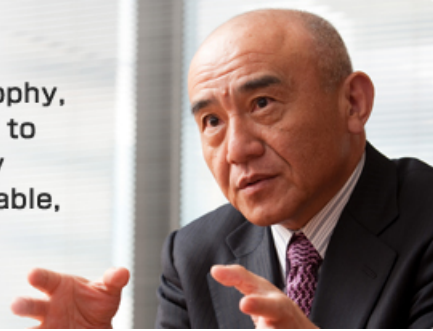


**Top message**

**Adhering closely to its Corporate Philosophy, the Mitsubishi Rayon Group will continue to fulfill its social responsibility and thereby contribute to the realization of a sustainable, KAITEKI\* society.**



Climate change, global warming, natural resource scarcity, spreading pollution, biodiversity destruction, rapid population growth, food and water shortages, aging populations with declining birthrates, severely lopsided wealth distribution, human rights abuses, and religious and racial unrest—all of us throughout the world today are facing a wide variety of issues. Of course, there is no way that any one corporation could singlehandedly find solutions to all these issues. Nevertheless, the Group believes that every corporation bears a responsibility to confront such issues and to work to help find needed solutions through its corporate activities. We also believe that pursuing such activities is essential to the survival of any corporation in modern society.

The Group's Corporate Philosophy is "Best Quality for a Better Life." "Best Quality" is not something we insist on only when it comes to products and services. We apply the "Best Quality" standard to the development of personnel and other management resources as well as when dealing with business partners, customers and members of global and local communities. In this sense, our Corporate Philosophy expresses our commitment to pursuing "Best Quality" and contributing to sound social development. By acting on this commitment, we are working to help customers and ourselves to realize a "Better Life" and thereby helping to create beneficial changes for people, the global environment, and society that are sustainable, or KAITEKI.

The Mitsubishi Chemical Holdings Corporation (MCHC) Group, has introduced four management concepts—Management of Economics (MOE), Management of Sustainability (MOS), Management of Technology (MOT), and timing—to aid in group management as it works toward realizing KAITEKI. Through these management initiatives, the MCHC Group is implementing activities with an eye to establishing a sustainable society.

Reflecting the MCHC Group, the Mitsubishi Rayon Group has also defined KAITEKI initiative improvement as a priority management issue in Step 2 (fiscal 2013 – fiscal 2015) of the New Design APTSIS 15 medium-term management plan, which commenced in fiscal 2011. In line with our Corporate Philosophy, we employ MOE, MOS, and MOT to clarify targets and results, and the understanding thus gained enables us to improve our activities further. In this way, we will continue to fulfill our social responsibility, thereby developing into a corporate group that helps realize a sustainable, progress toward KAITEKI.

In accordance with the Mitsubishi Rayon Group's Basic Policies and Action Guidelines on safety, the environment, and quality assurance, we make safety and the environment our top priorities as essential prerequisites for corporate existence. We comply with all relevant laws and regulations, exceeding such legal requirements when necessary. We will continue to place the highest priority on assuring safety and protecting the environment in all our corporate activities, allocate human resources and equipment appropriately and adequately, and maintain and improve safety.

\*KAITEKI means a state of true SUSTAINABILITY, and also represents comfort for people, comfort for society, and comfort for the planet as a whole.

Hitoshi Ochi  
President  
Mitsubishi Rayon Co., Ltd

## Basic approach to social responsibilities

As a member of the Mitsubishi Chemical Holdings (MCHC) Group, the Mitsubishi Rayon Group is dedicated to realizing KAITEKI.

### Toward the Realization of KAITEKI

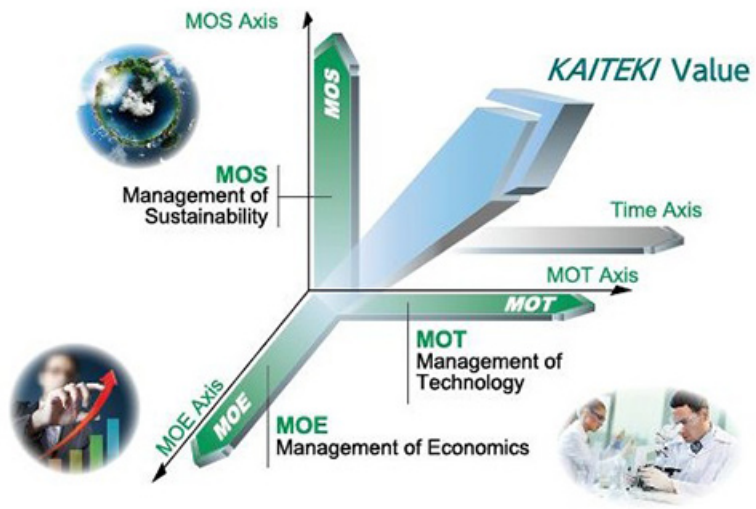
We want to be a company that realizes KAITEKI based on our Group philosophy "Good Chemistry for Tomorrow." KAITEKI signifies a sustainable condition which is comfortable not only for people, but also for society and the Earth. As an integrated chemical company whose business domains include Performance Products, Health Care and Industrial Materials, we will contribute to solving issues in various fields including living, information & electronics, medical care, environment, and energy to realize KAITEKI. And we will take initiatives in promoting the realization of KAITEKI.



### Promotion of KAITEKI Management

To realize KAITEKI, we have adopted an approach called "KAITEKI Management." It is a management approach to enhancing corporate value based on three types of management. Two of them, Management of Economics (MOE) and Management of Technology (MOT), have been traditionally emphasized. MOE promotes to optimize capital efficiency within our company, and MOT strives to create innovations for society. And the third management approach, Management of Sustainability (MOS), has a new perspective and aims to improve the sustainability of people, society and the Earth.

KAITEKI Management is unique, and we call the value created from the three kinds of management "KAITEKI Value." We believe that enhancing KAITEKI Value will lead to the realization of KAITEKI. We promote this management approach aiming to generate revenue and develop ourselves sustainably while contributing to solving environmental and social issues as a company.



MCHC's Social Responsibilities 

## Sustainability (Biogas Boilers)

### ■ Sustainability

Sustainability is the concept of contributing society and the environment by reducing such greenhouse gases as CO<sub>2</sub>, minimizing damage to biodiversity, ensuring the safe handling of chemical substances and addressing the depletion of natural resources. The Mitsubishi Rayon Group works to conserve resources and energy as well as lower CO<sub>2</sub> and other environmentally hazardous substances emitted during production. Beyond this, the Group is fully aware of the importance of helping to reduce CO<sub>2</sub> emissions through its products. To counter natural resource depletion, we must focus on reducing the use of rare metals contained in catalysts and extending catalyst lifespan. In addition, the Group will select raw materials for use in its products that help decrease environmental burden.

### ■ Toyama Production Center and Toyama City Eco Town Initiatives

The Toyama Production Center lies adjacent to the Toyama City Eco Town Industrial Zone, in which numerous facilities are located. One company operating in this zone is Toyama BDF Co., Ltd., which has been manufacturing bio diesel fuel (BDF) from used edible oils discharged from food factories and meal supply centers since 2006. BDF is an environment-friendly fuel that is carbon neutral and emits a very minimal amount of sulfur oxide (SOX) compared with light diesel oil./p>

As part of environmental preservation measures undertaken since July 2007, the Toyama Production Center supplies Toyama BDF with used edible oil from its cafeteria. This oil, which had previously been thrown away, is then processed into BDF for use in some of Toyama Production Center's vehicles. Currently, four-ton trucks used by the logistics group, five-ton forklifts at the SHINKOLITETM plant and other on-site vehicles consume approximately 9,000 liters (fiscal 2010 result) of BDF annually.




In addition to these initiatives, we see an even wider range of uses for this type of bio fuel. The Toyama Production Center presently operates three fossil fuel-fired boilers to produce steam that powers each plant. To reduce our dependency on fossil fuels, new biogas-fired boilers have been installed at the Utilities center to serve as a renewable energy source. This installation was undertaken in cooperation with Toyama City. Commencing operations in March 2012, these boilers produce a portion of the steam that powers the Toyama Production Center's operations.



Toyama Production Center purchases biogas produced by Toyama Green Food Recycle, Inc., which is located in the Toyama City Eco Town. Moreover, we have received a grant from the New Energy Promotion Council (NEPC) to support the use of renewable energy through the purchase of biogas.

To prevent global warming, the Toyama Production Center is working to reduce CO2 emissions mainly by conserving energy. Using biogas-fired boilers is expected to decrease CO2 by 1,900 tons annually. In addition to being environmentally friendly, the use of biogas helps to lower costs. Undertaking resource- and environmental conservation measures together with local communities significantly contributes to our efforts to realize KAITEKI.

\*Information on the Toyama City Eco Town is available on its [official website](#)  (Japanese language only).

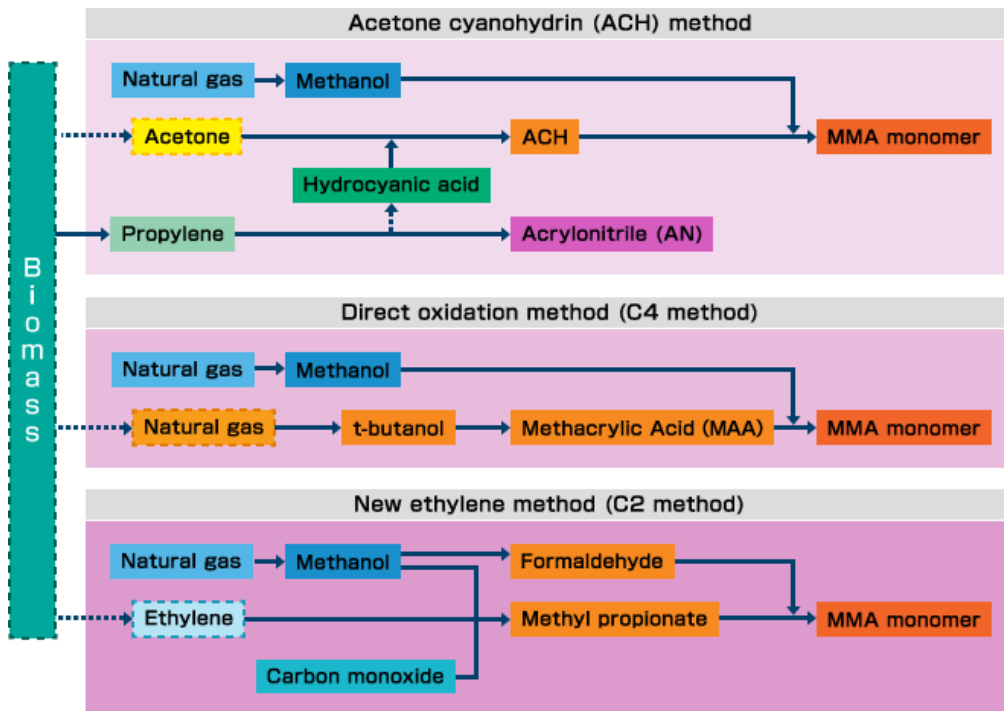
**Sustainability (Sustainable MMA)**

**Sustainability: Sustainable MMA Development**

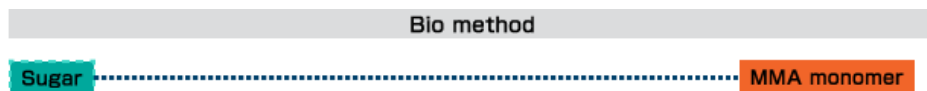
The depletion of natural resources is a major problem for those of us in the chemical industry. With petroleum in particular said to have only a fifty-year supply remaining, switching to raw materials and fuels not dependent on petroleum will be critical in the years ahead. Consequently, we feel it is our duty as a leading producer of methyl methacrylate (MMA) to reduce the environmental burdens caused by fossil fuel consumption and greenhouse gas emissions while contributing to the creation of a sustainable society.

