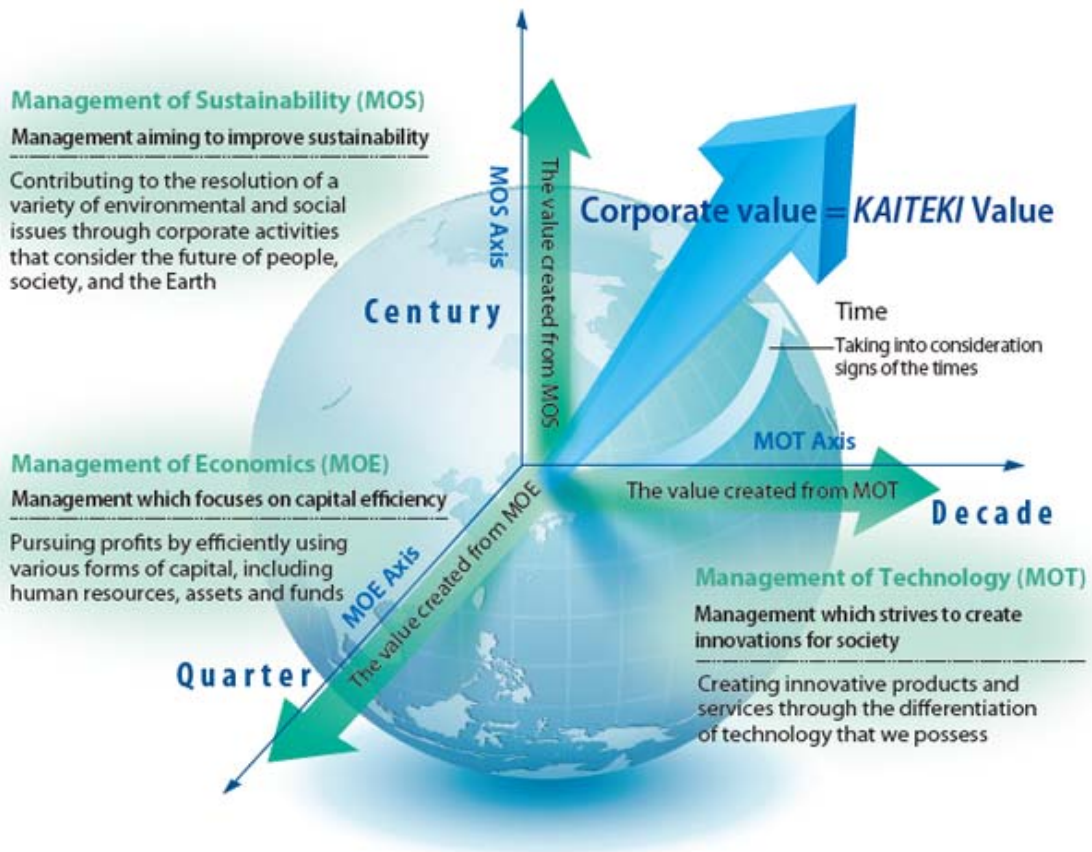
(4) Harmonious relationships with stakeholders

The MCHC Group considers its stakeholders to include all the people who support our corporate activities: our customers, shareholders and investors, communities, employees and business partners, as well as society, and even the Earth, which is the foundation of our lives. Through dialogue and disclosure to our stakeholders, we jointly identify issues and set targets for the short, medium and long term, and gear our corporate activities to their fulfillment. As part of such activities, MCHC declared our commitment to the United Nations Global Compact in May 2006.

Achieving *KAITEKI* at the Mitsubishi Chemical Group

The MOS indexes of the MCHC Group and the MCC Group

The MCHC Group has adopted an approach called "*KAITEKI* management" in a bid to bring the *KAITEKI* concept to fruition. *KAITEKI* management is made up of three parts, namely the traditional Management of Economics (MOE) and Management of Technology (MOT) axes, which emphasize efforts to improve economic value, a key performance barometer, and to generate innovation, respectively, and the Management of Sustainability (MOS) axis, which aims to enhance sustainability for people, society, and the planet. Rounding out this management approach, different time frames are applied. Ultimately, *KAITEKI* management involves efforts aimed at enhancing corporate value by balancing these three axes over the additional factor of time. Viewing corporate value as the sum total of value created through our three core management perspectives, we promote *KAITEKI* Management in order to raise corporate value. We firmly believe that the enhancement of this value leads to the realization of *KAITEKI*. In other words, the MCHC Group conducts its corporate activities with the strong determination to create a state in which we develop together with stakeholders and create a state of "sustainability."



Working to bring the *KAITEKI* concept to fruition, we put in place MOS indexes to better visualize management aimed at enhancing sustainability for people, society, and the planet. We aim to increase *KAITEKI* value by setting targets based on these indexes and implement action plans accordingly. From the three perspectives of Sustainability [Green] (the environment and resources), Health, and Comfort, positioned as the MCHC Group's decision criteria for its corporate activities, the MOS indexes are important for the Group as a whole and are comprised of activity items that make a large contribution to sustainability. For these MOS indexes, we set targets to achieve by 2015 and monitor the progress we make toward the achievement of *KAITEKI* as the ultimate goal. Monitoring of the MOS indexes is undertaken once a year and the results are reported in the *KAITEKI* Report of the MCHC Group.

As its initiative for achieving *KAITEKI*, the Mitsubishi Chemical Group will continue working to achieve its targets by fiscal 2015 regarding the MOS indexes of the MCHC Group. We position these activities, which are aimed at achieving *KAITEKI*, as part of our corporate social responsibility (CSR) activities.

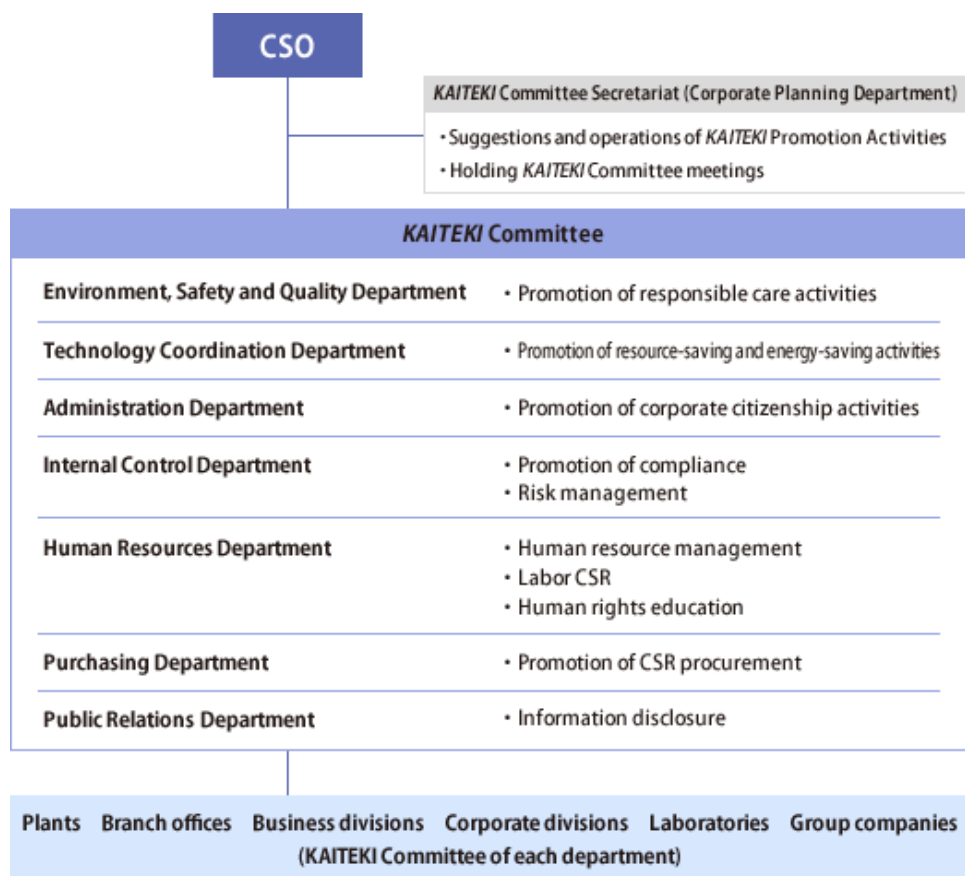
● MCHC's MOS indexes (targets for FY2015)

Targets that must be achieved	Achieve zero occurrences of serious accidents and compliance violations
Sustainability [Green] Index	S-1: Contribute to reducing environmental impact through products and services
	S-1-1: Reduce environmental impact by 30% from fiscal 2005 levels
	S-1-2: Generate reduction of CO ₂ emissions by 3.5 megatons through products
	S-2: Take actions against the depletion of natural resources and implement energy-saving initiatives
	S-2-1: Procure reusable materials equivalent to 10,000 tons of heavy oil in fiscal 2015
	S-2-2: Reduce cumulative rare metal usage by 1,200 tons through improving processes and innovating products
	S-2-3: Generate resources and power savings of ¥8.8 billion
	S-2-4: Provide 900 million tons of reusable water through our products
	S-3: Contribute to solving social and environmental issues through supply chain management
	S-3-1: Achieve 80% purchased items surveyed for toxic substances
	S-3-2: Achieve 90% purchasing of raw materials and packaging according to CSR guidelines
Health Index	H-1: Contribute to medical treatment
	H-1: Increase the index performance derived by the degree of difficulty to treat diseases multiplied by the number of administered patients by 50% (compared with fiscal 2009)
	H-2: Contribute to improvements of QOL
	H-2: Increase contribution to QOL improvements by 70% (compared with fiscal 2009)
	H-3: Contribute to early detection and prevention of diseases
	H-3-1: Increase the index of vaccine treatment by 17% (compared with fiscal 2009)
H-3-2: Increase the number of people taking diagnostic tests by 26% (compared with fiscal 2009)	
Comfort Index	C-1: Deliver products (development and manufacturing) for comfortable lifestyle
	C-1-1: Increase sales of comfort-oriented products by ¥400 billion (compared with fiscal 2010)
	C-1-2: Increase the new product ratio from 16% to 30%
	C-2: Improve stakeholder satisfaction
	C-2-1: Improve third-party corporate assessments
	C-2-2: Achieve targets for employee-related indexes
	C-2-3: Improve customer satisfaction to 80% or more
	C-3: Earn recognition of corporate trust
	Reduce safety accidents
	Reduce environmental accidents
	Reduce claims to products
	Reduce the lost-time injuries frequency rate
	Assess product safety according to GPS for 70% of products

Organization for promoting *KAITEKI*

At the Mitsubishi Chemical Group, we created the role of Chief Sustainability Officer (CSO) in 2011 as a measure for building an organizational structure aimed at achieving *KAITEKI*. We have also set up under the CSO a MCC *KAITEKI* Committee that consists of members of key business divisions and corporate divisions (Environment, Safety and Quality Department, Technology Coordination Department, Human Resources Department, Public Relations Department, Administration Department, Internal Control Department, Purchasing Department). The *KAITEKI* Committee deliberates and makes decisions on the policies of activities for making progress toward the ultimate goal of achieving *KAITEKI* through cooperation within the overall Mitsubishi Chemical Group (*KAITEKI* Promotion Activities). The *KAITEKI* Committee meeting is held once a month. In fiscal 2012, Committee meetings were held on 12 occasions. An expanded *KAITEKI* Committee meeting including officers responsible for promoting *KAITEKI* at plants was also held.

● Organization for *KAITEKI* Promotion Activities



KAITEKI Promotion Activities in fiscal 2013

Achieving *KAITEKI* is enabled through all business activities. We believe that our ultimate goal is to create a corporate culture that encourages each employee to think about what can be achieved for *KAITEKI* and plan, implement, and examine actions for achieving it.

KAITEKI Promotion Activities implemented by the Mitsubishi Chemical Group in fiscal 2013 were the continuation of the activities begun in fiscal 2011 aimed at publicizing and encouraging the use of *KAITEKI* Management and the MOS indexes. The specific activities included monitoring the MOS indexes of each department and area in order to confirm progress regarding the promotion of *KAITEKI*. This monitoring encompassed the MOS indexes of eight plants, three branch offices, six business divisions, three corporate divisions, and 14 affiliates. Moreover, an expanded *KAITEKI* Committee meeting, which included the committees of each department and area, was held with consideration given to measure that would help raise awareness and understanding among all employees.

Targets, Results, and Assessments for Fiscal 2013

The MCHC Group aims to achieve *KAITEKI*, or a truly sustainable society. For this purpose, the Mitsubishi Chemical (MCC) Group defines its targets for individual fiscal years, and the results of our efforts are incorporated into the challenges and targets for the following fiscal year. Through this process, the MCC Group manages the progress toward its goals.

● Targets, Results, and Assessments for Fiscal 2013 (1)

Priority Challenges for Fiscal 2013	Targets for Fiscal 2013	Results in Fiscal 2013	Assessment	Link
Promoting <i>KAITEKI</i>				
Disseminating and promoting <i>KAITEKI</i> management and the MOS Indexes	Expand the <i>KAITEKI</i> promotion system to plants in the Group.	<ul style="list-style-type: none"> ■ Held <i>KAITEKI</i> Committee meetings once per month, for a total of 11 times during fiscal 2013. ■ Held one extended <i>KAITEKI</i> Committee meeting (November), with participants including <i>KAITEKI</i> promotion officers from MCC plants. 	★★★	Find out more
	Expand <i>KAITEKI</i> promotion initiatives to plants and Group companies, and disseminate them to all employees.	<ul style="list-style-type: none"> ■ Confirmed progress achieved in promoting the <i>KAITEKI</i> concept, through monitoring of MOS Indexes of eight Group plants, three branch offices, six business divisions, 	★★★	Find out more

		<p>three common divisions and 14 affiliated companies.</p> <p>■ Provided <i>KAITEKI</i> training.</p>		
Risk Management				
Addressing serious risks	<p>Implement countermeasures for the priority risks below:</p> <ul style="list-style-type: none"> • Ensure safety during manufacturing and shipping. • Business continuity for key products. • Overseas business opportunities. • Information security. • Serious compliance violations. 	<ul style="list-style-type: none"> ■ Set priority issues in process safety activities and carried out audit for their implementation. ■ Maintained and operated company-wide Business Continuity Management System. ■ Formulated specific Business Continuity Plans for key products. ■ Strengthened the framework for promoting internal control to Group companies overseas. ■ Set up countermeasures to prevent key data leaks. ■ Increased compliance awareness and auditing and monitoring. 	★★★	Find out more
	<p>Strengthen the framework for promoting internal control to Group companies overseas.</p>	<ul style="list-style-type: none"> ■ Implemented the following in collaboration with MCHC: <ul style="list-style-type: none"> • Introduced a package tool for promoting internal controls (designed by MCHC) to Group companies in Asia. • Strengthened internal controls in sales divisions. ■ Disseminated emergency response points and contact systems for information gathering during emergencies. 	★★★	Find out more

Formulating and putting into effect Business Continuity Management System (BCMS)	Maintain and operate company-wide BCMS. Formulate specific BCPs for key products.	<ul style="list-style-type: none"> ■ Formulated MCC Group BCMS Manual (July 2013) and disseminated it. ■ Formulated specific BCPs for selected key products. ■ Conducted a drill for an earthquake in the Nankai Trough (October 2013). 	★★★	Find out more
Compliance				
Increasing compliance awareness	<p>Implement compliance training.</p> <ul style="list-style-type: none"> • Improve compliance awareness among all employees in Japan and overseas (including Group companies). 	<ul style="list-style-type: none"> ■ Carried out training for compliance promotion officers and compliance promotion leaders, including those at Group companies. ■ Provided online compliance training programs to the entire workforce in Japan. ■ Provided online compliance training programs to Group company employees in Asia and Oceania (20 Group companies, 1,063 employees). ■ Carried out training for overseas employees in Chinese and English, in collaboration with MCHC (20 Group companies, 396 managers). 	★★★	Find out more
	<p>Implement monitoring for compliance.</p> <ul style="list-style-type: none"> • Conduct compliance perception survey in Japan and overseas and analyze and utilize the results. 	<ul style="list-style-type: none"> ■ Conducted compliance perception survey. Japan: Conducted surveys of employees including those at Group companies, yielding roughly 24,100 responses. Overseas: Conducted surveys of Group company employees, yielding roughly 2,470 responses. 	★★★	Find out more
Process Safety and Disaster Prevention				

Preventing facility-related accidents	Achieve the status of zero serious facility-related accidents.	<ul style="list-style-type: none"> ■ Missed the target as there was one serious facility-related accident. 	★	Find out more
	Take measures to prevent recurrence of accidents and serious troubles.	<ul style="list-style-type: none"> ■ Utilized information on past accidents. Through horizontal development, continued measures to prevent reoccurrence of similar accidents. ■ Conducted accident drills. Implemented more practical drills (at all MCC sites) including drills for situations not previously informed, drills for when disasters occur at multiple sites simultaneously, joint drills with Mitsubishi Chemical Logistics, etc. 	★★	Find out more
	Take action to prevent accidents and serious troubles.	<ul style="list-style-type: none"> ■ Implemented manufacturing risk assessment <ul style="list-style-type: none"> • When starting manufacturing of a new product, or when changing manufacturing substances handled, manufacturing equipment, or manufacturing procedures, performed secure safety assessment (SA) and took steps to prevent accidents by reducing risk etc. • Performed safety reviews (SRs) on a scheduled and unscheduled basis. ■ Developed systems to improve risk assessments for manufacturing processes <ul style="list-style-type: none"> • Continuous training 	★★	Find out more

		<p>for employees to improve risk assessments, more SAs and SRs</p> <ul style="list-style-type: none"> • OJT for HAZ Chart analysis, process safety training • More SAs, SRs by SR leaders • Started to train chemical process safety engineers (CPSEs) at all MCC sites <p>■ Passed on technical traditions</p> <ul style="list-style-type: none"> • Expanded database on technical handover, continued use of database <p>■ Shared data needed for operational and facility management</p> <ul style="list-style-type: none"> • Continued facility management review between facility management department, operational management department, and safety management department <p>■ Improved earthquake measures</p> <ul style="list-style-type: none"> • Ensured designs are quake resistant and evaluated quake resistance of essential equipment. 		
--	--	---	--	--

Occupational Safety and Health

Preventing a occupational accidents	<ul style="list-style-type: none"> • Achieve zero serious occupational accidents (requiring stopping operations for four or more days). • Don't allow the rate of lost worktime injuries go above 0.1. 	<ul style="list-style-type: none"> ■ Serious occupational accidents: 7 (including 1 overseas), so target missed. ■ The rate of lost worktime injuries: 0.21 (Japan), so target missed. 	★	Find out more
	Consider and implement measures to prevent action-related accidents.	<ul style="list-style-type: none"> ■ Investigated cause of accidents and implemented 	★★	Find out more

	(Increase awareness for front-line professionals).	measures to prevent their recurrence. ■ Ran program to share examples of accidents.		
	Ensure rigorous safety management at work of construction.	■ Reduced risk by implementing risk assessments on work of construction (SAs for work construction), highlighted safety matters in more detail through joint briefings on work safety with partner companies.	★★★	Find out more
Managing occupational health	Implement activities to create healthy hearts and bodies.	■ Held seminars on heart health. ■ Continued specific health guidance programs.	★★★	Find out more

● **Targets, Results, and Assessments for Fiscal 2013 (2)**

Priority Challenges for Fiscal 2013	Targets for Fiscal 2013	Results in Fiscal 2013	Assessment	Link
Environmental Safety				
Preventing environmental accidents and problems	Achieve zero environmental accidents.	■ Had no environmental accidents, met the target.	★★★	Find out more
Reducing chemical emissions	Steadily reduce emissions of those including PRTR-regulated substances and VOCs.	■ PRTR-regulated substance emissions increased by 30 tons from fiscal 2012 levels. ■ Reduced VOC emissions by 65% from the fiscal 2000 level.	★★	Find out more
Reducing landfill disposal	Implement a plan toward zero emissions.	■ Achieved a better landfill disposal rate than in fiscal 2012, but generated emissions of 1.5% thereby falling short of the zero emissions target.	★	Find out more

Global warming countermeasures	Implement energy conservation measures in the manufacturing process.	<ul style="list-style-type: none"> ■ On MCC's non-consolidated basis, attained an unit energy consumption index of 108 (100 in fiscal 2005), an increase of 1pt from the preceding fiscal year. ■ Reduced greenhouse gas emissions by 22% from fiscal 2005 on a Groupwide basis, although emissions rose by 600,000 tons year on year. ■ Curtailed energy use for the equivalent of roughly 26,000 tons of CO₂, achieved through efforts that included bringing about more effective heat recovery in factory manufacturing processes and optimizing conditions for energy-intensive equipment. 	★★	Find out more
	Reduce unit energy consumption in transit by 5% between 2010 and 2015 (reduce unit energy consumption in transit by an annual average of at least 1%).	<ul style="list-style-type: none"> ■ Reduced unit energy consumption by 0.8% compared to fiscal 2012 and by an average of 3.4% over the past five years (MCC's non-consolidated basis). 	★★	Find out more
Chemical Management and Quality Assurance				
Complying with regulations on chemicals and improving management	Achieve further compliance with international and domestic regulations on chemicals. Make further improvements in chemicals management. Further compliance with GHS (product labeling, labeling of containers in the workplace). Continuous SDS	<ul style="list-style-type: none"> ■ Developed and operated chemical safety database to provide and share latest regulatory information in Japan and overseas and ensured dissemination of regulatory compliance. ■ Held monthly internal seminars to provide basic understanding of 	★★★	Find out more

	<p>maintenance information updates and revision. Improve information management systems.</p>	<p>knowledge and regulatory trends in Japan and overseas related to chemicals management.</p> <ul style="list-style-type: none"> ■ Continued to promote compliance based on internal guidelines on GHS compliance and supported efforts at all sites. ■ Held basic training sessions internally on SDS production and supported similar efforts overseas. ■ Promoted a creation of the K-Mates, a comprehensive chemicals management system to manage data related to chemical products. 		
	<p>Strengthen risk assessments and their information distribution.</p>	<ul style="list-style-type: none"> ■ For GPS activities, performed risk assessments for 16 substances and made public 32 safety summaries (in Japanese and English) by end of fiscal 2013. 	★★★	Find out more
<p>Providing safe and secure products</p>	<p>Improve the reliability of quality data. Enhance means of tracking information on chemical substances subject to control that are contained in individual products.</p>	<ul style="list-style-type: none"> ■ Formulated quality assurance guidelines to help establish quality assurance systems when starting to work with new products. ■ Revised Mitsubishi Chemical Green Management Regulations relating to the management of chemical substances subject to control that are contained in individual products. 	★★★	Find out more
Common Responsible Care (RC) Matters				
<p>Running an RC system across the MCC Group</p>	<p>Improve the level of Group-wide RC activities Implement Safety Day</p>	<ul style="list-style-type: none"> ■ Held six RC information-sharing sessions within the 	★★★	Find out more

	<p>programs</p> <p>Implement RC audits</p>	<p>Group to exchange information.</p> <ul style="list-style-type: none"> ■ Implemented Safety Day programs across the MCC Group. ■ Implemented RC audits (at six MCC sites, seven Group companies in Japan, two Group companies overseas). 		
--	--	--	--	--

● **Targets, Results, and Assessments for Fiscal 2013 (3)**

Priority Challenges for Fiscal 2013	Targets for Fiscal 2013	Results in Fiscal 2013	Assessment	Link
Complying with Subcontractor Act				
Complying with the Subcontractor Act	<p>Hold internal workshops and encourage employees to proactively attend outside lectures.</p> <p>Implement audits of purchasing departments at plants.</p>	<ul style="list-style-type: none"> ■ Held internal workshops and encouraged employees to attend outside lectures. ■ Audited purchasing departments at plants. 	★★★	Find out more
CSR Procurement				
CSR procurement	Promote CSR activities together with business partners.	<ul style="list-style-type: none"> ■ Conducted feedback towards business partners (100% completed in June 2014). 	★★★	Find out more
Human Resources Development				
Fostering the next generation of executives	<p>Participate in efforts to foster the next generation of executives through the business leadership program at MCHC and improve the programs as necessary.</p>	<ul style="list-style-type: none"> ■ Fostered the next generation of executives through the business leadership program at MCHC. ■ Participated in efforts to improve the business leadership program at MCHC. 	★★	Find out more
Cultivating global human resources	Utilize a global human resource development scheme.	<ul style="list-style-type: none"> ■ Ran the Overseas Business Challenge System. ■ Restructured the 	★★	Find out more

		entry-level global personnel development program.		
Offering opportunities to take on challenges and boost awareness	Implement programs for in-house open recruitment, in-house free agencies, in-house internships, and career counseling.	<ul style="list-style-type: none"> Nos. undertaking programs: 8 people for in-house open recruitment, 1 in-house free agency, 1 in-house internship, and 29 people received career counseling. 	★★	Find out more
Developing the Organization and its Culture				
Helping various human resources show their strengths	<p>Help female workers exhibit their strengths.</p> <p>Facilitate a greater awareness of the importance of promoting diversity.</p>	<ul style="list-style-type: none"> Increased the ratio of female managers by 0.5 points to 5.8 points. Implemented measures for the advancement of women in the workplace. Facilitated a greater awareness of the importance of promoting diversity. Implemented diversity promotion proposal activities through project teams. Disseminated messages from top management. 	★★	Find out more
	Recruit foreign nationals as employees.	<ul style="list-style-type: none"> Hired six new graduates of foreign nationality (ratio of foreign nationals among new hires was 12.5%, up 6.5 percentage points from the previous fiscal year). 	★★	Find out more
	Help people with disabilities fulfill their capabilities.	<ul style="list-style-type: none"> Continued to attain the statutory rate for disability employment. Employment rate: 2.18% 	★★★	Find out more

Supporting a Work-life Balance				
Promoting reduction in total working hours	Reduce overtime and holiday work hours and eliminate excessive work hours by raising work efficiency.	<ul style="list-style-type: none"> ■ Average overtime work hours for general employees (ordinary daytime workers): 21.5 hrs. ■ The rate of paid leave taken: regular daytime workers, 71%; shift workers, 88%. 	★★	Find out more
Human Rights Measures				
Educating and raising awareness of human rights	Work to ensure a better understanding of human rights issues, including burakumin discrimination, and eliminate prejudice.	<ul style="list-style-type: none"> ■ Held 450 group training sessions attended by 8,710 employees (40% of all Group employees). ■ Provided in-house intranet training (E-training) on human rights to 17,086 employees. 	★★★	Find out more
	Prevent sexual harassment, abuse of authority, and other forms of harassment at workplaces.			
	Provide further training on human rights and other such issues at Group companies.			
Identifying Problems				
Implementing employee surveys	Implement employee surveys and incorporate such findings into various management measures.	<ul style="list-style-type: none"> ■ Drew on the findings of fiscal 2012 surveys in pursuing initiatives that included top message distribution and operational efficiencies. ■ Conducted surveys with responses from 24,163 employees in fiscal 2013, accounting for 90% of the Group-wide workforce. ■ Conducted survey at overseas Group companies, mainly in Asia. 	★★★	Find out more

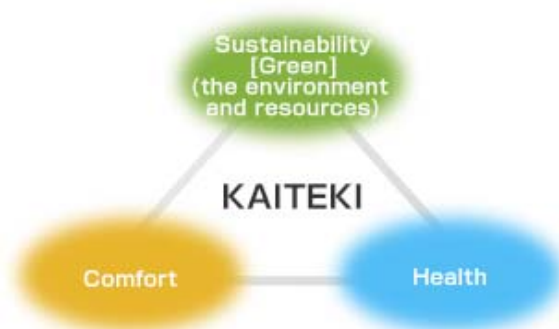
Labor-Management Relations				
Building productive labor-management relations	Maintain and improve labor-management relations and increase the depth of labor-management communications.	<ul style="list-style-type: none"> ■ Continued efforts to facilitate communications between management and workers through biannual management and labor committee meetings. 	★★★	Find out more
Corporate Citizenship Activities				
Engage in corporate citizenship activities in the areas of cultivating future generations, communicating with local communities, and providing support for reconstruction of the Tohoku region.	Consider and implement initiatives in the areas of cultivating future generations, communicating with local communities, and supporting reconstruction of the Tohoku region.	<ul style="list-style-type: none"> ■ Support for Tohoku reconstruction (implemented as MCHC Group activities) <ul style="list-style-type: none"> • Let's Go to Tokyo event: Worked with NPO to provide opportunity for primary school children together with a guardian for each student from Otsuchi Town, Kamaishi City of Iwate prefecture to visit Tokyo. • Held an exhibition of produce from three prefectures in Tohoku (Iwate, Miyagi, Fukushima) in our head office building. ■ Cultivating future generations <ul style="list-style-type: none"> • Held science workshops for children who will be responsible for future generations (at each site). • Co-sponsored the Mitsubishi Chemical Junior Designer Award (MCJDA) ■ Communication with local communities <ul style="list-style-type: none"> • Accepted trainees from overseas (as part of our collaboration with 	★★★	Find out more

		the Kitakyushu International Techno-cooperative Association or (KITA)).		
--	--	---	--	--



The Mitsubishi Chemical (MCC) Group aims to achieve *KAITEKI* through its corporate activities. We provide diverse products and services that enable the sustainable development of society, the affluent and vibrant lives of people, and coexistence with the planet.

These products and services have been developed for the purpose of contributing to the three decision criteria for our corporate activities; the environment and resources (Sustainability [Green]), the healthy living (Health) and comfortable living (Comfort). We developed the foundation on which stands the "Power of Chemicals," as represented by molecular and functional design technologies, and high value-added technologies that have been nurtured over many years.



In this special feature, we introduce our products, which contribute to the realization of *KAITEKI*, and the frontlines of our R&D of these products.

* *KAITEKI* means a state of true sustainability, and also represents comfort for people, comfort for society, and comfort for the Earth. MCHC promotes *KAITEKI* as a worthy aspiration for companies all over the world.

1 MCC Group products that realize *KAITEKI*



For the realization of *KAITEKI*, the MCC Group provides products and services that contribute to environmental preservation, resource recycling, and the healthy and comfortable lives of people based on its broad technological base developed over many years. This special feature introduces, as part of our efforts, products that "contribute to reducing our environmental impact," "contribute to tackling the depletion of resources," and "contribute to the comfortable lives of people."

- [Contribute to reducing our environmental impact \(Sustainability \[Green\]\)](#)
- [Contribute to tackling the depletion of resources \(Sustainability \[Green\]\)](#)
- [Contribute to the comfortable lives of people \(Comfort\)](#)

2 Gazing at the future of *KAITEKI* realization -The frontlines of R&D



For the sustainable development of society and the comfortable and healthy lives of people, nearly 1,500 researchers at the MCHC Group strive for the realization of *KAITEKI* and undertake R&D to create new value. Based on our strengths of molecular and functional design, further value addition, and processing and device technologies, we are leveraging our global researcher network, our network with business divisions, and other resources. Further, we are cooperating with customers, who are our partners, and achieving timely results that sharpen our competitive edge.

- Development of an artificial zeolite separation membrane that contributes to building a *KAITEKI* society through an energy-saving dehydration process
- Development of highcontrast dyes for neutral density filters that enable unprecedented ease in photography

R&D Results in fiscal 2013

Major Technology Development Results

June 2013	Development of a zeolite separation membrane that enables energy saving of over 50% in the chemical distillation process
October 2013	Establishment of coating type organic photovoltaic (OPV) production technologies
December 2013	Establishment of the technology to mass-produce carbon black from plant oil with high efficiency
January 2014	Development of a new grade of DURABIO™, a high-performance, high-transparency bio-based engineering plastic derived from plants, which is used in touch panels mounted in automobiles.
February 2014	Establishment of a new world standard for carrier mobility using organic thin film transistors.
February 2014	Establishment of mass production and shipping technology for organic light-emitting diode lighting modules that substantially lowers manufacturing costs.
March 2014	Development of a building outer wall unit that generates electricity using an organic thin film photovoltaic (OPV) modules and start of substantive experiments.

● Major awards received

Year Award Received	Award	Awarded for	Conferred by
Fiscal 2013	45th Annual JCIA Technology Award (Grand Prize)	Development and Industrialization of Innovative Catalysis Process to Manufacture Ethylene Glycol	Japan Chemical Industry Association
	62nd CSJ Award for Technical Development	Development and Industrialization of High Contrast Dichroic Dyes and Liquid Crystal Composition for Cameras	The Chemical Society of Japan

Special Feature **For the Realization of KAITEKI**

1 MCC Group products that realize KAITEKI 

Contribution to reducing substances with an impact on the global environment (Sustainability [Green])

Mitsubishi Chemical Group is working on two initiatives to reduce the CO₂ emissions that are thought to be the cause of global warming: reducing emissions at the manufacturing stage, and providing products and materials with good energy efficiency to our customers and encouraging them to use them, thereby reducing the total CO₂ emissions.

Sustainability[Green] Lithium-ion rechargeable battery materials that contribute to the adoption of eco cars

Through the supply of key materials, contribute to solving environmental and energy issues

Lithium-ion rechargeable batteries are compact and can achieve high capacity. The demand for these batteries, which are essential for mobile devices such as smart phones and tablets, is continuing to grow. During fiscal 2013 demand also increased for high-performance batteries for eco cars such as hybrid cars and electric cars; moreover expectations have also grown towards larger size products like residential storage batteries and industrial storage batteries. MCC is responding to increasingly sophisticated customer needs based on its high technical capabilities, which comprehensively cover all processes from materials development to safety evaluations. Utilizing its global supply network to provide the main materials for lithium-ion rechargeable batteries, MCC helps to solve a variety of issues relating to global environmental conservation and the effective utilization of natural resources and energy, and contributes to realizing a "recycling carbon society."



Lithium-ion rechargeable battery key materials (from right to left: electrolyte, anode material (MCC), and separator (MPI))

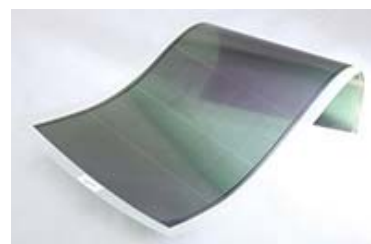
▶ Lithium-ion rechargeable batteries

Sustainability[Green] Printed thin-film organic photovoltaics (OPV), a groundbreaking technology for solar cells

Helping solve energy problems by commercializing innovative solar cells

Mitsubishi Chemical is utilizing organic compound technologies to work on the commercialization of organic photovoltaics (OPV), which are printed organic thin-film solar cells that have considerably different properties than traditional solar cells.

The most prevalent kind of solar cell today is polycrystalline silicon, which uses glass substrates so the panels are rigid and heavy, restricting where they can be installed. OPV is manufactured by printing organic semiconducting materials on thin substrates such as plastic film and metal foil so they are thin and



OPV module

sheet-shaped, making them lighter and more flexible. In 2008, Mitsubishi Chemical began in earnest to work on developing OPV and aims to launch OPV products in 2015 after improving their photoelectric conversion efficiency and increasing the size of the modules.

OPV can be bent, rolled up, and freely changed into different shapes; furthermore it has outstanding design characteristics. For example it has many variations in size and color tone and can be see-through, enable diverse applications on the external walls and windows of buildings that are completely different from conventional applications.

In May 2014 MCC installed the external building wall unit developed together with Taisei Corporation that generates electricity using OPV in the building that Taisei Corporation is currently constructing as it works toward realizing an urban Zero Energy Building (ZEB), and commenced proving tests (implemented as a NEDO* project called Development of Technologies to Accelerate the Practical Application of Photovoltaic Power Generation Systems).

To realize ZEB in urban buildings, it is essential to effectively utilize surfaces such as walls and windows in addition to the roof in order to ensure a greater amount of electricity generation.

In order to install solar units on the external walls of buildings, it is necessary for them to have a flexibility and lightness that can provide the design features required by the buildings, such as size and color, and provide the ease of equipment upgrade that is entailed in prolonging the life of the buildings. There are great expectations of OPV as a material that can satisfy all of these requirements. Going forward, we will proceed with full-scale proving tests aimed at the practical application of OPV as "an external wall unit that generates electricity."

* NEDO: New Energy and Industrial Technology Development Organization

What is a zero energy building?

According to a study group of the Ministry of Economy, Trade and Industry in 2009, it is assumed that a zero energy building is "a building that consumes zero or nearly zero energy on an annual net basis by reducing primary energy consumption in the building through enhanced energy efficiency performance of the building envelope and facilities, networking of neighboring buildings, on-site utilization of renewable energy, and so on." Globally too, in regions with a good climatic environment and a comparatively small energy load, there are many examples of buildings that can secure sufficient power generation using solar panels by creating large roof area, and it is thought to be very difficult to realize such buildings in cities.

▶ OPV



External view of the ZEB Verification Building

Refining steel scrap with world-first coal-chemical production technologies

Steel is a material that can be used again and again. We recycle steel by smelting, refining, and recovering steel scrap from automobiles and building materials in an electric furnace. Petroleum-based needle coke had mainly been used as a primary raw material in the electrodes of these electric furnaces before Mitsubishi Chemical became the first company in the world to successfully produce coal-based needle coke in 1979.

Coal-based needle coke that Mitsubishi Chemical developed is produced from coal tar which appears during coke production. In recognition of this accomplishment, Mitsubishi Chemical was awarded the 27th Okochi Memorial Production Prize, a prestigious prize to remarkable contributions in production engineering and implementation of sophisticated production technologies in Japan. There are only a few companies around the world that can produce coal-based needle coke. To address growing demand for needle coke, in November 2012, Mitsubishi Chemical established a joint venture with Posco Chemtech for the production and sale of needle coke in South Korea and licensed the technology to the joint venture. In April 2013, we held the groundbreaking ceremony for the manufacturing facility and we have proceeded with the construction with the aim of starting operation during 2014.

Needle coke offers high durability in high temperatures, a smaller thermal expansion coefficient, and slower rate of consumption. Mitsubishi Chemical will continue to contribute to a resources-saving society by using technologies to change coal, which has a more stable supply than petroleum, for which there are fears of depletion, into an advanced material.

- ▶ Needle coke



Needle coke



Electrodes for electric furnaces

Special
Feature

For the Realization of KAITEKI

1 MCC Group products that realize KAITEKI



Contribution to responding to the depletion of resources (Sustainability [Green])

The major raw materials of the plastics and other chemical products provided by the Mitsubishi Chemical Group are depletable resources that only exist on earth in limited amounts such as petroleum, coal, and natural gas. We believe that the problem of the depletion of resources is a social issue that we must give priority to in order to maintain the sustainability of manufacturing and fulfill our responsibility to provide products in the future, so we are working to switch to "renewable" raw materials that can be produced repeatedly with solar energy.

Sustainability[Green]

DURABIO™, a transparent engineering plastic made from plant materials

Helping to realize a new carbon society through the development of innovative materials derived from plants

DURABIO™ is a transparent engineering plastic* that is made from plant materials, which are a sustainable resource. This material combines the lightweight and workability properties of plastics with the transparency and optical features of glass, boasts outstanding impact resistance, heat resistance, and weather resistance along with easy coloring properties.

Drawbacks associated with existing plastics made from plant-derived materials include their sensitivity to heat. Problems concerning workability, durability and impact resistance also limit the potential of conventional products. To overcome these drawbacks, leveraging its proprietary technologies of molecular configuration design, catalytic, and other technologies, MCC has developed a material that can come with glossy surfaces simply by blending and molding the raw materials. This new material barely yellows after long-term exposure to ultra-violet rays so DURABIO™ can be used in solar cell panels installed outdoors. Taking full advantage of its potential to deliver bright color tones, this new product is also anticipated to see wide-ranging use.

In fiscal 2013, DURABIO™ was adopted for the colored interior panels of HUSTLER, the new model compact car launched by Suzuki Motor Corporation on December 24, 2013, and the colored panels have been well received as fashionable with a sense of fun. Moreover, we have developed a new grade of the product with outstanding optical properties, heat resistance, and moisture resistance for use in touch panels installed in automobiles. Touch panels being rapidly adopted for controllers for auto air conditioners and audio and navigation systems, are required to function stably and accurately as well as to display in a way that can be seen easily by users. The new grade of Mitsubishi Chemical's DURABIO™ displays information that can be seen more easily than with conventional products because the light that passes through it is largely undistorted due to its high optical activity.



The SUZUKI HUSTLER color panels are made from DURABIO™

Going forward we will continue to accelerate the development of applications for DURABIO™ in a wide variety of domains.

* Engineering plastic: This is the general name for plastic materials that are developed for applications that require particularly high durability and heat resistance. In addition to their use in mobile phones, computers and other electronic equipment, as an optical and energy-related material as well as an alternative material to high-performance glass, engineering plastics are being applied across a wide range of industries encompassing automobiles, aircraft, solar cells, and medical equipment.

▶ DURABIO™

Sustainability[Green] Carbon black made from renewable plant oil

Continuously improving driving performance, the comfort and safety of automobiles, and contributing to tire recycling

Carbon black is a fine particle of carbon and a large amount of carbon black is used mainly in tires for its excellent rubber reinforcement properties. It accounts for one-fourth of a tire's weight and tires are black because of the black color of carbon black. Furthermore, as a black pigment it is used in printing inks, colored resins, paints, toner, and other applications. Moreover, its electrical conductivity property is exploited for use in electrical wires, seafloor cables and other jacketed cables, antistatic films, fibers, batteries, and other products.




Carbon black

Carbon black has been produced while controlling its various properties through the incomplete combustion of depletable resources such as coal-derived and petroleum-derived heavy oil and gas. However, as a part of our efforts to switch raw materials to plant-derived resources, we have successfully mass-produced carbon black from plant oil by applying the technologies for producing high-performance carbon black that we have developed in-house.

We commenced trial production at the Kurosaki Plant (Kitakyushu City) in December 2010, and started supplying to some customers in July 2013. Going forward we will closely monitor the growth of the market while considering expanding our production system and continue working toward a switch to renewable raw materials.

▶ Carbon black

Special Feature **For the Realization of KAITEKI**

1 MCC Group products that realize KAITEKI 

Contributing to comfortable lifestyles (Comfort)

In order to contribute to Comfort, one of the judgment criteria for the corporate activities of Mitsubishi Chemical Holdings Corporation, the Mitsubishi Chemical (MCC) Group is providing products in a variety of domains that make the lifestyles of people convenient, secure, safe, and comfortable.

Comfort Enterprise grade archive discs

Realizing robust and energy-saving storage of continuously-increasing digital information

Digital information is continuing to increase throughout the world. It is forecast that in 2020 it will reach 44 trillion gigabytes, meaning that on average approximately 5,700 gigabytes of information will be held by each person in the world. The increase in the amount of data handled in the cloud is particularly rapid and this data is expected to account for 40% of all data by 2020¹. Currently the majority of this vast amount of digital data is stored on hard disc drives, and enormous amounts of electricity are being consumed throughout the world for this storage. It has been reported that in the developed countries approximately 2% of electricity consumption is consumption by data centers², and this is becoming a problem from the perspective of the burden it places on the global environment. Furthermore, hard disc drives and other data storage media last no more than about ten years so it is necessary to migrate the data to new data storage media, which is costly and generates a large amount of waste.

The Enterprise Grade Archive Disc sold by Mitsubishi Kagaku Media (a member of the MCC Group) is a BD-R for data preservation capable of storing digital data for at least 50 years³ and offering high durability and data robustness. Its data robustness is so good that it is possible to retrieve the data even after leaving the disc in the sea for one week. Furthermore, the disc can be stored in a normal indoor environment so enormous amounts of electricity are not necessary for the storage. In addition storage for over 50 years is possible so the costs of data migration to new media and the amount of waste generated are both reduced.

¹ Source: EMC Corporation survey, 2014

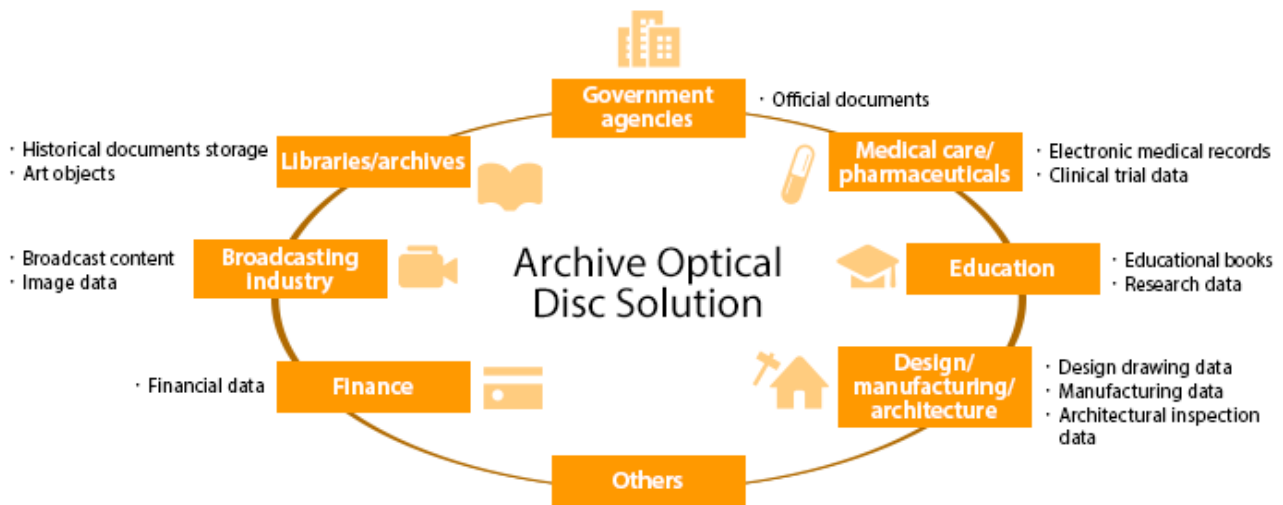
² Source: GROWTH IN DATA CENTER ELECTRICITY USE 2005 TO 2010, Jonathan G. Koomey

³ Based on test results achieved with reference to ISO/IEC 16963 at the Archive Disc Test Center (a nonprofit organization).

Tested Item	Test conditions	Results
Seawater resistance	· Keep the disc in the sea for one week	Data can be retrieved
Corrosive gas resistance	Expose the disc to the following gases for 96 hours · H ₂ S (25°C, 75% RH, 12.5 ppm) · SO ₂ (25°C, 75% RH, 25 ppm)	Data can be retrieved
Light resistance	· Irradiate the disc with simulated sunlight (xenon arc lamp, 550 W/m ²) for three weeks	Data can be retrieved

Tested Item	Test conditions	Results
Temperature and humidity resistance	<ul style="list-style-type: none"> · Keep at 80°C and 80% RH for 750 hours · Keep at -40°C for 250 hours 	Data can be retrieved
Chemical resistance	<ul style="list-style-type: none"> · Wipe with hypochlorous acid (1%) 20 times · Wipe with ethanol (80%) 20 times 	Data can be retrieved

The Enterprise Grade Archive Disc of the MCC Group is used in particular for storage of important data and data that has to be stored long term, for example in organizations that store important documents, academic institutions that run archives based on data about cultural properties, construction and design companies that have to store vast quantities of data, and non-destructive testing data in the manufacturing industry. Going forward, it is expected that the disc will also be used by broadcasting stations and companies providing SNS, among others.



Currently one disc stores 100GB of data but going forward we are aiming to increase storage capacity and shorten the data transfer time, and we are working to ensure both that data can be stored for a long period more safely and that the data can be accessed easily.

▶ Archive disc

Feedback from a user

KYUSHU NATIONAL MUSEUM **Cultural Property Section**

The KYUSHU NATIONAL MUSEUM, which belongs to the National Institutes for Cultural Heritage (incorporated administrative agency), is promoting digital archiving of the cultural properties in its collection.

The purposes of the digital archive are to record the valuable cultural properties and hand them down to future generations, and to improve the museum's services by providing digitalized data.

After being converted into a digital archive the data is finally stored on hard disc drives and optical discs.

Normally we use hard disc drives because we utilize digital image data that can be as much as several terabytes. We do not use optical discs on a daily basis, but they are kept in the storeroom for long-term storage.

For optical discs we use enterprise grade archive BD-R discs with professional drives tuned for these discs. After the recording, we perform quality tests based on JIS Z 6017 to confirm that there are no problems with the initial recording properties.

In this way we have constructed an optimal digital archive system that combines utilization and storage, in which we "use hard disc drives for utilization and use optical discs for data preservation."

Comfort YUPO™, resin-based synthetic paper that opens up new possibilities

Lifestyles are enriched with the development of water-resistant synthetic paper that can also be used outdoors

The resin-based synthetic paper, YUPO™, is ideal for printed materials displayed outdoors. This includes the timetables on platforms at railway stations, the banners displayed at stores, and election campaign posters. Moreover, YUPO™ has a host of applications and can be used for the humidity-sensitive labels of containers and products that require refrigeration. YUPO™ is manufactured and marketed by the Mitsubishi Chemical Group company, YUPO Corporation, which maintains a leading share of the global market for synthetic paper.

YUPO™ is manufactured by adding additives to the main ingredient of polypropylene (PP) resin, stretching the material into a film shape, and stacking them together in multiple layers. It is stretched so that innumerable micro-voids* occur inside the film on the surface layers. As a result light is diffused by YUPO™ which achieves the reflection-free high level of whiteness and opacity seen in laminated paper. It is also just as easy to print or write on as paper. Moreover, the product is light because the innumerable micro-voids reduce its specific gravity.

Resilient against water, YUPO™ largely retains its strength and shape even when wet. Among a host of additional features, this product is strong against pulling, tearing, and impact and can be used repeatedly. YUPO™ boasts a smooth surface, can be easily processed and worked, and does not easily degrade even when in contact with oils and chemicals. In addition to these outstanding properties, YUPO™ is distinguished by its environmental attributes. Easy to recycle, YUPO™ dissolves into carbon and hydrogen when incinerated, and is contributing to comfortable lifestyles through a wide variety of applications.

* Micro-voids: voids at the micron scale which occur internally when rubber, plastic, or certain other materials are expanded, contracted, or rolled

YUPO™ has a variety of grades to accommodate the different applications of our customers. For example, since 2005 we have been selling the slightly absorbing sheet SUCTIONTACK™ which can be easily applied and removed, and is made by putting an absorbent layer on one surface of YUPO™.

In addition to the features of YUPO™ as a synthetic paper, SUCTIONTACK™ has the feature that the minute cells in its absorbent layer act as sucking disks, affixing the YUPO™ to the adherend. No adhesives are used so when SUCTIONTACK™ is removed no glue remains behind. Furthermore, the absorbent face absorbs all smooth surfaces including glass, steel, polyester, PP, and aluminum so it can be used for a wide range of applications including product signs, labels, sign displays, store decorations, teaching materials, and more.

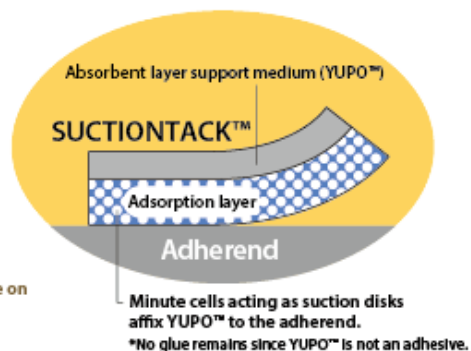
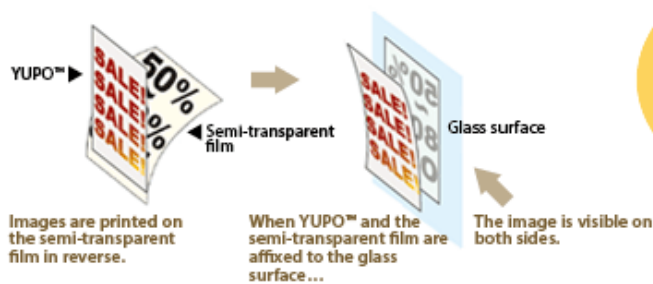
YUPO™ can be used in a variety of situations

Leveraging advantage of the outstanding features, YUPO™ is being used in a variety of situations we encounter in our daily lives.

Main examples of and reasons for use of YUPO™

<p>Commercial printing</p>  <ul style="list-style-type: none"> ● Resilient against water ● Strong against tearing ● Easily processed 	<p>Publishing and maps</p>  <ul style="list-style-type: none"> ● Resilient against water ● Strong against tearing
<p>Stickers/labels</p>  <ul style="list-style-type: none"> ● Resilient against water ● Resilient against oils and chemicals ● Can be easily removed 	<p>Bags</p>  <ul style="list-style-type: none"> ● Resilient against water ● Strong against tearing ● Beautiful reproducibility
<p>Packaging</p>  <ul style="list-style-type: none"> ● Resilient against oils and chemicals ● Resilient against water ● Strong against tearing ● Environmentally-friendly 	<p>Special paper and communication paper</p>  <ul style="list-style-type: none"> ● Resilience ● Resilient against water ● Strong against tearing ● Easy to write on ● Clean

Example of static electric adsorption (two-sided printing)



The structure of SUCTIONTACK™



Store signs



Educational stickers



Warning stickers



Countertop stickers

▶ YUPO™

Comfort VELVE™, organic light emitting diode (OLED) lighting modules that emit light from the entire panel

World-first technology opens up new possibilities for next-generation lighting

In March 2014, Mitsubishi Chemical and Pioneer Corporation jointly commenced sales of VELVE™, the world's first mass-produced OLED lighting module that are made with a coating process for the light-emitting layer.

OLED lighting is made from a thin organic layer that emits light when current is applied. OLED lighting emits light from the entire surface of the panel, as opposed to LED and fluorescent lighting that emit light from a single point or line. OLED lighting is thus able to create a more natural, non-glaring and softer light. In addition to these lighting characteristics, OLED lighting can be developed into futuristically thin and flexible products, a source of light that will create a brighter world. Utilizing these features of OLED lighting, which differs from LED lighting's sharp focus on a single point, in fiscal 2013 VELVE™ was used for the lighting of the interior of the BAO BAO ISSEY MIYAKE store in the JP Tower commercial facility KITTE and in Roppongi Hills 10th Anniversary Christmas, the Christmas lights for Roppongi Hills.

In store lighting, as the OLED lighting has the characteristics that it does not contain ultraviolet light or infrared light and it causes very little product degradation with its heat, it can be used at positions near the products and customers, which was not possible with light sources such as fluorescent and LED lighting. Furthermore, regarding the Christmas lights, applying a rain proofing treatment has made use of OLED lighting for long periods of time outdoors possible for the first time. A pleasant space was produced with the abundant color expression and gentle, soft light that is only possible with the full-color toning and mixing functions of VELVE™.



One of the largest OLED panels in the world

(Photo: Toshio Kaneko)



BAO BAO ISSEY MIYAKE store lighting



Roppongi Hills 10th Anniversary Christmas



▶ VELVE™

Comfort RYOTO™, a sugar ester food-grade emulsifier that contributes to the world's food supply

Supporting lifestyles abundant in food by developing safe food supplements

Sugar ester is an emulsifier for food made from plant-derived fatty acids and sucrose. It is used in a wide variety of processed foods, such as canned coffee and other beverages, whipped cream and other dairy products, and cake, chocolate and other sweets. Sugar ester helps food taste better and improves convenience.

The Mitsubishi Chemical Group has produced and sold RYOTO™ sugar ester food-grade emulsifier around the world for more than 40 years through its subsidiary Mitsubishi-Kagaku Foods Corporation. By thoroughly ensuring safety in its product development and production, Mitsubishi Chemical has won the leading share of the world market. We contribute to the world's food supply as RYOTO™ is broadly used in foods around the world.



RYOTO™ sugar ester is used in foods like these

▶ RYOTO™ sugar ester

Growing vegetables for a better world

Mitsubishi Chemical Group's fully artificial light-type "Plant Plant™" growing system can be installed in all kinds of locations, including cold, desert, and urban environments. Being indoors, the crops are unaffected by the weather and seasons, so they can be stably cultivated all year round. This is the groundbreaking systems that don't just grow plants, but grow them in as environmentally-friendly a manner as possible, drawing on our expertise as a comprehensive chemical manufacturer. It can efficiently cultivate salad leaves and other plants by using stacked growing racks installed indoors to implement hydroponic cultivation that perfectly controls conditions such as light, temperature, and humidity. Furthermore, the cultivated vegetables can be eaten without washing them first. Many customers have introduced this growing system to date and in June 2014 Lawson Farm Akita Co., Ltd. (head office: Ugo, Ogachi District, Akita Prefecture) decided to introduce it. Lawson Farm Akita was established in January 2014 as the twelfth farming corporation in Japan of Lawson, Inc. (head office: Shinagawa-ku, Tokyo), and is the first Lawson Farm to cultivate vegetables using a growing system.

They plan to sell the cultivated salad leaves from late October in Lawson stores, Lawson Store 100 stores, and Lawson Mart stores in the Tohoku and Kanto regions.

▶ Plant Plant™



Plant Plant™

Providing safe and reliable materials that directly address unmet medical needs

A wide range of medical-use plastics go into the manufacture of medical devices and instruments. MCC has developed and provided a variety of products for use in this field. One such product is ZELAS™, an olefin-based thermoplastic elastomer, which is attracting wide acclaim as a material for use in infusion bags.

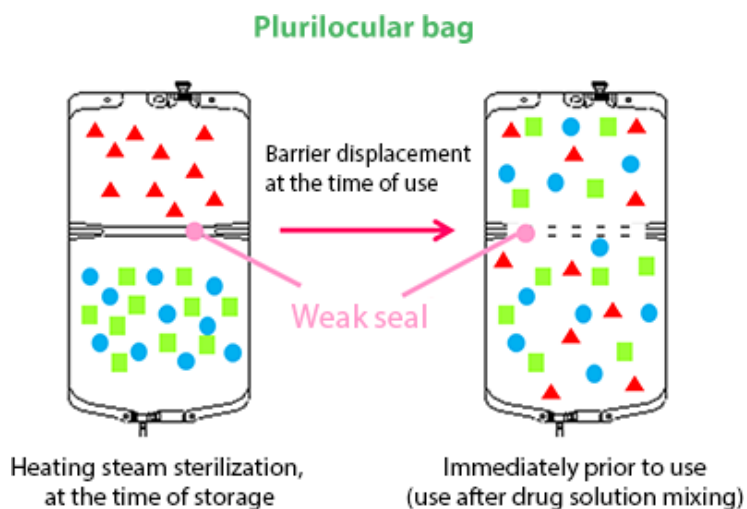
Taking into consideration ease of use as well as discharging efficiency, infusion bags are mainstream for the infusion containers used for intravenous drips, and in particular containers with a capacity that exceeds 1 liter. These infusion bags are normally comprised of multiple layers in the form of the outer core, intermediate, and inner layers. This reflects the requirement to meet several criteria including bag making, transparency post sterilization, flexibility, impact resistance, and high cleanliness. ZELAS™ comes in various grades to address the requirements of each layer. It is also a material that facilitates the development of excellent infusion bags that match bag making machines. In particular, ZELAS™ is distinguished by its suitability for multichamber bags. By simplifying optimal control during seal formation using a heat sealing process at the time the film is taped for bag-making, the two solutions that are kept separate prior to use are released via the weak seal portion and allowed to mix. This in turn has led to many commercial uses.



ZELAS™ peritoneal dialysis solution bag

MCC will work to develop innovative functions that address diverse needs and contribute to further developments in the medical field.

▶ ZELAS™



Comfort LINKLON™ and OLEFISTA™ materials for photovoltaic systems that exhibit outstanding heat resistance

Leveraging our comprehensive capabilities to create sustainable energy

Photovoltaic systems have proliferated as a clean and sustainable energy source. Mitsubishi Chemical has developed photovoltaic modules that use silicon-based solar cells. Our gioa brand of photovoltaic systems is sold as complete systems, incorporating power conditioners and other components.

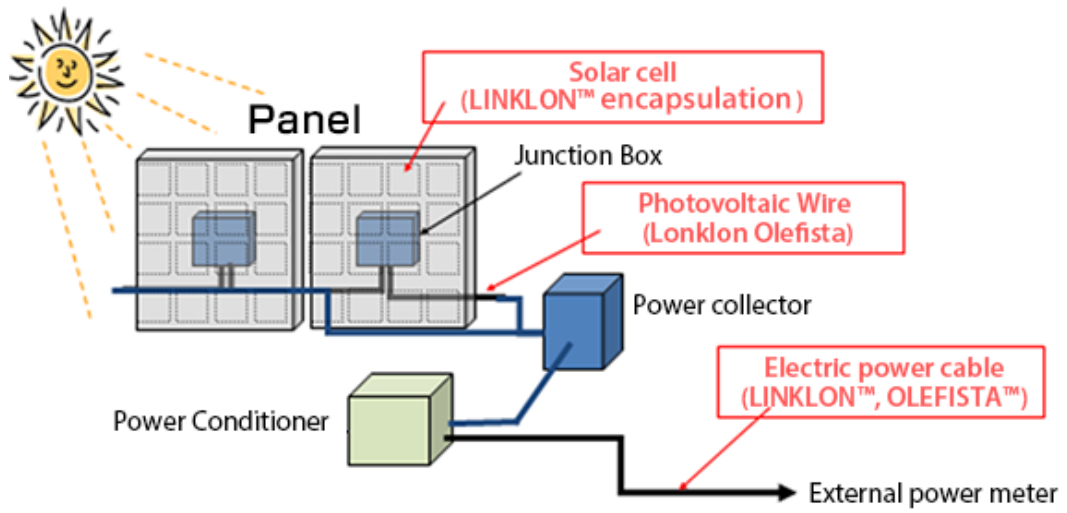
Mitsubishi Chemical developed LINKLON™ and OLEFISTA™ for use as materials in these photovoltaic systems, which are required to be highly durable and weather-proof. LINKLON™ is a silane cross-linking polyolefin resin with heat, abrasion and chemical resistance that makes it suitable for use in applications that demand long-term durability, such as electric power cable insulation and solar panel encapsulation. OLEFISTA™ is a halogen-free flame retardant polyolefin resin used in applications that require heat and flame resistance, such as sheathing for electric power cables.

Mitsubishi Chemical contributes to the creation of sustainable energy by leveraging the comprehensive capabilities of the Group in the development of core technologies and materials used in photovoltaic systems.



OLEFISTA™ is used in sheathing for electric power cables.

● Photovoltaic system



▶ LINKLON™

▶ OLEFISTA™

Top> Special Feature: For the Realization of KAITEKI>

2. Gazing at the future of KAITEKI realization – The front lines of R&D: Helping build a KAITEKI organization by making the dehydration process more energy efficient: Developing an artificial zeolite separation membrane

Special
Feature

For the Realization of KAITEKI

2 Gazing at the future of KAITEKI realization – The front lines of R&D



Helping build a KAITEKI organization by making the dehydration process more energy efficient: Developing an artificial zeolite separation membrane

Zeolites are now widely used in everyday life, for example as deodorizers or dehumidifiers, as well as in industrial fields, including as catalysts for chemical processes.

Mitsubishi Chemical Corporation has developed a new dehydration process using separation membranes that could be applied in various industrial plants. The process utilizes the countless micropores in zeolites that are invisible to the naked eye.

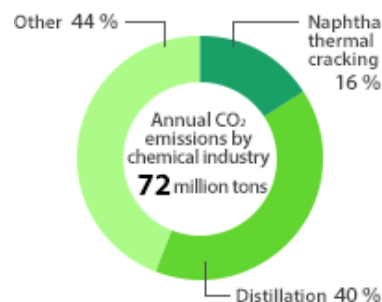
Compared with conventional dehydration processes, this new method has the potential to make significant energy savings.

Distillation requires enormous amounts of thermal energy

Zeolite is a generic name for a porous mineral, called "boiling stone." There are over 200 different types of zeolite. Mitsubishi Chemical was previously engaged in R&D into zeolites as catalysts for chemical reactions, but has recently started to investigate the use of zeolites for membrane separation in industrial processes, based on deposition technologies.

Of particular interest is our method for dehydration using a zeolite membrane. Conventional industrial processes generally use distillation for dehydration, but such methods use enormous amounts of thermal energy to evaporate the water and cause environmental problems such as global warming. There is growing demand for an energy efficient dehydration method to replace distillation.

Dehydration by a zeolite membrane uses the pressure difference between the inside and outside of the membrane and only separates the water molecules in the solution. Therefore, the process consumes little energy and does not require large-scale equipment.

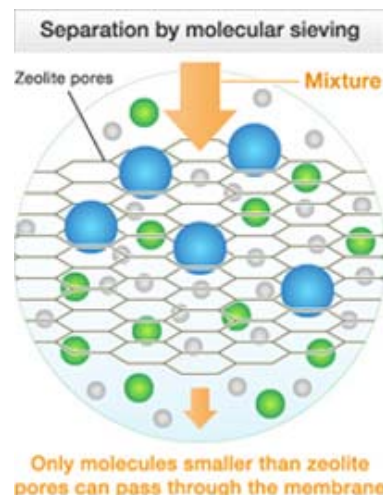


Distillation process accounts for 40% of the annual CO₂ emissions of 72 million tons

Source: METI chemicals survey

Zeolites contain countless 0.4 nanometer micropores (one nanometer is one billionth of a meter). The zeolite membrane is formed on the surface of a cylindrical ceramic support. The cylinder is immersed in a solution, one end of the cylinder is closed off, and the solution is absorbed from the other end. Water molecules 0.3 nm in size are the only molecules taken up within the cylinder, separating out substances of a larger molecular size.

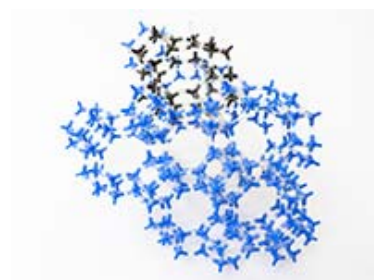
● Process of dehydration using a zeolite membrane



Leveraging our extensive expertise to create acid- and heat-resistant zeolites

Dehydration by zeolite membranes has been achieved before by using artificial "type A" zeolites that are easy to process. However, type A zeolite lacks resistance to acids or hot water, so applications are limited. This issue has generated demand for zeolite membranes that could be used in a broader range of applications.

Mitsubishi Chemical therefore started investigating "chabazite" zeolites that are resistant to acids and hot water, but difficult to process. Leveraging our extensive expertise from catalyst R&D, we developed a proprietary technology to form chabazite zeolites into a uniform thin layer structure and successfully produced a membrane in 2009. The following year, we were able to produce longer membranes up to a one meter cylinder, which is the size required for practical applications. We are now liaising with customers in various business domains and conducting further experiments for the practical application of this membrane.



Chabazite zeolite membrane structure

Participation in demonstration experiments for practical use

As part of our efforts to apply this material, we participated in a contract project (development of platform technologies for precise separation membrane materials using regular nanoporous media) in collaboration with the New Energy and Industrial Technology Development Organization (NEDO). We conducted a demonstration experiment for the isopropanol distillation process at a petrochemical plant. In this experiment, we used a zeolite membrane and were able to operate the facilities continuously for over 200 hours for the first time ever in the world. Subsequent test runs that reflected the results from this project showed that if around 13% of the dehydration processes used in the chemicals industry were replaced with membrane separation, it could save the equivalent of approximately 550,000 kL of crude oil by 2030 and reduce CO₂ emissions by around 1.46 million tons.

Mitsubishi Chemical is also considering developing this process for gas separation. For example, during natural gas purification processes, enormous amounts of energy are used to separate CO₂ and methane. Energy consumption could be reduced significantly if a zeolite membrane could be developed that allowed CO₂ to pass through but not methane.

Mitsubishi Chemical plans to contribute further to an energy efficient industrial society through the widespread use of this dehydration method using zeolite membranes.

Voice

To maximize the potential of zeolites, we are developing concepts for various uses and conducting research into their application.

**Takahiko Takewaki, Group Leader, Porous Materials Group
Inorganic Functional Materials Laboratory
Mitsubishi Chemical Group Science and Technology Research Center, Inc.**



Since I joined the Company, I have investigated zeolites as catalysts and researched the characteristics of at least 200 different types of zeolites. Other porous materials include activated charcoal, silica gel, and alumina, but they are all amorphous. Zeolites have a crystalline structure, so it is possible to analyze and investigate their properties from a more scientific perspective compared with amorphous materials. As our research progresses, I think we may identify potential applications for zeolites in a wider range of fields.

When we were looking at the advantageous properties of zeolites and considering applications beyond catalysts, I was lucky enough to be in the right place at the right time when head office operational division came to consult with me on developing more applications for a dehydrating zeolite membrane. At that time, I was considering research into type A zeolites for which there are already numerous examples of applied use. However, I proposed research into chabazite zeolites because there are limits to how many more applications can be developed for type A zeolites and because we want to differentiate ourselves from leading competitors. We started investigating how to form membranes with these chabazite zeolites.

It is not easy to produce a material with uniform 0.4 nm micropores as a membrane only a few nanometers thick. It took 12 months to identify the optimum conditions for membrane formation, at which point we were able to make a membrane 10 cm in length. However, the membrane needs to be 1 meter in length if it is to be used practically, so we went through repeated cycles of trial and error. Finally, we resolved this difficult problem by optimizing the control methods and developing a technology to make the zeolite pores grow in the same direction. This is a radical new technology that has potential for a wide range of uses, so we filed for patent protection in 2009 and were granted patent rights in 2014.

Since then we have run tests aimed at practical application with various customers, ranging from petrochemical manufacturers to sake brewers. These tests have involved different types of solutions and concentrations and different usage conditions. The number of test projects alone has posed a new challenge. The ultimate goal is to achieve a line-up of different zeolite membranes that can be used for any process. We will therefore be working on various different projects and resolving each problem, building up expertise and experience along the way.

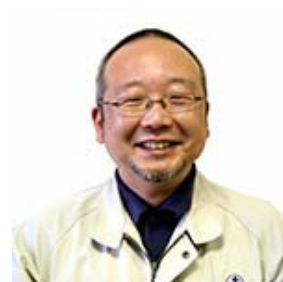
Partnership with a sake brewer to make sake using zeolite membranes

Mitsubishi Chemical has also started utilizing zeolite membranes in lifestyle domains. One example is our work in sake brewing with Nishino Kinryo, a brewer in Kagawa prefecture. Using condensing equipment (sold by Mitsubishi Chemical Engineering Corporation) that incorporated the zeolite membrane developed by Mitsubishi Chemical, Nishino Kinryo was able to eliminate the water content from *junmai daiginjoshu* top quality sake for which only polished rice, malted rice, and water are used as raw materials. The resulting *Kohakutsuyu* sake has a condensed *umami* (sense of taste) and alcohol content, as well as a rich aftertaste. Since it went on sale in April 2014, *Kohakutsuyu* has built up a good reputation with a wide range of customers.