The Mitsubishi Rayon Group is developing sustainable MMA monomer manufacturing technology based on the following two methods, both of which use biomass resources as ingredients. The Group will commence industrial production no later than 2016 while increasing biomass-derived MMA monomer production to approximately 50% of existing output.

**(1) New Manufacturing Technology That Uses Biomass Ingredients in the Existing MMA Monomer Manufacturing Process**



**(2) New MMA Monomer Manufacturing Technology based on Biomass Fermentation**



At the same time, we will work to reduce energy consumption and emissions during production by developing revolutionary catalysts for and processes to improve productivity in existing MMA monomer manufacturing methods.

The Mitsubishi Rayon Group is contributing to the achievement of KAITEKI by pursuing innovation in the area of sustainable MMA monomer development.

**Sustainability (TOPLIGHT)**

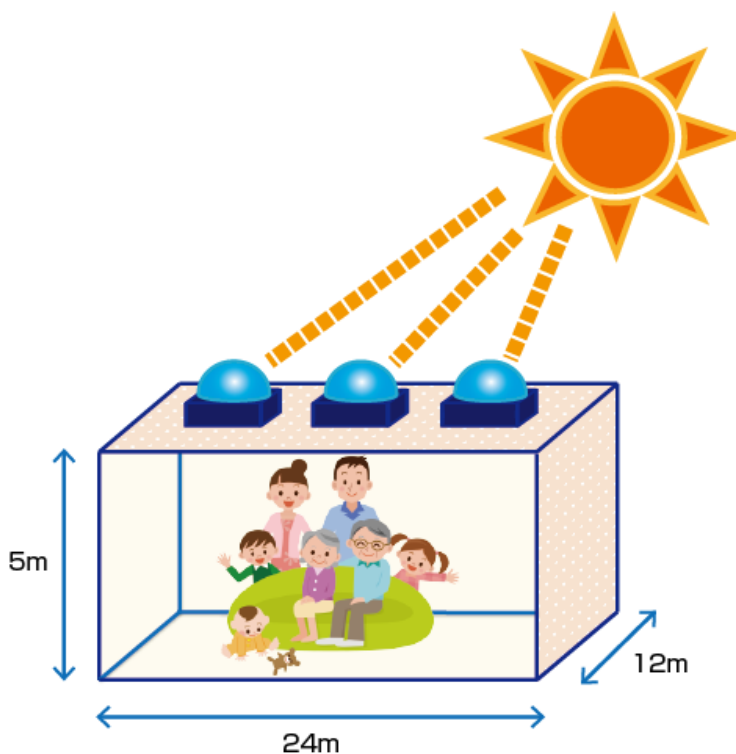
**Sustainability: TOPLIGHT utilizes the special properties of acrylic resin to make it friendly to people, the planet and society**

Acrylic resin features better light permeability than glass and superior weatherability compared with other transparent plastics, thus minimizing sunlight deterioration even when installed outdoors. The Mitsubishi Rayon Group company Ryoko Co., Ltd. has leveraged these properties to produce TOPLIGHT, its signature brand of skylight rooftop windows formed from acrylic sheets. TOPLIGHT is used in a wide array of public facilities, including schools and hospitals.



Fluorescent lights are typically used in office buildings and public facilities as light sources. However, fluorescent lights are not only troublesome to change, but when considering the issues of natural resource depletion and CO<sub>2</sub> emission reduction, there is a need for effective green energy alternatives.

This begs the question: to what extent does everyone think TOPLIGHT brightens interior spaces? As a matter of fact, when three two-square-meter TOPLIGHT skylights are installed equally on the roof of a room roughly half the size of an Olympic swimming pool, this nearly equals the brightness of lighting used in a typical office.



TOPLIGHT makes it possible to do without lights on sunny days, while its retractable roof allows cool air in during the summer but keeps cold air out in the winter, creating a more KAITEKI environment. To be sure, TOPLIGHT has been designed with safety in mind and can be installed with netting able to catch people from falling.



Installing TOPLIGHT can reduce CO2 emissions by 388kg per year, which translates into the annual volume of CO2 absorbed by nearly 28 cedar trees. Leveraging TOPLIGHT's ability to use sunlight as a green energy source, the Mitsubishi Rayon Group is working to provide even greater KAITEKI spaces for people, the planet and society.

## Sustainability (Coal Transport via Large Ships)

### ■ Sustainability: Coal Transport via Large Ships

The transport sector accounts for 20% of domestic CO2 emissions, which is a cause of global warming. Accordingly, initiatives to reduce CO2 emissions during cargo shipping are very important for realizing KAITEKI. Although Mitsubishi Rayon has been taking proactive steps to achieve a modal shift in its transport operations—represented by the switch from trucking to rail—there exists freight that is difficult to move by train. A case in point involves coal, a fuel that is critical to our operations. Coal is transported to Japan via large ships mainly from Australia. Believing it possible to make this mode of cargo transport even more KAITEKI, Mitsubishi Rayon, in conjunction with Mitsubishi Chemical Corporation, investigated ways to efficiently use large ships.

Otake Port, which serves the Otake Production Center, has limited depth. This, in turn, restricts the load sizes of large ships entering the port. This is why coal has been transported primarily in smaller ships (30,000-ton class) to date. In order to overcome this obstacle, a portion of the coal transported by large 70,000-ton ships to the Yokkaichi Port (which serves Mitsubishi Chemical's Yokkaichi Plant) is being shipped to Otake Port via the Bungo Channel, a body of water that separates Shikoku and Kyushu. This approach has enabled us to efficiently transport coal without being restricted by the port's shallow depth. Moreover, this approach not only reduces CO2 emissions during coal transport, but has kept related costs down. In addition, we are able to procure a stable supply of coal from various regions by upgrading coal storage facilities at the Otake Production Center.



Beyond developing new products, Mitsubishi Rayon is working to realize KAITEKI through collaborative initiatives in the areas of purchasing and distribution.

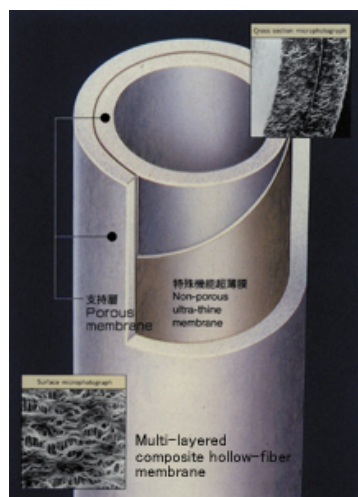
## Health (Artificial Carbon dioxide Baths)

### ■ Health: Artificial Carbon dioxide Baths

The Japanese have enjoyed taking baths since early times because of their therapeutic effectiveness. Used by the samurai to heal battle wounds centuries ago, hot springs remain popular throughout Japan. The carbonate spring is a standard type of Japanese hot spring, in which CO<sub>2</sub> diffuses into bath water.

In general, natural carbon dioxide baths are physiologically beneficial, especially for stimulating metabolism, detoxification and relaxation. In particular, these benefits increase in highly concentrated carbon dioxide baths containing over 1,000ppm of CO<sub>2</sub> per liter of bath water. Because of their high temperatures, however, Japan has very few natural, highly concentrated carbon dioxide baths since CO<sub>2</sub> does not naturally diffuse into high-temperature water in large amounts. In addition, producing artificial versions has proven to be quite difficult.

After many years of research, Mitsubishi Rayon developed original CO<sub>2</sub> dissolution module technology. This, in turn, led to the successful development of the Artificial carbon dioxide baths, a device that can artificially produce highly concentrated carbonate bath water. This product has attracted a wide range of attention—particularly from medical and welfare facilities—as a new bath-related device that can add carbonation to hot water therapies. Orchestrating the Mitsubishi Chemical Holdings Group's strengths, we aim to improve people's health and thereby realize KAITEKI by accelerating the expansion of the Artificial carbon dioxide baths in the medical field.



A spa featuring the Ryusen no Yu carbon dioxide bath (Chigasaki City, Kanagawa Prefecture)

### ■ Itakura, the Mitsubishi Rayon Cleansui Co., Ltd. Manager in Charge of Developing the Artificial carbon dioxide baths

During the development of the triple-layer membrane design used in the Artificial carbon dioxide baths, we combined Mitsubishi Rayon's polymer, dilution, production, evaluation and other technologies to create membrane production technology based on a new melt spinning method.



Since the Mitsubishi Rayon Group did not possess the physiological expertise or related evaluation system at that time, however, we were forced to seek out outside experts to summarize data on the effect of artificial carbon dioxide baths on the body, application methods and equipment requirements. Without a doubt, the development of the Artificial carbon dioxide baths was a very difficult task.

By introducing as many people as possible to the Artificial carbon dioxide baths, we are providing KAITEKI through relaxing and healthy bathing. In addition, the Artificial carbon dioxide baths help promote bathing at a lower water temperature since artificial carbonation feels around 2 to 3°C warmer than regular bath water. This helps reduce thermal energy consumption while allowing us to make a modest contribution to a KAITEKI global environment.

## Health (DNA Chips)

### ■ Health: Genopal DNA Chips

Genes vary from one person to the next. Analyzing individual gene can provide answers to such questions as which diseases are individuals prone to, which medicines will be most effective, and which medicines are likely to cause side effects. Discovering medical treatments suitable for each individual will improve quality of life. DNA chips are analyzers that analyze gene sequences. Numerous DNA fragments are densely arrayed on DNA chip substrates made of glass, plastic and other materials that are separated into several hundred to several hundred thousand partitions.



Applying fiber technologies developed over many years, Mitsubishi Rayon has developed Genopal™, a highly sensitive, highly reproducible DNA chip suitable for users who use large quantities of chips. In recognition of Genopal's unique properties, Mitsubishi Rayon was awarded the Special Technology Prize at the 45th Annual JCIA Technology Award.

Conventional DNA chips predominantly feature 2D DNA probe sequences fixed onto flat surfaces mainly made from glass or semiconductor substrates. Genopal features a 3D hollow fiber structure, in which the DNA probe is filled using a support gel. In addition, we successfully developed a unique hollow fiber block slicing method that vertically slices Genopal DNA chips in the direction of the fiber axis. These attributes make it possible for DNA chips—which analyze with a high degree of precision specific genes numbering from several dozen to several hundred—to be stably mass produced with the same level of quality. Utilizing the accuracy and labor-saving characteristics during the data analysis process of fibrous DNA chips, we are working to realize KAITEKI in the area of "Health" mainly by developing customized medical treatments.

### ■ Oshima, Assistant Manager of the Yokohama Research Laboratories' Bio Device Group, Which is Overseeing Development

DNA chips mounted with genes suitably responsive to allergies and those mounted with genes linked to natural immunity (both of which have basic research applications) have been placed on the market since fiscal 2007. Yet, in the field of diagnostic testing applications—for which the need for large quantities of DNA chips is expected—challenges remain for the Company with regard to legal compliance with Pharmaceutical Affairs



Law regulations as well as the high barriers to market entry primarily concerning sales routes.

Since joining the MCHC Group in fiscal 2010, the path has been cleared for Mitsubishi Rayon to enter the fields of diagnostic testing and drug discovery-support applications. Nevertheless, many issues remain that must be overcome, making the path towards commercialization a steep one.

Despite this, the fields of diagnostic testing and drug discovery-support applications have allowed us to see for ourselves the useful role DNA chips play in helping people, which serves to make us even more motivated. Moving forward, we will develop healthcare products that are useful to people with the aim of helping to create better lifestyles in the area of human health.

For more information on Genopal, [click here](#).