Stakeholder feedback

We are looking forward that the zeolite membrane may lead to the development of a new genre of sake.

Shiro Sakai
Brewing Section Manager
Nishino Kinryo Corporation



Alcoholic beverages where the alcohol is condensed to achieve a high concentration include *shochu* in Japan and whiskey or brandy overseas. These alcoholic beverages are usually condensed by heating to over 70 degrees Celsius, which can impart a burnt taste and affect the taste and smell. However, if the alcoholic beverage is dehydrated and condensed using a zeolite membrane, as it does not require heating, this means no damage to sugars and amino acids that are sensitive to heat. We achieved this with our *Kohakutsuyu* sake. Although this sake has not been on the market very long, we have received a lot of feedback: "It does not feel like it has a 30-degree alcohol content." "The taste changes over time when you drink it with ice and all sorts of flavors start to emerge." I understand that this is the first food or drink to utilize a zeolite membrane, but I have to say this is the ideal method to use especially for a condensed alcoholic beverage. As condensed sake is a growth area, I look forward that this technology could be adopted by many sake brewers and create a new product genre.

Top> Special Feature: For the Realization of KAITEKI>

2. Gazing at the future of KAITEKI realization – The front lines of R&D: Development of high-contrast pigments for neutral density filters that enable the first-ever KAITEKI photography

Special
Feature

For the Realization of KAITEKI

2 Gazing at the future of KAITEKI realization – The front lines of R&D



Development of high-contrast pigments for neutral density filters that enable the first-ever KAITEKI photography

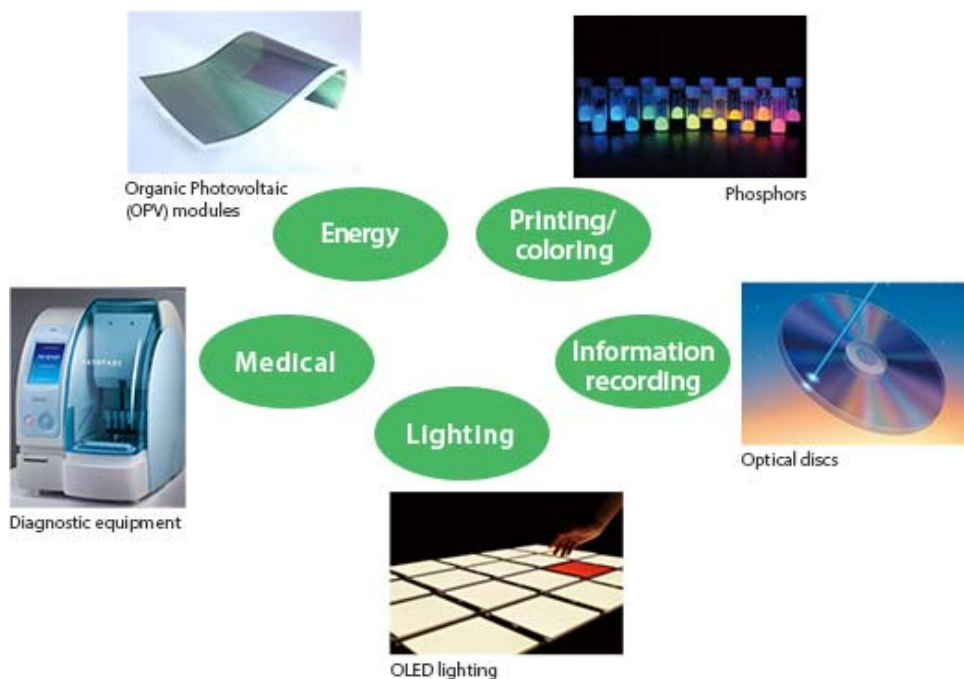
Leveraging its extensive knowledge and knowhow in the field of dye chemistry, Mitsubishi Chemical Corporation has driven the development not only of coloring, but functional color material, which combines a variety of functions. Taking advantage of its knowledge gained from providing optimal functional color material complete with desired functions and properties, such as for displays, printers and lighting, MCC has developed a revolutionary dye that brings new "innovation" to the camera industry.

Developed functional color materials that meet a wide range of customer needs

Dye chemistry has been developed with the design and synthesis of compounds that are capable of reproducing required colors, originally in the colorant and dye fields. In recent years, with the range of applications for dyes spreading to multiple fields such as information display and recording, printing, lighting, as well as medical, energy and other fields, we have evolved into research and development of functional dyes that combine essential coloring functions along with physical, electrical, biochemical and other functions.

The history of MCC's dye research goes as far back as the beginning of the Showa era, when it started the fiber dye business. Since then, through long-term research, we have been accumulating a commanding knowledge unparalleled in other companies, including a functional color material library exceeding 36,000 color types. Utilizing this extensive knowhow, today we develop functional color material that meets the needs of a wide range of customers.

● Dye application fields



Proposing "solutions that utilize dyes" for the challenges associated with evolution of high-resolution cameras

In recent years, a major achievement in functional color material development was the "Development and Industrialization of a High-Contrast Dichroic Dye and Liquid Crystal Composition for Cameras," which won the 62nd Chemical Society of Japan Award for Technology Development in fiscal 2013. This technology contributes to the elimination of image degradation, the so-called "blurring of images when the aperture is small," caused by the stopping down the aperture in high brightness, which had been an eternal problem in the camera industry.

The "blurring of images when the aperture is small" is a phenomenon whereby image sharpness is lost when the volume of light entering the lens through has been reduced (stopping down the aperture). A solution for this has been urgently needed as camera resolution increases.

As this has been an issue repeatedly discussed among digital camera makers, MCC proposed a solution in 2004 of developing a high-contrast dichroic dye in the neutral density filter technology utilizing a liquid crystal element.

Successful development based on molecular design technology using accumulated research data

MCC had already developed dichroic (contrasting density) dyes for LCD displays, but the development of higher contrast dyes was needed for a digital camera application. There is a tradeoff between contrast level and affinity for the liquid crystal, and satisfying both is extremely difficult. However, using our accumulated research data and assessment technology, we proposed a design concept for a new dye molecule, which was realized after overcoming difficulties. It was successfully industrialized as a liquid crystal compound in 2011. The new compound was adopted for use in the aforementioned digital camera in 2012 and mass-production of the liquid crystal composition including dye began.



Development of high-contrast dye

Not only does this technology eliminate image blurring when the aperture is small under high brightness, it makes it possible to take photos not seen before, such as beautifully obscured backgrounds, even under high brightness. The new technology has been highly acclaimed by consumers.

Voice

Highly expert technicians solved difficult problems through mutual cooperation.

Mio Ishida, Director of Mitsubishi Chemical Group Science and Technology Research Center's Organic Device Research Lab



In the development of the functional color material, using molecular design based on a hypothesis, it took about one month to design and synthesize one dye. We evaluated the dye's properties and provided feedback to the molecular design team, and due to the constant repetition of the testing cycle, it took a great deal of time. In this project, it took three years for material development, in other words, to develop the composition of the liquid crystals and multiple dyes. It took another three years to embed the neutral density filter in the camera and perform verifications and adjustments, making a total of six years.

Though not a short period of time by any means, considering that optical elements for cameras is a field in which we were inexperienced, and the difficult problem of the tradeoff between contrast level and the affinity for liquid crystal, it is a wonder that it didn't take much longer. The reason why we were able to commercialize this in six years was because we utilized our library of accumulated functional color material and we joined forces and worked to solve the problem, for example, all team members presented ideas transcending their own specialized areas of expertise.

In this project, many technicians, led by myself, a specialist in dye molecular design, assembled teams to work on dye synthesis, composition with liquid crystal, assessment, industrialization, and other areas. As the leader, what I aimed for was to get the consciousness of all members of a team comprised of researchers with different specialties to move together in a single direction. For areas in which there was little in-house knowhow, such as the application of this to cameras, we improved team cohesiveness by sharing problems and issues with team members. Further, we actively built a sense of awareness regarding the project by having the entire team participate in customer meetings including the person in charge of dye synthesis who had few opportunities to meet directly with customers. These efforts led to this project's success and at the same time were a valuable experience for every team member.

High-contrast dye-making technology, the outcome of this research, is a technology that covers a broad area, enabling applications even in fields outside of cameras. We hope this technology contributes to comfortable living through the development of various applications including higher visibility LCD displays

and dimming glass that can freely adjust the room lighting.



"High-contrast dye" project members

Stakeholder feedback

From the leader of the joint development project

Congratulations on winning the CSJ Award for Technology Development from the Chemical Society of Japan.

It has been nearly 10 years since we worked together on this development project. As the outcome of many years of development, I am very happy to hear that you won the CSJ Award for Technology Development and also commercialized the technology at the same time.

Exposure control (lighting control) in cameras, which was the purpose of this development project, is the most important technology in photography. In fact, as a technique, there has been no significant progress for the last half century. As a result of the development of a high-contrast dichroic dye and liquid crystal composition, I believe that the evolutionary direction of cameras will be changed.

In achieving the outcome of this development project, I have gotten to know everyone at the research center over these many years. In this project, not only did the team take the normal dedicated research approach to development, they also took the contradictory approach of always handling things with agility and promptness. Their approach was just like that of a design corps with its sights set on commercialization. I think that this point is the basis for producing excellent products that fit well with our company, which has attempted to release new products.

Finally, although we successfully commercialized the product, the outcome of this development project is that customers are demanding even higher performance. Personally, I think that this development project is still in the development process.

I look forward to your continued success and great achievements.

Management Structure



Basic concept

As a member of the Mitsubishi Chemical Holdings (MCHC) Group, the Mitsubishi Chemical Group follows the basic guidelines for management of the Group determined by Mitsubishi Chemical Holdings Corporation, and shares the management guidelines and management strategies of the Group determined by MCHC. Mitsubishi Chemical Corporation also upholds the Group policies and rules determined by MCHC to ensure that it fulfills its corporate social responsibility in areas such as Internal Controls, Risk Management, and Compliance (compliance with laws and Charter of Corporate Behavior), and actively pursues management initiatives to enhance corporate value as a core operating company of the MCHC Group.

▶ [To MCHC Management Plan page](#)

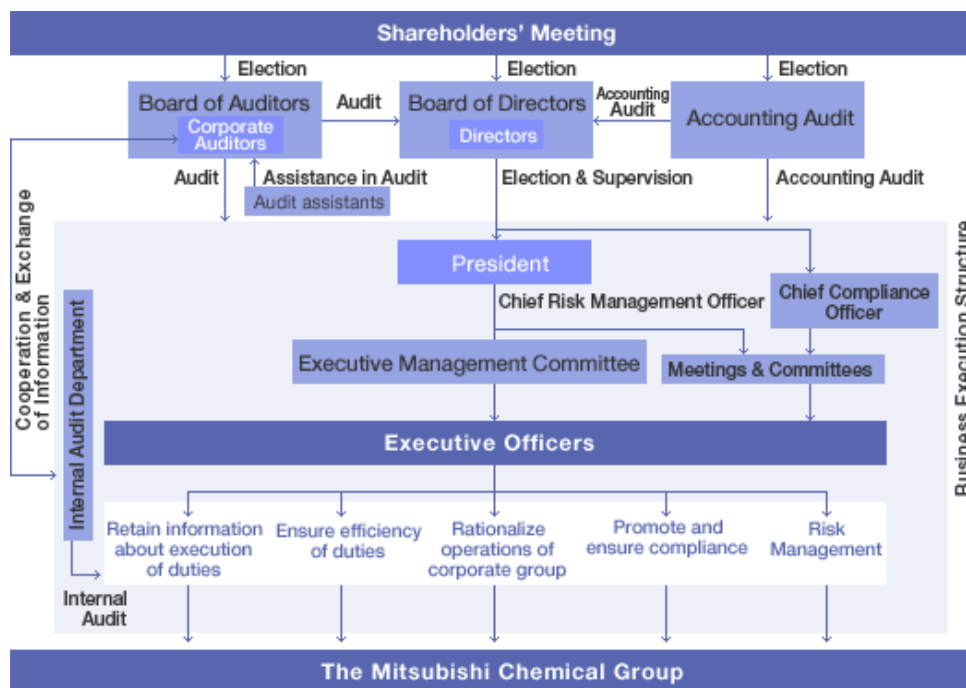
Management Structure **Corporate Governance**

Corporate Governance

The Mitsubishi Chemical Group's top priorities for corporate governance are to ensure fast and efficient decision-making and business execution, clarify management responsibilities, ensure compliance, and strengthen risk management.

Mitsubishi Chemical Corporation (MCC) operates a basic corporate governance structure consisting of the Board of Directors, the Executive Management Committee, Corporate Auditors, and the Board of Auditors. The Company has rationalized managerial decision-making and execution, separating the executive and management functions through adoption of the executive officer system, and making provision in internal rules for deliberative and decision-making bodies such as the Board of Directors and the authority attached to various positions.

● **Corporate Governance Structure of the Mitsubishi Chemical Group (as of July 1, 2013)**



Board of Directors

As a general rule, the Board of Directors meets once a month. The Board makes decisions on important managerial matters and basic matters concerning Group management, as well as auditing the execution of duties by Directors, in accordance with the Regulations of the Board of Directors and other relevant regulations. The six directors (four of whom concurrently serve as executive officers) form a management structure that can adapt quickly to a changing environment and, to further clarify the managerial responsibilities and role of each Director, the term of office for a Director is one year. Candidates for Director are selected by the Board of Directors from among those human resources with the right skills and qualities to realize the management philosophy of the Mitsubishi Chemical Group and fulfill its social responsibility, are proposed at the Shareholders' Meeting, and are elected through a shareholders' resolution.

Executive Management Committee

The Executive Management Committee assists the President in making decisions, deliberating important matters concerning business execution such as the investment and financing of MCC and the Mitsubishi Chemical Group. Any important managerial matters deliberated by the Executive Management Committee are executed pursuant to a resolution of the Board of Directors.

As a general rule, the Executive Management Committee meets twice a month. The committee is comprised of the President, Directors, Executive Officers responsible for divisions and departments, and Corporate Auditors.

Corporate Auditors and Board of Auditors

MCC has Corporate Auditors and a Board of Auditors to audit and supervise its activities. Besides attending meetings of the Board of Directors and other important meetings and committees, the Corporate Auditors verify information contained in reports from Directors and other relevant parties, investigate the status of the Company's business and property, and audit the execution of duties by Directors. As a general rule, the Board of Auditors meets once a month to discuss and pass resolutions on important matters concerning audits based on audit guidelines. As of the end of June 2014, MCC has four Corporate Auditors, including two external auditors. The Accounting Auditor and Audit Office cooperate closely when performing audits, exchanging opinions on their respective audit processes and audit results.

Meetings, etc.

The Company has a number of committees and meetings, including the Compliance Promotion Committee, the Risk Management Committee and the RC Promotion Meeting and they refer or report important matters to the Board of Directors or the Executive Management Committee.

MCC also has local labor unions at its head office (includes branches and branch offices) and each of its offices, and these local labor unions form the Mitsubishi Chemical Labor Union Federation. Twice a year, the Company holds a central management conference for labor and management, giving both sides the opportunity to discuss management issues. Management headed by the President, union members led by the Labor Federation Chairman, and the representatives of each local labor union attend the conference and share their opinions candidly and honestly.

Basic policy and status of system introduction

Mitsubishi Chemical Corporation (MCC) strives to strengthen and thoroughly implement its internal control system based on the basic policies decided by the Board of Directors. The Board of Directors inspects the implementation status of these basic policies at the end of every fiscal term and revises any specifics of the policies as needed.

Under *APTSIS 15*, the new five-year mid-term management plan which started in April 2011, Mitsubishi Chemical Holdings Corporation (MCHC) is promoting the development of strategies for priority areas in global operations, targeting an overseas sales ratio of at least 45%. As part of this, MCHC established wholly owned subsidiaries, setting up Mitsubishi Chemical Holdings America, Inc. (MCHA) in the United States in November 2010, Mitsubishi Chemical Holdings (Beijing) Co., Ltd. (MCHB) in China in January 2011, and Mitsubishi Chemical Holdings Europe GmbH (MCHE) in Europe in November 2012. In this manner, every effort is being made to build risk management and compliance structures, and to develop and strengthen integrated management structures for each area that encompasses a broad range of activities, including the management, supervision and guidance of internal audit structures.

Through MCHC's subsidiaries in each area, MCC is working hard to further bolster its internal control initiatives taking into consideration the local conditions of each Group company.

Taking into account the results of past evaluations of internal control system implementation and operating status, the Company will continue to conduct these evaluations with the aim of making them more efficient and effective. In addition, by improving internal control systems and standardizing procedures, we will seek to raise procedural efficiency and promote rationalization.

Management Structure **Risk Management**

Policy **Basic policy**

In May 2006, the Mitsubishi Chemical (MCC) Group established the Mitsubishi Chemical Group Risk Management Policy, based on the Mitsubishi Chemical Holdings (MCHC) Group Risk Management Basic Policy. With this policy the MCC Group will avoid serious risks associated with business activities and minimize damage in cases where such risks materialize, so that it can fulfill its social responsibility and bolster its corporate value.

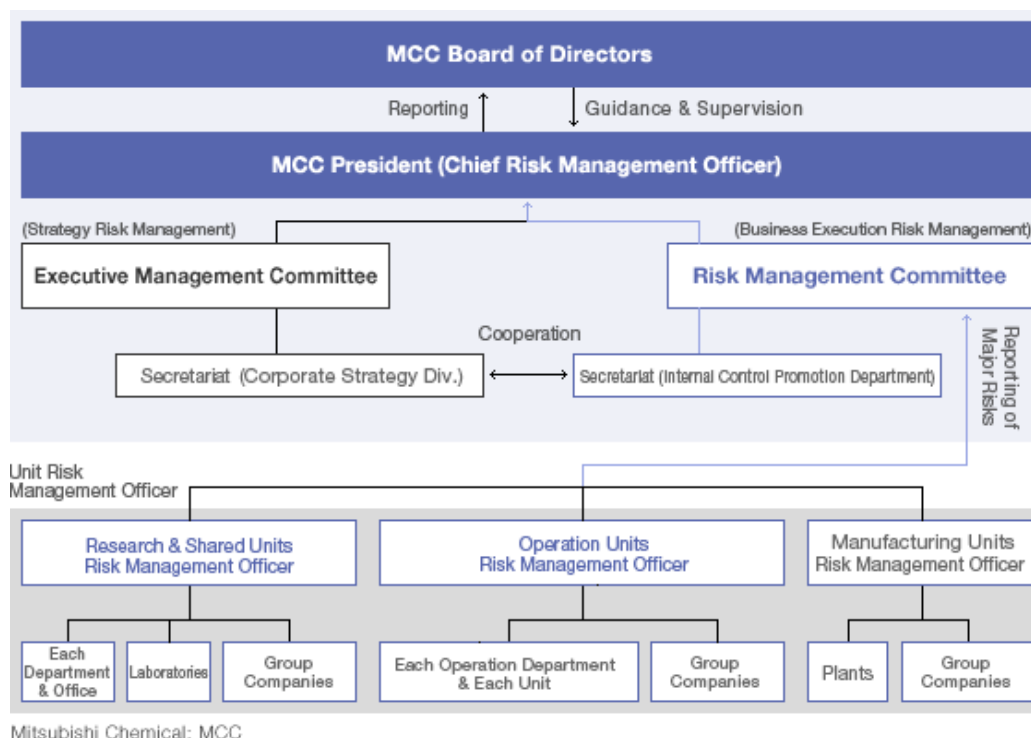
Policy **Risk management structures**

The Mitsubishi Chemical (MCC) Group has set up a risk management structure headed by the President as the Chief Risk Management Officer. The Chief Risk Management Officer is responsible for developing the Mitsubishi Chemical Group Risk Management System and ensuring that it operates and manages risk effectively, thereby helping maintain and enhance the corporate value of the entire MCC Group. Meanwhile, the officers in charge of each division and the Executive Officers in charge of research, manufacturing, sales, technology and other divisions develop and operate the risk management systems of their assigned divisions or MCC Group companies, and provide them with guidance and oversee their risk management.

The Risk Management Committee, established to support the Chief Risk Management Officer, in principle meets once a year, and meetings are held regularly. The Risk Management Committee, comprising the Chief Risk Management Officer, executives responsible for division risk management and Corporate Auditors, deliberates important matters relating to the development and operation of the Mitsubishi Chemical Group Risk Management System, management objectives for serious risks, risk control measures, and other matters related to risk management. The Risk Management Committee also reports progress in these activities to the MCC Board of Directors and the MCHC Chief Risk Management Officer on a regular basis.

The Risk Management Committee also monitors the development and operation of risk management systems at each MCC Group company and shares with other Group companies any information concerning risks that it identifies. At the same time, uniform measures are being undertaken to eliminate or reduce risk.

● Risk Management Structure of the MCC Group



Policy Identification of serious risks

At least once a year, each Mitsubishi Chemical Corporation (MCC) business division and each MCC Group company regularly identifies and assesses the risks it is facing and introduces risk control measures as a part of efforts to carry out risk management in a definitive manner.

Risks are identified in three categories: external risks from sources like natural disasters, market trends and legal and regulatory changes; business process risks from sources such as production, financing, and marketing activities; and internal risks from sources like governance and human resource factors. Each risk is then assessed in terms of its impact, for example, economic loss, human loss, or decline in public trust. Priority is determined for each risk, and countermeasures for each risk are studied considering its frequency and the seriousness of its social impact.

In addition, since fiscal 2010, serious risks that are deemed to require attention from a management perspective or in light of changing social conditions are being confirmed and verified for their content and countermeasures by the Risk Management Committee.

In fiscal 2013, among those risks that were identified, as risks that were shared throughout the Company, we addressed on a priority basis safety risks at the time of production and transport of chemical products, business continuity risks for key products, risks related to serious compliance violations and overseas business development, and information management risks. Moreover, while collaborating with MCHC, we channeled our energies toward responding to overseas emergencies, maintaining information security management systems, strengthening internal controls in sales divisions in light of international trends concerning corruption and antitrust laws, and constructing a business continuity Management system. Furthermore, the status of implementation was reported to MCHC.

In fiscal 2014, we will continue to identify serious risks while evaluating those risks that need to be addressed on a priority basis from the view point of social risks that reflect the changing social situation. We will more closely monitor these risks in cooperation with the divisions in charge.

Formulating and putting into effect a Business Continuity Management Systems (BCMS)

Mitsubishi Chemical Corporation took steps to formulate a Business Continuity Plan (BCP) to minimize the impact on its customers and business partners while ensuring ongoing business and a quick restoration of operations in the event of a major incident.

In fiscal 2007, we formulated our BCPs through by selecting some model products from product groups whose production would possibly be affected by earthquakes in Japan, namely in the Tokai or Tonankai regions, where earthquakes have been predicted. In fiscal 2008, in order to respond to the international standardization of BCP and demands from customers, we defined approaches and formulation guidelines, thereby creating the BCP Formulation Guidelines.

In addition, we drew up a countermeasures manual to minimize damage by an earthquake with its epicenter in the Tokyo metropolitan area, in which social concern is growing, or a new infectious disease, and formulated BCPs to enable departments to continue important operations during such crises. Based on the lessons we learned from the Great East Japan Earthquake in March 2011 about systems to confirm employees' safety and to enable communication, we are overhauling our BCPs. Among work that the head office ordinarily performs, we are investigating alternative arrangements for the continuation of important business matters and the review of BCP to maintain and continue key product businesses, even in the event that our head office suffers an earthquake with its epicenter in the Tokyo metropolitan area or Nankai Trough as is predicted.

In fiscal 2013, we reviewed these and formulated the MCC Group's BCMS Manual based on ISO 22301, an international standard for Business Continuity Management Systems (BCMS), and developed a Companywide system that can perform business continuity management systematically. We conducted drills assuming the outbreak of a major disaster, such as an earthquake in the Nankai Trough. We implemented an initial response, which includes the cooperation of business offices and each division, the tracking of damage and communicating with customers, and conducted inspection activities aimed at the early restoration of business. In this way, we built a system that is responsible for supplying key products that have major social effects.

Looking ahead, we will continue to formulate BCPs for individual and specific key products. The MCC Group will also develop and operate even stronger BCMSs.

Management Structure **Compliance**

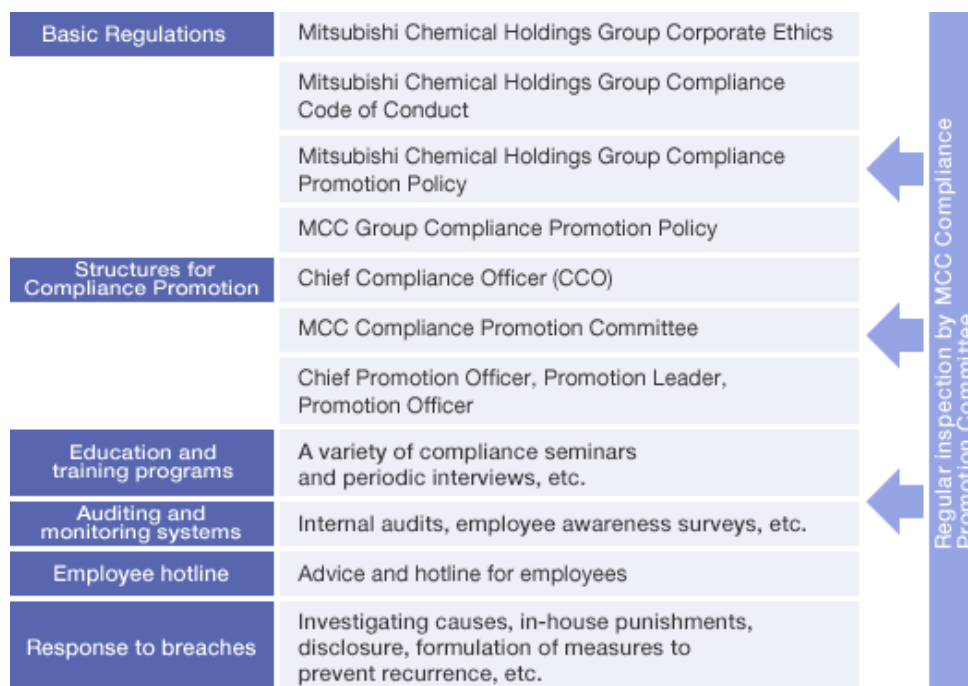
Compliance

Recognizing "Compliance" (compliance with laws and corporate ethics) as fundamental to business survival, the MCC Group is working to strengthen compliance as one of our top priority management issues.

Accordingly, the MCC Group has in place a Compliance Promotion Program that comprises among other things basic regulations concerning compliance, structures for compliance promotion, education and training programs, auditing and monitoring systems as well as an employee consultation and reporting hotline. Based on this program, the MCC Group works to ensure appropriate operations and management.

Our goal is to live up to the expectations of the relevant stakeholders by maintaining a strong sense of corporate social responsibility, ensuring strict compliance in our day-to-day operations, and providing valuable goods and services to society.

● **Compliance Promotion Program**



Mitsubishi Chemical Corporation: MCC

Fostering compliance awareness in Japan and overseas

We continue to conduct a variety of training and education activities in order to further instill an awareness toward compliance throughout the Company.



A seminar in Thailand

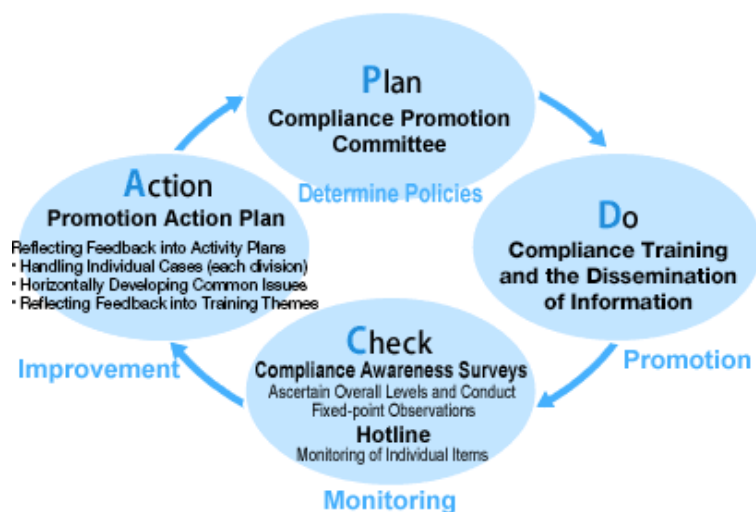
In fiscal 2013, we took steps to upgrade and bolster various training programs in accordance with guidelines

determined by the Compliance Promotion Committee. We also conducted training for compliance promotion officers including Group companies as well as compliance promotion leaders. In addition to group discussions and other initiatives that allow participants to take ownership in the development and conduct of compliance programs, we placed particular attention on compliance and online training for the benefit of all employees. From an overseas perspective, steps were taken to coordinate with MCHC. Local training in Chinese and English was undertaken while working closely with the compliance promotion leaders and promotion officers of the Group companies in Taiwan, Singapore, Thailand, Indonesia, and India. Approximately 396 managerial-level employees attended training sessions from a total of 20 Group companies. In particular in fiscal 2013 we aimed to improve awareness and knowledge based on the main themes of the MCHC Group Charter of Corporate Behavior, violations of antitrust laws, and antibribery measures. Note that we conducted local training in China at the beginning of fiscal 2014. Moreover, for the first time we undertook Internet training for the 20 Group companies and 1,063 employees in the Asia/Oceania region.

Furthermore, in fiscal 2013 we developed a control environment utilizing the overseas internal control model for the Group companies in Thailand and Taiwan. Going forward we plan to gradually expand this environment to the other Group companies in southeast Asia.

Also to check the development of a compliance culture, we conducted our eighth compliance perception survey among employees of MCC and domestic group companies, receiving responses from some 24,100 employees. Similarly, we conducted our fifth compliance perception survey among employees of the overseas Group companies, using questionnaires prepared in Chinese, Indonesian, and English, and received replies from some 2,470 employees. A detailed analysis was undertaken of the results of surveys and questionnaires. This analysis is fed back to all of the companies and the details reflected in training program themes going forward in a bid to deepen understanding. Looking at the results of compliance perception survey conducted in fiscal 2013, we believe that "improvement of knowledge and awareness," "a working environment with good communication," and "the management of superiors" are important for firmly establishing compliance. Accordingly, we are further strengthening our training and other efforts in this area.

● **The PDCA Flow**



Management Structure **Basic Regulations**

The Mitsubishi Chemical Group works to promote compliance based on compliance regulations shared by members of the Mitsubishi Chemical Holdings Group, such as the Mitsubishi Chemical Holdings Group Charter of Corporate Behavior and the Mitsubishi Chemical Holdings Group Compliance Code of Conduct.

Overseas, the Mitsubishi Chemical Group is translating into local languages the Mitsubishi Chemical Holdings Group Charter of Corporate Behavior, which serves as the basic regulations, and the codes of conduct compatible with individual countries' laws and social norms.

Mitsubishi Chemical Holdings Group Charter of Corporate Behavior

Based on our Group philosophy, "Good Chemistry for Tomorrow-Creating better relationships among people, society, and our planet," we shall contribute to the realization of *KAITEKI* through our corporate activities. The term *KAITEKI* signifies achieving true sustainability where we create comfort for people as well as for society and the Earth.

To this end, we shall act based on the concept of MOS (Management of Sustainability) with sound ethics and good common sense in every aspect of our corporate activities as outlined below, to ensure sustained development as a corporate group that engenders society's trust.

Awareness and Responsibility

We shall contribute to the realization of *KAITEKI* through our business with a keen sense of corporate social responsibility, based on the fundamental understanding that the foundation of our corporate activities is society's trust and confidence in us.

Accountability and Transparency

We shall, recognizing the importance of accountability in corporate activities, preserve transparency in such activities, disclose information appropriately, and always maintain a stance of openness, both internally and externally.

Legal Compliance and Fairness, Equitability, and Integrity

We shall comply with laws and international standards and shall hold ourselves to the highest ethical conduct at all times. In addition, we shall always adopt an attitude of fairness, equitability, and integrity towards customers, business partners, shareholders, government agencies, local communities, and other stakeholders. This attitude shall also apply to our dealings with each other.

Valuing Stakeholders

We shall respect and communicate closely with all stakeholders including customers, suppliers, shareholders, business partners, government agencies, local communities, and employees, and consider the outcomes of such communication in our corporate activities.

Respecting Human Rights

We shall respect the dignity and rights of all people, and shall not discriminate against people unfairly on the basis of race, sex, religion or other protected status. We shall also expect our suppliers and other contractors to refrain from any infringement of human dignity and rights or discriminatory practices.

Employment and Labor

We shall not engage in any form of forced, compulsory, or child labor, and shall require our suppliers and other contractors to adhere to the same standards. Mitsubishi Chemical Holdings Group managers at all levels shall respect human diversity and create working environments where employees can exercise their abilities to the utmost in safe and healthy settings, in order to make optimal use of human resources. Managers shall build sound relations with employees through close dialogue, and shall respect employees' rights, including freedom of association and the right to collective bargaining.

Environment and Safety

We shall strive to reduce environmental impact and protect the environment and ecosystems in our operations, in addition to supplying environmentally friendly products and services. Recognizing that the health and safety of our employees and communities in which we do business form the foundation for the very existence of our company and that we have a corporate social responsibility to assure the health and safety of others, we shall continue to ensure safe business activities.

Fair Business Practices

We shall conduct business fairly and sincerely, adhering to ethical principles and refraining from unfair trade practices and any form of bribery or corruption, to contribute to sound social and economic development through fair competition in the market. We shall refuse to work with any group, organization or individual engaged in unlawful activities, and under no circumstances shall we have any relations with anti-social influences.

Customer Satisfaction

We shall constantly strive to satisfy our customers by keeping the promises made in contracts with them, doing our utmost to ensure the safety and quality of the products and services we supply, and engaging in dialogue and R&D.

Information Management

We shall, in the course of our corporate activities, maintain appropriate records and make reports as required by law and regulation. We shall manage information carefully to prevent leakage of confidential data relating to customers, business partners, or our own business.

Science and Technology

We shall advance R&D by bringing together outstanding researchers from Japan and overseas, and contribute to the realization of *KAITEKI* through innovation. We shall recognize the importance of our own and others' intellectual property rights and respect such rights.

Community Involvement

We shall contribute broadly to society through our businesses. In addition, we shall respond to the desires and expectations of local communities by enhancing our understanding of their cultures and customs and acting as a good corporate citizen.

Shared Standards

Mitsubishi Chemical Holdings Group managers shall recognize their responsibility to embody the spirit of this charter and shall ensure that employees are fully aware of its content. We shall expect our suppliers and other business partners to share all the standards set out in this charter, including but not limited to standards relating to human rights, employment, and labor.

<Appendix>

1. This charter shall apply to all members of the following companies:
 - (1) Mitsubishi Chemical Holdings Corporation

(2) Mitsubishi Chemical Holdings Corporation subsidiaries (the juridical person, the management of which is controlled, or, the majority of all votes in which are owned, directly or indirectly, by Mitsubishi Chemical Holdings Corporation)

(3) Companies where Mitsubishi Chemical Holdings Corporation is otherwise deemed to directly or indirectly take a leadership role on the grounds of its shareholding ratio, involvement in personnel management, etc.

2. This charter shall be revised or repealed by resolution of the Mitsubishi Chemical Holdings Corporation board of directors. Note, however, that minor changes may be decided by the president of Mitsubishi Chemical Holdings Corporation.

Mitsubishi Chemical Holdings Group Compliance Code of Conduct

At the MCHC Group, the meaning of the word "Compliance" goes much further than simply complying with laws and regulations. It means compliance with social rules and norms in a broad sense, including Charter of Corporate Behavior. We must develop a strong sense of corporate social responsibility, comply rigorously with social rules and regulations and live up to the expectations of our stakeholders, including customers, suppliers, vendors, consumers, investors such as shareholders, business partners, employees and local communities.

Chapter 1: Awareness and Responsibility

1-1: Awareness of Social Responsibility

Recognizing corporate social responsibility, we will strive to win public trust by contributing to the affluence and comfort of society by offering socially beneficial goods and services based upon the expertise and technologies we have developed in various fields of endeavors, including chemistry.

1-2: Responsible Care for the Environment

We will commit ourselves to the protection of the environment and endeavor to reduce environmental burden in the course of all our business activities, including promotion of resource and energy conservation, waste reduction, reuse and recycling, as well as environmental conservation and development of its technologies.

1-3: Responsible Care for Safety

Recognizing safety assurance as a corporate social responsibility, we will place top priority on safety in the course of all our business activities, which include ensuring the safety of all our products and services, including adequate handling of chemical substances, as well as operational safety.

Chapter 2: Fairness, Equitability and Integrity

2-1: Respect for the Dignity and Rights of Individuals

We will respect individual human rights and character. We will abstain from any conduct that undermines individual dignity, such as discrimination against others on the basis of race, ethnicity, national origin, religion, gender, disability, disease and social status; we will also avoid language and behavior that offends others, such as sexual harassment. We will also adhere to internationally recognized norms, eschew forced labor in all of its forms, and support the effective abolition of child labor.

2-2: Creating a Motivational Workplace

We will strive to create a motivational workplace that provides job satisfaction to Group members through the nurturing of respect for diverse personalities and values, the creation of a free and open-minded working environment in which individual employees can manifest their best qualities, and the fostering of mutual trust through fair and equitable personnel treatment.

2-3: Customer Relations

We will listen to the voices of our customers and take a pro-customer approach so that we will be able to respond with utmost sincerity and offer safe and high-quality products and services.

2-4: Partnership/Vendor Relations

Based on the basic understanding that all business partners and vendors are our partners in conducting business, we will endeavor to foster mutual trust through fair and equitable transactions.

2-5: Ethical Business and Government Relations

We will abstain from illicit political donations, illegal incentives and bribe-giving to politicians and public servants, and strive to maintain healthy and transparent relations with political and governmental organizations at all times.

2-6: Severing Ties with Anti-Social Influences

We will take a firm stand against anti-social influences that disrupt social order and threaten sound activities, and never involve ourselves in malfeasance or anti-social conduct. We will not provide any favors, including financial, to anti-social influences, under any circumstances whatsoever.

Chapter 3: Strict Compliance

3-1: Compliance with Laws and Regulations

We will conduct business by adhering to high ethical standards and sound common sense, and comply with all relevant laws and regulations in and outside of Japan, socially-recognized rules and standards, agreements and promises we have entered into with our customers, vendors, business partners and local communities, as well as our corporate rules and manuals.

In particular:

- i We will comply with relevant administrative laws and regulations applicable to our businesses and perform procedures required by such, including obtaining official approval and licenses and notification; and reporting properly and in complete detail.
- ii We will comply with the Antimonopoly Act* and other relevant laws and regulations, abstain from illegal conduct such as forming cartels, engaging in bid-rigging and abusing one's dominant bargaining position, and participate in fair and free competition in the marketplace.
- iii We will comply with the Unfair Competition Prevention Act* and other relevant laws and regulations, and shall not pursue our commercial interest by improper means such as illicit acquisition of others' trade secrets, or acts that may be detrimental to others' commercial interests.
- iv We will comply with the Subcontract Act* and other relevant laws and regulations and abstain from engaging in conduct that may be detrimental to subcontractors' interests, such as delays in payment.
- v We will comply with the Foreign Exchange and Foreign Trade Act* and other relevant laws and regulations, and properly handle the import/export of raw materials, products, and other items. We will also abstain from exporting products and technologies that may destabilize international peace and security.
- vi In addition to the relevant laws and regulations pertaining to accounting procedures and taxes, we will abide by generally accepted accounting standards as we implement proper accounting procedures, ensure the reliability of our financial reports, and make appropriate tax payments.
- vii We will comply with the Labor Standards Act* and other relevant laws and regulations, and strive to maintain pleasant working conditions including occupational safety and health.

viii We will not engage in fraudulent transactions prohibited under the Financial Instruments and Exchange Act* and other relevant laws and regulations, including the trading of stocks and corporate bonds by taking advantage of undisclosed information one has come to know in the course of one's work.

ix We will correctly record business transactions and activities, including the signing of contracts, and properly manage and maintain the records in accordance with relevant laws and regulations as well as relevant internal rules.

Note: The names of individual laws referred to in this Chapter are those then effective in Japan and, therefore, please replace them with corresponding laws and regulations of your country.

3-2: Protection of Intellectual Property

We will endeavor to develop innovative technologies, products and services, and obtain intellectual property rights and commercialize them. In this process, we shall not infringe upon the intellectual property owned by other parties, including patents, utility models, designs, trademarks and copyrights.

3-3: Protection of Personal Data

We will strictly control personal data pertaining to employees, customers and other stakeholders that we may have access to in the performance of our duties. Unless personal consent is secured, we will not disclose or leak any personal data to third parties or other employees who have no need to acquire the information in terms of business, and, at the same time, will not use it for purposes other than the original intent.

3-4: Confidentiality

Strict control must be maintained over trade secrets and other confidential information belonging to the company or to third parties (including customer information and technical know-how) that one might obtain in the performance of one's business duties. Without the express permission of the proper authorities, such confidential information must never be disclosed or leaked to third parties or to internal staff who have no legitimate need for it, and must never be used for purposes other than the original intent.

Chapter 4: Prudence

4-1: Prudent Conduct

In our relationships with customers, vendors and other business partners, we will not engage in misleading acts such as offering or receiving business entertainment and gifts that go beyond business norms or exceed the bounds of limits acceptable to the industry.

4-2: Appropriate Use of Corporate Assets

Corporate assets and expenses, both tangible and intangible, must be used properly to achieve corporate business objectives and must not be used for personal purposes.

4-3: Appropriate Use of Information Systems

Pursuant to relevant internal rules, corporate networks and operation software will be used only for business operations authorized by the company. Wrongful acts such as hacking into the information system, damaging, falsifying or altering data, or making unauthorized use of computer software, are not permitted.

4-4: Preventing Conflict of Interest

We shall not exploit our official positions and authority or information we may have access to in the performance of our duties to engage in acts that benefit ourselves or third parties, nor shall we involve ourselves in activities that may compete against our corporate businesses, without corporate permission.

4-5: Prohibition of Political/Religious Activities at the Workplace

We will not engage in political or religious activities at the workplace, including solicitation on behalf of political or religious groups or requests for votes, without corporate authorization.

4-6: Discontinuance of Empty Formalities

Except for those within the acceptable business norms, in-house and inter-Group gift-giving and exchange of gifts and items should be shunned in view of abolishing empty formalities.

Chapter 5: Transparency and Openness

5-1: Co-existence with Local Communities

We will strive to deepen our understanding of the cultures and customs of the countries and communities in which we operate our businesses, respect their social norms, and harmoniously co-exist with local communities as good corporate citizens through participating in activities that contribute to society.

5-2: Appropriate Disclosure of Information

As a corporate group open to society, we will maintain the transparency of our activities and appropriately disclose relevant information to promote public understanding of our activities. Pursuant to relevant laws and regulations, we will also accurately and adequately disclose financial data and information pertaining to the state of our business activities to shareholders and investors.

5-3: Open Workplace

We will maintain an open environment at the workplace where members feel comfortable about discussing anything. If, at the workplace, one learns of acts committed that violate laws and regulations or transgress this Code of Conduct, or the possibility of such acts, one must not conceal or neglect it but report it to the Company for a solution through the management or other systems, such as the Compliance Hot Line.

Chapter 6: Rules for Administration of the Code of Conduct

(Scope of application)

6-1. This Code of Conduct shall apply to all members of Mitsubishi Chemical Holdings Group, including the officers of the following companies.

- (1) Mitsubishi Chemical Holdings Corporation
- (2) Subsidiaries of Mitsubishi Chemical Holdings Corporation under the Companies Act
- (3) Companies where Mitsubishi Chemical Holdings Corporation is otherwise deemed to directly or indirectly take a leadership role on the grounds of its shareholding ratio, involvement in personnel management, etc.

(Relationship of the Code of Conduct to other internal rules)

6-2. The group companies to which this Code of Conduct applies may formulate their own guidelines, rules, and manuals, on the condition that these do not violate the spirit of this Code of Conduct, when they deem this necessary from the perspective of adapting compliance to their own unique circumstances, including their business type and category, the legal system and social norms in the country in which they are located, and other circumstances.

(Handling of violations)

6-3. In the case that a serious situation in violation of this Code of Conduct occurs, the top management at the group company in which the violation occurs shall be responsible for resolving the problem, investigating the cause, and preventing recurrence, and when necessary punish the people involved in accordance with the relevant internal rules and disclose the appropriate information both inside and outside the company.

(Review, revision, and repeal of the Code of Conduct)

6-4. This Code of Conduct shall be reviewed regularly, and in the case that it is recognized that there is a discrepancy between the company's perception of problems with respect to the corporate

activities and the content of this Code of Conduct, the Code of Conduct shall be revised or repealed by resolution of the Mitsubishi Chemical Holdings board of directors. Note, however, that minor changes may be decided by the president of Mitsubishi Chemical Holdings Corporation.

Management Structure Promotional Structures

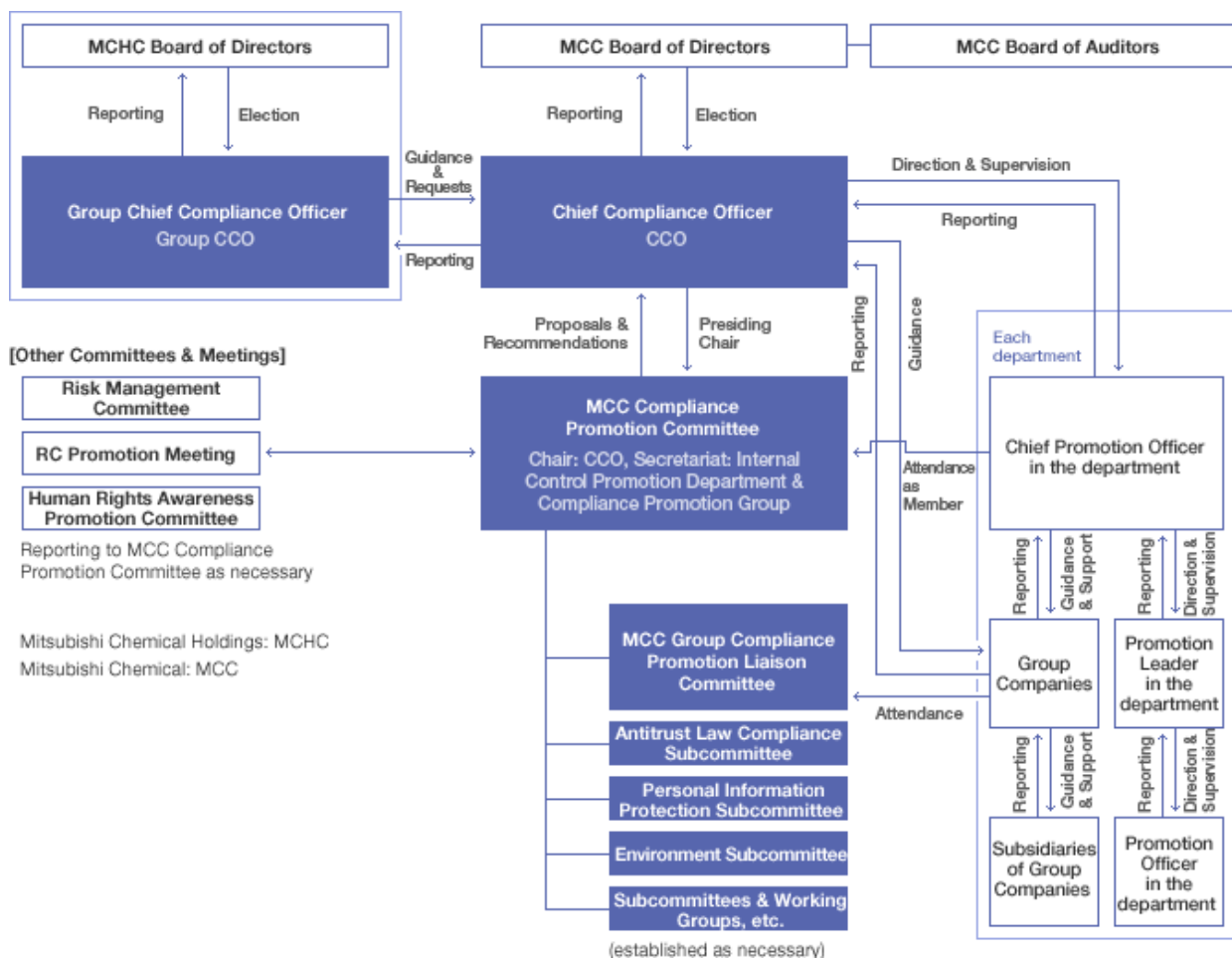
The Board of Directors of Mitsubishi Chemical Corporation (MCC) appoints the Chief Compliance Officer (CCO) for the Mitsubishi Chemical Group (MCC Group).

The CCO has the authority to direct and supervise MCC departments and Group companies in matters relating to compliance, and chairs the Compliance Promotion Committee. The CCO also reports to the Board of Directors and Mitsubishi Chemical Holdings Corporation's (MCHC) CCO on the status of compliance and important issues faced by the MCC Group.

The Compliance Promotion Committee deliberates on matters such as the basic policy for development and operation of the MCC Group's Compliance Promotion Program and the performance of the program. It also makes necessary proposals and recommendations to the CCO. Chief promotion officers, promotion leaders, and promotion officers who are responsible for promoting compliance in each department on a daily basis are also appointed to every department. Their foremost mission is to ensure and promote compliance in their own departments.

Overseas, we are striving together with MCHC to develop and strengthen our compliance promotion structures and enhance related training programs in collaboration with Mitsubishi Chemical Holdings America Inc. (MCHA) in the U.S., Mitsubishi Chemical Europe GmbH. (MCHE) in Europe, Mitsubishi Chemical Holdings (Beijing) Co., Ltd. (MCHB) in China, and the Group companies designated as compliance promotion leaders by MCHC in Asia excluding China.

Compliance Promotional Structures of the Mitsubishi Chemical Group



Chief Compliance Officer (CCO)

The CCO is elected by a resolution of MCC's Board of Directors, and must report to the Board of Directors and the CCO of MCHC.

Mitsubishi Chemical Compliance Promotion Committee

The Compliance Promotion Committee deliberates on matters such as the basic policy for the Compliance Promotion Program, the performance of the program, action taken in the event of a compliance violation, as well as the preparation, amendment and abolition of important regulations. It also makes proposals and recommendations to the CCO.

Chief Promotion Officers, Promotion Leaders, Promotion Officers

Every department of MCC has a chief compliance promotion officer, a compliance promotion leader, and a compliance promotion officer at each level of the organization. Their job is to ensure and promote compliance within their respective departments by upgrading compliance promotion structures.

Management Structure **Supervision & Reporting**

Auditing & Monitoring structures

Mitsubishi Chemical Corporation (MCC) gains an understanding of the status of compliance at individual workplaces by conducting an annual Control Self-Assessment (CSA), targeting each of MCC's departments, offices, branches, branch offices, and Group companies.

The MCC Group also commenced a Compliance Perception Survey among employees of MCC and the domestic Group companies in fiscal 2006, and has been conducting an Employee Perception Survey led by the Human Resources Department since fiscal 2012. It has also been conducting an Overseas Compliance Perception Survey among employees of overseas Group companies since fiscal 2009.

Employees' hotline

In fiscal 2002, the MCC Group established an employees' hotline, providing employees with a way to contact the Internal Control Promotion Department or an outside lawyer to seek advice or report possible compliance violations. The Group has since been working to ensure that the hotline is operated properly and employees know about it.

Anyone seeking advice or reporting a possible compliance violation is assured that the information they provide will be treated confidentially, they will not be subjected to disadvantageous treatment, and their privacy and human rights will be protected. An investigative team led by the Internal Control Promotion Department General Manager act upon the information provided. Any compliance problems identified are dealt with and resolved promptly under the direction of the Chief Compliance Officer (CCO). In fiscal 2013, the hotline received 37 reports and inquiries, of which six were personnel-related, 20 were working environment-related, seven were legislation-related and four related to other matters.

MCC is committed to making the hotline user-friendly, using a toll-free hotline number and surveying people who have used the hotline to check that they have been properly protected.

Response to compliance violations

In the event of a compliance violation, an appropriate initial response is made to rectify or otherwise deal with the situation. In addition, an investigation to determine the cause of the violation is carried out and efforts to prevent a recurrence are made. Any employee who has committed a compliance violation is dealt with as necessary, possibly with disciplinary action in accordance with the Employee Work Regulations or other relevant regulations of the Group company to which the employee belongs. If it is deemed necessary to prevent a recurrence of the compliance violation, the CCO may disclose facts of cases and details of the disciplinary action within the Group, on condition that privacy and human rights are taken into consideration.

Intellectual property protection and prevention of infringements

Mitsubishi Chemical Corporation (MCC) will endeavor to develop innovative technologies, products and services and obtain intellectual property rights and commercialize them. In this process, we are taking steps to avoid infringing on intellectual property owned by other parties, including patents, utility models, designs, trademarks and copyrights, while legally protecting MCC's intellectual property.

▶ [To Intellectual Property page](#)

Responsible Care (RC) Activities



Policy

Basic approach

In our role as a chemical corporation group with established business bases within Japan and abroad and supplying diverse materials, products and systems to a wide range of industries, stably supplying products and ensuring their quality and safety, offering safe and hygienic work environments and promoting businesses with lower environmental load are among our most important social responsibilities.

Based on this philosophy, the Mitsubishi Chemical Group has participated in Responsible Care (RC) activities, which are self-initiated activities by the chemical industry for ensuring environmental conservation, health, and safety, since the foundation of the Japan Responsible Care Council in 1995. The five mainstay activities are process safety and disaster prevention, occupational safety and health, environmental preservation, quality assurance and chemical safety. By conducting activities that conform to the Mitsubishi Chemical Group RC Promotion Policy, we aim to build relations based on trust with the public and help in developing a sustainable society.

Mitsubishi Chemical Group RC Promotion Policy

- 1. Environment and safety are core focuses of our business activities**
- 2. Committed to customer confidence and quality assurance**
- 3. Targeting zero accidents and workplace injuries**
- 4. Working to minimize waste and harmful chemical substance emissions**
- 5. Working to conserve resources and energy**
- 6. Developing technologies and products that contribute to the environment and safety**
- 7. Working to strengthen our public reputation**

Mitsubishi Chemical Group companies promoting RC Activities*

○ denotes subsidiaries of Mitsubishi Chemical as stipulated by the Japanese Companies Act, for which Group performance data are collected and published on the Social Responsibility page

● denotes (overseas) subsidiaries of Mitsubishi Chemical as stipulated by the Japanese Companies Act, for which Group performance data are collected on the Social Responsibility page

Unmarked companies indicate those outside the scope of Group performance data collection on the Social Responsibility page.

* To further ensure promotion of Responsible Care (RC) activities, among domestic and overseas Mitsubishi Chemical Group companies, principally companies with operating divisions that handle chemical products participate as Mitsubishi Chemical Group companies promoting RC Activities.

Performance Products domain

- Arkema Yoshitomi, Ltd.
- Shinryo Corporation
- Japan Coating Resin Corporation
- Nippon Kasei Chemical Co., Ltd.
- The Nippon Synthetic Chemical Industry Co., Ltd.
- Mitsubishi Chemical Analytech Co., Ltd.
- Mitsubishi-Kagaku Foods Corporation
- Mitsubishi Kagaku Media Co., Ltd.
- Changshu MC Ionic Solutions CN Co., Ltd.
- MC Ionic Solutions UK, Ltd.
- MC Ionic Solutions US, Inc.
- Mitsubishi Chemical Infonics Pte Ltd.
- Mitsubishi Kagaku Imaging Corporation
- Qingdao Anode Kasei Co., Ltd.
- Tai Young Chemical Co., Ltd.
- Tai Young High Tech Co., Ltd.
- Resindion SRI

Industrial Materials domain

- Echizen Polymer Co., Ltd.
- M Commerce Co., Ltd.
 - Kashima-Kita Electric Power Corporation
 - KASHIMA Power Corporation
 - Kawasaki Kasei Chemicals Ltd.
- The Kansai Coke and Chemicals Co., Ltd.
 - J-Plus Co., Ltd.
 - TM Air Co., Ltd.
- Japan Polychem Corporation
 - Japan Unipet Co., Ltd.
 - Mitsubishi Engineering-Plastics Corporation
 - YUPO Corporation
- RHOMBIC CORPORATION
 - Beijing Ju-Ling-Yan Plastic Co., Ltd.
 - MCC Advanced Polymers (Ningbo) Co., Ltd.
 - Mitsubishi Chemical India Private Ltd.
 - Pt. Mitsubishi Chemical Indonesia
 - Mitsubishi Chemical Performance Polymers, Inc.
 - Mitsubishi Chemical Performance Polymers (China) Co., Ltd.
 - Mitsubishi Chemical Performance Polymers (Thailand) Co., Ltd.
 - Mitsubishi Chemical Polimeros de Desempenho Ltda.
 - Ningbo Mitsubishi Chemical Co., Ltd.
 - MCCPP (Changshu) Co., Ltd.
 - Sam Nam Petrochemical Co., Ltd.
 - Sam Yang Kasei Co., Ltd.

Others

- Mitsubishi Chemical Engineering Corporation
- Mitsubishi Chemical Group Science and Technology Research Center, Inc.
- Mitsubishi Chemical High-Technica Corporation
- Mitsubishi Chemical Logistics Corporation

Responsible Care Activities **RC Management**

Policy Responsible Care (RC) activity promotion organization

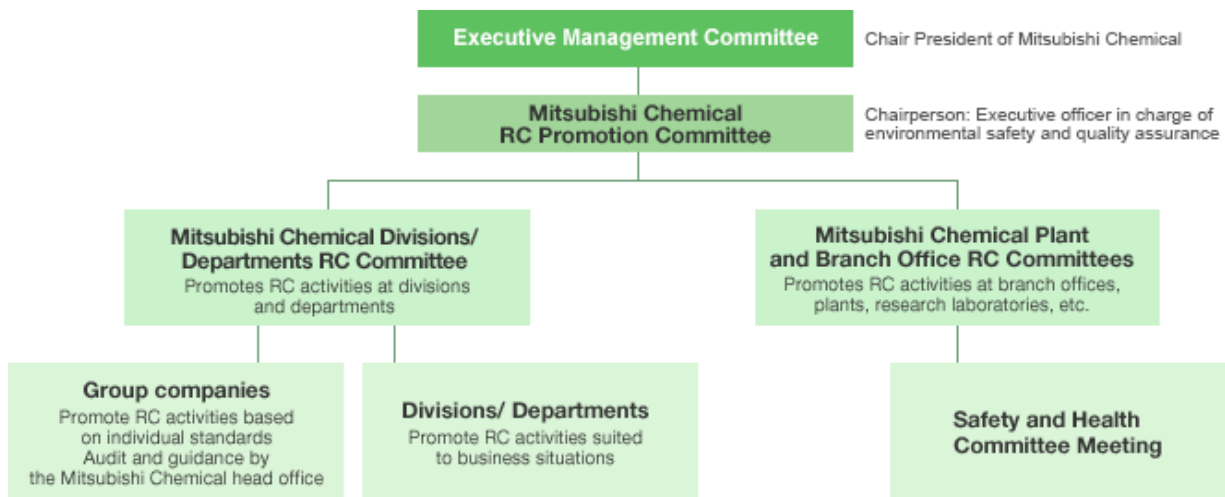
The Responsible Care action plans for Mitsubishi Chemical Corporation (MCC) and the MCC Group are deliberated on and decided in the Executive Management Committee chaired by the MCC President and attended by the executive officers in charge of manufacturing, research, operations and common divisions every year. The draft Responsible Care action plans for the Executive Management Committee agenda are deliberated on and decided in the Mitsubishi Chemical RC Promotion Committee, chaired by an executive officer in charge of environmental safety and quality assurance, with those attending meetings including heads of manufacturing, research, operations and common divisions. Finally, on the basis of the Responsible Care action plan decided by the Executive Management Committee, the respective MCC divisions and Group companies draw up their own action plans for engaging in Responsible Care initiatives, tailored to their operational specifics, industries and business segments.

This framework for promoting Responsible Care practices is used by the MCC Group and MCC in their efforts to check that Plan-Do-Check-Act (PDCA) cycle procedures are applied to Responsible Care initiatives and in ensuring that improvements are implemented as needed.

● **RC activities of the Mitsubishi Chemical Group**



● RC promotion organization at Mitsubishi Chemical and the Mitsubishi Chemical Group



Fiscal 2013 Mitsubishi Chemical Corporation Group Responsible Care action plan

Security, safety, environmental protection, and quality assurance

Promotion of RC activities to eliminate weaknesses in each workplace

1. The design of measures to prevent recurrence of accidents and serious trouble (their effectiveness and acceptability)
2. Measures to prevent accidents and serious trouble beforehand, and their firm establishment in the corporate culture
3. Raising the awareness of employees as professionals in the front line workplaces (establish awareness of responsible actions)

Chemicals management

Thorough implementation of chemicals management based on risk assessments

1. Meeting the requirements of chemical substance regulations and strengthening management of chemical substances
2. Strengthening of information management systems
3. Strengthening of risk assessments and information transmission

Mitsubishi Chemical Corporation (MCC) performs RC audits of the business locations and plants of MCC and the MCC Group geared toward confirming the progress made by RC activities and ensuring their ongoing improvement.

In fiscal 2013, MCC conducted Responsible Care audits at six business locations. The auditors examined accidents or trouble that had occurred since the previous audit to confirm the status of implementation of measures to prevent their recurrence and prevent accidents or trouble occurring beforehand and to confirm compliance with laws and regulations, with their focus on whether or not the PDCA cycle had been applied to the fiscal year policy for RC activities: "Promotion of RC activities to eliminate weaknesses in each workplace."

As a result of the audits, multiple cases in which the CA (check, act) part of the PDCA cycle was not implemented sufficiently were found so the auditors gave instructions for improvement in each individual case.

Furthermore, at each of the business locations plenary discussions were held by the heads of all of the manufacturing sections. In the discussions "What actions should the section head take in order to ensure that no mistakes caused by human error occur?" was chosen as the common theme for all of the business locations, and the participants held lively exchanges of views about their daily innovations to deal with this issue and any difficulties they were facing. A document summarizing the results of the discussions at all of the business locations was distributed to all of the people who attended the discussions and put to use for running the sections.

In fiscal 2013 audits of the MCC Group companies were conducted at nine companies, including two overseas companies. The auditors confirmed whether or not the PDCA cycle had been applied to "Promotion of RC activities to eliminate weaknesses in each workplace" and also carried out confirmations regarding the status of development and application of rules and standards as well as their status of implementation, the status of education and training, the status of communication in the workplace, and other matters. As a result of the audits, cases in which the CA part of the PDCA cycle was not implemented sufficiently and cases in which rules and standards were not applied sufficiently were found so the auditors gave instructions for improvement in each individual case.

Through these RC audits, the MCC Group is aiming to improve the level of its RC activities.

Responsible Care Activities **Process Safety and Disaster Prevention**

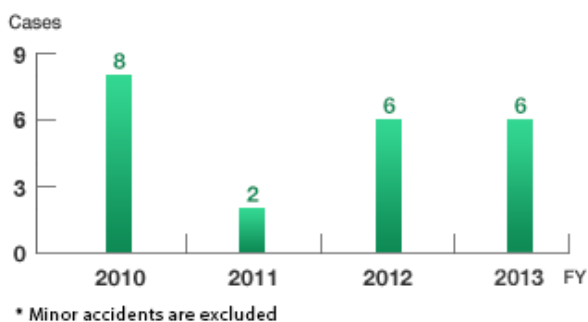
Policy Activities targeting zero facility-related accidents

MOS Indexes C-3: Recognition of corporate trust > Find out more

Having established the policy that securing the environment and safety is the underlying principle of its business activities, the Mitsubishi Chemical (MCC) Group pursues disaster prevention initiatives as one of its five Responsible Care mainstay activities undertaken based on our Corporate Philosophy, "Good Chemistry for Tomorrow." In fiscal 2013, we engaged in process safety and disaster prevention efforts under our goal of zero serious facility-related accidents. These efforts were tailored to the distinctive characteristics of the work place and had as their top priority the institution of measures to prevent the recurrence of accidents and measures to prevent accidents.

Initiatives we pursued to prevent the recurrence of accidents included using accident case studies of not only MCC, but of other companies, as lessons and reconfirming whether or not preventative measures taken in the past had remained effective without erosion of efficacy. To prevent the occurrence of accidents, we undertook a number of initiatives such as conducting safety assessments before changing equipment and updating operating requirements and implementing risk reduction activities. As for the implementation status of these initiatives, we are conducting Responsible Care audits and making necessary improvements. We tirelessly carried out these initiatives, but failed to reduce the number of accidents in the MCC Group as a whole in fiscal 2013, thus the results were disappointing. In the future, to achieve these goals, we will actively improve facility management, take stronger measures to prevent human error, and take other measures.

● Number of facility-related accidents (MCC Group)



Activities and Achievements

Implementation of risk assessment in manufacturing

The Mitsubishi Chemical Group identifies potential risk factors in the manufacturing process (including manufacturing equipment, manufacturing methods, and operation methods) and takes steps to prevent their occurrence (manufacturing process risk assessment) through necessary countermeasures (risk reduction). Manufacturing process risk assessment is broadly divided into Safety Assessment (SA), which is implemented when beginning the manufacture of new products and when improving and upgrading existing manufacturing processes, and Safety Review (SR), which is the full inspection of existing manufacturing processes, safety reassessment, and confirmation of countermeasure effectiveness.

When beginning the manufacture of new products and when changing the chemical substances being used, the manufacturing equipment or the manufacturing order, SA is performed in advance, safety is evaluated, and necessary countermeasures are taken.

The SA is performed at the planning stage and before the start of operation milestones and also after the start of operation. In the SA performed after starting operation, we evaluate whether safe operation has been achieved.

On the other hand, the SR evaluates safety by reconfirming the operating conditions such as the physical properties of substances being used, temperature, pressure and other factors, the control methods, and safety measures. Equipment operators familiar with everyday operation, staff, and those in charge of non-manufacturing divisions participate in the assessment and exchange views from a wide range of perspectives. Moreover, they assume not only a normal operating state, but various scenarios, such as variable states including startup and shutdown, as well as power failure, and then assess safety.

Activities and Achievements

System for enhancing manufacturing process risk assessment

To enhance SA and SR, Mitsubishi Chemical Corporation (MCC) trains employees so that they are able to understand risk assessment development and all manufacturing processes. The main topics are as follows.

Application of manufacturing process risk assessment methods

One of the risk evaluation methods used for manufacturing process used at MCC is HAZChart analysis, developed jointly by MCC and Mitsubishi Research Institute, Inc. This is a method that can be used by process designers and those in charge to evaluate the magnitude of manufacturing process risk based on quantitative data such as the probability of machinery failure and incorrect operation occurring. It facilitates everything from accident scenario formulation to the evaluation of quantitative risk for manufacturing processes, allows worst-case scenarios to be easily simulated, enables shared factor events, such as power failure, to be easily handled, and offers a host of other features. By using supporting software, anyone can easily evaluate manufacturing process risks.

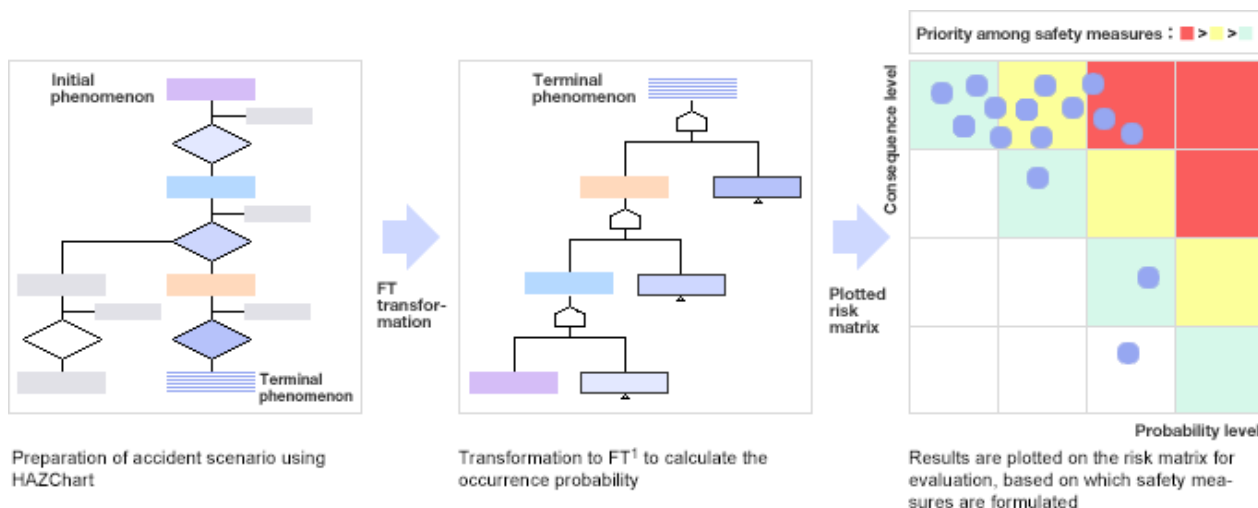
HAZChart analysis is used at MCC in times of large-scale reform or establishment of plants with potential risks such as fire, explosion or leakage of toxic substances, and also at times of SR at existing plants.

Today, we offer on-the-job training (OJT) using HAZChart analysis to develop engineers capable of performing quantitative risk assessment of manufacturing processes in all of our plants.

In addition, we substantially upgraded the supporting software, making it more user-friendly and easier to understand. Looking forward, we intend to further introduce this program to companies throughout the entire MCC Group.

This software has been released under the name "PHA Organizer Ver.3"

● Flow of HAZChart analysis



1. Fault tree (FT): Also referred to as a failure tree diagram, this is used for analyzing the causal relationship concerning accidents in systems and calculating occurrence probability.

Supporting SA and SR with SR instructors

In fiscal 2003, MCC launched an SR instructor system and took steps to improve manufacturing process risk assessment.

SR instructors are former employees with specialized experience and knowledge in manufacturing processes and safety countermeasures, as well as senior engineers. SR instructors attend the SAs and SRs of plants they are responsible for supporting the manufacturing process risk assessments of plants by providing advice and guidance from an expert's point of view.