[Genopal Fiber-type DNA Chips](#)

**Comfort (Mitsubishi Rayon's Rod Lens Wins the Monodzukuri Nippon Grand Award)**

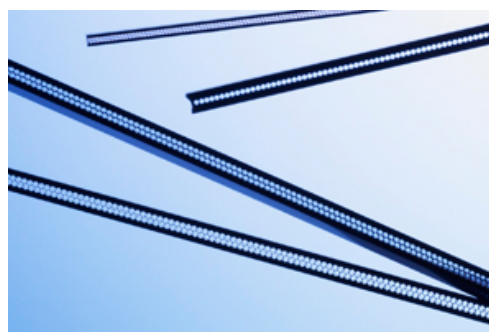
**■ Comfort: For Its Rod Lens Array,\* Mitsubishi Rayon Received the Ministry of Economy, Trade and Industry's (METI) Fourth Monodzukuri Nippon Grand Award\*\* in the Manufacturing and Production Process Category**

It is not an exaggeration to say that all Mitsubishi Rayon Group products create “comfort.” The Mitsubishi Rayon Group undertakes stable production and supply of materials handled by the chemicals businesses to enable its customers to create products that provide society with greater comfort. Through these actions, we work to achieve our aim of realizing KAITEKI. The Group's stable production and supply operations are the source of its Monozukuri (manufacturing).

Mitsubishi Rayon became the first company in the world to develop technologies for manufacturing plastic rod lens arrays used in facsimile machine optical scanning devices. We then developed continuous manufacturing technology using a new polymer material design as well as a multi-layer extrusion process that applies fiber manufacturing technology (industrial production of this technology began twenty years ago). Following this, we dramatically improved productivity and yield thanks to manufacturing technology upgrades while successfully creating high-resolution lenses using our original polymer material design and precision diluent technologies. As a result, Mitsubishi Rayon plastic rod lens array applications have expanded to such products as color scanners and home-use multifunction printers.

Mitsubishi Rayon received the Fourth Monodzukuri Nippon Grand Award's Minister of Economy, Trade and Industry's Prize in the Manufacturing and Production Process Category in recognition of the Company's ongoing efforts to develop as well as improve the precision of these fundamental manufacturing technologies.

Recognizing that the multi-functionality of numerous printer and copier models will continue evolving in the years ahead, we are currently developing a high-resolution rod lens compatible with enhanced colorization and resolution. We aim to realize KAITEKI by further honing our rod lens manufacturing capabilities.



**■ Koike, Production Manager at the Award-Winning Optical Devices Plant**

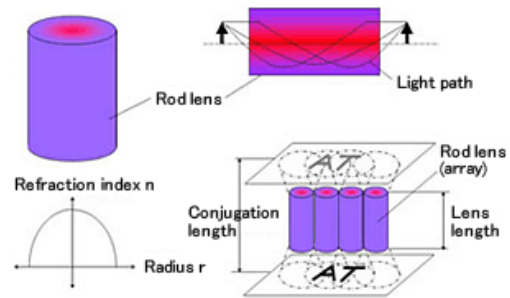
All stages of rod lens array manufacturing involve continuous refining, from blending raw materials to precision dilution of lenses, array fabrication and testing. At that time, many difficulties remained unsolved. Lacking any models to follow, the development and manufacturing departments worked together to steadily introduce new highly functional technologies. Through the accumulation of these technologies, we became the first in the world to successfully create rod lenses.



The Optical Devices Plant continuously works in unison to maintain stable production in order to eradicate equipment malfunctions that are a major cause of high failure rates during production.

\*Rod lens array

Measuring less than 1mm in diameter, rod lenses are cylindrical lenses with refractive index distributed in a concentric circle. Upright images can be achieved by adjusting lens length using the properties of light, which travels from the edge of the lens and penetrates along predetermined cycles in tandem with changes in refraction. Rod lens arrays consist of multiple rod lenses aligned in a row between two substrates.



\*\*The Monodzukuri Nippon Grand Award

This award was established to foster the ongoing development of Monozukuri—the art of manufacturing that supports Japanese culture and industry—and pass it along to future generations by recognizing those individuals who have made outstanding contributions in this field. The Ministry of Economy, Trade and Industry, the Ministry of Land, Infrastructure and Transport, the Ministry of Health, Labour and Welfare, and the Ministry of Education, Culture, Sports, Science and Technology have been jointly presenting the Monodzukuri Nippon Grand Award biennially since 2005.



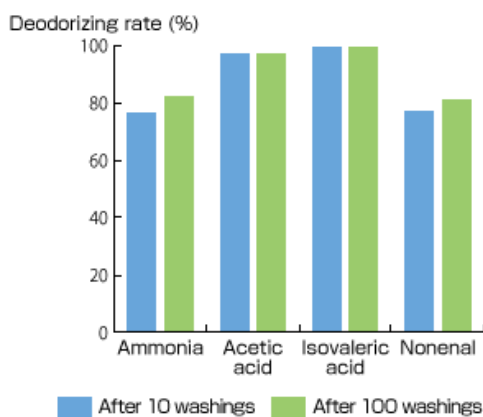
## Comfort (CUTELY)

### ■ Comfort : The Development of CUTELY® Deodorant Acrylic Fiber

Mitsubishi Rayon has developed CUTELY®, a new deodorant acrylic fiber that is effective against four types of odors caused by perspiration and aging thanks to the Company's original special blend technology.

### Features of CUTELY®

- Composed of an unspecified fiber resulting from spinning together acrylic and acetate at the raw cotton manufacturing stage using Mitsubishi Rayon's original special blend technology
- A multifunctional fiber able to eliminate odors caused by perspiration and aging while possessing antibacterial and moisture absorption/retention properties
- These superior qualities remain after repeated wearing and washing owing to functionality that is incorporated into fibers at the raw cotton manufacturing stage



### Certification Criteria

- Ammonia deodorization rate: 70% and above
- Acetic acid deodorization rate: 80% and above
- Isovaleric acid deodorization rate: 85% and above
- Nonenal deodorization rate: 75% and above

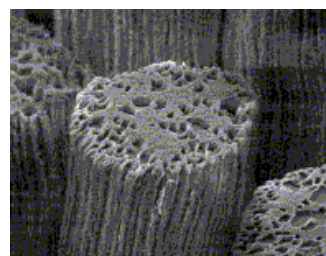
### Reference Data

Tests conducted on materials consisting of fraise cloth mixed with 30% CUTELY®

- Incorporated with the natural polymer chitosan, CUTELY® inhibits the growth of microorganisms to prevent noticeable odors. CUTELY®'s superior antibacterial and deodorizing performance remains after repeated wearing and washing thanks to the incorporated of chitosan at the fiber manufacturing stage.
- Compared with normal acrylic fiber, CUTELY® realizes comfort by maintaining moderate moisture levels in clothing

### CUTELY® Fiber Structure

CUTELY® is a "sea-island" structure fiber, with acrylic comprising the "sea" component and acetate forming the "island" component. Its porous fiber configuration makes it easy to absorb odor components into fiber interiors while the deodorant particles quickly eliminate the absorbed odor components.



An image of dissolved acetate. The black-looking areas are acetate.

■ **An Overview of CUTELY®'s development by Omiyajji, Assistant Manager of the Fibers Research & Development Office(Otake)**

We developed CUTELY® with the objective of creating a single material capable of eliminating four types of odors caused by perspiration and aging. Optimizing compound spinning technologies (raw cotton)— Mitsubishi Rayon's strong suit—and post-processing technologies (spinning and dyeing) enables CUTELY® to eliminate both ammonia and nonenal, which had been previously difficult to remove. We hope people of all ages use CUTELY® as a material for realizing KAITEKI, not only in the clothing segment(which includes undergarments and sports clothes), but the bedding segment as well.



**Comfort (Cleansui Long-Term Storage Tasty Water)**

■ **Comfort: Cleansui Long-Term Storage Tasty Water**

Mitsubishi Rayon began selling *Cleansui* water purifiers using hollow-fiber membrane filters in 1984 with the aim of realizing KAITEKI through the provision of safe, reliable drinking water. Although *Cleansui* was initially available only in a counter top model, our product lineup has expanded to include faucet mounted, pitcher and built-in types to meet the various needs of our customers.

The need for safe drinking water jumped dramatically in the aftermath of the Great East Japan Earthquake in 2011. There were a growing number of people calling for safe water deliveries to areas where the disaster had disrupted water lines. Consequently, in December 2012, Mitsubishi Rayon Cleansui Co., Ltd. became the first water purifier maker to release its own brand of storable drinking water, *Cleansui* Long-Term Storage Water.



*Cleansui* Long-Term Storage Water is soft water that can be easily used for a variety of applications and features an airtight cap and a PET bottle container made from highly durable materials that enable storage for up to five years.

In April 2013, the Tokyo Metropolitan Government issued an ordinance to assist people who would have difficulty returning home in the event of a disaster. The ordinance calls on businesses to take the steps necessary to ensure that a three-day supply of food and water are stored on their premises. Amid expectations that similar ordinances will be adopted by other prefectures, Mitsubishi Rayon will work to address these types of storage needs in the years ahead.

The mission of *Cleansui* is to deliver safe, reliable and tasty water. We will fulfill this mission and, in turn, contribute to people, the planet, and society by meeting customer needs not only through the provision of water purifiers, but a wide variety of other products as well.

■ **Message from Goto, Project Manager**

Selling drinking water in PET bottles has been a new business idea of ours at the Mitsubishi Rayon Cleansui's Creative Planning Department Sales Office for quite some time. However, the Great East Japan Earthquake and the abovementioned Tokyo Metropolitan's ordinance were undoubtedly major catalysts for launching this business.



Intending to provide safe water for customers in times of need, the number one reason for launching this business was to deliver *Cleansui*-quality water in an easy-to-use form not limited only to water purifiers.

Although we released this product on the premise of marketing it to companies, it goes without saying that there is a need for clean drinking water among individual customers. The most common needs among our customers are extending the years of storage along with lowering costs. We will make every possible effort in the years ahead to meet these needs.

For more information on *Cleansui* Long-Term Storage Water, [click here](#).

[Cleansui](#)

Comfort (Golf Shafts)

■ Comfort: *Diamana* Golf Shafts

The Mitsubishi Rayon Group possesses a product chain stretching from PYROFIL carbon fiber — made from polyacrylonitrile (PAN) filaments produced in-house — to intermediate materials and molded products based on carbon fibers. Mitsubishi Rayon's Carbon Fibers & Composite Materials business provides carbon fiber products used in a wide range of applications. Our golf shafts take maximum advantage of the stronger-than-steel, lighter-than-aluminum properties of carbon fibers.

Many years ago golf shafts were manufactured from hickory, but later on steel was substituted to meet the need for greater durability and driving distance. Recent advances in golf clubs focused on the use of carbon fiber composite materials in response to the demands of golfers eager to improve their driving distances while using lightweight clubs. Accordingly, the Group released *Diamana* in 2004, leveraging its accumulated knowhow in shaft development as a long-established, integrated golf club manufacturer that excels in uniform development and production, from carbon fiber raw materials to golf shafts. We will continue to advance *Diamana* in order to convey to people from around the world just how fun and exciting golf can be.

Last year, we released the *Diamana* X-Series as premium professional models, limiting production to 5,000 clubs worldwide. This was made possible by our partnership with the MCHC Group company, Mitsubishi Plastics, Inc., a proud maker of super-elastic, ultrathin DIALEAD carbon sheets. The *Diamana* X-Series has received favorable reviews from golfers the world over, while the improved *Diamana* B-Series provides players with freedom of movement, realizing an even higher level of handling. In addition, the *Diamana* W-Series now features a new lineup of products. Looking ahead, we will do our utmost to ensure that *Diamana* contributes to the realization of KAITEKI for golfers everywhere.