Implementation of process safety education

In fiscal 2009, the teaching of process safety education at all MCC plants commenced. The objective of process safety education is to systematically educate mid-career technical staff, who are the core of manufacturing process risk assessment (SA and SR), in matters that form the basis of process safety. Subjects taught include the risk of substances and reactions, such as ignition and explosion, runaway reaction caused by thermal decomposition and exothermic reaction, as well as countermeasures for greater safety, and risk management. Thus far, about 750 employees have received this training, which is useful in business. At present, only MCC employees are being taught, but we are considering expanding beyond this to include Group company employees.

The training will continue into the future with the aim of improving the skills of working-level employees.

Development of process safety engineers

We train staff called "CPSEs" (Chemical Process Safety Engineers) to understand the basis and principle of process risks and to be able to practically instruct SA and SR. In the training is of a practical nature, for example, we establish challenging themes for each plant and training is conducted in an on-the-job-training (OJT) seminar format so they can simulate and understand problem solving. Examples of challenging themes include 1) an investigation of the cause of past accidents and problems, 2) a safety review in equipment changes, and 3) an actual investigation of plant problems. CPSE training was begun at the MCC Yokkaichi Plant in 2009 and has been expanded in fiscal 2013 to include other plants.

Plant topics

MCC Mizushima Plant

The Mizushima Plant has been conducting manufacturing process risk assessments since the past. Existing manufacturing process safety begins with organizing into list events (called "hazards") that are possible causes or factors behind disasters such as fires, explosions, leakages of hazardous substances, or machinery breakage in each manufacturing process (this includes startup and shutdown). The risk in each process is calculated and assessed based on the magnitude of the impact if a disaster actually occurs and the probability of a disaster occurring. In doing so, large risks are quantitatively assessed using an analysis method such as a HAZChart analysis. HAZChart analysis has been performed approximately 2,000 times thus far at the Mizushima Plant. As a result of these assessments, in the manufacturing processes have a high risk, we take measures to reduce risks that have a high probability of occurring. Further, by adding internal and external accident information to the risk factors, we can make the most up-to-date assessments.

On the other hand, when new manufacturing equipment is set up, and when changing the chemical substances, the manufacturing equipment or the manufacturing order, SA is performed and safety is assessed from the standpoint of disaster prevention, such as fires and explosions and work injury prevention. In this assessment as well, it is particularly important to use a HAZChart to make a quantitative assessment and confirm safety.

Regarding risk assessment of variable states other than startup and shutdown, a risk assessment that assumes the loss of all power was performed and effective countermeasures were considered. In the future, we plan to perform risk assessments assuming that a worker has forgotten to perform an operation in variable states and take necessary countermeasures to reduce risk.

MCC Yokkaichi Plant

From 2009, the Yokkaichi Plant began training CPSEs before the rest of the Company did. In CPSE training, students learn, as knowledge for chemical process accident prevention, about thermal stability evaluation, the mechanism of ignition, and countermeasures against static electricity and dust explosions in a seminar format. After the students pass their final exam, they are publicly designated CPSE. As of March 2014, 26 people have been designated CPSE and they attend SAs and SRs in the Yokkaichi Plant and apply their specialized knowledge to accident prevention. In the next two years, we will train enough CPSE so that one can be assigned to every manufacturing section.



Mitsubishi Chemical Corporation (MCC) is working to improve disaster drills that are conducted at each plant. In the past, we conducted disaster drills in cooperation with fire departments, the police, city governments, and the special disaster prevention councils of industrial complex areas. However, to make the drill more practical, we conduct it assuming it will not be publicly announced in advance. At the same time, we take a creative approach that includes conducting the drill under the assumption that a disaster has struck at multiple locations.

Plant topics

MCC Sakaide Plant

At the Sakaide Plant, disaster drills that assume a plant accident such as a fire, leakage of a flammable substance, or an earthquake and tsunami are conducted each year. Since fiscal 2013, we have conducted a "scenario-less drill" in cooperation with the plant's private fire brigade and disaster division to create a system that more swiftly conducts the initial fire fighting when a fire or explosion occurs. The scenario-less drill is a practical drill in which the participants are not given the course of the drill or its scenario in advance, but only given its assumption. After the end of the drill, all participants identify problems and defects and then quickly make improvements.



In addition, we have participated in Kagawa Prefecture's "shakeout drill" (earthquake disaster behavior drill for all prefectural residents) and practiced the 1, 2 and 3 of safe behavior. This drill teaches the three basic safe behaviors. When one feels an earthquake or tremor, as a method to protect oneself, one should drop to the ground (crouch low before being overwhelmed by the tremor) for about one minute, cover oneself (protect one's head and neck with one's hands and arms), then hold on (stay still until the tremor has passed). The shakeout drill was started in the United States to help acquire practical disaster prevention literacy and is a new form of drill that assumes an earthquake and the participants act collectively. The drill actually uses the body, fosters the participants' ability to think for themselves, and raises practical disaster prevention literacy.

MCC Kurosaki Plant

It is important that the drill be conducted repeatedly on a routine basis to ensure a swift response in the unfortunate event of an accident. The Kurosaki Plant conducts a comprehensive disaster preparedness drill each year that assumes the leakage of a hazardous substance, the leakage of high pressure gas, seacoast disaster prevention, and a massive earthquake. Before conducting the drill, we approach the Kitakyushu Yahatanishi Fire Station, the Wakamatsu Maritime Safety Agency and other such entities to ask that they also take part in the drill, and then we conduct a joint drill.



In April 2013, we conducted a joint drill with the Kitakyushu Yahatanishi Fire Station. The drill was practiced as an "outbreak drill" wherein the scenario details and targeted division are concealed until just before the start to make it more effective.

The basic drills for the private fire brigade are also conducted repeatedly on a regular basis.



Accident-prevention drills focusing on logistics safety

Along with Mitsubishi Chemical Logistics Corporation, which handles the product logistics business, MCC also works to prevent accidents in logistics processes. As one initiative, accident prevention drills are conducted at least once a year at major logistics centers, assuming various logistics accidents. Issues revealed through the drills are addressed promptly in order to make improvements, thereby establishing organizations that can smoothly handle emergency situations.

Furthermore, Mitsubishi Chemical Logistics Corporation, a comprehensive logistics company, is enhancing RC training for its logistics business subcontractors. Together with its subcontractors, it is engaged in logistics accident prevention activities by educating them about the physical properties of the chemical products we offer, how to respond in time of leakage, horizontal deployment of case studies of accidents at other locations.



Drill scenario of leakage from a tank lorry (prevention of spread and recovery of leaked substance)

Activities and Achievements

Use of past accident information

The Mitsubishi Chemical (MCC) Group collects its own accident information and those of other companies which help prevent recurrence and the occurrence of similar cases.

We review the causes and countermeasures of cases of MCC's and other companies' accident, work accident and other collected accident information and inspect and review those cases with high commonality and similarity that are expected to occur. We call this horizontal deployment.

Activities and Achievements

Technical tradition

Mitsubishi Chemical (MCC) engages in the technical tradition of passing down the techniques and knowledge of senior employees to the next generation. This activity imparts knowledge to new employees through the opportunities afforded by day-to-day work and education and training. Techniques and knowledge sketched in the minds and in the notebooks of senior employees are written down in shared documents so they can benefit everyone.

These shared documents not only contain work procedures, but take into account the purpose and reason for the work (called "know-why"), such as work points. The form of the documentation varies depending on the characteristics of the workplace. The organization of these documents, with work points written down in work procedure manuals serving as short lessons, one to a page (called "one-point lesson sheets"), assembled as training

material, and the way the documents are easy to use, saved as a sequence of files and in a database, are ingenious and make them helpful to new employees.

Plant topics

MCC Mizushima Plant

At the Mizushima Plant, past case studies of problems and know-why information are organized into "technical tradition databases" for each section of the plant. Putting this information into database makes it easier to search and use. At the equipment operators opening meeting for the day, the technical tradition database helps them prevent accidents and problems by verifying the know-why of work scheduled for that day, and by looking back on problems that occurred on that same day in the past and verifying their causes and countermeasure.



MCC Yokkaichi Plant

The Yokkaichi Plant passes on the knowledge and know-why of senior workers to the next generation by having new workers engage in risk prediction training and train in emergency measures with senior equipment operators. Further, work that is performed daily is identified and then operators investigate by themselves the purpose of their work, its technological basis, and constraints, and take steps to improve work. When reviewing work improvement proposals, the appropriate people from the technical staff, management, and the equipment engineering division are brought in and the proposals are then discussed. The operators deepen their understanding of the know-why of operation through the investigation and in the course of discussions, and learn the principles of operation.

Activities and Achievements

Sharing of information needed in operation and equipment management

At Mitsubishi Chemical Corporation (MCC), employees involved in the operation management division in charge of plant operation, the equipment management division in charge of equipment maintenance, and the department in charge of design that is responsible for equipment design, share design-based information, operation data, inspection records and other information which is used in newly built and improved equipment, day-to-day operation, and the equipment maintenance plan.

Information sharing during equipment design

Of information about problems arising during day-to-day operation and equipment maintenance, items that are reflected in future design are organized in the database as maintenance prevention (MP) information (that improves equipment reliability). When building new manufacturing equipment and improving it, the division in charge of design designs the manufacturing capacity, operating conditions and the quality of materials jointly with the operation management division and the equipment management division. The operation management division and the equipment management and plant safety management divisions jointly conduct a safety assessment of the design results and take measures to reduce risk when necessary.

Information sharing during the start of operation

When the equipment is completed and before operation starts, the operation management division prepares the standard operating procedure (SOP) manual. At this time, we strive to incorporate the basis of the design in the SOP in the know-why form. The operation management division, and the equipment management division and plant safety management division conduct a safety assessment before the start of operation and take measures to reduce risk where necessary.

Sharing information after the start of operation

The equipment management division establishes the design maintenance policy and maintenance plan and carries out equipment maintenance including repair after the start of operation. The operation management division and the equipment management division share information such as inspection records, equipment maintenance results and operation status at the manufacturing maintenance communication meeting and the equipment management review. Particularly, at the equipment management review, the operation management division and the equipment management division plant safety management division all meet and review the equipment maintenance results. They conduct a review by reexamining operation management and equipment management methods where necessary.

In this way, people responsible for the operation management division, equipment management division, and plant safety management division share needed information with operation management and equipment management.

Upcoming Initiatives

Strengthening earthquake countermeasures

All Mitsubishi Chemical Corporation (MCC) plants are using the experiences and lessons learned from the March 2011 Great East Japan earthquake and taking the necessary response depending on the existing conditions of each plant and respective risk assessment findings.

Each plant has set as its top priority the prevention of damage in the plant and surrounding areas and is carrying out the following measures;

- 1) Ensuring that buildings are designed to withstand earthquakes, with human life being a top priority,
- 2) Measures to prevent the occurrence and expansion of operational safety and environmental accidents,
 - Ensure that important plant safety equipment is earthquake resistant (high-pressure gas equipment, equipment that handles hazardous materials, etc.)
 - Equipment and system countermeasures for plant safety shutdown and,
- 3) Formulating plans for operational recovery, with the primary aim of supplying communities with essential products.

MCC persists with its commitment going forward of pursuing measures that align with Japan's policies and courses of action with regard to earthquakes, tsunamis and ground liquefaction.

Earthquake-resistant high pressure gas equipment

MCC evaluates the seismic performance of vital equipment² for earthquake-resistant design as established by the government of Japan, based on earthquake-resistant design at this point in time. As a result of the evaluation, we will draw up improvement plans and pursue earthquake resistant countermeasures for equipment that requires that countermeasures be taken.

2. Vital equipment to earthquake resistant design as established by the government of Japan refers to (1) spherical storage units (MCC has 29) with a weld structure of steel pipe brace and (2) vital high-pressure gas facilities (excluding pipe fittings) (MCC has 31) for earthquake resistant design.
Further, the evaluation of the earthquake resistant performance of high-pressure gas piping is scheduled to commence in fiscal 2015 and we are now making preparations.

Responsible Care Activities **Occupational Safety and Health**

Occupational Safety

Policy Initiatives to achieve zero work injury accidents

MOS Indexes C-3: Recognition of corporate trust > Find out more

The Mitsubishi Chemical (MCC) Group established the policy that securing the environment and safety is the underlying principle of its business activities and it conducts work safety activities as one of the five Responsible Care (RC) mainstay activities based on *Good Chemistry for Tomorrow*, a principle upheld in its corporate philosophy.

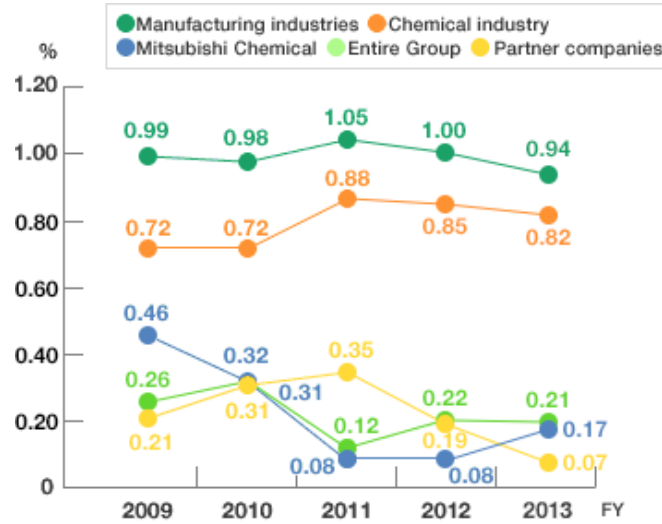
In fiscal 2013, the MCC Group promoted work safety activities with the goal of achieving zero serious work injuries and a maximum of 0.1 lost-time injury frequency¹. An analysis of the lost-time work injury accidents occurring in the past five years, 57% were so-called behavioral accidents such as being caught and entangled, falls and drops, and rolling over, and 23% were chemical and thermal injuries distinctive to chemical plants. These two categories account for about 80% of all lost-time injury accidents. These results are thought to have been caused by a lack of risk prediction, as well as a lack of communication including miscommunication.

Therefore, we made the raising of our awareness as professionals a priority issue and conducted activities to thoroughly enable us to protect ourselves on our own. Specifically, in order to use past examples of work accidents effectively, we verified the causes of these accidents and put that information to practical use. Even minor work accident examples were shared with the MCC Group and activities to prevent work accidents were implemented.

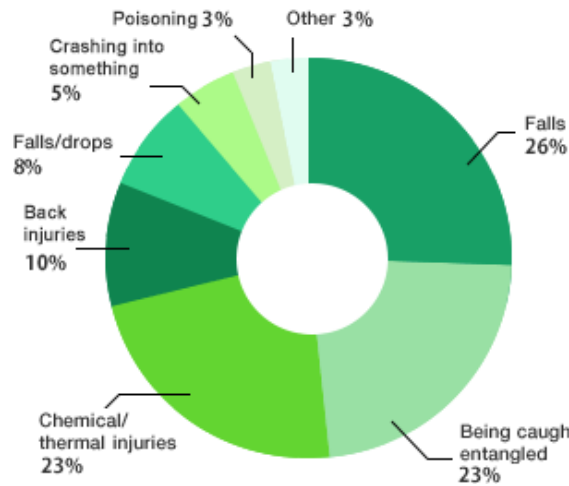
Although we conducted these various activities, the lost-time injury frequency¹ for the MCC Group in fiscal 2013 did not, unfortunately, reach our goal of 0.1 or less, but was instead 0.21, a disappointing result. In fiscal 2014 and after, we will adhere to basic safety conduct in order to more thoroughly enable workers to protect themselves on their own. In addition, we will further reinforce our activities to eliminate potential workplace risks by implementing work risk assessments.

¹ Lost-time injury frequency: The number of casualties caused by lost-time injury accidents that took place per one million total working hours

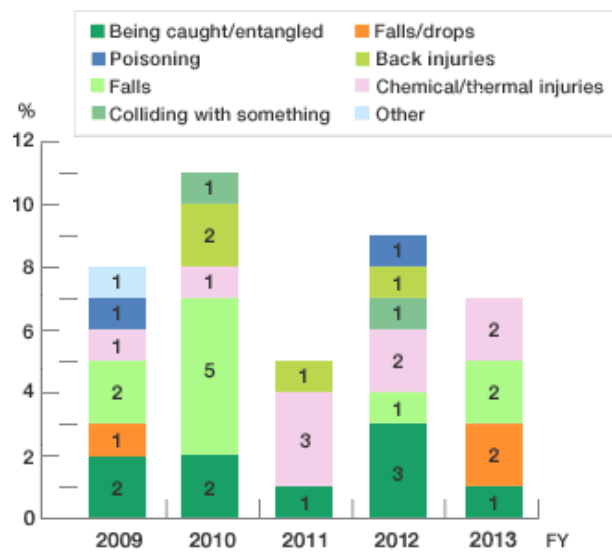
● Lost-time injury frequency



● Categories of lost-time injury accidents (total for fiscal 2009-2013; the Mitsubishi Chemical Corporation Group)



● Categories of lost-time injury accidents (the Mitsubishi Chemical Corporation Group)



Policy Safety management for construction work

Mitsubishi Chemical Corporation (MCC) implements various initiatives to safely perform construction work jointly with the subcontractor that carry out the construction work.

A risk assessment that identifies potential risk factors is conducted at the construction planning stage. For construction work that has a high level of risk, a construction safety assessment (construction SA) review meeting is held and safety measures are studied. Attending the construction SA meeting from MCC are the operation management division with jurisdiction over the equipment for the targeted construction work, the construction management division that manages the construction, and the safety management division responsible for workplace security and safety.

In addition, MCC and the subcontractor company meet together about construction safety and confirm and ensure the items that have been agreed to at the construction SA, as well as other safety instruction matters, whether an observer will be present during construction, and they also clarify the division of roles between the two companies.

The operation management division implements safety measures (depressurization, drainage, washing, electric power shutdown, safety locks such as valve shutoff) for construction equipment. It also explains the implementation status of safety measures, evacuation routes during emergencies, and other matters to the subcontractor. After all safety measures are completed and safety is confirmed, the operation management division gives the subcontractor permission to start construction.

In addition, during construction, the operation management division and the construction management division provide necessary observations or instructions.

Plant topics

MCC's Mizushima Plant

At the Mizushima Plant, we performed major periodic repairs for continuously operating facilities including the ethylene plant from May to July 2013. As these periodic repairs are large in scale, reaching a total of 80,000 people from the construction subcontracting company entering the premises (2,500 people per day at peak time) and a total of 15,000 vehicles entering (500 vehicles per day at peak time), these large-scale repairs are performed only once every four years.

To ensure that these large-scale periodic repairs are performed with zero work injury accidents, from nine months earlier than the start of construction, together with the subcontractor, we meticulously carried out construction SAs, verified work procedures, provided rules training, and implemented safety measures. With the goal of raising awareness about safety, senior plant management communicated their thoughts about safety to employees and the subcontractor company at the periodic repair zero accident rise to action rally and safety meetings.

Further, during the periodic repairs, patrols were repeatedly carried out for the purpose including paying attention to avoiding heat stroke, and the plant and subcontractor company performed activities together.



As the number of vehicles entering the premises increased during the periodic repair period, traffic safety measures and measures to alleviate congestion were taken. Each morning, traffic safety guards were stationed at four school commuting routes near the plant and steps were taken to prevent traffic accidents and trouble.

As a result of the above activities, we were able to get through the large-scale periodic repairs with no accidents, no injuries, and zero traffic accidents.

MCC Kashima Plant

At the Kashima Plant, with the goal of creating a communication-friendly environment for the subcontractor company, we encourage communication between MCC employees, who are construction observers, and the subcontractor company that perform the construction work. Also with the goal of preventing risks together with workers, we have implemented the following two safety activities.



(1) "Near-miss" activities² with subcontractor company

During construction, observers listen to feedback from subcontractor company employees and they actively elicit "close call" instances along with views and requests based on those experiences. Activities to improve safety are then carried out based on the feedback obtained.

Specific examples of problems learned about from worker feedback include close call experiences during construction caused by tight work space and equipment problems, such as corrosion discovered during construction, which we are now trying to improve.

(2) Worksite risk prediction activities³ with the subcontractor

Before construction begins at the worksite, MCC employees participate in risk prediction activities implemented by the subcontractor, and examine the potential risks of substances handled, safety points of the surrounding working environment, details about needed safety measures, and other risk factors. Action is taken to communicate these points to the subcontractor. This activity is implemented mainly for construction work that is considered highly risky. After eliminating in advance risk factors identified from a broad point of view, construction work begins.

2. "Near-miss" activities: Safety activities that involve the reporting of concerns and disturbing discoveries found during construction, eliminating the cause of work accidents and trouble, and taking countermeasures.

3. Risk prediction activities: Activities that involve workers predicting in advance potential risks in work and examining countermeasures in order to prevent the occurrence of work accidents and problems.

Occupational Health

Activities and Results

Management of the working environment

The Mitsubishi Chemical Group handles numerous chemical substances, including specified chemical substances and organic solvents. To protect the health of employees who handle these substances, we manage work environment by continuously implementing monitoring of working environment⁴ in accordance with legal ordinances and various guidelines. Our efforts to manage employee health also include conducting special medical examinations as well as workplace inspections performed by occupational health physicians and other occupational health experts.

4. Monitoring of working environment: Performed to gain an understanding of the extent of harmful factors existing in the work environment, and to what extent people working in the environment are exposed to them

Activities and Achievements **Activities to foster emotional and physical health**

The Mitsubishi Chemical Group, in collaboration with the Mitsubishi Chemical Corporation Health Insurance Society, is involved in mental and physical health activities.

1. Promotion of mental health

Because the ratio of mental disorders in lost worktime due to illness is high, we have set up a system where employees are free to consult with health experts at mental health workshops that we hold and through the introduction of counseling by an EAP⁵ service.

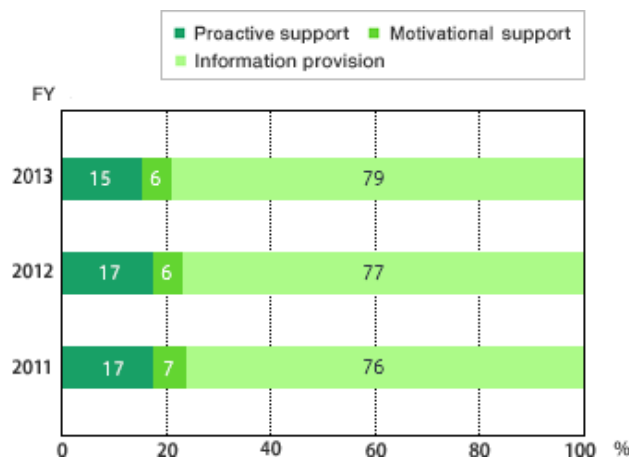
2. Promotion of physical health

In response to a request by Mitsubishi Chemical Corporation Health Insurance Association, as part of a follow-up to the standard health examinations that we provide as a business operator, we offer specific health guidance⁶ and appropriate follow-up for employees who require support. Employees can also access health information from their PCs, smartphones and other devices. In this way, we assist employees to promote their own good health.

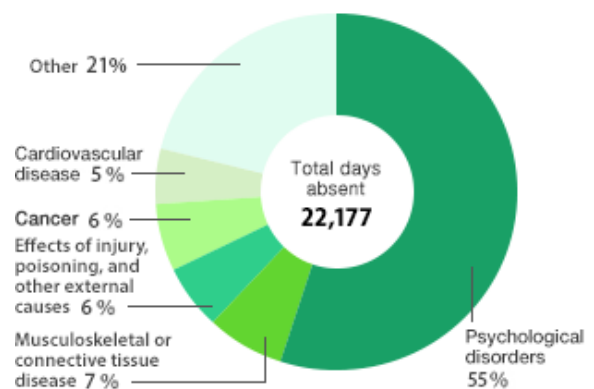
5. EAP: Abbreviation for Employee Assistance Program, an initiative wherein certified counselors of outside professional institutions provide mental health counseling, training, and other related services.

6. Specific health guidance: Examination and health guidance for preventing lifestyle-oriented diseases, with a focus on preventing and eliminating metabolic syndrome among the insured and their dependents aged 40 to below 75.

● Percentage of specific health guidance (Mitsubishi Chemical)



● Number of illness-related workday absences (Mitsubishi Chemical; new occurrences in 2013)



Mitsubishi Chemical Corporation
Occupational Health Center, General Affairs Dept., Yokkaichi Plant

In fiscal 2012, the record of people with mental health disorders (at the Yokkaichi Plant) shows that the percentage of people with mental disorders among employees who have transferred to and from different workplaces (hereafter, "the transfer") within the company was higher than the percentage of mental disorders for all employees. The main reason that transferred employee developed mental disorders was "inability to adapt well to the workplace." Therefore, this program was started up in November 2013 with the goal of having "transferred employee smoothly adapt to new workplaces."



In this program, the transferred employee and their superior at the new workplace conduct regular interviews (one month and three months after transfer). In these interviews, a survey sheet that each of them has answered in advance is used. This sheet contains 10 questions comprising the four areas of job comprehension, independence, support, and self-management.

Conducting the interview using this sheet enables each others' perception gap to be visualized and a practical plan to be drawn up to fill that gap.

This program is targeted primarily at the plant organization and workplace and aims to create "opportunities" to encourage the transferred employee so that he or she can adapt to the new workplace.

The plant organization and workplace play the lead role in promoting "transfer mental disorders: zero." The Occupational Health Center has set up a help desk to deal with problems that arise through this initiative so that it can support the plant organization and workplace. The Occupational Health Center will continue to support this program so that it will become part of the future workplace culture at the Yokkaichi Plant.

Responsible Care Activities **Environmental Protection**

Environmental Management

Policy Initiatives to reduce the environmental load in all processes of business activities

MOS Indexes S-1: Contribution to reduce the environmental impact through products and services
C-3: Recognition of corporate trust > Find out more

With the objectives of creating a recycling-oriented society and protecting the global environment, the Mitsubishi Chemical Corporation (MCC) Group is proactively working on pursuing resource and energy conservation, preventing contamination of the air, water, soil, and other natural features, reducing waste, and encouraging reuse and recycling, as well as engaging in activities to conserve the natural environment and ecosystem and developing technologies contributing to these purposes, and striving to reduce the environmental load in all processes in our business activities. Furthermore, through the development of environmentally friendly products and services and other measures, we are proactively seeking solutions to environmental issues on a global scale. In addition, we regularly provide environmental laws and regulations education and hold meetings to exchange environmental information. We recorded zero environmental accidents in fiscal 2013.

Preventing Global Warming

Activities and Achievements Energy conservation initiatives at different locations

MOS Indexes S-1: Contribution to reduce the environmental impact through products and services
C-2: Practice energy saving reduction of depletion resources > Find out more

The Mitsubishi Chemical (MCC) Group will proceed with activities aimed at promoting energy conservation and reducing greenhouse gases based on Mitsubishi Chemical Holdings Corporation's target of "reducing greenhouse gas emissions more than 17% compared with fiscal 2005 levels by fiscal 2015." On the energy conservation front, MCC is also involved in ongoing efforts to achieve the non-binding targets set forth in the Act on the Rational Use of Energy (Energy-saving Act) of "reducing unit energy consumption by an average of 1% or more annually, seen from a medium- to long-term perspective."

Towards meeting these targets, we are systematically identifying and assessing facilities and processes for which further energy-saving is possible and the formulation of related plans, which are currently underway at all MCC facilities, beginning with five plants with significant energy consumption rates, including Kashima, Mizushima, Yokkaichi, Kurosaki and Sakaide. Despite the high degree of technical difficulty, we investigated and undertook measures for a major energy conservation theme as a project involving the participation of specialist engineers. In fiscal 2013, we improved heat collection through process reforms as well as optimized combustion for boilers. As a

result, we reduced energy consumption equivalent to around 26,000 tons of CO₂.

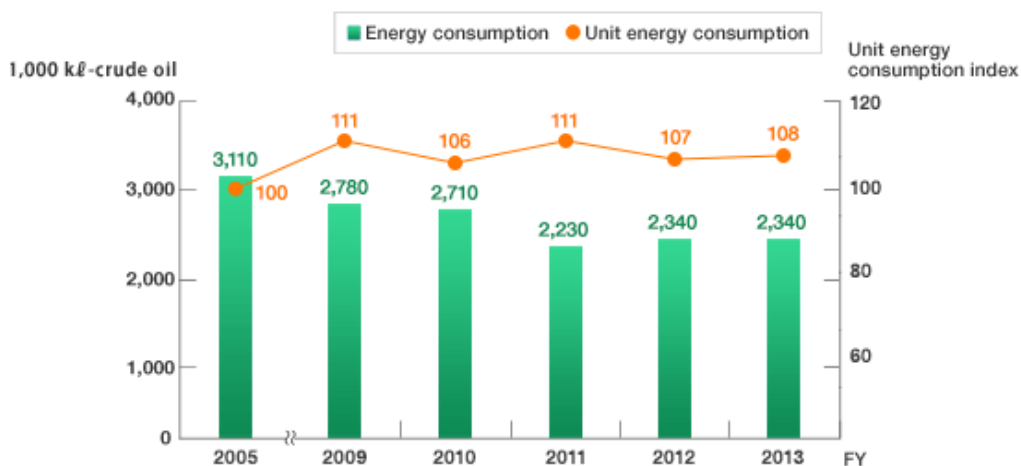
Activities and Achievements Reduction in energy consumption and greenhouse gas emissions in fiscal 2013

MOS Indexes S-1: Contribution to reduce the environmental impact through products and services
 S-2: Practice energy saving reduction of depletion resources > Find out more

In fiscal 2013, energy consumption and greenhouse gas emissions both increased compared with previous fiscal year levels, partly due to the increase in plant operation rates owing to the economic recovery. However, there were also factors that meant we could not greatly increase production volume, for example the large-scale periodic repairs we implemented at the Mizushima Plant; therefore the degree of increase was minimal. Unit energy consumption was at about the same level compared with the previous fiscal year because we could not completely absorb the deterioration in operating conditions arising from the restructuring of the petrochemicals business in recent years. Note that from this fiscal year we revised the base year under the first commitment period of the Kyoto Protocol (fiscal 1990) to fiscal 2005, and based on this we calculated that the unit energy consumption index was 107 in fiscal 2012 and 108 in fiscal 2013. Further, Groupwide greenhouse gas emissions marked a 22% drop compared with fiscal 2005.

The Mitsubishi Chemical Corporation Group will continue striving to further reduce greenhouse gas emissions by the entire Group and develop and manufacture products that help conserve energy, thereby contributing to society's overall reduction of total greenhouse gas emissions.

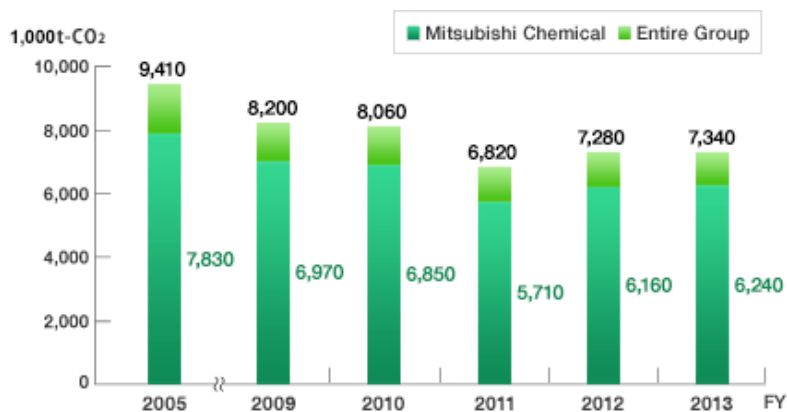
Energy consumption (Mitsubishi Chemical)



*The data above is based on the periodic report from MCC. The data of Group companies is not included.

*The rate index for FY2009 to FY2012 has been recalculated using FY2005 as a standard so discrepancies may arise in the previous fiscal year's report and values.

● Greenhouse gas emissions



*For greenhouse gas emissions, as the result of a detailed examination on the inclusion of heat-trapped gases not subject to reporting under the law in addition to reporting values stipulated in the Act on promotion of Global Warming Countermeasures, figures not included at Group companies were found, and in the FY2012 version of the graph, retroactive corrections have been made to add these figures to past data.

Activities and Achievements

Measures to improve unit energy consumption in transportation

MOS Indexes S-1: Contribution to reduce the environmental impact through products and services
 S-2: Practice energy saving reduction of depletion resources > Find out more

Mitsubishi Chemical Corporation (MCC) submits actual energy consumption amounts, energy consumption reduction plans and other reports to the Ministry of Economy, Trade and Industry each year, as a specified consigner¹ stipulated by the amended Act on the Rational Use of Energy that went into force in April 2006. For achieving the Act's target of reducing unit energy consumption by an average of 1% or more annually, seen from a medium- to long-term perspective, MCC has sought efficient energy usage together with logistics contractor Mitsubishi Chemical Logistics Corporation. Attempts are also being made to reduce CO₂ emissions.

MCC has boosted the efficiency of coastal shipping vessels engaged in domestic sea transport and vehicles used for land transport by increasing lots (shipping lot volumes). Also, "friend" fins² and contra-rotating propellers³ are attached to coastal shipping vessels, and about 300 transport vehicles are equipped with on-vehicle terminals that support eco-friendly driving, in addition to eco-friendly tires.

In addition to these initiatives, in fiscal 2013 MCC also switched the ports it uses in exporting and importing to ports located closer to its production plants. As a result, unit energy consumption decreased by 0.8% year on year, an average decrease rate of 3.4% over the last five years. While there was a 5.2% year-on-year rise in shipping volume, CO₂ emissions have increased by only 4.4% year on year.

In fiscal 2014, MCC will continue the initiatives it has pursued to date and endeavor to reduce fuel consumption and CO₂ emissions.

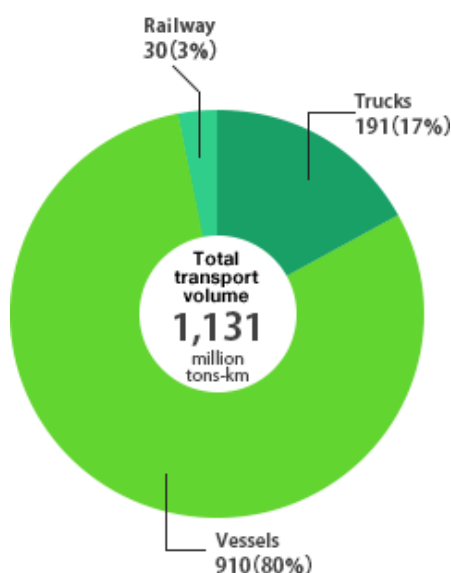
1. Specified consigner: Business entity that transports 30 million tons-km of cargo in its possession each year.
2. "Friend" fin: A tactic for obtaining large thrust force by attaching several fins to the stern in front of the propellers, thereby regulating the water flow to the propeller. The propeller's propulsive efficiency is improved by the water flow-regulating function, enabling navigation with fewer rotations per minute at the same speed. This method helps conserve energy and reduce CO₂ emissions.
3. Contra-rotating propellers: Two sets of propellers attached to each other that rotate in opposite directions. Energy lost by the front propeller is collected by the rear propeller, improving overall propulsion efficiency.

● Actual reduction in unit energy consumption (Mitsubishi Chemical Corporation)

FY		2009	2010	2011	2012	2013
Energy consumption	GJ	953,157	830,706	716,823	725,407	756,777
Fuel consumption (converted to crude oil)	kℓ	24,591	21,432	18,494	18,716	19,525
Transport volume	Million tons-km	1,239	1,188	1,023	1,076	1,132
CO ₂ emissions	t-CO ₂	65,800	57,200	49,500	50,100	52,300
Unit energy consumption	kℓ/million tons-km	19.85 (17.92)	18.04	18.07	17.40	17.26

Figures enclosed in parentheses for fiscal 2009 and figures from fiscal 2010 onwards are specific consumption units excluding the transportation of unladen vessels.

● Breakdown of transport volumes by transport mode in fiscal 2013 (Mitsubishi Chemical Corporation)



Preventing Air, Water Quality and Soil Pollution

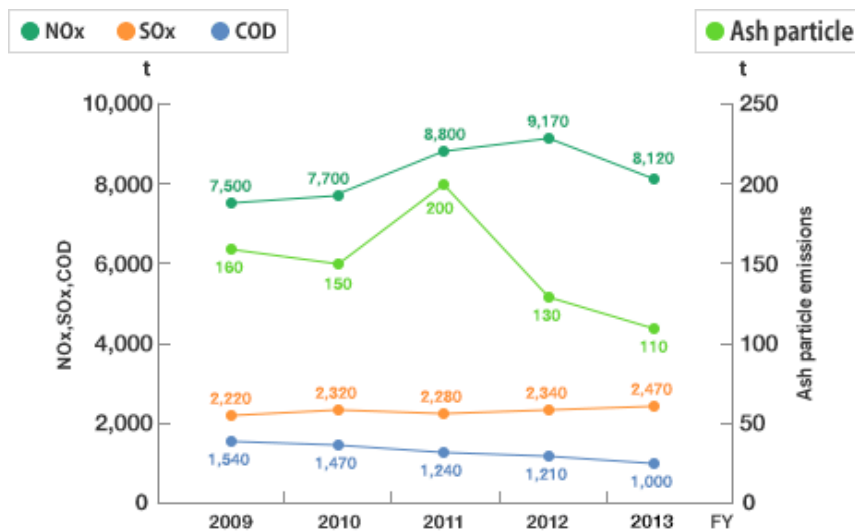
Policy Initiatives for reducing environmental impact on air and water quality

MOS Indexes S-1: Contribution to reduce the environmental impact through products and services
 > Find out more

The Mitsubishi Chemical Corporation Group handles a wide range of chemical substances, and consumes large quantities of fossil fuels that are sources of nitrogen oxide (NO_x) and sulfur oxide (SO_x). We have therefore taken action to reduce emissions of hazardous air pollutants and reduce emissions of organic substances into public bodies of water. By installing and improving emission gas and drainage treatment facilities, we have substantially slashed the environmental load on the atmosphere and public water bodies.

During fiscal 2013, emissions of NOx decreased by 1,050 tons compared to the previous fiscal year because the operation rate of the power generating facilities at the Joetsu Center of Mitsubishi Chemical High-Technica Corporation that we restarted in fiscal 2011 to overcome the power shortage attributed to the Great East Japan Earthquake declined due to falling demand. On the other hand, SOx emissions increased by 130 tons compared to the previous fiscal year due to changing coal boiler fuels and the rise in their operation rates.

● Reducing Environmental Impact on Air and Public Bodies of Water



Activities and Achievements

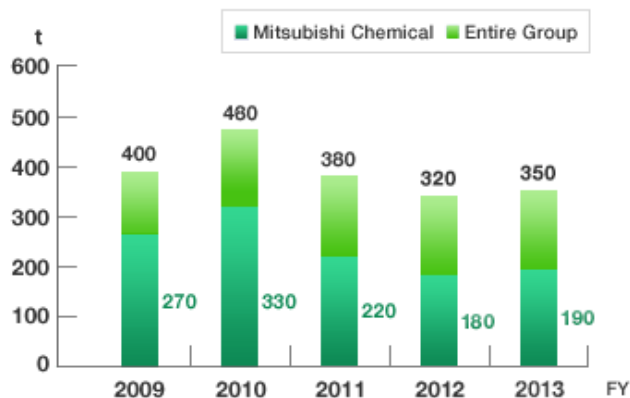
Initiatives for reducing overall PRTR⁴ and VOC⁵ discharges

MOS Indexes S-1: Contribution to reduce the environmental impact through products and services
 > Find out more

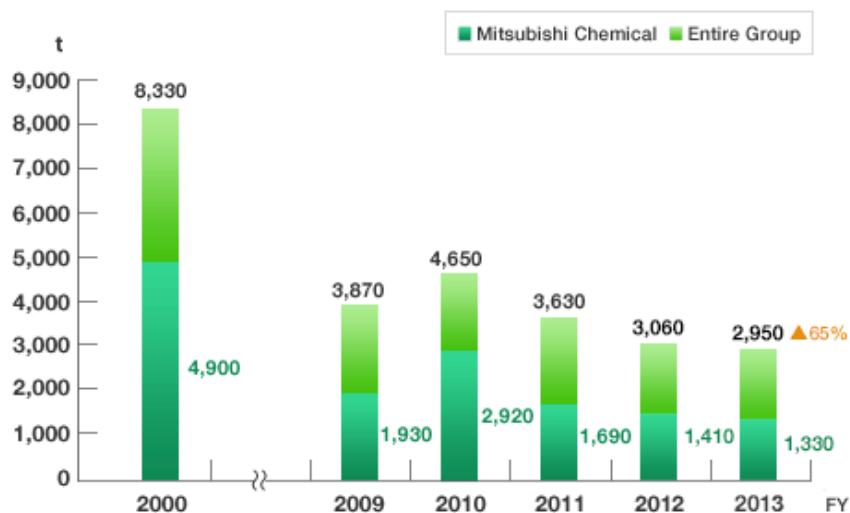
The PRTR-regulated substances discharge volume of the Mitsubishi Chemical (MCC) Group increased by 30 tons in fiscal 2013 from the previous fiscal year due to the partial discharges into the atmosphere at the time of plant closures, and other factors. Regarding VOC emissions we have set the goal of a reduction of at least 50% compared to fiscal 2000, and proactively worked to recover and detoxify VOCs and as a result emissions in fiscal 2013 fell by 110 tons compared to the previous fiscal year and by 65% compared to fiscal 2000.

- 4. Pollution Release and Transfer Register (PRTR): A notification system for the released and transferred amount of chemical substances. This is a system for clarifying, aggregating, and publicizing the data on the quantity of hazardous chemical substances released into the environment from each source, or the quantity taken outside facilities as a part of waste.
- 5. Volatile organic compound (VOC): Typical substances include toluene and xylene. These compounds became subject to regulation by the amended Air Pollution Control Act of 2006, as source substances of photochemical oxidants (photochemical smog).

● PRTR-regulated substances discharge volume



● VOC discharge



*The negative figure for fiscal 2013 indicates a reduction ratio from fiscal 2000.
 *The discharge increased in fiscal 2010 because the large-scale, periodic repair work resulted in halting the supply of products to users and halting facilities that remove VOC, which caused part of the VOC stored in tanks to be released into the atmosphere.

Purifying and monitoring soil and groundwater

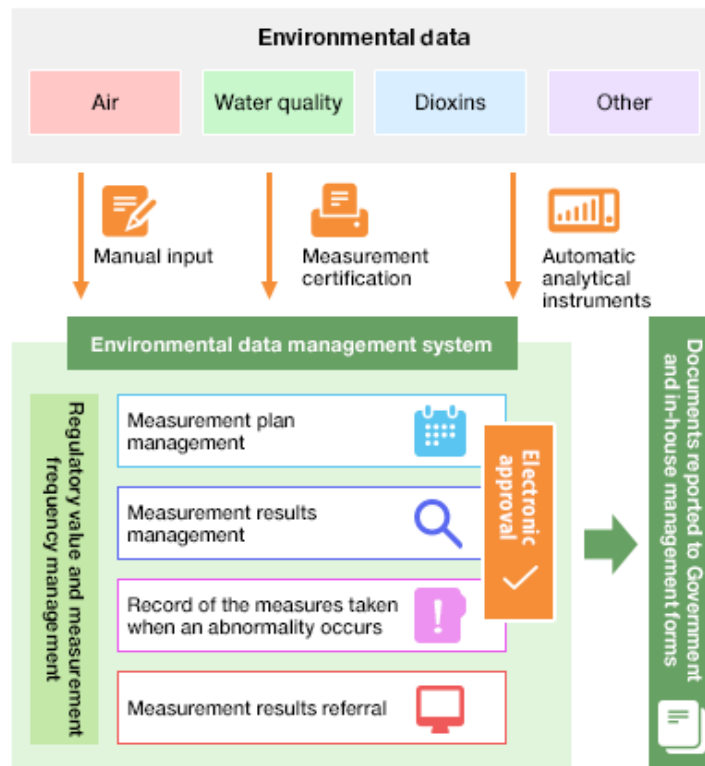
All MCC production bases conduct voluntary surveys on soil and groundwater pollution. Production facilities where the surveys have revealed pollution provide notification pursuant to local ordinances or voluntarily, and continue purification and monitoring measures as instructed by the prefectural or city government. To date, seven of our plants have reported the survey results to local governments: in Kashima, Sakaide Yokkaichi, Mizushima, Naoetsu, Kurosaki and Tsukuba. Each of these plants continues to implement appropriate measures as instructed by the local government.

Operation of the environmental data management system

MCC is operating an environmental data management system with the objective of strengthening its management of environmental data, including measurement records, based on laws, such as the Air Pollution Control Act and the Water Pollution Control Act, ordinances and agreements. This system was developed by the MCC Group in order to improve the level of management of environmental data and integrate the in-house management operations. In 2012, the MCC Group commenced operation of the system at the five major business locations of MCC.

The system is strengthening data management mainly through functions like those in (1) - (5) below.

- (1) Integrated management of the facilities subject to measurement, the measurement locations, and the measurement plans to prevent measurement omissions
- (2) Prevention of input mistakes and falsification by importing measured values from automatic analytical instruments and electronic reading of measurement certification issued on paper
- (3) Strengthening of check functions through recording the modification history of the measured values and the electronic approval of managers
- (4) Prevention of flaws in reports through automatic creation of documents reported to governments and in-house forms
- (5) Keeping and storing records of the measures taken when an abnormality, such as exceeding the management value, occurs



Waste Reduction and Recycling

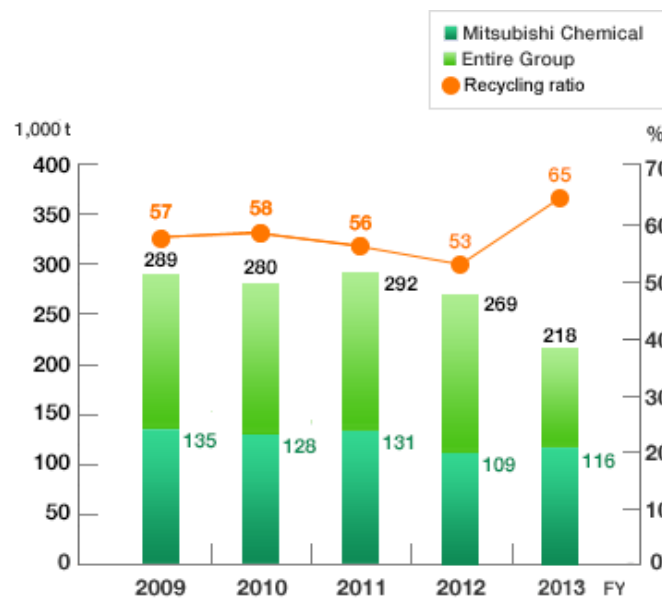
Activities and Achievements

Initiatives for attaining zero emissions

To help build a recycling-based society, the Mitsubishi Chemical (MCC) Group has stepped up recycling of industrial waste and has set a target of achieving zero emissions⁶. Due to our promotion of recycling, the ratio of industrial waste ultimately disposed of as landfill improved year on year to 1.5% in fiscal 2013. However, this means we could not attain our target of zero emissions. The primary industrial waste disposed of in landfills was composed of such materials as construction waste accompanying facility maintenance and dismantling as well as sludge (incinerator ash) produced by incinerator furnaces. We will continue to aim for zero emissions through sorted collection of construction waste—something we will undertake thoroughly—and by continuing to make efforts to recycle sludge.

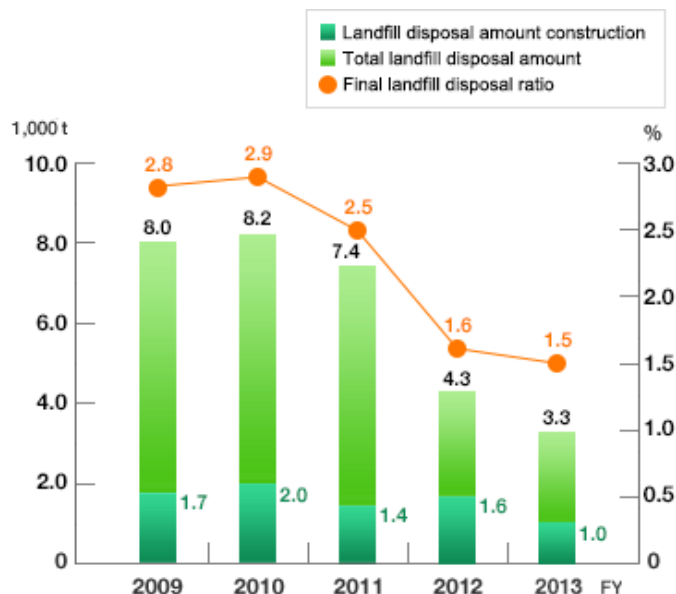
6. Zero emissions: The MCC Group defines zero emissions as keeping the volume of industrial waste ultimately disposed of as landfill to a maximum of 1% of the total industrial waste generated (an ultimate landfill disposal ratio of 1% or less).

Industrial waste emissions and the recycling ratio



7. In fiscal 2013 the processed amount due to the industrial waste processing business is not included in the figures.

● Volume of industrial waste ultimately disposed of as landfill and ratio of industrial waste ultimately disposed of as landfill (Mitsubishi Chemical Group)



8. In fiscal 2013 the processed amount due to the industrial waste processing business is not included in the figures.

Biodiversity Preservation

Activities and Achievements

Initiatives to contribute to the global environment

MOS Indexes S-1: Contribution to reduce the environmental impact through products and services
> Find out more

The Mitsubishi Chemical (MCC) Group is aware that its business activities are only possible due to the benefits we receive from biodiversity (ecosystem services⁹) while the business activities also have an impact on the natural environment and the ecosystem, and we believe that implementing initiatives to contribute to the global environment will lead to the conservation of biodiversity. The MCC Group has always engaged in Responsible Care (RC) activities and as a part of its environmental conservation activities it has made contributions to the global environment including reducing environmental impact (zero emissions of waste, waste 3R activities (reduce, reuse, recycle), reduction of VOC discharges, reduction of hazardous air pollutant emissions, reduction of CO₂ emissions, resources saving and energy saving, cleaning up the neighboring areas, communication with the local community (factory tours, opening welfare facilities to the public), conservation of green areas (green area management, planting, and greening promotion)), and more. In addition, since fiscal 2010, the MCC Group has also upheld the Nippon Keidanren Declaration on Biodiversity¹⁰ as a member of the Mitsubishi Chemical Holdings (MCHC) Group. In addition to this, from fiscal 2014 we are striving to reduce the impact on biodiversity from our business activities in an ongoing and self-initiated manner based on the MCHC Biodiversity Preservation Policy.

Looking ahead, we intend to continue undertaking environmental conservation activities from the standpoint of biodiversity conservation.

9. Ecosystem services

- Provisioning services: Materials and products that can be obtained from ecosystems (food, fresh water, wood, fibers, etc.)
- Regulating services: Benefits that can be obtained from the fact that ecosystems control the processes of nature (climate regulation, disease prevention, water and land conservation, etc.)
- Cultural services: Nonmaterial benefits that can be obtained from ecosystems (scenery, aesthetic experiences, etc.)

10. Nippon Keidanren Declaration on Biodiversity: Announced by Nippon Keidanren in March 2009, the Declaration comprises seven main policies including harmony between the natural circulation and business activities and promotion of a resource-recycling style of business administration.

Environmental Accounting

Activities and Achievements

Investments and expenses for the environment

Mitsubishi Chemical Corporation tallies its investment and expenses for environmental conservation on the basis of guidelines set by Japan's Ministry of the Environment.

In fiscal 2013, we made large investments in the installation of dust collection systems and other projects with the objective of improving the environment surrounding our business locations. In addition, we worked on initiatives such as improving wastewater management and reducing industrial waste so the total amount of investment came to ¥4.1 billion.

Meanwhile, expenses in this regard amounted to ¥25.1 billion for outlays such as those involving operation and maintenance of pollution prevention equipment and for proper disposal of waste materials.

● Investments and expenses for the environment

million yen

Environmental conservation costs			2012		2013	
Category		Main initiatives	Investment amount	Expenses	Investment amount	Expenses
Environmental conservation costs for suppressing environmental load generated in business areas due to production and service activities	1. Pollution prevention costs	Prevention of Air pollution Dust collection system augmentation and particulate matter reduction Prevention of water pollution Wastewater management improvement, etc.	831	14,991	3,320	15,369
	2. Global environmental conservation costs	CO ₂ emissions reduction, operational improvement, etc.	20	751	3	695
	3. Resource - recycling costs	Industrial waste reduction, proper waste disposal, resource conservation, energy conservation, etc.	483	4,409	683	4,171
Environmental conservation costs in management activities		Operation of unit addressing environmental conservation ISO 14001 compliance and renewal national exams, environmental education, etc.	0	985	0	957
Environmental conservation costs in R&D activities		R&D for increased productivity, etc.	0	3,905	0	3,048
Environmental conservation costs in social contribution activities		Installation and upkeep of factory green spaces	35	399	58	379
Costs for dealing with environmental damage		Cleanup of contaminated soil, etc.	145	9	0	23
Other environmental conservation costs		SO _x surcharges	0	463	24	446
Total			1,514	25,912	4,088	25,088

Responsible Care Activities **Quality Assurance**

Policy For further enhancement of customer satisfaction

MOS Indexes C-3: Recognition of corporate trust > Find out more

In order to ensure "the environment, safety, and health" the Mitsubishi Chemical Corporation (MCC) Group has positioned quality assurance as one of the important pillars of its RC activities. We believe that implementing thorough product control is important in order to ensure the safety of the products and continuously improve their quality, so that our customers can use the products safely and with peace of mind.

As a comprehensive chemical manufacturer supplying a wide array of products to customers in a broad range of industries, MCC believes that it is its duty to strive to prevent quality and product liability (PL) issues, while at the same time increasing customer satisfaction by offering safe and secure products.

To perform this duty, MCC has worked to establish in-house organizations for complying with laws and regulations and fulfilling obligations and promises under contracts with customers. From fiscal 2013 to fiscal 2014 we studied and established Quality Assurance Guidelines as indices that will help when establishing quality assurance systems when new products are launched and revising our current approach to quality assurance.

On a global scale, public voices are increasingly demanding that corporations manage chemical substances contained in each of their products throughout the products' entire life cycle, and that they release information on such matters with appropriate transparency. To accurately respond to these rising demands, since fiscal 2011 MCC has been operating the "Green Information Management System," utilizing the infrastructure of the Joint Article Management Promotion-consortium (JAMP) ¹ to provide accurate information on the management of specified chemical substances (management of which is required by law) for each of our products containing such chemicals. However, in fiscal 2013 the Ministry of Economy, Trade and Industry took the lead in commencing studies of a possible new scheme to provide information about chemical substances in products. While closely monitoring that development, we carried out a revision of the "Mitsubishi Chemical Green Management Rules" so that we can meet the requirements of our customers more appropriately.

Together with raw materials suppliers and our own corporate customers, we hope to contribute to the creation of a social system capable of managing chemicals throughout the entire supply chain.

1. JAMP is an organization that works to promote appropriate management, disclosure, and communication across all industries relating to chemical substances contained in "articles" (parts and final products) throughout the supply chain.

Activities and Achievements Establishment of the quality assurance guidelines

Mitsubishi Chemical Corporation (MCC) has positioned the strengthening of compliance as one of its top-priority management issues. As part of its efforts in this regard, from fiscal 2013 to fiscal 2014, it studied and established the content of the Quality Assurance Guidelines. Referring to these Guidelines when establishing a quality assurance system for the time when a new product is launched ensures compliance with laws and regulations and the clauses in contracts and agreements with customers, and is also helpful when revising the approach to quality assurance for current products. By utilizing the Quality Assurance Guidelines MCC will aim to further stabilize quality and at the same time to further improve customer satisfaction.

Revision of the Mitsubishi Chemical Green Management Rules

Since fiscal 2011 MCC has been operating the "Green Information Management System," utilizing the infrastructure of JAMP to provide accurate information on the management of chemical substances for each of our products containing such chemicals. However, in fiscal 2013 the Ministry of Economy, Trade and Industry took the lead in commencing studies of a possible new scheme to provide information about chemical substances in products. For its part, MCC will also proactively offer opinions and cooperate with this process through JAMP. More specific studies to prepare for the new scheme are expected to be commenced in fiscal 2014 so MCC will closely monitor developments and consider what response to make to them. As a part of this initiative, firstly MCC revised the Mitsubishi Chemical Green Management Rules. Due to this revision, when providing information about chemical substances in products to the customers, a more flexible response using the formats and applicable controlled substances unique to individual industries and customers is now possible in order to more appropriately meet their requirements while continuing to base the approach on JAMP tools.

Responsible Care Activities **Chemicals Management**

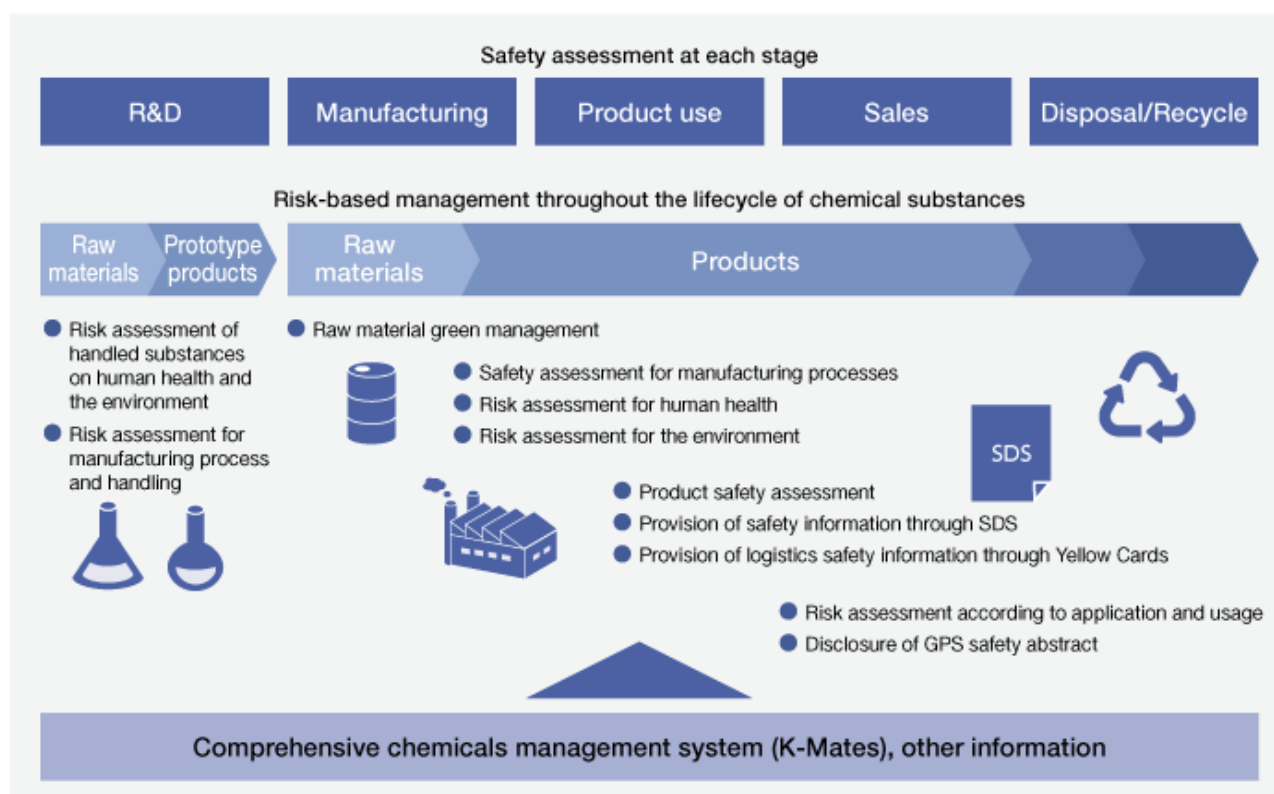
Policy **Our basic stance on chemicals management**

Based on the concept of product stewardship, the Mitsubishi Chemical (MCC) Group strives to rigorously manage chemical substances emphasizing risk-based chemicals management throughout the supply chain and actively disclose and provide risk management information on chemical products.

This is an effort in line with the Strategic Approach to International Chemicals Management (SAICM) and an activity aimed at addressing process safety and disaster prevention, occupational health and safety, product safety, and environmental protection through risk-based chemicals management throughout the product lifecycle, and realizing a *KAITEKI* society.

Specifically, the MCC Group comprehensively collects and manages information on all the chemicals it handles, not only for chemical products it manufactures but also their raw materials, by-products and waste generated in the manufacturing processes, as well as their recycled products, and based on this information, the MCC Group conducts risk assessment regarding the impact of chemical substances on people and the environment as well as the safety of manufacturing processes. Through these activities, the MCC Group continues to strengthen its voluntary management for a sustainable society.

- **Risk-based chemicals management from product development to manufacturing, product use, disposal and recycling.**



Establishing a comprehensive chemicals management system

To achieve the 2020 targets under WSSD¹, the Mitsubishi Chemical (MCC) Group has adopted three central themes of risk-based chemicals management, rigorous compliance, and efficient process innovation. Based on these themes, MCC has integrated the various databases and management system functions that were previously administered by individual divisions into a new system (K-Mates²) that can centrally maintain and manage all the necessary information for chemicals management.

K-Mates has a function for automatically determining the GHS³ classification of chemicals and a function for automatically determining the applicable laws and regulations. It can also output SDS⁴ and labels when the operator inputs hazardous substance information regarding a product or component. MCC will now work to bolster the development of the K-Mates system to make it compatible with various laws, regulations, and standards in Europe, East Asia, and ASEAN countries by enabling it to handle overseas laws and regulations, SDS, and label production.

1. WSSD: World Summit on Sustainable Development

An international summit on environmental issues held in Johannesburg in 2002. The participants set the following target to be achieved by 2020: "to use and produce chemicals in ways that minimize significant adverse effects on human health and the environment."

2. K-Mates: *KAITEKI*-integrated system of risk management & technical information supports on chemicals

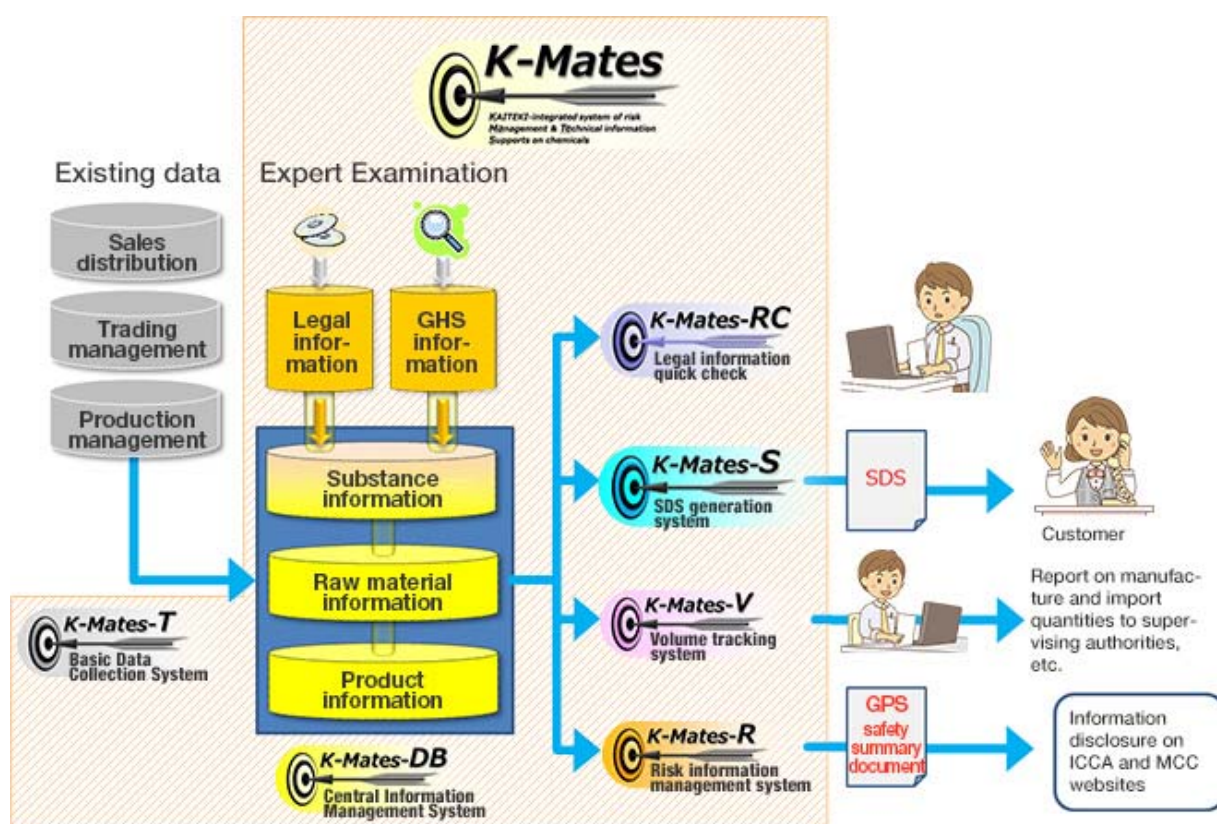
3. GHS: Globally Harmonized System of Classification and Labeling of Chemicals

A system for classifying chemicals and hazardous substances by type and degree based on globally harmonized rules, and communicating this information by labeling and provision of SDSs.

4. SDS: Safety Data Sheet

A document for providing information on the properties, hazards and toxicity, safety measures, and emergency responses concerning chemical substances when transferring or providing the chemical substances or products to other business entities.

● Overview of K-Mates



Participating in ICCA⁵ activities and Japan Chemical Industry Association activities

Mitsubishi Chemical Corporation (MCC) actively pursues Global Product Strategy (GPS⁶) activities that provide information on safety and risk management of chemical products promoted by ICCA. Also, as a member of ICCA Chemical Policy and Health Leadership Group, we are actively participating in the activities of planning and management of educational programs and lectures related to capacity building aimed at achieving the WSSD targets for developing countries and SMEs.

1. Promotion of GPS activities in Japan

To promote ICCA's GPS activities, MCC actively participates as a core member in the promotion and strengthening of JIPS⁷. As part of the strengthening of JIPS promotion, during fiscal 2013, as in 2012, we continued our efforts to make GPS Safety Summaries and disclose them. About 400 (as of May 2014) safety summaries are published by Japanese companies on the ICCA's website (ICCA GPS Chemicals Portal). MCC had published 16 chemical safety summaries (a total of 32 with both Japanese and English versions) among those by fiscal 2013. Group companies plan to carry out risk assessments of chemicals that are targeted for GPS risk assessment by fiscal 2018. GPS Safety Summaries introduce MCC recommended methods for handling chemicals that cannot be communicated by SDS alone and are useful in risk-based chemical management.



GPS Safety Summaries

As part of GPS activities, the Japan Chemical Industry Association (JCIA) jointly started up the SCRUM⁸ Project in 2011 with the Joint Article Management Promotion-consortium (JAMP) in order to suggest a system for sharing information on risk assessment for chemicals in the supply chain. Within this activity, MCC headed up the planning strategy working group and studied the risk assessment status concerning companies in the supply chain. MCC also promoted the creation of a guidance plan for sharing risk assessment-related information.

2. Cooperation in international GPS promotion activities

In fiscal 2013, MCC helped to spread GPS activities in Asian countries by attending GPS/PS¹⁰ workshops in Indonesia and Malaysia that JCIA held in collaboration with ICCA's RCLG⁹, and by cooperating as an instructor of the Risk Assessment Method Training Course in Vietnam in the Asian Sustainable Chemical Safety Plan being undertaken by the Ministry of Economy, Trade and Industry.



5. ICCA (International Council of Chemical Associations)

6. GPS (Global Product Strategy)

A voluntary initiative wherein each company conducts risk assessments of its own chemical products, performs proper management and also summarizes and discloses information on the safety and risks of those chemicals in Safety Summary.

7. JIPS (Japan Initiative of Product Stewardship)

A voluntary initiative promoted by JCIA to strengthen risk-based chemical product management in companies.

8. SCRUM (Project of Supply chain Chemical Risk management and Useful Mechanism discussion)

9. RCLG (Responsible Care Leadership Group): ICCA's RC promotion organization

10. PS (Product Stewardship): responsibility for product management

Compliance with laws and regulations concerning chemicals in Japan

Laws and regulations concerning the manufacture, import, use, and sales of chemical products are wide ranging and Mitsubishi Chemical Corporation (MCC) is making steady efforts with regard to various notifications and permissions and authorizations contained in the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., the Industrial Safety and Health Act, the Poisonous and Deleterious Substances Control Law, and other laws by centralizing management under a system, establishing internal rules, and other means.

Related divisions are swiftly responding to the various types of substances that have been added as restricted substances and we are providing such information to relevant customers.

With respect to our past record of manufacturing and import volume for all chemical substances and the reporting on volume by application, which is mandatory under the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., MCC positively addresses this law every year and utilizes the compiled data in risk-based chemicals management within the Company.

Regarding the provision of chemical hazard and toxicity information and cautionary handling information based on Globally Harmonized System (GHS), which is partially mandatory under the Industrial Safety and Health Act and the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof, MCC follows JIS Z 7253:2012, established based on the fourth revision of GHS, performs GHS classifications for all of its products, displays easy-to-understand labels, provides Safety Data Sheets (SDS), and also posts instructions within the workplace.

Efforts to address overseas laws and regulations

MCC is working to build up a database that will allow us to effectively manage applications for registration of new chemical substances in each country, and have centralized the management of information within the company in the same manner as our response to laws and regulations in Japan. For new chemical substances in functional chemical products, which are growing in terms of export volume from Japan, we rigorously manage information regarding registration procedures and for each country and compliance. Using this database, we reliably monitor and manage not only the application procedures, but also the status of subsequent mandatory reporting (export and import volumes and their intended applications).

Due to the trend of new overseas chemical regulations (especially in Asia including China, South Korea, and Taiwan), we are collaborating more closely with affiliate companies of Mitsubishi Chemical Holdings Corporation (MCHC), and steadily obtaining information and dealing with registration application and other issues.

With regard to the EU REACH¹¹ regulations, MCC completed the registration of export substances to Europe of 100 tons or more per year, which it had to register by May 31, 2013. Moving forward, we plan to register the substances exported in quantities under 100 tons, respond to the guidance of the substances evaluation made by the European Chemicals Agency (ECHA) and authorities in EU member states, gather information on regulation trends on items such as Substances of Very High Concern (SVHC), Substances of Authorization and Substances of Restriction and continue to steadily take necessary action.

11. REACH (Registration, Evaluation, Authorization and Restriction of Chemicals): Regulations regarding the registration, evaluation and restriction of chemical substances.