■ Ito, Assistant Manager in Charge of Marketing the *Diamana* Series

*Diamana* is a professional brand that targets relatively advanced golfers as well as those possessing considerable power. With the THIRD GENERATION *Diamana* B-Series and W-Series shafts specified to be lightweight at around 50g, we have developed product lineups that can provide KAITEKI to an even wider array of golfers. The chic understated appearance of the shafts has been updated to be more visually attractive. We provide



products that meet a variety of golfing needs for, of course, those who are experienced golfers as well as those who want to improve their game, those who want to show off their stylish golf equipment, and those who just love *Diamana*. Please give *Diamana* a try; you won't be disappointed.

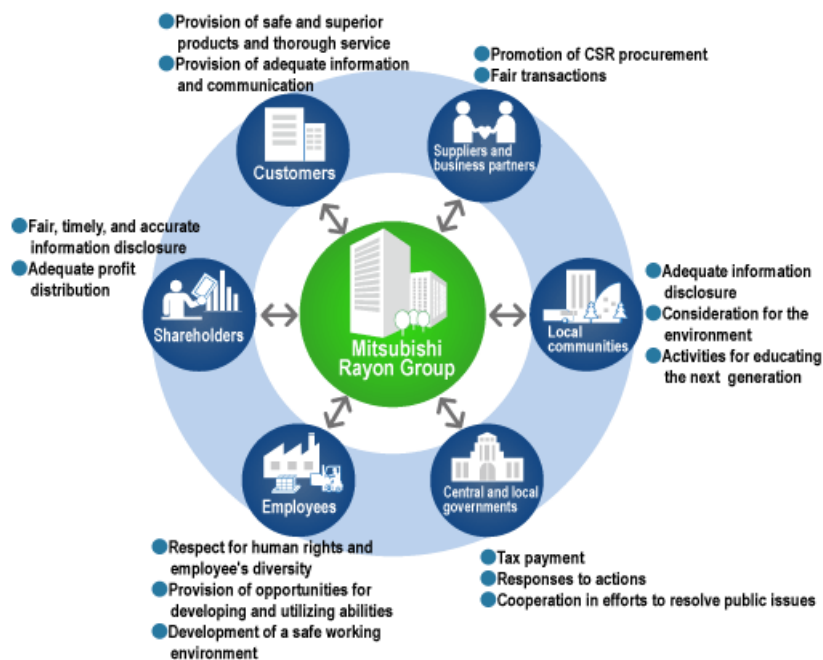
## The Mitsubishi Rayon Group and CSR

### How the Mitsubishi Rayon Group views CSR

The Mitsubishi Rayon Group recognizes that its very existence as a going concern rests on its ability to fulfill the Group's corporate social responsibility and garner the trust of society. In encouraging each and every employee to practice its corporate philosophy as embodied in the Group's "Corporate Behavior Charter," Mitsubishi Rayon is better positioned to promote CSR activities as a corporate entity. Striving to meet the ever-increasing expectations of society while at the same time strengthening its business activities, the Mitsubishi Rayon Group is endeavoring to contribute to the sustainable development of society.

### The Mitsubishi Rayon Group and its major stakeholders

Building relationships of trust with stakeholders is the most important aspect in carrying out CSR activities. Building on a cumulative process of interactive dialogue, we will accurately reflect the opinions, expectations and needs of stakeholders in our business activities and cooperate with stakeholders in an effort to ensure the sustainable development of society.

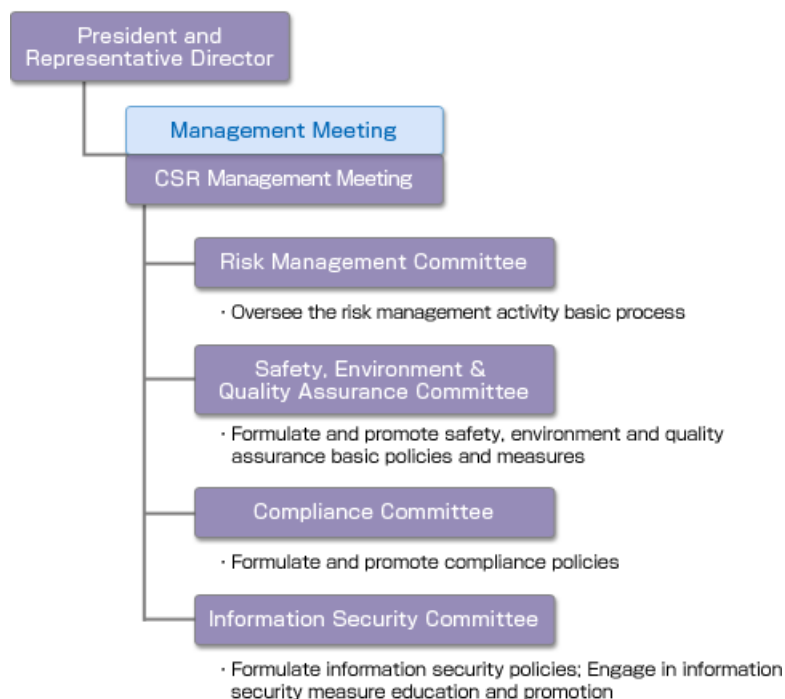


## CSR Implementation Structure

The Mitsubishi Rayon Group's CSR structure has instituted a CSR management and decision-making meeting mechanism that encompasses CSR activities as a whole. This management and decision-making mechanism oversees a CSR activity proposal and promotion structure that comprises the Risk Management Committee, Safety, Environment & Quality Assurance Committee, Compliance Committee, and Information Security Committee. Complementing this overall framework, the Corporate Planning Division KAITEKI Promotion Group has been established to serve as an overarching CSR secretariat.

CSR management meetings are chaired by the president and comprised of management meeting members, which includes corporate auditors. In addition to receiving reports on activity details, CSR management meetings serve as a forum to deliberate on and determine Group CSR activity plans.

Each of the Risk Management, Safety, Environment & Quality Assurance, Compliance Committee and Information Security committees formulate activity plans on an individual presiding theme basis. Once a matter is determined at the CSR management meeting level, each committee then works diligently to promote specific activities.



- Corporate Governance
- Compliance
- Risk Management

**Safety, Environment and Quality Assurance Management Systems**

- ↳ Organization for Promoting the Management of Safety, the Environment and Quality Assurance (as of April 1, 2013)
- ↳ Audit on Safety, the Environment and Quality Assurance in Fiscal 2012

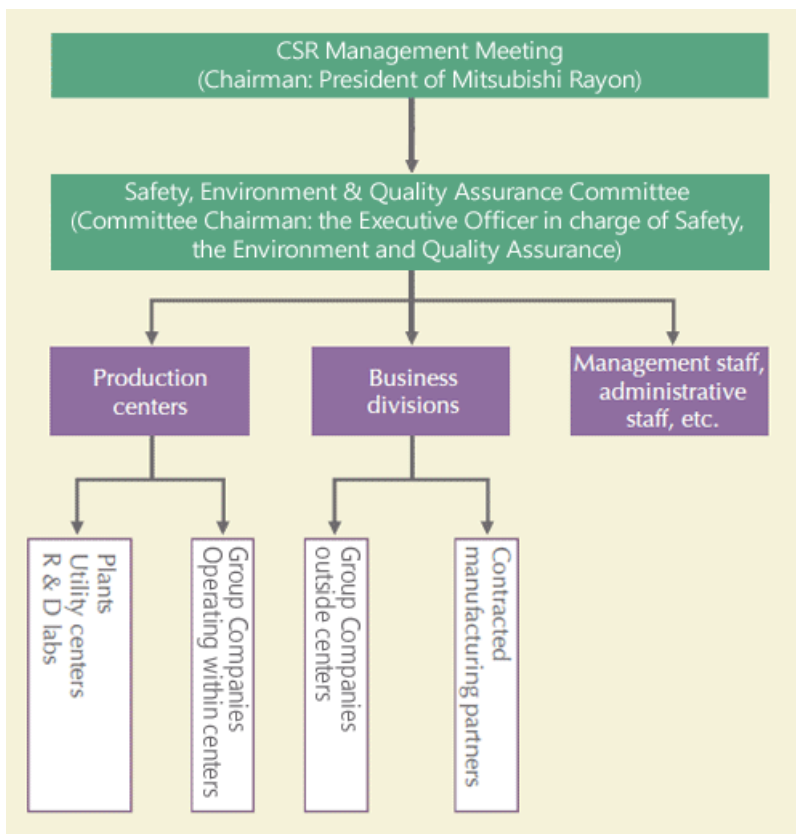
Based on the Responsible Care\* policy, we undertake business activities in consideration of the environment, safety and quality assurance.

\*Responsible Care

"Responsible care" is a voluntary initiative in which companies ensure environmental friendliness, safety and health at all stages of chemical substance usage—from development to production, distribution, use and final disposal —while communicating with the public about these activities and achievements.

**Organization for Promoting the Management of Safety, the Environment and Quality Assurance (as of April 1, 2013)**

The Mitsubishi Rayon Group adopts a top-down approach for managing safety, the environment and quality assurance. Accordingly, basic management policies and measures in these areas are determined by the CSR Management Meeting (Chairman: President of Mitsubishi Rayon), which serves as a decision-making body for all Group CSR activities. Placed beneath the CSR Management Meeting, the Safety, Environment & Quality Assurance Committee (Committee Chairman: the executive officer in charge of safety, the environment and quality assurance) was established as a body that formulates and promotes basic policies and measures.



## Basic Policies on Safety, the Environment, and Quality Assurance

- Top priority shall be placed on safety and the environment in all business activities, as these are essential for corporate existence.
- We shall supply our customers with satisfactory, safe, and reliable products.

(Established in 1998)

## Action Guidelines on Safety and the Environment

- ① All laws and regulations shall be observed, with additional measures stricter than what is legally required adopted when deemed necessary.
- ② All actions shall be taken with a strong sense of responsibility so that any and all types of accident are prevented.
- ③ All actions shall be rooted in the spirit of self-accountability and autonomous management.
- ④ All business activities shall be carried out under careful consideration to the environment.
- ⑤ Every possible effort shall be made to uphold safety and reduce environmental burden throughout the entire life cycle of each product.
- ⑥ Education shall be used to improve consciousness of safety and the environment, with the result put to practical use at the workplace.
- ⑦ Active communication shall be maintained with international and local communities to raise the level of corporate transparency.
- ⑧ Scientific and technical means shall be utilized to make improvements on a constant step-by-step basis.

(Established in 1998 and partially revised in 2001)

## Basic Policy on Quality Management

To manufacture and supply products that satisfy customers and meet their requirements, the Mitsubishi Rayon Group has established its Safety, Environmental and Quality Management Regulations. The Group takes a thorough approach to quality management through promoting cooperation between the relevant departments, and does its utmost to ensure quality both effectively and economically, thereby achieving its goal of quality assurance.

(Established in 1984)

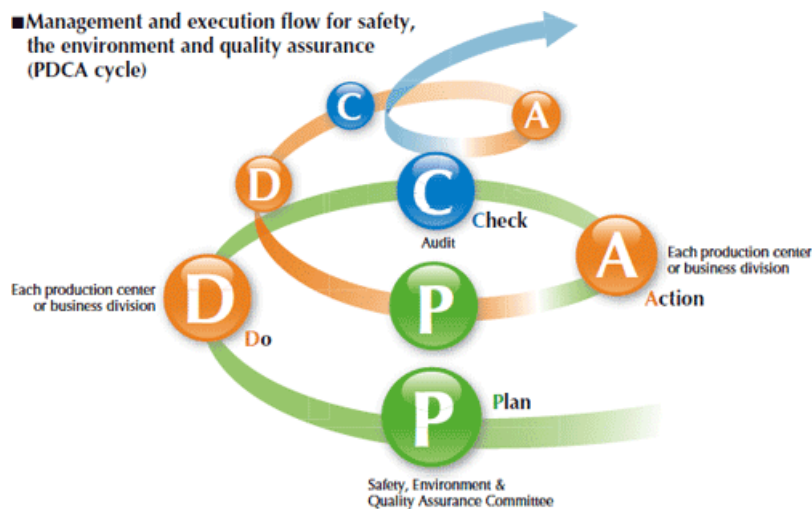
### ■ Establishment of Quality Management Committees

The Mitsubishi Rayon Group has established a committee for each stage of quality management at Head Office, production centers and manufacturing plants, and seeks to raise quality through strict quality management, discussion of quality issues and measures to resolve any issues.