In-House Training

MCHC regularly holds the MCHC Chemical Product Management Seminar. The seminar is aimed at employees of MCHC Group companies in order to help them understand regulations of chemicals and to raise the level of chemicals management. In the 10 seminars held in fiscal 2013, we conducted various training required in chemical substance management such as providing the updated status of chemical product controls in Japan and overseas, response methods, registration methods, information search methods, GHS trends, and classification and labeling methods by instructors inside and outside of the Company.



Front Runner

Supporting the Basis of Chemical Substance Management

Keiko Kurosaki
Chief Scientist
Environmental Risk Assessment Group, Mitsubishi Chemical Techno-Research Corporation



The strengthening of chemical substance management based on the goal of WSSD2020 is now a worldwide trend. Since the United Nations issued its recommendation in 2003, Japan, Europe, China and other countries have introduced GHS. The United States finally introduced GHS in 2012, and thereby the stage was set for the utilization of GHS as a global standard rule. Under this circumstance, the MCC Group started its response to GHS in 2006.

We at Mitsubishi Chemical Techno-Research Corporation are responsible for GHS classification research of chemicals handled by the MCC Group. At the same time, we are engaged in supporting Japan's GHS classification research, hazard and risk assessment, creation of reference values, and other related research. Since I joined this company, I have been working on GHS classification research, hazard assessment, and related research. Utilizing knowledge accumulated through these efforts, I am also involved in establishing the K-Mates chemical substance information database.

The United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is revised once in every two years and its rules change quickly from day to day. Hazard data are the "core material" in chemical substance management. To ensure that the GHS classification results, which determine this "core material," are not mistaken, I always have to keep a keen eye on these data and I also have to ask myself whether the results are the most valid ones or not. The pressure is immense and the work is difficult, requiring extensive knowledge, but I feel it is very rewarding. By improving my knowledge and technology, I hope to contribute to the Group as a chemical substance management specialist.

Mitsubishi Chemical Techno-Research Corporation is a research consulting company. All of the members are specialists in a wide range of fields and technologies, and have extensive experience. If you need help with a problem, we may be able to offer assistance. Regardless of whether you are inside or outside the MCC Group, please give us a call.

Together with Stakeholders



Basic concept

● Basic policy in communications with stakeholders

	Basic policy	Tools	Opportunities
Customers	We aim not only to offer products and services that are safe and of high quality; it also aspires to build even a better society together with its customers, by working with them to solve their issues and achieve their ever more diverse and complex targets.	<ul style="list-style-type: none"> • Websites • Press releases • Product brochures • SDS • ADs 	<ul style="list-style-type: none"> • Sales activities • Call center • Purchasing activities • Questionnaires • <i>KAITEKI</i> forum • <i>KAITEKI SQUARE</i> • <i>KAITEKI CAFE</i>
Business Partners	Recognizing all entities trading with our company as business partners, we strive to build a mutually trusted relationship and foster fair and appropriate trading practices with them.	<ul style="list-style-type: none"> • Websites • Press releases • Product brochures • SDS • ADs 	<ul style="list-style-type: none"> • Sales activities • Call center • Purchasing activities • Questionnaires • <i>KAITEKI</i> forum • <i>KAITEKI SQUARE</i> • <i>KAITEKI CAFE</i>
Employees	Mitsubishi Chemical sincerely associates with each of its employees and strives to establish rewarding workplaces where each employee's abilities may be utilized to the utmost, and where employees can work with enthusiasm by mutually respecting diverse values.	<ul style="list-style-type: none"> • Intranet • Chemipal, KAGAKU Station 	<ul style="list-style-type: none"> • Employee surveys • Labor-management consultation
Regional communities and greater society	Understanding our responsibility of being a good corporate citizen, we make sure that our activities live up to the demands and expectations of society and people.	<ul style="list-style-type: none"> • Websites • CSR reports • Report from operating companies 	<ul style="list-style-type: none"> • Factory tour • Meeting with local authorities • <i>KAITEKI CAFE</i>

Policy **Basic ideas**

The Mitsubishi Chemical Group aims to not only offer products and services that are safe and of high quality; it also aspires to realize *KAITEKI* together with customers by communicating with them to solve their increasingly diverse and complex challenges and achieve their targets.

Policy **Providing solutions by positioning Sustainability [Green], Health and Comfort as the decision criteria for our corporate activities**

MOS Indexes C-1: Deliver products (development and manufacturing) for comfortable lifestyle > Find out more

As a member of the Mitsubishi Chemical Holdings Group, the Mitsubishi Chemical (MCC) Group offers solutions to customers through a broad range of chemistry-based products and technologies by positioning Sustainability [Green], Health and Comfort as the decision criteria for its corporate activities.

In addition to promoting the shift to high-performance products and the generation of high-added value as well as green businesses in the Performance Products domain and offering global support and high-performance products in the Industrial Materials domain, the MCC Group also focuses on an increasingly diverse range of chemical raw materials to create industrial materials that contribute to the global environment and a sustainable carbon society.

Activities and Achievements

Striving to be a Group that customers will choose as a partner

MOS Indexes C-2: Improve stakeholder satisfaction
C-3: Recognition of corporate trust > Find out more

In fiscal 2012, the Mitsubishi Chemical Holdings (MCHC) Group began conducting customer satisfaction surveys, underpinned by their shared commitment to achieving accurate insight into social issues and challenges that customers face, and by their aim of maintaining close communication with customers in the course of finding solutions. The surveys sought customer views regarding the MCHC Group's core business activities relating to product quality and systems for supply, sales promotion and technical support, as well as their attitudes toward and sense of trust in the Group's operating companies. Ultimately, MCC hopes that analysis of the survey results and subsequent implementation of a PDCA cycle approach will enable us to provide even better customer service and gain higher levels of customer satisfaction.

A showroom called "*KAITEKI SQUARE*" was opened by the MCHC Group in its corporate headquarters as a means of enabling it to connect with customers in giving thought to the *KAITEKI* concept. It comprises three distinct zones: 1.) a special exhibition zone where visitors can ponder social issues of the 21st century and consider the role played by science and technology toward solutions to such challenges, 2.) a permanent exhibition zone profiling MCHC Group technological capabilities and its collective strengths by showcasing Group company products and technologies designed with a focus on making the *KAITEKI* concept a reality, and 3.) a conceptual zone where visitors can experience society's future through video footage and interactive exhibits. The showroom features MCC products

designed to bring the *KAITEKI* concept to life and exhibits technologies being pursued through MCC research and development efforts.

In conjunction with MCHC's positioning of "THE *KAITEKI* COMPANY" as its corporate brand, in April 2014 it renamed the Chemistry Plaza showrooms that it had been running in the Mitsubishi Chemical Group Science and Technology Research Center in Kanagawa Prefecture and the Yokkaichi Plant in Mie Prefecture *KAITEKI SQUARE* Yokohama and *KAITEKI SQUARE* Yokkaichi respectively, and also opened *KAITEKI SQUARE* Shanghai inside Mitsubishi Chemical China Commerce Limited. *KAITEKI SQUARE* Yokohama houses the kind of cutting-edge technologies and platform technologies that are only found at an R&D facility, *KAITEKI SQUARE* Yokkaichi showcases resin products, technologies, and manufacturing methods, and *KAITEKI SQUARE* Shanghai presents the auto parts and materials and products contributing to environmental conservation that the MCHC Group is focusing on in China. All three squares provide a venue for communication with our customers.

In the one year period from April 2013 to March 2014, the *KAITEKI SQUARE*s in the corporate headquarters area, Yokohama area, and Yokkaichi welcomed 10,205, 1,809, and 1,719 visitors, respectively.

Policy **Basic ideas**

For the Mitsubishi Chemical (MCC) Group to continue its daily business from production to sales, the cooperation of numerous business partners is essential. These partners include raw materials suppliers, plant maintenance companies, logistics companies, and subcontractors working onsite.

MCC views those companies that cooperate with its operations as business partners, and aims to build trust while continuing to grow together with them. We have also established purchasing guidelines to ensure fair and equitable transaction practices.

Purchasing Guidelines (Excerpted)

Principles

1. Purchasing competitive materials, equipment, and services
2. Openness and fairness
3. Partnerships and mutually beneficial relationships

Codes of Conduct

1. Compliance with laws and regulations
2. Fairness, impartiality, and transparency in decision-making process
3. Clear distinction between private and business relationships

Requests for Business Partners

1. Compliance with laws, regulations, and social norms

We request each business partner to comply with the following laws, regulations and social standards, in all countries and regions in which they operate.

- (1) Compliance with laws and regulations concerning the manufacturing and distribution of raw materials.
- (2) Compliance with laws and regulations concerning labor, health, and safety, and development of proper working environments.
- (3) Prohibition of racial and sexual discrimination, and respect for the dignity of each employee.
- (4) Prohibition of bribery and unfair proceedings.
- (5) Compliance with environmental laws and regulations.

2. Promoting sound business management

3. Consideration for the environmental issues

4. Non-disclosure of confidential information

▶ The full text of the purchasing guidelines is available here.

Mitsubishi Chemical Corporation (MCC) has clearly established an organization for complying with the Subcontractor Act, and has established the Subcontractor Act Compliance Rules which specifically stipulates the intentions and scope of application of the Subcontractor Act and compliance matters in tasks related to order placement and payment. In order to ensure that transactions are conducted pursuant to the Subcontractor Act Compliance Rules, Mitsubishi Chemical urge employees to participate in in-house study meetings and seminars offered by outside parties, and we systematically conduct audits of plant purchasing departments.

MOS Indexes S-3: Contribution to solving social and environmental problems through procurement
> Find out more

Mitsubishi Chemical aims to promote CSR activities together with its business partners to help build a sustainable society. As part of these efforts, we are operating the Green Information Management System to comprehensively manage and convey information on chemical substances contained in products with the cooperation of our business partners. In the purchasing guidelines too we are making efforts to build fair and equitable relationships with our business partners, and ask our business partners to promote CSR initiatives.

We are also holding briefings with the objective of deepening our business partners' understanding of these guidelines and systems.

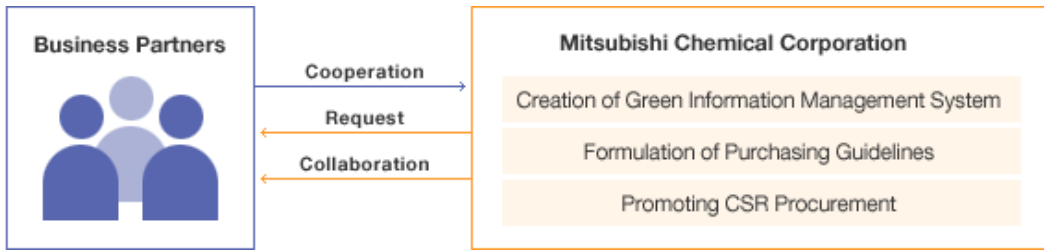
In fiscal 2010, a CSR briefing for business partners was held to explain to the raw materials manufacturers and trading companies which are the business partners of the Company's Purchasing Department, Business Department and the group companies (Japan Polychem Corporation and Dia Packaging Materials Co., Ltd.) the following areas: (1) MCC's concept on CSR; (2) promoting CSR by business partners; and (3) the CSR questionnaire on the CSR ideas and activities of Mitsubishi Chemical, and we asked for their cooperation in these areas. We requested cooperation with the CSR questionnaire from the business partners who attended the briefing and also business partners involving materials, and received a large number of replies in total. Based on the answers to this questionnaire, we exchanged information about the status of their CSR progress from fiscal 2011 to fiscal 2012, focusing on business partners adopting advanced approaches towards CSR procurement.

Moreover in fiscal 2011 we held a briefing on the theme of the new green survey system, explanations were delivered regarding (1) the details of MCC initiatives aimed at achieving *KAITEKI*; (2) the details of MCC's review of green management and operation; and (3) the green surveys of the business partners, we asked for the cooperation of our business partners in these areas, and subsequently we shifted to the new green survey system.

In fiscal 2013 MCC provided its business partners with feedback in the form of tabulated results based on CSR questionnaire responses (100% completed in June 2014). Going forward we will make visits to our business partners and take other steps to strengthen our efforts to improve mutual communication.

In order to continue promoting CSR initiatives in the supply chain going forward, we also plan to implement the Mitsubishi Chemical Holdings Group Charter of Corporate Behavior, which was instituted in April 2013, ourselves and ask our business partners to share these guidelines as well.

● Working with Business Partners to Create Initiatives Designed for a Sustainable Society



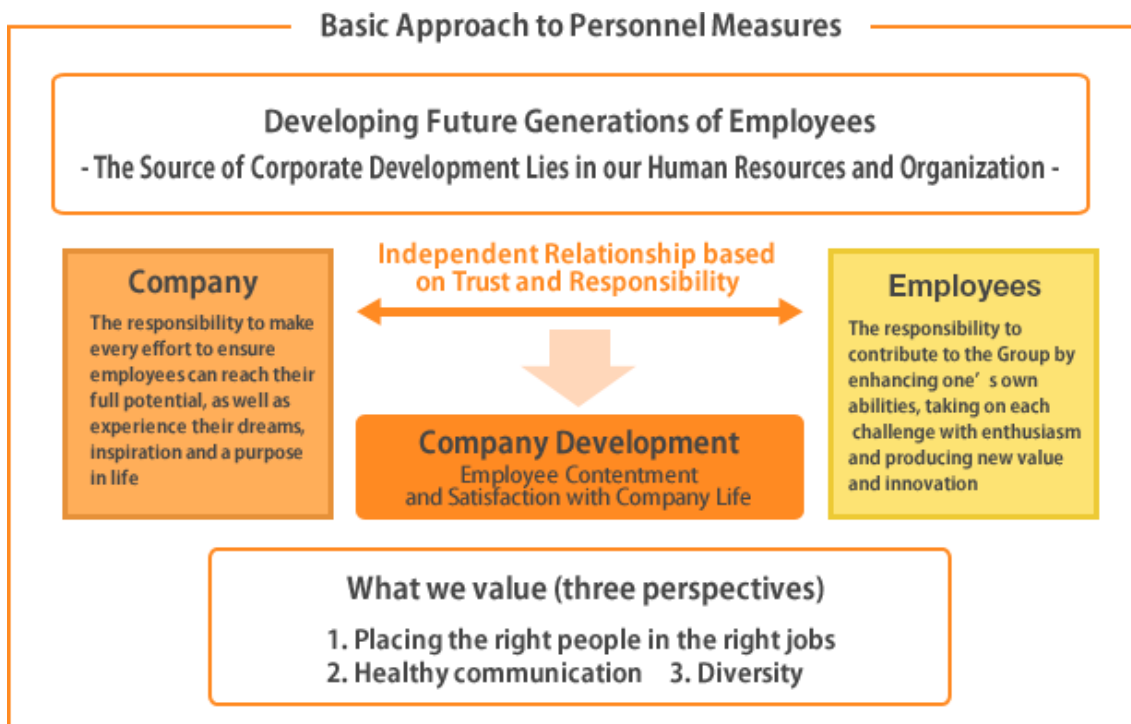
Together with Stakeholders **Together with Employees**

We undertake a range of initiatives to ensure that our employees, who act as the stewards for achieving *KAITEKI*, can maximize their potential.

Policy **Basic approach**

The Mitsubishi Chemical Group believes that for the sustainable development of a business, the Company and each employee need to build autonomous relations based on trust and duty while fulfilling respective responsibilities, with a focus on human resources development, and the development of a good organization and culture. Based on this concept, we deal with each employee sincerely and offer a rewarding working environment that suits personal levels of development so that the capacities of each member are brought out to the fullest extent. These efforts emphasize human resources development, organizational and cultural development, and support for attaining work-life balance.

● **Mitsubishi Chemical's Personnel Policy**



Personnel strategy to realize sustainable corporate growth and development

Hiroshi Katayama
Executive Officer, General Manager, Human Resources Department, Mitsubishi Chemical Corporation



We have drawn up a strategy in the field of personnel based on the fundamental ideas that each employee holds the key to the Company's sustainable development, and that the Personnel Division is an organization with the power and responsibility to nurture and utilize the Company's human resources. We are currently tackling various issues related to this strategy.

As priority issues over the medium-to-long term, we are working to realize the following four sets of measures so as to achieve the goals set forth in the Mitsubishi Chemical (MCC) Group's APTSIS 15 medium-term management plan.

1. Adequately respond to the ongoing structural reorganization of the Group's business operations
2. Respond to globalization
3. Strengthen the capabilities of personnel assigned to "front line" operations
4. Continue and further intensify efforts to strengthen the Group's business base

Regarding "Adequately respond to the ongoing structural reorganization of the MCC Group's business operations," we are aiming to enhance the MCC Group's competitiveness while pursuing optimal staff allocation for an optimum balance of personnel.

Regarding "Respond to globalization," we are focusing on hiring and training staff capable of performing effectively in the global marketplace, and we will use the newly-built global personnel database to conduct studies about the understanding and utilization of the regional staff.

Regarding "Strengthening the capabilities of personnel assigned to "front line" operations" we are making efforts to improve the management capacity of the middle managers and streamline operations, and regarding "Continue and further intensify efforts to strengthen the MCC Group's business base" we are working to create a transparent and open corporate culture, and to make more use of the talents of a wide range of personnel, including women, foreign citizens, senior citizens, and persons with disabilities, and promoting the health of our employees by launching the "Health Promotion Committee" consisting of three parties: the Company, labor union, and health insurance society.

Activities and Achievements

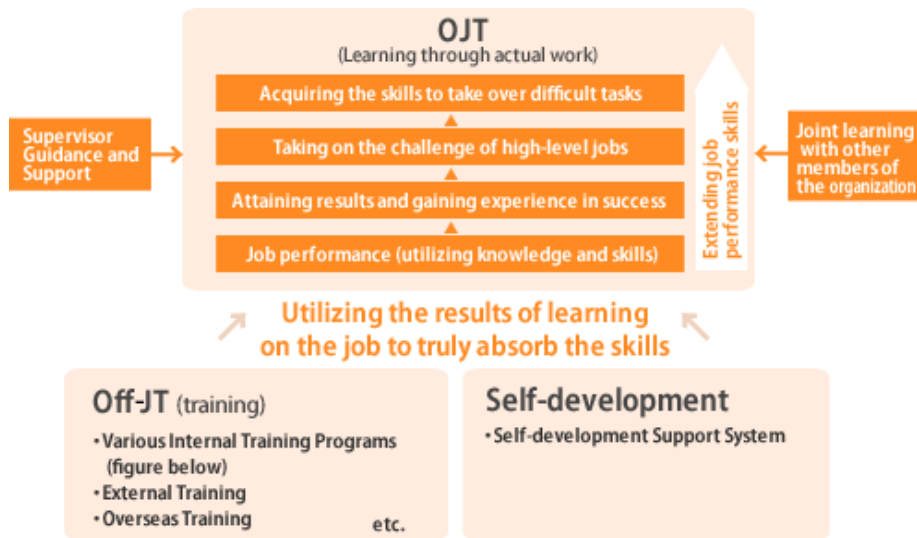
Initiatives aimed at human resource development: Training people capable of thinking and acting independently

Basic approach to human resource development

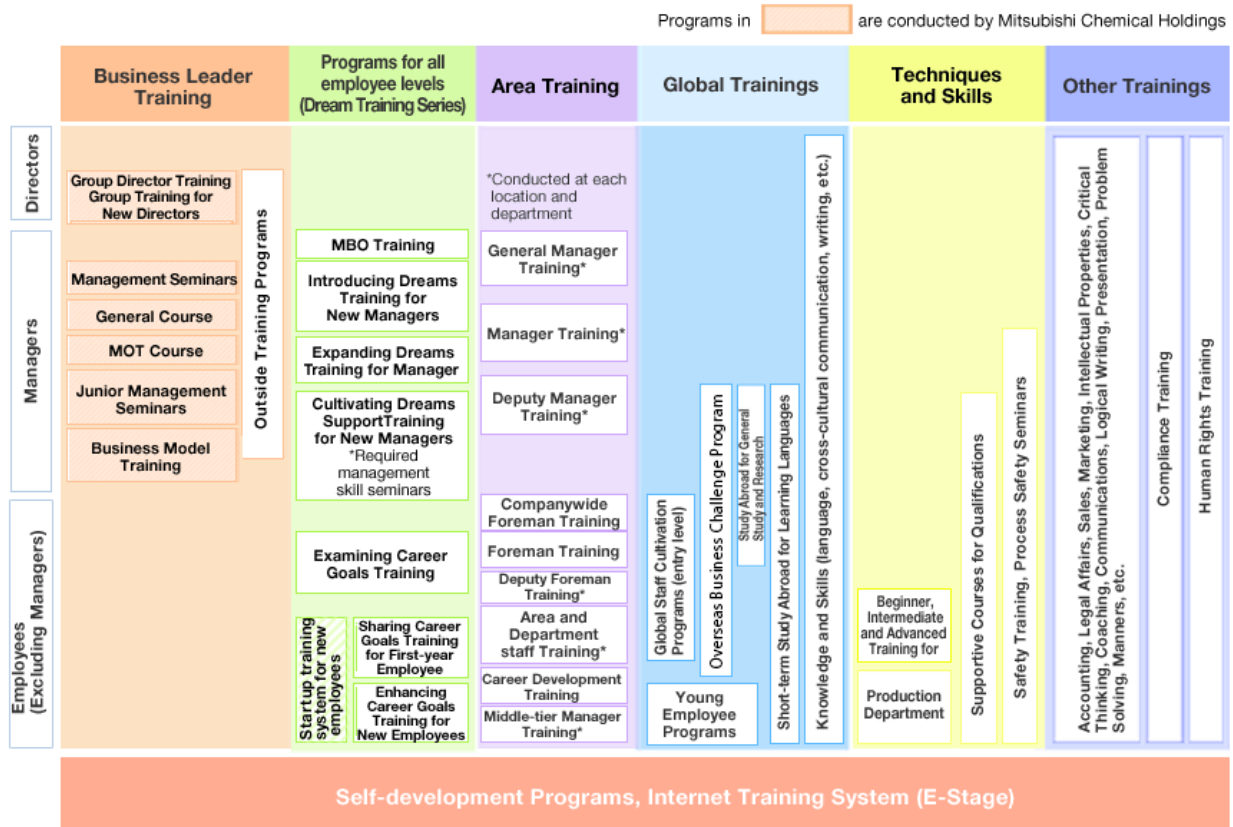
Mitsubishi Chemical Corporation (MCC) believes there are three important elements in the growth of human resources, namely OJT¹ where personnel learn through actual work, "Off-JT"² where personnel utilize opportunities outside work for learning and self-development, where they themselves engage in learning in various ways. By establishing links between these three elements and supplementing them with one another, they become more effective overall. With these three elements as the pillars, MCC supports the growth of its personnel in a number of ways.

1. OJT: On the Job Training
2. Off-JT: Off the Job Training

● The Three Pillars of Human Resource Growth



● Employee training system of Mitsubishi Chemical Group



Enlarged view

Management system

MOS Indexes C-2-2: Improve employee-related indicators > Find out more

Since 2001, MCC has employed a target management-oriented evaluation system. Today, the system applies to all employees, under which we conduct goal setting interviews at the beginning of a period and performance evaluation interviews for the previous fiscal year later on. In fiscal 2011, we also introduced a system to hold interviews part way through a period. In this way, we are working to further disseminate the personnel system and improve the legitimacy of evaluations.

Fostering the next generation of executives

Training for the development of the next generation of MCC Group executives is centered on participation in the business leadership program organized by Mitsubishi Chemical Holdings Corporation (MCHC). And in fiscal 2013, MCHC revised the Group Officer Training and the Business College: General Course by reorganizing them in order to further enhance the business leadership program. From fiscal 2014 MCHC plans to run the program using the post-reorganization content.

In the MCHC Group, there are a number of programs for learning management literacy that MCHC runs in addition to the above, including Management Seminars and Junior Management Seminars, and students are sent to the programs from the MCC Group to have an opportunity to learn the basics of management.

Cultivating Global Human Resources

The MCC Group is currently making an active effort to globalize its businesses by establishing overseas production bases and expanding businesses in overseas regions, mainly in China, India, and other emerging countries. In the area of human resources development, in order to cultivate global management human resources capable of dealing with mergers and acquisitions and the configuration of alliances and partnerships, we are providing domestic training to enhance employees' global sensibilities and communication abilities, including language training and understanding of different cultures, and in addition we are implementing the systems and programs required for the dispatch of employees overseas.

Overseas dispatch programs include the studying-abroad program for going to universities or research institutes overseas and the Overseas Business Challenge System which combines language training with practical training in the overseas Group companies. These are used as opportunities to accumulate global experience in business and general life.

In fiscal 2013 we considered reorganizing and integrating the Global Staff Cultivation Program (entry level) for young employees who have no experience in overseas duties, which was started in fiscal 2010 and includes experiences such as a few days of travel abroad, with the other programs of the MCHC Group. From fiscal 2014 we will implement the program using the post-reorganization content.

Activities and Achievements

Offering opportunities to take on challenges and boost awareness

In addition to usual personnel transfer and rotation among divisions, Mitsubishi Chemical Corporation (MCC) has established a system where employees may declare their desires related to their duties and career, and transfer to desired areas.

The system works in three ways: open recruitment where programs are offered in-house and those wishing to participate apply, in-house free agencies where employees make a request for a transfer to another duty, and in-house internships where employees are transferred to another duty for two to three years for training on the assumption they will return to their previous duty. These ongoing efforts are being made to encourage greater use of the system, such as improving ease of use by unifying application forms and trying more effective measures for publicizing the system among employees.

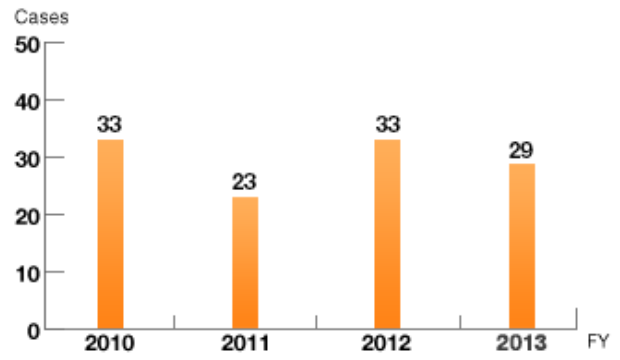
A career counseling system adopted in fiscal 2006 also enables employees to independently consider their career path. Qualified career counselors are assigned in-house and other employees may consult with them at any time about their careers. The system offers awareness-building opportunities for employees who are seeking to form their career path. Individual guidance is given from the viewpoints of taking inventory of one's career so far and of rediscovering oneself.

● Actual use of open recruitment, in-house free agencies, and in-house internships

Title		2010	2011	2012	2013
Open recruitment	Programs offered (people)	19	13	4	9
	Applicants (people)	25	13	18	17
	Accepted (people)	6	6	4	8
In-house free agent (people)		0	0	2	1
In-house internship (people)		1	4	1	1

FY

● Number of people who consulted career counselors



Initiatives aimed at developing the organization and corporate climate: Striving to develop an organization and corporate culture that makes work rewarding for anyone

The Mitsubishi Chemical (MCC) Group proactively promotes diversity for developing a corporate culture where all employees mutually respect each other's values and find work rewarding.

Efforts to promote the active participation of female workers

MOS Indexes C-2-2: Improve employee-related indicators
C-3: Recognition of corporate trust > Find out more

Aiming to be a company where all employees work to their fullest capacities regardless of their gender, as well as having appeal as a place where energetic workers come together, MCC in 2008 adopted the Women's Initiative & Work Innovation (WIN-WIN) Plan. Using the targets stated in the plan as guidelines, MCC has established systems to provide necessary career support to female workers, including leave while accompanying the spouse's overseas assignment, temporary suspension of transfer, and declaration of the desired place of work. Systems related to child care and family care that help women maintain a work-life balance are also being used on an ongoing basis, and we continue to offer various supporting measures that women require, such as the WIN-WIN plan.

● Target values of Women's Initiative & Work Innovation (WIN-WIN) Plan (%)

Item		2010	2011	2012	2013	Target values ³
Ratio of women among management		4.6	4.9	5.3	5.8	over 20
Ratio of women among new hires	Clerical	41	39	36	44	over 40
	Engineering	16	14	8	18	over 20

3. The target for ratio of women among management is for fiscal 2025 and for women among new hires is for fiscal 2015. The result for the ratio of women among management as of April 1 for each year

Example of an Initiative Aimed at Promoting Active Participation of Female Workers

At each of its sites Mitsubishi Chemical is working to develop a corporate culture in which female workers can actively participate.

Junko Shimada
Planning and Coordination Group, Administration Management Department, Odawara Techno Center, Mitsubishi Chemical High-Technica Corporation



O-GIRLS

I am one of seven women appointed from the various divisions in the Odawara area in November 2013 to launch O-GIRLS (Odawara girls) as one of the small group activity circles straddling the corporate organization of MCC and Group companies.

The objectives of our activities are to build a portal site suitable for the Odawara area which contributes to "share thoughts, share information, and ensure that information passes between divisions and departments" and are "used as a tool of communication within the Odawara area (the sense of solidarity)".

Originally we started our activities with little knowledge about portal websites, but we rapidly accelerated our efforts using a process of trial and error based on the slogan, "if we do not try anything we will never achieve anything," and as planned we commenced the operation of the portal site in January 2014 and completed an upgrade of the site in June 2014.

We designed a meticulous site structure and liberally incorporated a feminine sense of fun in the site, and it has been very well received. Going forward, we will conduct a questionnaire to assess the reaction to the upgraded version of the site, and will further enhance the portal site taking into account the results of the questionnaire.

Work-life balance support systems introduced in fiscal 2010 (both male and female employees are eligible)

1. Leave for accompanying spouse's overseas assignment

Allows employees to take leave of up to three years when accompanying the spouse's overseas assignment.

2. Temporary suspension of transfer

Allows employees to be exempted from transfer that accompanies relocation and to continue working at the current place of work for a specified period while raising a child.

3. Declaration of desired place of work

The system allows employees to ask to be transferred to the spouse's place of assignment when the spouse is transferred to a remote location and work-life balance is hindered or there are other family reasons.

Status of use of systems for work-life balance

FY

System	2011	2012 (non-consolidated figures in brackets)	2013 (non-consolidated figures in brackets)
Maternity leave before and after childbirth (people) ⁴	59	35	40
Child-raising leave (people)	116	110 (80)	99 (66)
Shorter work hours while raising a child (people)	210	218	210
Nursing care leave (people)	2	6 (5)	6 (3)
Shorter work hours while providing nursing care to family members (people)	3	4	5
Fertility treatment leave (people)	0	0	0
Subsidy for fertility treatment (cases)	40	56	49

System	2011	2012 (non-consolidated figures in brackets)	2013 (non-consolidated figures in brackets)
Leave to accompany spouse's overseas assignment (people) ⁵	1	1	3
Temporary suspension of transfer (people) ⁵	0	0	0
Declaration of desired place of work (people) ⁵	3	1	2

⁴ Only female workers may take maternity leave before and after childbirth. Both male and female workers are eligible for other support systems.

⁵ These are the systems for supporting work-life balance that were introduced in fiscal 2010.

Front Runner

Taking leave while accompanying the spouse on an overseas transfer

Kyoung-Hi Nishino
 Electrolyte Business Group
 Battery Materials Department
 Mitsubishi Chemical Corporation



It was decided that my husband would go to the United States for two years from August 2011 to conduct research at a university there so in order to go with him I took leave under the system for leave while accompanying a spouse overseas. Initially I did not know that this system existed and I considered quitting my job, but when I consulted with my superior he recommended that if I intended to continue working in my current job after returning to Japan I should apply for leave under the system for leave while accompanying a spouse on an overseas assignment.

Deciding that during my time in the United States I wanted to challenge myself to learn skills that would be useful for my work when I return to Japan, I studied English and matters related to business. For English I attended the Extension School at Harvard University, and I obtained an opportunity to acquire business-related knowledge in a program at Georgetown University in Washington DC. I was able to greatly broaden my perspective because I heard lectures given by distinguished professors and by coming into contact with innovative and diverse views through my discussions with my classmates from countries around the world.

After returning to Japan I went back to work from September 2013. I was worried about whether I could do the work as well as before because I had not been involved for two years, but I was given a period of approximately three months to warm up by reacquainting myself with the operations, and after that I returned to full-scale practical operations. It is now approximately nine months since I returned to the workplace but thanks to the warm support of my colleagues, I have already been able to regain the sense of the work I had before I took leave. Going forward I hope to utilize my experiences in the United States for my work.

Taking child care leave

Takeshi Kato
Waterborne Resin Group, Performance Products Laboratory,
R & D Center, Yokkaichi Plant,
Mitsubishi Chemical Corporation



In May 2013 my first daughter was born so until the end of January the following year I took child care leave. I consulted with my superior about when to take the leave and we chose a time between major projects.

I had two reasons for taking the leave. The first was that I wanted to reduce the burden on my wife during her child care leave as much as possible. The second was that when my wife returned to the workplace I would return to my job assignment away from my family so I wanted to spend as much time as possible with my family before that.

I had my hands full with housework and child care during my child care leave. For example, in addition to housework such as cleaning, laundry and cooking, I changed the diapers of my daughter, gave her baths, prepared her milk formula, took her for walks, read picture books aloud to her, put her to bed, and so on. Because everything was new to me I could not do things at my own pace and it was more challenging than I had imagined, but with instructions from my wife I became able to do everything related to child care. I experienced the joy of watching my child grow. I think this was suffering and joy I was able to know precisely because I could focus exclusively on the child care. Now that I have truly experienced and understood the difficulties of child care for myself, I have started to do an hour's housework in the morning before going to work.

Finally, I would like to express my deep gratitude to the relevant people in my workplace who provided the support that enabled me to take child care leave.

Promoting diversity in recruitment

MOS Indexes C-2-2: Improve employee-related indicators > Find out more

Mitsubishi Chemical Corporation promotes diversity in its recruitment activities, with the hope of revitalizing the organization by addressing changes in the business environment and globalization, and by assembling diverse human resources. Specifically, we are working to increase the percentage of female hires and promoting the recruitment of local human resources in Japan and at overseas companies. Application eligibility has also been expanded for university graduates, treating them as new graduates for up to three years after graduation. We are also making active use of mid-career recruitment.

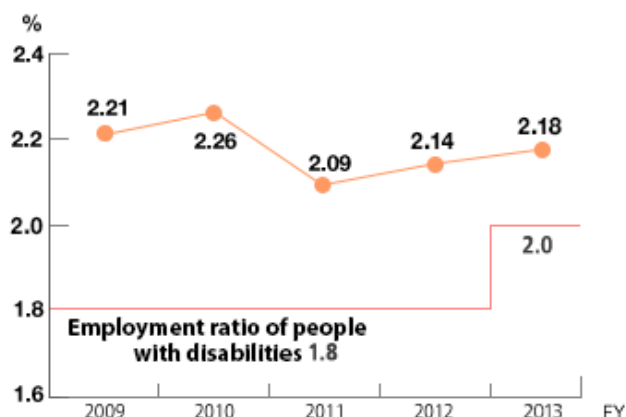
In fiscal 2014, 48 new graduates were hired, nine of whom were women and six of whom were foreigners. After recruitment, training commenced for this diverse array of employees to enable them to make an outstanding contribution to the realization of *KAITEKI* Value in the years ahead.

Helping people with disabilities bring out their skills

Under a philosophy of normalization, in 1993 we established a special subsidiary, Kasei Frontier Service, Inc., for helping people with disabilities take on roles with greater responsibility, developing their capabilities, and contributing to society. At the same time, we have sought to improve their working environment. This subsidiary's major businesses include information processing services, general printing services and work consigned by MCC. As of June 2014, 79 people with disabilities (of a total of 120 employees) work at the Kitakyushu head office and Yokkaichi branch office in ways that suit their respective skills.

The employment ratio of people with disabilities as of fiscal 2013 is 2.18%. Since the statutory employment ratio was raised to 2.00% in April 2013 we have maintained a level that is above this.

● **Change in employment ratio of people with disabilities**



* Includes companies to which Mitsubishi Chemical's system of disabled person employment ratio applies

Front Runner

Filling our company with a bold spirit where people with disabilities work in harmony

Kenichi Sato
 Managing Director
 Kasei Frontier Service, Inc.



Kasei Frontier Service, Inc. considers both the tangible and intangible aspects of the working environment to enable people with disabilities to work with enthusiasm. Yet we have never treated people with disabilities in a special way. This is because we hope to be a group with a bold spirit where people with disabilities and those without impairments work in harmony.

In our management, we are continually mindful of making the company an organization we can be proud of as a team of human beings. For this purpose, this must be a company where anyone can work comfortably in a friendly but competitive environment. On the other hand, we need to face the reality that, as we age, we experience different phenomena. Even under these circumstances, we need to develop working environments where each of our employees feels joy when they work and have a sense of participating in and contributing to society.

Front Runner

Aiming for a workplace full of energy and vitality

Seiichi Ataka
 (Internal disease)
 Head of Services Department, Field 1 Group, Field Department,
 Kasei Frontier Service, Inc.



In my present post, I produce signs related to safety and covers, etc.

To achieve those ends, every day I take care to focus on

- (1) Hand making the products with care

(2) High quality at a low price

(3) Flexible, customer-oriented service

As a person who has a disability myself, I closely monitor the physical condition of the persons with disabilities in my division, constantly search for opportunities for them to challenge themselves, and work hard every day to increase the vitality of my division.

Utilizing skills of senior workers effectively

Since the Act for Stabilization of Employment of Older Persons was amended in April 2013, companies have become obligated to make employment opportunities available to interested employees up to the age of 65. Staying ahead of social trends, however, MCC established prior to this the Senior Partner System for rehiring enthusiastic and able employees after they reach retirement age. In fiscal 2013, 122 of 136 such employees wished to continue their employment and were rehired under the system. They use their skills as experienced workers and train younger workers to pass on the expertise and techniques they have acquired in their careers.

Activities and Achievements

Helping employees attain a work-life balance by promoting a reduction in total working hours

The Mitsubishi Chemical (MCC) Group believes that maintaining work-life balance improves productivity and motivation for both men and women. Based on this thinking, MCC has attempted to reduce total work hours so that all employees can lead healthy and satisfying daily lives.

Reducing overtime and holiday work hours and eliminating excessive work hours by raising work efficiency

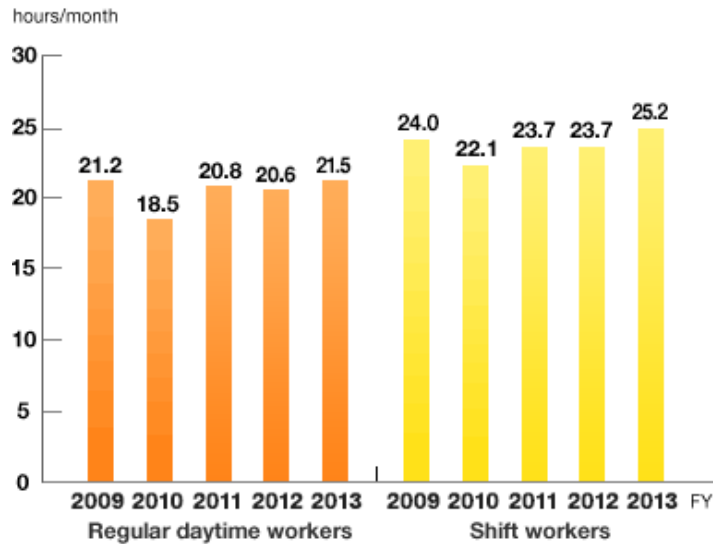
MOS Indexes C-2-2: Improve employee-related indicators > Find out more

MCC seeks to reduce overtime, holiday work, and excessive work hours by ensuring division managers properly understand the duties and work hours of subordinates, eliminate excess or waste in their duties, and maintain appropriate duty allocation within the workplace.

Specifically, MCC also has a number of policies designed to boost work efficiency, including the simplification of in-house materials and reviewing the timing of meetings. In addition, we introduced in November 2012 restrictions on room access after 7:00 p.m. in an effort to encourage awareness of completing work within set time periods and then going home.

In fiscal 2013, there was a slight increase in overtime and holiday work hours due to large-scale periodical repairs at plants and hiring more replacement staff due to an increase in the number of holidays for shift workers. However, from a long-term perspective taking past results into account, work hours are on a downward trend.

● Change in overtime and holiday work hours (general workers)



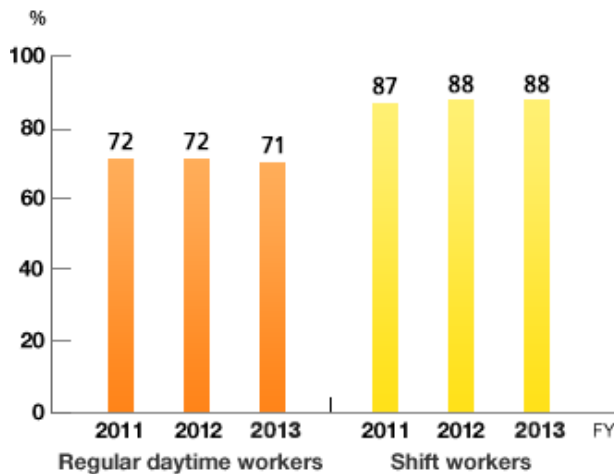
Measures for encouraging employees to take annual paid vacation

MOS Indexes C-2-2: Improve employee-related indicators > Find out more

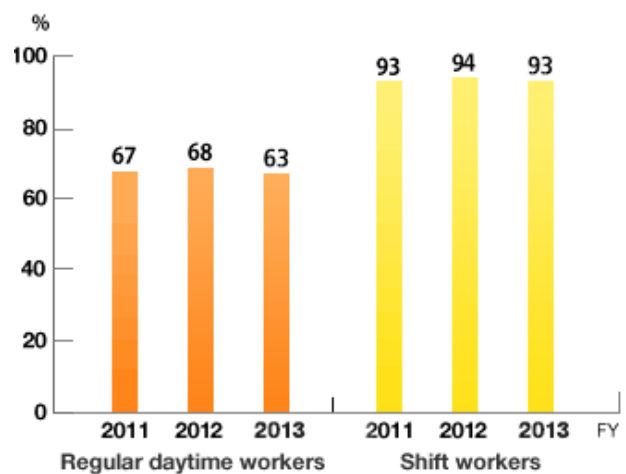
Aspiring to encourage employees to lead well-modulated daily lives with greater leisure, MCC is striving to create an environment that allows employees to take planned vacations. Examples include setting planned annual holidays (three days each year) and adopting a life support holiday system. The life support holiday system enables an employee taking two consecutive paid days off to take an additional day off once a year. This enables five consecutive days off if a weekend is included, so it is a mechanism that can raise the employees' awareness of extended holidays. Employees aged 30, 35, 40, 45, 50 and 55 are allowed three extra days off, to take even longer vacations.

We have also established volunteer holiday (five days), volunteer leave (three years), and donor holiday (in the number of necessary days) systems to assist employees doing volunteer work.

● Change in number of paid vacation days taken



● Change in the ratio of life support holiday system taken



Changes in shift work systems

MOS Indexes C-2-2: Improve employee-related indicators
C-3: Recognition of corporate trust > Find out more

At the plants of MCC, shift workers currently work in three shifts through four groups. However, a study is underway to change to three shifts and five groups or other shift systems to establish greater leeway for shift workers, taking the nature of duties and plant features into consideration.

● **Example of three-shift and five-group system**

Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	1	1	1	1	P	3	3	3	3	P	2	2	2	2	P	P	1	1	1	1	P	3	3	3	3	P	2	2	2	2
B	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	P	3	3	3	3	P	2	2	2	2	P	P	1	1
C	P	3	3	3	3	P	2	2	2	2	P	P	1	1	1	1	D	D	D	D	D	D	D	D	D	D	D	D	D	D
D	3	P	2	2	2	2	P	P	1	1	1	1	P	3	3	3	3	P	2	2	2	2	P	P	1	1	1	1	P	3
E	2	2	P	P	1	1	1	1	P	3	3	3	3	P	2	2	2	2	P	P	1	1	1	1	P	3	3	3	3	P

Legend

Shift	Work description
P	Public holidays
1	Shift 1
2	Shift 2
3	Shift 3
D	Daytime

6. Employees may take consecutive days off while working the daytime shift

The drafting of the 4th Action Plan (April 2013 – March 2018)

The Act for the Promotion of Measures to Support the Nurturing of the Next Generation went into force in 2005, following which MCC drew up its Action Plan for General Business Proprietors. Then, in 2007 MCC acquired the *Kurumin* certification as a company providing help for its employees in bringing up children. Since that time, the Company has continued to provide a working environment enabling its employees to achieve a good work-life balance, and since April 2013 we have been promoting enhanced work-life balance support in line with the stipulations of our 4th Action Plan.

The 4th Action Plan

We have drawn up the following action plan to realize a working environment in which all employees can achieve a good work-life balance, enabling them to work efficiently and make full use of their skills.

1. Period of plan: April 1, 2013 to March 31, 2018 (5 years)

2. Objectives

Goal No.1: Provide increased support for child-raising by employees

- Examine ways in which the working environment can be improved to help employees achieve a healthy work-life balance

Examples: Improve follow-up procedures for employees taking advantage of the Company's work-life balance support system; promote understanding and wider utilization of newly introduced systems; expand maternal welfare activities; promote greater involvement in child-raising by fathers; examine expansion of work-menu options for mothers and fathers during child-raising period; develop a corporate culture that encourages employees to take advantage of system of paid leave for child-raising.

Measures taken

April 1, 2013 to March 31, 2018

Formulation and implementation of specific measures; operation of new system, and comprehension of issues needing to be addressed

Goal No.2: Take measures to further foster a corporate culture that helps employees achieve a healthy balance between work and child-raising

- Various educational activities to foster the desired culture across the entire Company Plan and hold lectures and seminars; make use of existing in-house training system
- Continue and further enhance in-house educational activities regarding human rights aimed at helping bring about a gender-equal society
Take measures to raise human rights consciousness through training
- Take steps to reduce overtime to help employees achieve a healthy work-life balance (Examples: campaign to encourage employees to leave work at the fixed time; hold talks in the office regarding use of the system of paid leave for work-life balance support, and on cutting back on overtime hours worked)

Measures taken

April 1, 2013 to March 31, 2018

Formulation and implementation of specific measures

Goal No.3: Apply Companywide regional support measures for fostering sound development of young people

- Provide opportunities for children and adolescents to acquire work experience and experience of participation in the wider society, such as holding factory tours, conducting chemical experiments in front of students at local elementary and junior high schools, inviting children to visit workplaces, and offering internships and other practical work experience programs

Measures taken

April 1, 2013 to March 31, 2018

Specific activity program

Activities and Achievements

Striving to establish a culture of human rights through ongoing education and awareness-raising activities

MOS Indexes C-3: Recognition of corporate trust > Find out more

The Mitsubishi Chemical (MCC) Group established Guidelines for the Promotion of Human Rights Awareness in 1980, tackled human rights issues to fulfill its social responsibility as a corporation from the outset, and has continued to engage in human rights education and awareness-raising activities ever since. Today, we conduct training and awareness-building (including at our overseas subsidiaries) to deepen the proper understanding and recognition of human rights issues and ensure that we conduct business activities in ways that conform to the Ten Principles of the United Nations Global Compact.

Each year, we develop a timely priority issues list. In fiscal 2013, for instance, we set out the goals of reconfirming and understanding the Buraku issue, eradicating prejudice as well as preventing sexual, power, and other forms of harassment, and strengthening collaboration with the Group companies, worked to have these concepts widely accepted within three years, and worked on training and education for the first fiscal year. We conducted 450 group training sessions aimed at all employees working within the Group, including executives and temporary staff. In total, 8,710 employees attended these sessions. Human Rights E-Training is also continuously administered using the Company Intranet, and has been used by some 17,086 employees to date. The percentage of employees who have undergone group training currently stands at around 40% of all employees (members such as executives and top management undergo training on a yearly basis).

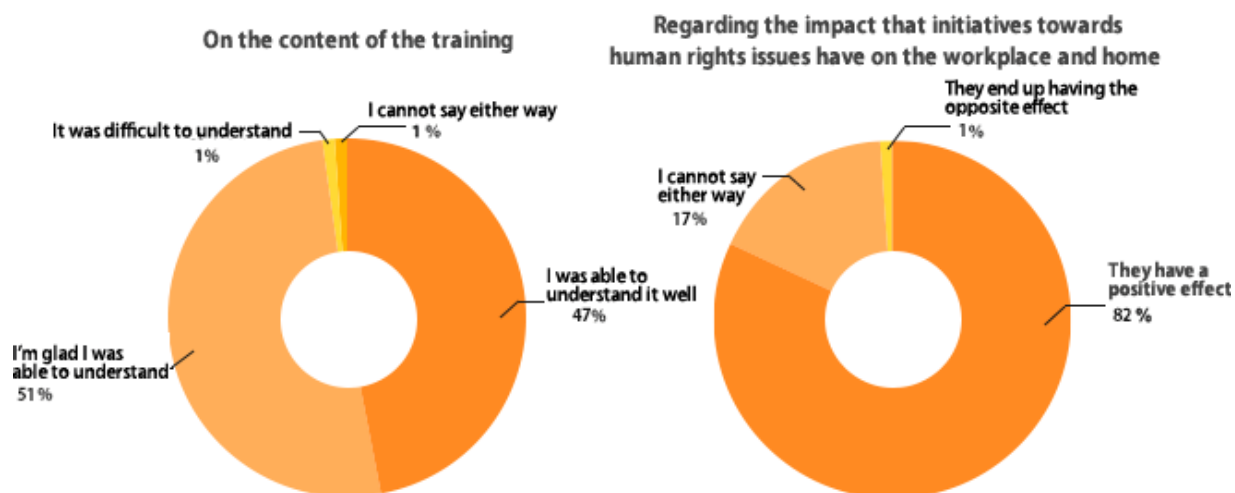
● Education and training on human rights given

FY

Training description		2010	2011	2012	2013
Group seminars	Number of times	406	432	556	450
	Number of people	9,684	10,019	11,611	8,710
Human Rights E-Training	Number of times	4	4	4	4
	Number of people	16,742	20,364	17,072	17,086
Overseas seminars ⁷	Countries	2	0	1	0
	Number of times	2	0	3	0

7. Includes surveys on overseas human rights situations

● Results of Questionnaire after Group Human Rights Training (2013)



MCC precludes any and all discrimination in its hiring and selecting employees. MCC takes sufficient consideration of the privacy of the persons concerned in the case that infectious diseases, such as HIV, or sexual minorities (LGBT people) are made known after joining the Company, and takes appropriate steps.

Guidelines for the Promotion of Human Rights Awareness (Preamble)

Based on the Mitsubishi Chemical Holdings Group Charter of Corporate Behavior, we recognize the importance of educating our employees in the principles of human rights. As part of our corporate social responsibility, we work to increase awareness within the Mitsubishi Chemical Group of human rights issues such as social discrimination against outcast people, and aim to detect and prevent all cases of discrimination or harassment. For these purposes, we herewith lay down these guidelines for the promotion of human rights awareness.

MOS Indexes C-2-2: Improve employee-related indicators > Find out more

The Mitsubishi Chemical Group has conducted employee surveys since fiscal 2006. In fiscal 2013, 24,163 employees, representing roughly 90% of all domestic employees and employees stationed overseas, cooperated with the survey. The survey addressed a diverse range of issues from employee satisfaction to the workplace environment, with initiatives being undertaken to reflect the feedback from employees in various management policies.

Labor unions exist at the Mitsubishi Chemical Corporation (MCC) head office (as well as branch offices) and production sites at Kurosaki, Yokkaichi, Naoetsu, Mizushima, Sakaide, Kashima, Nagoya, Tsukuba, and Odawara, which together form the MCC Labor Union Federation. As of the end of March 2014 there were approximately 5,400 members of the labor unions, accounting for 60% of the employees belonging to MCC. The Federation and labor unions do not participate in senior bodies, but pursue a policy of working together with the Company. The emphasis is placed on maintaining and strengthening sound labor-management relations, and the two parties meet regularly at biannual management and labor committee meetings.

Some MCC Group companies have organized labor unions, and these have all maintained productive labor-management relations.

Front Runner



Mitsubishi Chemical Labor Unions Federation

Yasuharu Kukino
Chairman
Mitsubishi Chemical Labor Unions Federation



The life force of MCC undoubtedly lies with the people, and for this reason we believe labor-management relations start with business administration that fully brings out human ability and engenders trust in management. With the aim of further strengthening labor-management relations, our Federation will perform its roles appropriately by conducting activities for linking the frontlines of management and worksites, as management's partner and checking function, and by candidly exchanging opinions at Management Council Meetings and on other occasions.

I am also fully aware that the overarching basis for the MCC Group's ongoing prosperity lies in safety and compliance. Our Federation will redouble its efforts to share information and promote exchanges with other labor unions through the MCC Group Labor Union Council and other organizations, thereby deepening ties among labor unions that gather under the Group.

Moreover, even at a time when the environment surrounding us is continuing to change, we will move away from the current union organization structure to build more and more effective structures so that we can continue these activities.

Together with Stakeholders Corporate Citizenship Activities

Policy Basic concept

As a member of the Mitsubishi Chemical Holdings (MCHC) Group, Mitsubishi Chemical Corporation engages in corporate citizenship activities that include fostering the development of the next generation, communicating with local communities, and disaster support in line with the MCHC Group Corporate Citizenship Activities Policy.

MCHC Group Corporate Citizenship Activities Policy

As good corporate citizens, the MCHC Group has been striving for realizing *KAITEKI* with better understanding the culture and customs in communities and countries where we operate. Furthermore, we have been active in responding to real needs and demands of the communities through various manner including our business activities where we locating.

[Approach]

As a whole we shall:

- Conduct corporate citizenship activities in communities and countries where we operate from a view point of Sustainability, Health, and Comfort.
- Deepen our understanding on social needs through communication with various stakeholders and other organizations.
- Go along with all employees for the activities and encourage their positive participation.
- Support employees for their volunteer activities.

Activities and Achievements Disaster support

Activities in support of post Great East Japan Earthquake Reconstruction

MOS Indexes C-3: Recognition of corporate trust >Find out more

Many places in Tohoku suffered enormous damage from the tsunami that followed the Great East Japan Earthquake. As part of our activities to support reconstruction in Tohoku continuing on from last year, we invited primary school students from Kamaishi City and Otsuchi Town in Iwate Prefecture, together with a parent or guardian for each student, to Tokyo in cooperation with Good Neighbors Japan¹, an NGO. Called "Let's Go To Tokyo," this event enabled the group of 67 people to visit Tokyo Disneyland, Tokyo Sea Life Park in Kasai and our science experiments classroom in our head office building. We believe that this event gives the children both a refreshing break and the opportunity to learn more about the MCHC Group's business operations.



"Let's Go To Tokyo"

1. Good Neighbors Japan is a Japanese Specified Nonprofit Corporation and part of Good Neighbors International, which engages in activities to improve lives through education, food, shelter, community development, medical care, advocacy, and emergency relief in over 20 countries.



Science experiments

Furthermore, the MCHC Group held in its head office building exhibitions of local products exhibiting the specialty products of Iwate Prefecture, Miyagi Prefecture and Fukushima Prefecture. On the days of the exhibitions many employees purchased a wide variety of goods and the events were a great success.



One of the exhibitions of local products from three prefectures in Tohoku

The MCHC Group has also made donations and provided relief supplies to help disaster-affected areas and has supported volunteer activities by its employees in these areas. Going forward we plan to continue activities supporting the recovery of Tohoku.

Activities and Achievements

Fostering the development of the next generation

Science class

MOS Indexes C-3: Recognition of corporate trust > Find out more

Each Mitsubishi Chemical (MCC) Group location runs a science class with the aim of sparking an interest in chemistry and science among the children who will lead the next generation.

Traveling Science Class (Kashima Plant)

To forge communications with the local community and spark an interest in chemistry and science among the children who will lead the next generation through fun chemistry experiments, the Kashima Plant has run a traveling science class for elementary school fifth graders in Kamisu City, Ibaraki Prefecture, where the plant is located, since 2000.



For fiscal 2013, experiments on atmospheric pressure were held at four local elementary schools under the theme "The air is powerful" from January to February 2014. The students were amazed to observe how easy it was to crush aluminum cans and large square cans using air pressure and how easy it was to lift up a heavy plastic container or adult human being simply by blowing air into a sealed bag with a straw, and enthusiastically took part in the experiments together with the MCC and R&D Center employees who served as were the instructors.

2013 Youngster's Science Festival in Kurashiki (Mizushima Plant)

In November 2013, we set up a booth for scientific experiments and engineering experiences at the 2013 Youngster's Science Festival in Kurashiki, Okayama Prefecture. The festival is a science education event held on a nationwide scale with the aim of helping youngsters understand the attraction of science through real-life experience. This was the 15th science festival in Kurashiki, and MCC's Mizushima Plant has taken part every year since 2006.



On the day, we worked with children on experiments using liquid nitrogen and the creation of key holders using polystyrene sheets (plastic plates). The eyes of the participating children shone as they experimented with freezing flowers and vegetables using liquid nitrogen, and enjoyed creating original key holders, unique in the world.

Science classes during an autumn festival in Kuroaki (Kuroaki Plant)

MCC held a chemistry class during the Kurosakiyado Autumn Festival in the area centered in front of Kuroaki Station in Kitakyushu City, Fukuoka Prefecture. This is the tenth time MCC (Kuroaki Plant) has held the science classes, which are held each year.



Once again, R&D Center employees played a central role as instructors, conducting experiments, making slime from laundry starch and using super-absorbent polymer to make aromatic substances from aromatic oil.

The classes were such a great success that many children lined up to take part and displayed keen interest as they set about conducting the experiments.

Mitsubishi Chemical Junior Designer Award (MCJDA)

MCC has supported the Mitsubishi Chemical Junior Designer Award (MCJDA) [Japanese only] since fiscal 2006 for supporting young designers and promoting design. MCJDA is the only system in Japan giving awards to the graduation projects of students aspiring to be leading designers in all areas of design including product, graphic, fashion, multimedia, packaging and design studies. Through MCJDA, we strive to create opportunities to find promising young designers and introduce them to the public. We usually issue a call for works in January, and announce the award winners and exhibit the winner's project in the fall.

In fiscal 2013, the thirteenth awarding, 222 works were sent in. Of these, 14 won award for their uniqueness, representing great variety.



2013 MCJDA Awarding Ceremony



About my "topos" (by NatsumiSugiyama)
awarded the 2013 MCJDA Grand Prix

Coordination with local public interest corporations incorporated foundation

Mitsubishi Chemical Corporation (MCC) (Kurosaki Plant) is a member of the Kitakyushu International Techno-cooperative Association (KITA). In this capacity, we provide the space opportunities and develop the curricula to transfer technological expertise to developing countries needed for international training in Kitakyushu City, Fukuoka Prefecture, and also take part in activities to help promote international cooperation through personal exchanges and technology transfers. MCC has participated in these activities since KITA was first established in 1980 and remained involved with the running of KITA, with successive Kurosaki Plant general managers having served as directors of the association to date.

For fiscal 2013, a total of 58 trainees from 35 countries were accepted into seven courses held for 26 days. The training mainly consisted of managing, cleaning and equipping management technologies for air pollution and industrial wastewater and activities to prevent industrial accidents, and also included plant tours inside the Kurosaki Plant premises.

The trainees are interested in learning about the environmental conservation technologies employed by Japan, which went from being called one of the world's major polluters to achieving environmental improvements in a short time. For their part, the team of instructors conducts the training each year with the hope that the trainees will make use of what they learned in the training after they return to their own countries.



About Mitsubishi Chemical Corporation

Mitsubishi Chemical Corporation was incorporated on October 1, 1994 through the merger of Mitsubishi Kasei Corporation with Mitsubishi Petrochemical Co., Ltd. The company's roots trace back to Nippon Tar Industries Corporation, established on a fifty-fifty basis capital contribution by Mitsubishi Mining Company, Ltd. and Asahi Glass Co., Ltd. on August 1, 1934. As of March 2014, Mitsubishi Chemical Corporation and its 195 Group companies conduct business across the three domains of performance products, healthcare and industrial materials.

Corporate data of Mitsubishi Chemical Corporation (May 2014)

Mitsubishi Chemical Corporation

Establishment	June 1, 1950 (incorporated on October 1, 1994)
Head office	Palace Building, 1-1, Marunouchi 1-Chome, Chiyoda-ku, Tokyo
President & CEO	Hiroaki Ishizuka
Paid-in capital	50,000 million yen
Listing	Unlisted
URL	http://www.m-kagaku.co.jp/index_en.htm

Group Overview (Fiscal year ended March 2014)

Mitsubishi Chemical Corporation

Subsidiaries	152
Affiliates	43
(Total)	195
Number of employees	5,571 (non-consolidated) 26,927 (consolidated)

Business Domains and Main Products

Electronics Applications & Designed Materials

We provide increasingly diverse markets and society with a wide range of solutions, from materials to devices, by utilizing chemistry-based featured technology clusters.

>Details

<p>White LED lighting / supplies</p> <p>White closely resembling natural light achieved with proprietary technology</p>		<p>Display Materials and Related Products</p> <p>Offering a vast range of solutions including materials and components for LCD displays</p>	
<p>Recording media</p> <p>No. 1 market share of the recordable CD/DVD/BD sold worldwide by brand * *(according to the SCCG/JRIA data)</p>		<p>Performance Film</p> <p>Expand uses in medical and food packaging for high-functional films, such as multilayer co-extruded and gas barrier films, etc.</p>	
<p>Semiconductor-related Products and Services</p> <p>Providing services such as wafer reclamation and precision cleaning together with materials such as high-purity process chemicals</p>		<p>Lithium ion battery materials</p> <p>Only manufacturer providing the four core materials</p>	
<p>Specialty chemicals</p> <p>Materials that enable a variety of added functions targeting the three fields of coating & additives, electronic materials, and living & health.</p>		<p>Food ingredients</p> <p>Broad range of products based on natural materials such as sugar esters</p>	
<p>Ion exchange resins</p> <p>Supporting separation and refinement solutions for customers with a wide range of offerings, including pure water production and the purification of pharmaceuticals and foods</p>			

Chemicals & Polymers

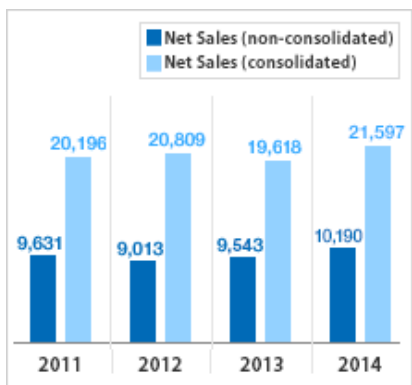
With energy and resource-saving materials design, optimum process design and ultra-stable plant operation positioned as our core technologies, we seek to enhance our international competitiveness while providing the chemicals that support sustainable and diverse social infrastructure.

>Details

<p>High performance graphite</p> <p>World-class quality through integrated production</p>		<p>Coke</p> <p>Crafted technologies supporting core industries World-class production capacity as a merchant coke producer</p>	
<p>Terephthalic Acid</p> <p>World-class quality through integrated production</p>		<p>C4 chemicals</p> <p>Responding to the need for high value-added chemicals for applications across an array of industries including high-performance fiber</p>	
<p>Performance polymers</p> <p>A broad array of products, mainly functional polyolefins, thermoplastic elastomers and PVC compounds, which address a myriad of applications, ranging from medical and Industrial to daily necessities</p>		<p>PHL / BPA / PC</p> <p>Developing with low environmental impact manufacturing process and global partnership Top PC share in Asia</p>	
<p>Polyolefin</p> <p>High-function, high-quality lineups of products based on proprietary catalyst and processing technologies. Top market share in Japan for polypropylene resins used as automobile materials.</p>		<p>PET Resin</p> <p>Having established a consistent product chain from the raw material terephthalic acid to resins and films Catering to all manner of needs with a sophisticated design, development and manufacturing techniques</p>	

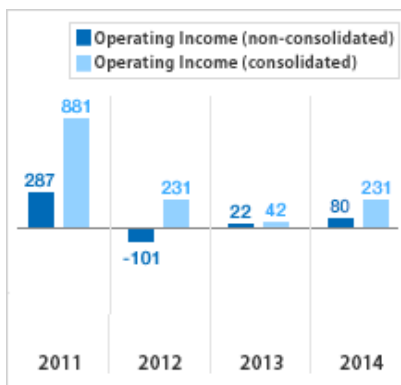
Financial Highlights (non-consolidated / consolidated)

● Change in Net Sales
(units: 100 million yen)



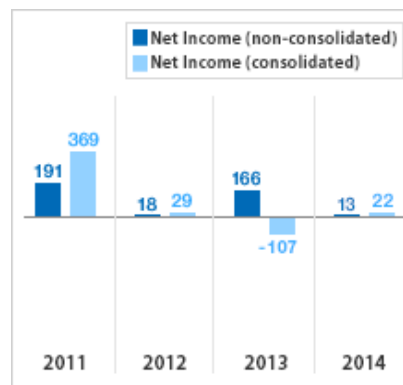
(Years ended March 31)

● Change in Operating Income
(units: 100 million yen)



(Years ended March 31)

● Change in Net Income
(units: 100 million yen)



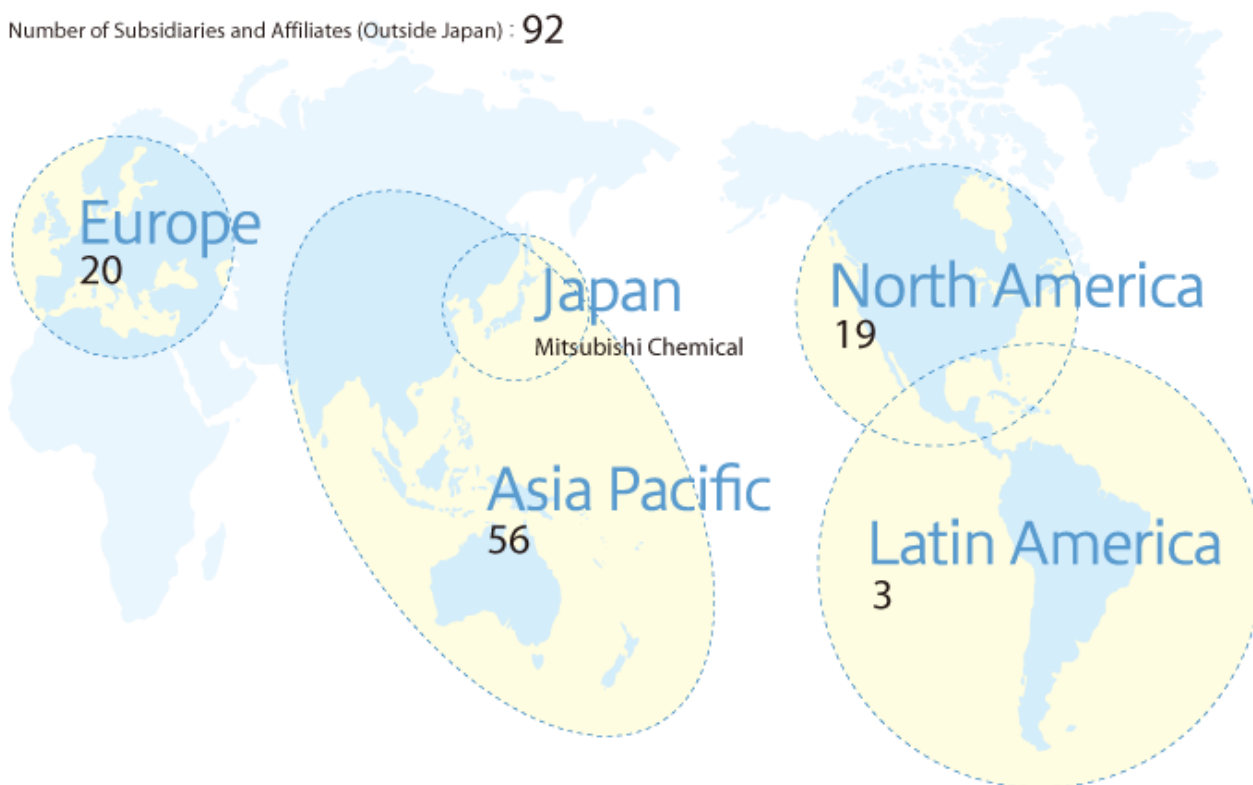
(Years ended March 31)

Global network

Number of Subsidiaries and Affiliates (Japan) : 97

Number of Major Subsidiaries (Outside Japan) : 6

Number of Subsidiaries and Affiliates (Outside Japan) : 92

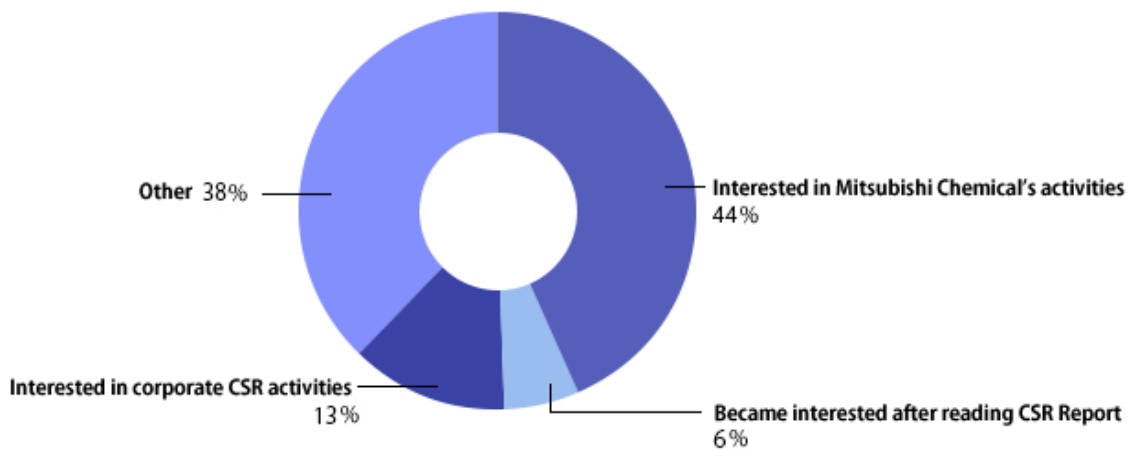


Results of questionnaire on CSR Report 2013

Thank you for your valuable opinions and comments on CSR Report 2013. We will refer to your feedback in our activities geared toward making *KAITEKI* a reality.

Below, please find the aggregated results of responses to the questionnaire.

Q1: What was your reason for visiting the website?



Q2: What is the position of the person responding to the questionnaire?