### ■ Items for quality assurance

1. Management of raw materials, parts, etc.
2. Management of manufacturing drawings for products, quality standards, etc.
3. Management of manufacturing processes, manufacturing facilities, etc.
4. Management of subcontractors
5. Management of inspections, tests and measuring and test equipment
6. Management of encasement, packaging, labels, warehouse arrivals, storage and shipments
7. Quality records and audits
8. Processing non-compliant products and handling complaints





## Audit on Safety, the Environment and Quality Assurance in Fiscal 2012

### Audit Types

Audit type	Audit target
<b>General audit</b> Audits conducted by management under the Safety, Environment & Quality Assurance Committee (with a corporate auditor and an executive member of the union as observers)	MRC*
<b>Departmental audit</b> Audit to supplement general audit; this is a detailed audit on the sampled departments	MRC*
<b>Group company audit</b> Audit that is implemented as part of the Group's management under approval by the Safety, Environment & Quality Assurance Committee	Group companies
<b>Safety audit</b> Audits conducted by the Head Office on production centers authorized in accordance with the High Pressure Gas Safety Act	Production centers authorized in accordance with the High Pressure Gas Safety Act
<b>Special audit</b> Audit that is implemented under the direction of the Chairman of the Safety, Environment & Quality Assurance Committee in the event of a serious accident or disaster	Mitsubishi Rayon Group
<b>Product liability and quality assurance audit</b> Audit that is implemented on the entirety of business activities from marketing to production under approval by the Safety, Environment & Quality Assurance Committee	MRC* product lines
<b>Extraordinary audit</b> Extraordinary audit that is not one of the above regular audits	Mitsubishi Rayon Group
<b>Quality assurance audit of contract manufacturing partners</b> Quality assurance audit of companies manufacturing Mitsubishi Rayon* products as subcontractors	Contract manufacturing partners

\*Please refer to "Targets for combining environment-related data" for the scope of audit targets

■ List of audits executed in fiscal 2012

Audit type	Department/Company	Audit target
General audit	Otake Production Center, Toyohashi Production Center, Toyama Production Center and Yokohama Production Center	Safety and the environment
Departmental audit	Otake Production Center (five departments), Toyohashi Production Center (three departments), Toyama Production Center (four departments) and Yokohama Production Center (four departments)	Safety and/or the environment
Group company audit	Group companies overseas (three companies) and Group companies in Japan (two companies)	Safety, the environment and quality assurance
Safety audit	Otake Production Center	Safety
Special audit	Otake Production Center	Safety
Extraordinary audit	None	-
Product liability and quality assurance audit (MRC product lines)	Departments in charge of acrylonitrile, acrylic fibers, coating materials, golf shaft-related products, gypsum board, and acrylic sheet	Product liability and quality assurance
Quality assurance audit to contract manufacturing partners	Contract manufacturing partners (six companies)	Quality assurance

**Audit results for fiscal 2012**

Audit type	Report
<b>General audit</b>	The audit confirmed that all production centers were steadily upgrading safety and environmental initiatives but have not yet eradicated accidents and occupational injuries. In order to improve the results of these activities in the future, we have requested that production center executives take the lead in implementing these measures, and managers understand the risks to their departments and take precise countermeasures.
<b>Departmental audit</b>	All audited departments were confirmed to be precisely undertaking the “check” and “action” phases of PDCA regarding safety and occupational health measures. In addition, surveys focusing on environmental burden management status and efforts to prevent environmental accidents were conducted. Consequently, each audited department was instructed to make necessary improvements.
<b>Group company audit</b>	All audited companies have improved safety, environment and quality assurance management activities since the previous audit. Each audit department has been requested to take precise steps to reduce major risks and to enhance training programs to improve the skills of individual workers.
<b>Safety audit</b>	The follow up to last year’s survey focused on confirming the preparedness of facility management systems. Although steady efforts have been made in response to recommendations provided during the on-site interim inspection, matters pertaining to these responses require ongoing follow ups in the future.
<b>Special audit</b>	A special audit was conducted regarding occupational injuries caused by workers’ hands being caught in rotors. The direct cause of these accidents was the lack of safety covers attached to the rotors. However, the special audit sought to determine why the safety covers were not attached, and instructions were given to take all necessary measures to correct the situation.
<b>Extraordinary audit</b>	None
<b>Product liability and quality assurance audit</b>	Audits were conducted on a total of 12 departments, including six target product lines, business divisions, factories and R&D departments. The audit focused on compliance in the areas of product liability and quality assurance systems, screening status until new product release, contract manufacturing partner management and new product development. Each department was given specific instructions to make improvements.

**Targets for combining environment-related data**

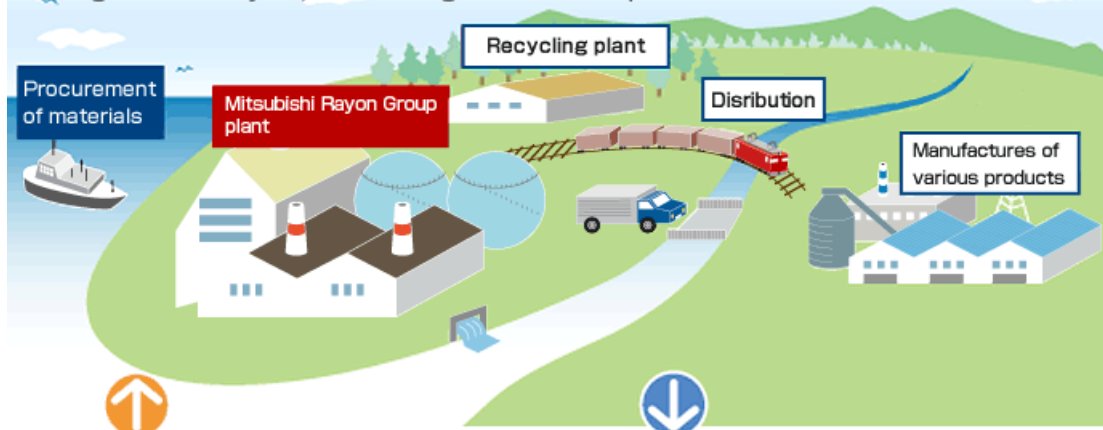
Only companies that mainly engage in manufacturing and processing are subject to the combination of environment-related data. See (1) through (4) below for expressions used in this report.

- (1)MRC Group: companies that come under the following categories (2) to (4)
- (2)MRC: Mitsubishi Rayon and Group companies operating at Mitsubishi Rayon's production centers
- (3)Domestic Group: consolidated subsidiaries in Japan other than those which come under the above category (2)
- (4)Overseas Group: consolidated subsidiaries in other countries

Overview of Environmental Burdens

### Overview of Environmental Burdens at the Mitsubishi Rayon Group

The Mitsubishi Rayon Group is gaining an understanding of the environmental impact of its products throughout their lifecycles, and is working to reduce this impact.



INPUT		OUTPUT						
Energy consumption (Converted into crude oil) MRC 287,000kℓ Domestic Group 17,000kℓ Overseas Group 116,000kℓ	Total Drainage volumes MRC 91million m <sup>3</sup> Domestic Group 8million m <sup>3</sup> Overseas Group 1million m <sup>3</sup>	Chemical substances MRC 1,133tons Domestic Group 77tons Overseas Group 140tons	Greenhouse gases (converted into CO2) MRC 1,135,000tons Domestic Group 127,000tons Overseas Group 548,000tons	NOx emission MRC 1,575tons Domestic Group 85tons Overseas Group 30tons	SOx emission MRC 683tons Domestic Group 103tons Overseas Group 3tons			
						Water consumption MRC 100million m <sup>3</sup> Domestic Group 16million m <sup>3</sup> Overseas Group 4million m <sup>3</sup>	BOD level MRC 22tons Domestic Group 1tons Overseas Group 5tons	COD level MRC 674tons Domestic Group 156tons Overseas Group 50tons

## Reduction in Chemical Substances Emitted

The Mitsubishi Rayon Group works to decrease substances that impact the environment while actively reducing waste and promoting recycling.

### Chemical Emission Reduction

The Mitsubishi Rayon Group is reducing chemical emissions in accordance with its Fifth Chemical Substance Reduction Plan, with fiscal 2015 as the target year.

#### ■ Fifth Chemical Substance Reduction Plan Initiatives

##### <Targets>

1. Reduction of total emissions (target year: fiscal 2015)

By the target year, total emissions of MRC-PRTR substances (442 substances) by MRC Group (excluding Lucite International) shall be reduced to 70% of the emissions recorded in fiscal 2005 (reference year).

2. Reduction of emissions of individual managed substances (target year: fiscal 2015)

Reductions will be made in the specific substance groups detailed below:

- i ) Twelve volatile organic compound (VOC) substances that account for most of MRC's atmospheric emission volume
- ii ) Five substances that the MRC Group emits the most

##### <Results>

Total emission reductions exceeded targets due to lower production volume. We will undertake reduction initiatives to achieve targets even after production volume recovers.

\*MRC-PRTR substances: 433 substances subject to the PRTR research conducted by the Japan Chemical Industry Association (JCIA) on its corporate members (including substances subject to legal notification) and nine other substances emitted by MRC in high volumes for a total of 442 substances.

[▶ Click here for detailed charts and graphs](#)

### Management of Chemical Substances in Procured Goods

The Group began conducting green procurement surveys in fiscal 2005 to fully comprehend and manage substances that impact the environment (including raw materials and other procured goods) and have the potential to pose a health hazard. The Group will continue conducting green procurement surveys as well as take the steps necessary to effectively manage chemical substances.

## Commencing Treatments to Eliminate Polychlorinated Biphenyl (PCB)

In order to comply with the Act on Special Measures against PCB Waste established in 2001, the Mitsubishi Rayon Group adopted a policy of removing all equipment containing PCB by 2015. The treatment of equipment containing high concentrations of PCB has been centralized under the Japan Environmental Safety Corporation (JESCO), which was established in accordance with the above act. Although the Group was scheduled to start systematically treating items containing PCB, this implementation was significantly delayed by JESCO's slow commencement of operations and other difficulties. Continuing from the previous fiscal year, we treated equipment with high concentrations of PCB at certain production centers in fiscal 2011. Having decided on a method for treating equipment with low concentrations of PCB, we are now set to commence such operations. Even though total removal may take longer than planned, the Mitsubishi Rayon Group will manage its equipment in accordance with the law until disposal becomes possible.

## Initiatives for Preventing Global Warming

The Mitsubishi Rayon Group is doing its utmost to achieve a sustainable society by focusing on activities that reduce CO2 emissions and save energy.

### Toward a KAITEKI Society

We are undertaking various activities to prevent global warming. CO2 accounts for the majority of greenhouse gases emitted by the Mitsubishi Rayon Group. Eighty percent of CO2 emitted by the Group comes from energy use. Consequently, we are applying our ingenuity in fuel conversion and resource-saving activities, which are centered on energy conservation.

#### <Our Main Activities>

Energy-saving activities in production and administrative operations  
 Energy-saving and fuel-conversion activities in logistics operations  
 Energy-saving and fuel-conversion activities chiefly in energy-related operations  
 Resource-saving activities

#### <Targets>

1. Energy consumption per unit of production  
 Reduce energy consumption per unit of production by 20% or more compared with fiscal 1990 by fiscal 2012
2. CO2 emissions attributable to energy use  
 Endeavor to keep average CO2 emissions attributable to energy use from fiscal 2008 to fiscal 2012 below the level recorded in fiscal 1990

#### <Results>

As a result of promoting energy conservation activities, our energy consumption per unit of production in fiscal 2012 remained on par with fiscal 2011, despite a decrease in our production center utilization. However, this fell short of our target of a 20% or more improvement in energy consumption per unit of production compared with the fiscal 1990 level.

In contrast, our CO2 emissions attributable to energy use decreased 70,000 tons year on year to 900,000 tons due to our emissions reduction efforts and a decline in production center utilization. As a result, average CO2 emissions from fiscal 2008 to fiscal 2012 were 920,000 tons compared with 1.01 million tons recorded in fiscal 1990, thus achieving this emission reduction target.

[▶ Click here for detailed charts and graphs](#)

### Initiatives in Logistics Operations

The Mitsubishi Rayon Group has promoted modal shifts, decreasing truck transport and increasing marine and rail transport. Mitsubishi Rayon became a certified "Eco-Rail Mark" company in April 2010 under a program promoted by the Ministry of Land, Infrastructure, Transport and Tourism. At the same time, Mitsubishi Rayon's acetate tow for cigarette filters, "DIANAL" acrylic coating material and "ACRYPET" acrylic molding material were certified as products allowed to carry the Eco-Rail Mark. Looking ahead, the Group will continue to promote eco-friendly logistics operations.

■ CO2 emissions in logistics (outsourced) (1,000 tons of CO2/year)

Fiscal year	2008	2009	2010	2011	2012
CO2 emissions	11	11	12	10	11





Safety and Disaster Prevention Initiatives

Overview of Activities in Fiscal 2012

In line with the new APTSIS 15 medium-term management plan (target year fiscal 2015), the Group promoted and improved safety and disaster prevention initiatives. These initiatives centered on three goals set out in the plan: (1) eliminate injuries that result in work absence and eliminate serious accidents; (2) provide support for Group companies; and (3) set targets to meet external commitments.

1) Eliminate Injuries That Result in Work Absence and Eliminate Serious Accidents

■ Activities focusing on domestic production centers

1. Safety conventions, at which managers directly emphasize the importance of safety (held on July 6 at four production centers)
2. Simultaneous workplace patrols by supervisors undertaken daily between 1:00 p.m. and 1:30 p.m.
3. Safety events for staying mindful of past serious accidents in each division
4. Safety reinforcement month (July and December)

■ Activities undertaken that include Group companies

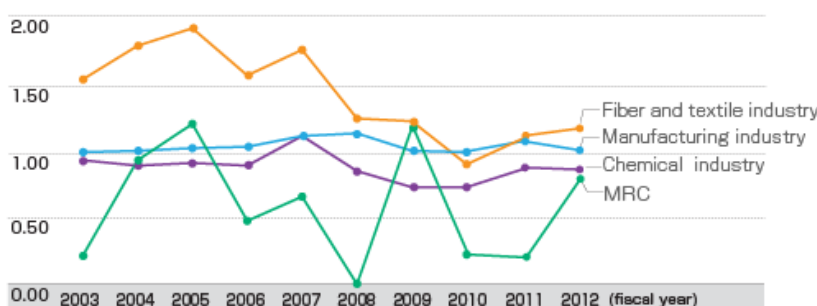
1. Training for production managers and integrated training for safety personnel of Group companies in Japan
2. Safety assessments of new equipment and renewed equipment (expansion of the scope of assessment)
3. Improvements in reporting and issues cited in the general audit
4. Safety and environmental management at Group companies based in China

■ Occupational injuries

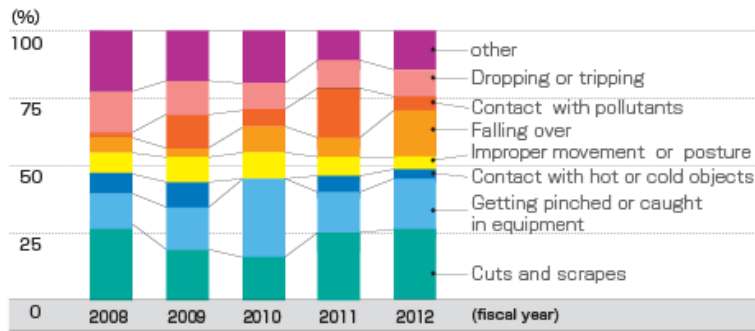
The total number of Groupwide occupational injuries and injuries that caused days away from work decreased by 13 and seven cases, respectively, from fiscal 2011. However, severe occupational injuries caused by hands being caught in rotors occurred. To ensure that such accidents are never repeated, we will work to reduce the number of occupational injuries, which includes implementing thorough preventive measures throughout the Group.

■ Incidence Rates of Occupational Injuries\* (with work absence of 1 day or more)

\*Frequency of days away from work due to injury: Days missed due to injury / 1 million work hours



■ Causes of Occupational Injuries (MRC Group)

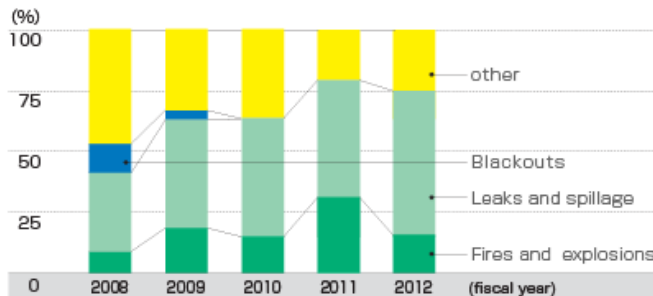


■ Accidents

The Mitsubishi Rayon Group's total number of accidents in fiscal 2012 remained at the same level as the previous fiscal year. On July 18, 2012, an environmental accident involving the spilling of ethylene glycol into the ocean occurred at a Group company. Although damage as a result of this accident has not been confirmed, we would like to sincerely apologize to our stakeholders for the tremendous difficulties and concern this has caused them. Despite conducting drills to prevent a high-alkali wastewater spill like the one that took place at the Otake Production Center last year, we deeply regret the fact that this awareness has not yet penetrated every Group company.

We will redouble our efforts to prevent such accidents from occurring in the future by revamping and strengthening the related management systems of every production center and Group company.

■ Accident Causes (MRC Group)



2) Provide Support for Group Companies

Since fiscal 2009, we have continued to hold training sessions for safety/environment personnel at domestic Group manufacturing companies. In China, Mitsubishi Rayon (Shanghai) Co., Ltd. implemented various measures primarily through its Safety, Environmental and Quality Products and Compliance Promotion Office, which included strengthening safety management systems, audits and training.

3) Set Targets to Meet External Commitments

The Group achieved its fiscal 2012 targets regarding the reduction of chemical emissions, the reduction of the external landfill volume of waste, and CO2 emissions attributable to energy use. However, we were unable to reach our target for energy consumption per unit of production. Moving forward, we will make ongoing efforts to reduce environmental burden.

### 1) Aim to Eliminate Injuries That Result in Work Absence and Eliminate Serious Accidents

We will work to prevent occupational injuries and accidents based on our efforts to revise, promote and thoroughly undertake specific initiatives. These initiatives are intended to increase the effectiveness of measures undertaken since fiscal 2012.

In fiscal 2013, we will address the important issue of improving safety by enhancing the fundamentals of operation and facility management while conducting safety checks at all production centers in order to prevent major disasters at chemical plants.

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### 2) Provide Support for Group Companies

We will continue providing environmental and safety-related support to Group companies.

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### 3) Set Targets to Meet External Commitments

We are undertaking measures that are in line with our targets set for the reduction of chemical emissions, the reduction of the external landfill volume of waste and the prevention of global warming. For further details, please refer to our proper chemical substance management, waste reduction and global warming prevention initiatives.

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### 4) Strengthen Safety Management at Production Centers

Based on basic policies concerning safety, the environment and quality, Mitsubishi Rayon is implementing measures to prevent serious accidents by strengthening safety management in such areas as high-pressure gas handling in accordance with the following safety management policies.

1. Achieve safe and efficient production by implementing appropriate preventive measures for hazards that include harmful substance leaks as well as accidents, disasters and anomalies.
2. Improve the level of each employee's safety management by entrenching, expanding and continuously improving safety management systems
3. Comply with safety-related laws and voluntary standards, and take measures that exceed legal statutes when necessary

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## Disaster Prevention Measures

### ■ Disaster prevention activities

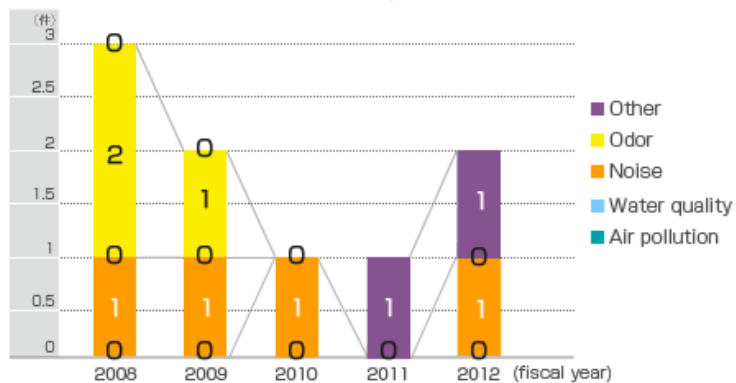
The Mitsubishi Rayon Group is conducting disaster prevention activities, including safety training to employees, inspection and maintenance of its equipment, and disaster prevention drills. In addition, the Group engages in disaster drills and other events jointly organized with local organizations. The Group is also endeavoring to prevent accidents and disasters during transport and is adopting logistical safety measures should any incident occur.

## Environmental Complaints

In fiscal 2012, the Group fielded complaints concerning noise and the scattering of cotton waste. In these cases, we immediately took corrective actions to remedy the problems and prevent reoccurrences.

The Mitsubishi Rayon Group strives to undertake business activities that fully consider the lifestyles of local residents.

■ Number of Complaints Received by the MRC Group



**Waste Reduction Initiatives**

**Waste Reduction and Recycling**

MRC Group is working to realize the Groupwide Zero Emissions Plan's fiscal 2015 waste reduction target in order to decrease its external landfill volume.

**Groupwide Zero Emissions Plan (Target Year: Fiscal 2015)**

**<Target>**

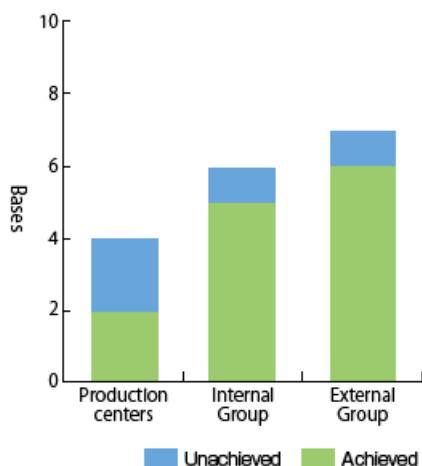
Zero emissions\* will be achieved throughout MRC Group in Japan (involving each production center and Group company) by fiscal 2015. Data calculation includes all waste, excluding combustion ash from power generation.

**<Results>**

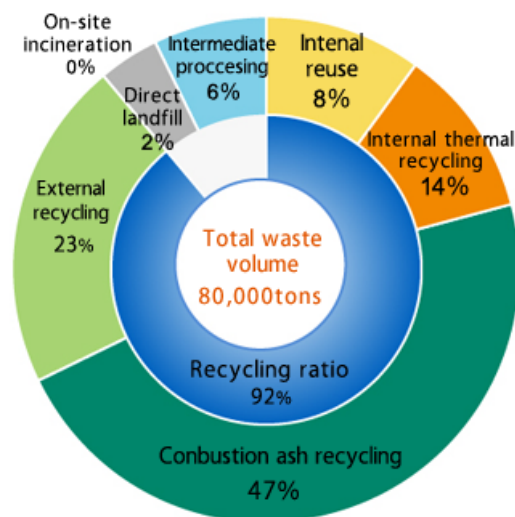
In fiscal 2012, the second year of the Groupwide Zero Emissions Plan, two production centers (up one from fiscal 2011) as well as five internal and six external Group companies (up one each from fiscal 2011) achieved zero emissions.

\*The term "zero emissions" refers to the ratio of landfill volume accounted for by waste that is 1% or below.

■Zero Emission Achievement Status in Fiscal 2012



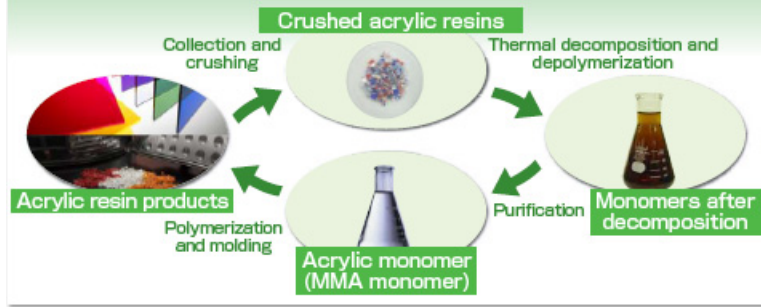
■Breakdown of Waste Produced by MRC in Fiscal 2012



**Resource Conservation Activities (Monomer Recycling)**

Acrylic resin is a recyclable material that, with appropriate heating, can be decomposed into MMA monomer and reused to make new products. In 1997, the Toyama Production Center began operating a recycling plant using an original recycling technology. This plant recycles acrylic resin waste generated on site into high-purity MMA monomer. Aiming to help realize a sustainable society, Mitsubishi Rayon is working to establish a larger-scale monomer recycling system to recycle acrylic resin products currently in use.

# Chemical Recycling of Acrylic Resins



**Environmental Data and References**

- ↓ [Targets for Combining Environment-Related Data](#)   ↓ [Environmental Data by Production Center](#)
- ↓ [Major Environmental Index](#)   ↓ [Total Chemical Emissions](#)
- ↓ [Major Chemical Emissions and Transfer Volumes](#)   ↓ [Initiatives for Preventing Global Warming](#)
- ↓ [Initiatives for Reducing Waste](#)   ↓ [Environmental Accounting](#)   ↓ [Green Purchasing](#)

**Targets for Combining Environment-Related Data**

■ **Targets for Combining Environment-Related Data in Fiscal 2012**

		Reduction in Chemical Substances Emitted		Zero Waste Emissions	Prevention of Global Warming		Major Environmental Index					ISO Certification	
		Total emission targets	Individually managed substances		Energy consumption per unit of production	Greenhouse gas emissions	Water consumption volume	BOD	COD	SOx emissions	NOx emissions	ISO 9001	ISO 14001
MRC Group	Otake Production Center and on-site Group companies	○	○	○	○	○	○	○	-	○	○	○	○
	(2) Toyohashi Production Center and on-site Group companies	○	○	○	○	○	○	○	○	○	○	○	○
	(1) Toyama Production Center and on-site Group companies	○	○	○	○	○	○	○	-	○	○	○	○
	Yokohama Production Center and on-site Group companies	○	○	○	○	○	○	○	-	○	○	○	○
	(3) MRC Unitec Co., Ltd.	○	○	○	-	○	○	○	-	○	○	○	○
	o Diatec Co., Ltd.	○	○	○	-	○	○	○	○	○	○	○	○
	e ToeiKasei Co., Ltd.	○	○	○	-	○	○	-	-	○	○	○	○
	t Dia-Nitrix Co., Ltd. (excluding plants within MRC site)	○	○	-	-	-	○	○	-	○	○	○	○
	G Tosen Co., Ltd.	○	○	○	-	○	○	○	-	-	○	○	

r o u p  (4) O v e r s e a s  G r o u p	Ryoko Sizing Co., Ltd.	o	o	o	-	o	o	o	-	-									
	MRC Koda Co., Ltd.	o	o	o	-	o	o	o	-	-	-	o	o						
	Nippon Rensui Co.	o	o	-	-	o	o	o	-	-	-	o							
	Nitto Gypsum Board Co., Ltd.	o	o	o	-	o	o	o	o	o	o	o	o	o					
	Thai MMA Co., Ltd.	o	o	-	-	o	o	o	o	o	o	o	o	o	o				
	Huizhou MMA Co., Ltd.	o	o	-	-	o	o	o	-	-	o	o	o						
	Suzhou Sanyouli Chemicals Co., Ltd.	o	o	-	-	o	o	o	-	o	-	-	o	o					
	Diapolyacrylate Co., Ltd.	o	o	-	-	o	o	o	-	-	-	-	o	o					
	Mitsubishi Rayon Polymer Nantong Co., Ltd.	o	o	-	-	o	o	o	o	o	o	o	o	o	o				
	Diatec (Shanghai) Co., Ltd.	o	o	-	-	o	o	o	-	-	-	-	o	o					
	Suzhou MRC Opto-Device Co., Ltd.	o	o	-	-	o	o	o	-	-			o						
	Dianal America, Inc.	o	o	-	-	o	o	o	-	-	-	-	o	o					
	Grafil, Inc.	o	o	-	-	o	o	o	-	-	o	o	o						
	Newport Adhesives and Composites, Inc.	o	o	-	-	o	o	o	o	o	o	o	o	o					
	Dalian Rayon Environmental Equipment Co., Ltd.	o	o	-	-				o	o	o	o	-	-	o	o			



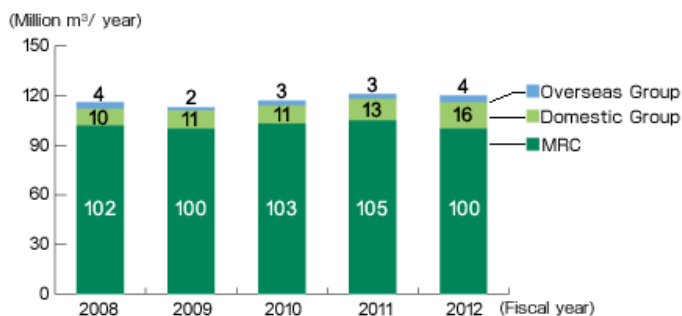
## Environmental Data by Production Center

### Environmental Data for Fiscal 2012 by Production Center

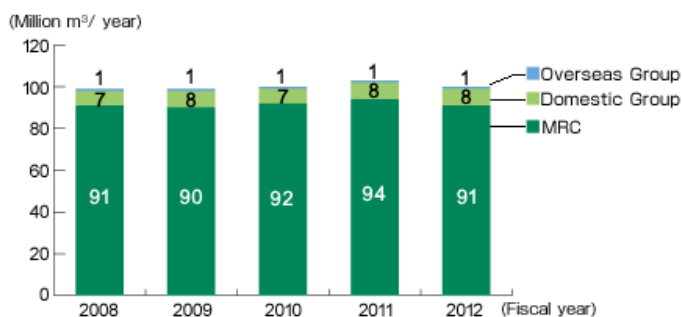
Name	Otake Production Center	Toyohashi Production Center	Toyama Production Center	Yokohama Production Center
Location	Miyukicho, Otake City, Hiroshima Prefecture	Ushikawadori, Toyohashi City, Aichi Prefecture	Kaigandori, Toyama City, Toyama Prefecture	Daikokucho, Tsurumi-ku, Yokohama City, Kanagawa Prefecture
Chemical emissions (tons) (Figures in brackets show the number of substances)	729(81)	32(29)	369(22)	4(15)
SOx emissions (tons)	619	19	44	0
NOx emissions (tons)	1,141	119	314	0
COD emissions (tons)	667	6	-	1
BOD emissions (tons)	-	3	18	-
Water Consumption (million m <sup>3</sup> )	84	5	11	0
Water discharge (million m <sup>3</sup> )	75	5	10	0
External landfill volume (excluding power combustion ash) (tons)	824	5	221	0
Energy use per unit (year-on-year change)	Up 1.4%	Down 5.1%	Up 5.7%	Down 3.9%

## Major Environmental Index

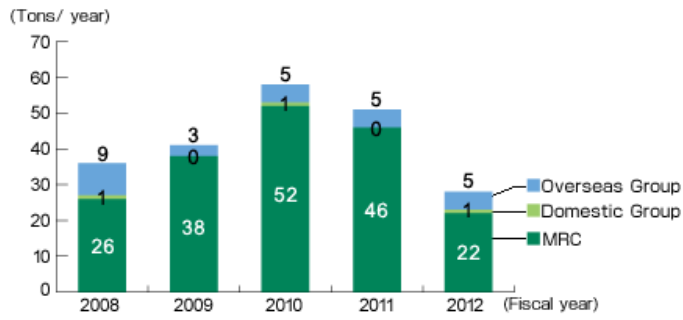
### Water Consumption



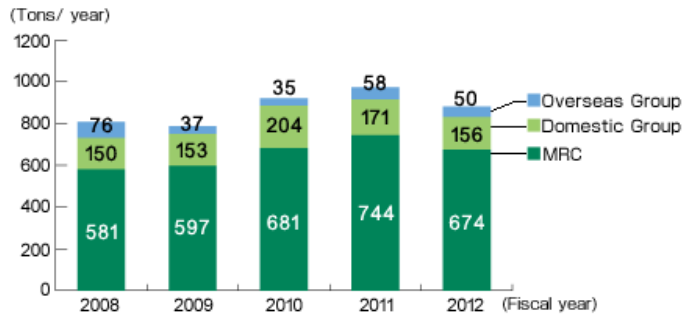
### Water discharge



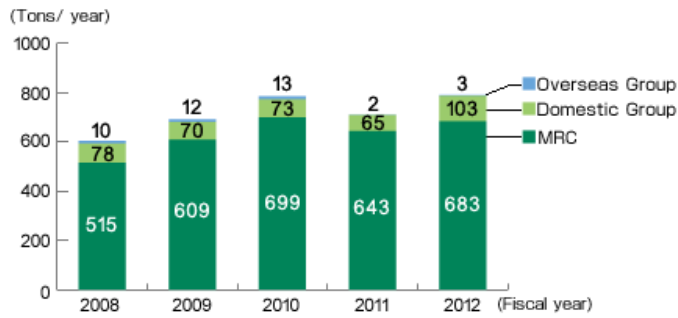
### BOD Emissions



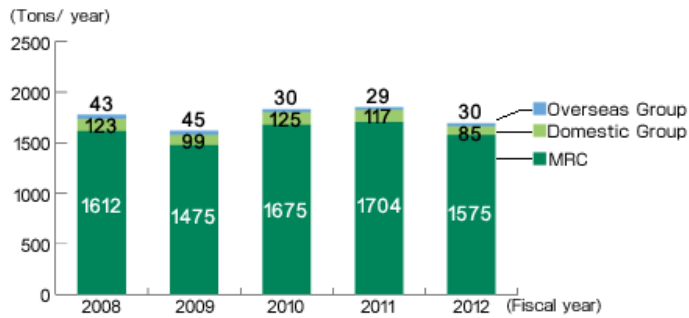
### COD Emissions



### SOx Emissions



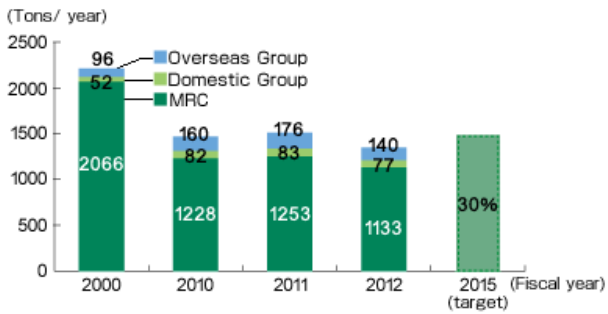
### NOx Emissions



## Total Chemical Emissions

### Total Chemical Emissions (5th Plan Target 1)

[▶ Detailed explanation](#)



### List of Individually Managed Substances (5th Plan Targets 2)

i) Twelve VOC substances that Mitsubishi Rayon released into the atmosphere in large volumes

Substance
Acrylonitrile
Dichloromethane
1,3-Butadiene
N,N-dimethylformamide
Styrene
Toluene
Methyl alcohol
Propylene
Isopropyl alcohol
Tert-butyl alcohol
Vinyl acetate
n-hexane

ii) Five Substances That the Mitsubishi Rayon Group Emits the Most

Substance
Methyl methacrylate
Acetone
Dimethylacetamide
Inorganic cyanogen compound
Dimethyl ether

## Major Chemical Emissions and Transfer Volumes

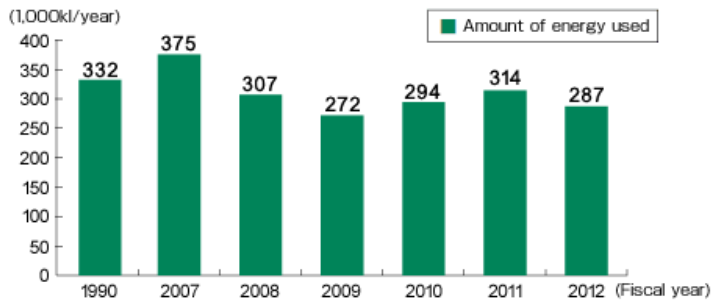
### Emissions and Transfer Volumes of MRC-PRTR Substances in Fiscal 2012 (Tons/year)

Substance	Atmosphere	Waster	Soil	Total Emissions	Transfer Volume	
Dimethylacetamide	255	99	0	354	63	
Acetone	286	35	0	322	58	
Methyl methacrylate	90	46	0	136	436	
Dichloromethane	75	0	0	75	5	
Dimethyl ether	17	56	0	74	0	
Tert-butyl alcohol	51	1	0	52	0	
Inorganic cyanide	42	0	0	42	0	
N,N-dimethylformamide	37	2	0	40	90	
Methyl alcohol	25	6	0	31	225	
Ammonia	26	0	0	26	1	
Other substances	144	54	0	198	1,234	
<b>Total</b>	<b>1,049</b>	<b>301</b>	<b>0</b>	<b>1,350</b>	<b>2,112</b>	
<b>(Including revised PRTR Law substances)</b>	<b>(583)</b>	<b>(175)</b>	<b>(0)</b>	<b>(758)</b>	<b>(1,339)</b>	
<b>Breakdown</b>	<b>MRC</b>	<b>877</b>	<b>256</b>	<b>0</b>	<b>1,133</b>	<b>959</b>
	<b>Domestic group</b>	<b>68</b>	<b>8</b>	<b>0</b>	<b>77</b>	<b>499</b>
	<b>Overseas group</b>	<b>104</b>	<b>36</b>	<b>0</b>	<b>140</b>	<b>654</b>

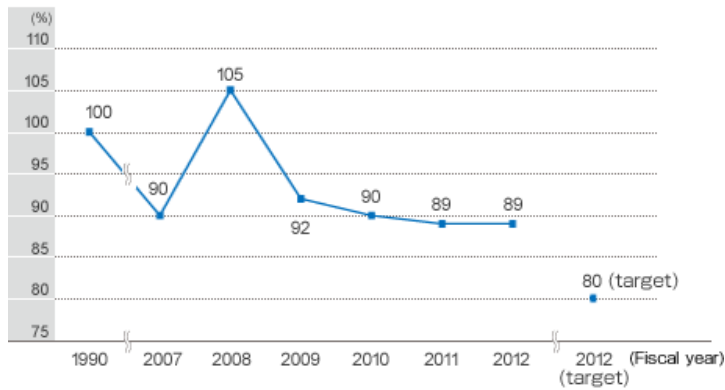
\*Includes MRC-PRTR substances and substances added under the revised PRTR Law

## Initiatives for Preventing Global Warming

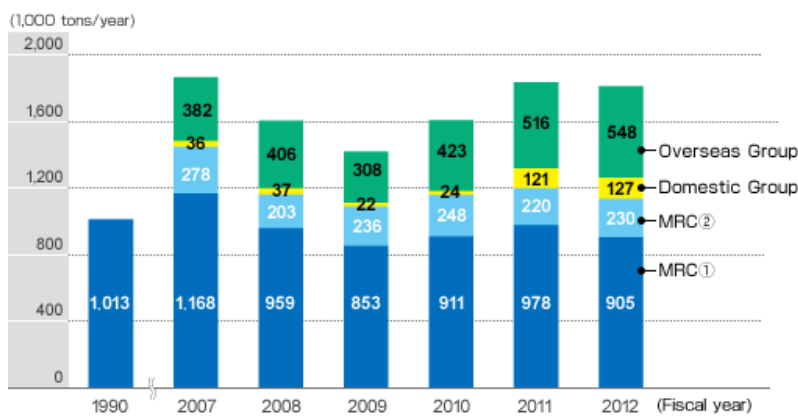
### Amount of Energy Used by MRC (Converted into Crude Oil)



### Energy Consumption per Unit of Production by MRC



### Greenhouse Gas Emissions (Converted into CO2)



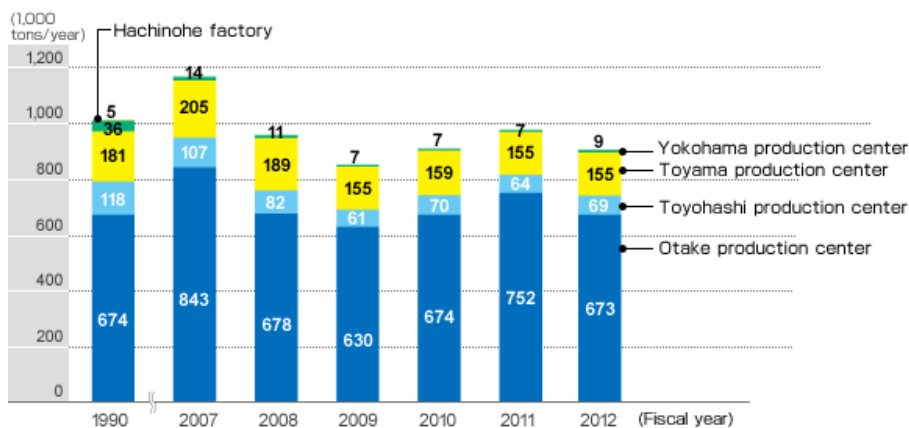
\*MRC 1 is the volume of CO2 emissions derived from energy use at the four production centers in Japan.

\*MRC 2 is the volume of CO2 emissions derived from items added to comply with the revised Law Concerning the Promotion of the Measures to Cope with Global Warming and the revised Law Concerning the Rational Use of Energy.

\*Aggregate amounts of domestic Group companies are included in the main body of Mitsubishi Rayon

\*Some figures have been revised due to adjustments made to calculation methods in fiscal 2009

### Energy-Derived CO2 Emissions



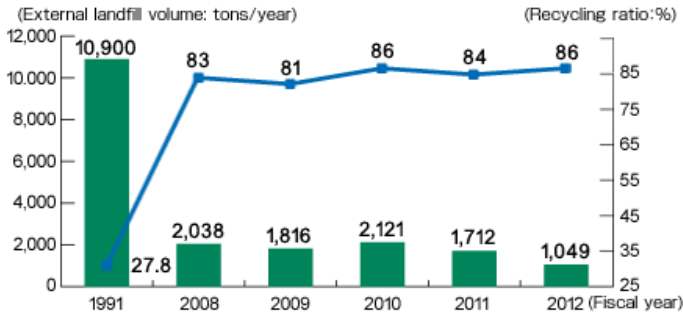
\*Some figures have been revised due to adjustments made to calculation methods in fiscal 2009.

## Greenhouse Gas Emissions of Fiscal 2012 (Converted into CO2)

Breakdown for fiscal 2012 (1,000 tons/year)	CO2		Five other gases
	Energy-derived	Derived from other sources	
MRC	918	213	4.2
Domestic Group	50	76	0.5
Overseas Group	275	273	0.0

## Initiatives for Reducing Waste

### External Landfill Volume (Excluding Power Combustion Ash) and Recycling Ratio



## Environmental Accounting

### Aggregate results for environmental accounting in fiscal 2012

(Million yen)

Aggregate items established in the Ministry of the Environment guidelines			Investment	Cost
Environmental conservation costs	(1) Business area cost	[1] Pollution prevention costs	413	2,041
		[2] Global environmental conservation costs	151	0
		[3] Resource recycling costs	71	1,291
	(2) Up / Down stream costs	0	-42	
	(3) Administration cost	0	463	
	(4) Social activity cost	21	98	
	(5) Environmental remediation cost	0	7	
Total			656	3,859

(Million yen)

Aggregate items established in the Ministry of the Environment guidelines		Investment
Economic benefit	(1) Proceeds from recycling activities	851
	(2) Expense reductions due to energy conservation	224
	(3) Expense reduction due to waste disposal	70
Total		1,145

(Million yen)

Wastewater measures costs (disposal costs, etc.) shown as the amount of compliance costs (operation and maintenance expenses) related to pollution control/environmental laws and agreements	142
Waste disposal costs shown as the amount of waste reduction and resource management promotion costs (operation and maintenance expenses)	402

## ■ Basic Information on Environmental Accounting

### Environmental Accounting in General

- Focus: costs and results of environmental activities
- Scope: Mitsubishi Rayon Co., Ltd.
- Period: fiscal 2012

### Environmental Conservation Costs

- Scope/Classification :refer to the Ministry of the Environment's The Establishment of an Environmental Accounting System (2000 report)  
Personnel costs are included.  
Depreciation costs of facilities investments are excluded.  
Research and development costs are excluded.

### Economic Benefit

- Scope/Classification :result of environmental and safety-related activities in fiscal 2012, which can be calculated rationally
- Revenues :proceeds from the sales of valuable material and transactions of scrap materials, etc.
- Energy conservation :the amount of energy savings from production activities
- Waste disposal :amount of cost decrease compared with the previous fiscal year

## Green Purchasing

Mitsubishi Rayon promotes green purchasing through the purchase of environment-friendly products used internally, including stationery and office equipment.

(Fiscal year)

		2008	2009	2010	2011	2012
Paper	Copy paper	95%	100%	96%	100%	95%
	Toilet paper	100%	100%	100%	100%	100%
Stationery	Notebooks	97%	72%	98%	64%	81%
	Pens	88%	79%	100%	95%	95%
	Files	94%	99%	92%	94%	86%
Office equipment	Personal computers	55%	87%	100%	100%	100%
	Printers	71%	100%	100%	100%	100%
	Facsimiles, copying machines and multifunctional printers	100%	100%	67%	100%	100%
Other items	Lighting equipment	100%	86%	69%	73%	97%
	Fluorescent lights	50%	36%	79%	84%	97%

\*Figures above are totals for Mitsubishi Rayon

► Targets for Combining Environment-Related Data

**Relationships with Local Communities**

The Mitsubishi Rayon Group contributes to the development of local communities by proactively promoting activities anchored in each community.

**Communicating with Local Communities**

**■ Exchanges with Local Communities**

The Group conducts factory tours mainly for government officials and nearby residents as part of its efforts to interact with local communities both in Japan and abroad. These activities provide opportunities to promote understanding of the Group's businesses as well as its environmental and safety measures.



A factory tour being conducted for Toyama City's Hokubu Junior High School PTA (Toyama Production Center)



Vocational experience program for junior high school students during Career Start Week (Otake Production Center)

**■ Volunteer Activities by Overseas Group Companies**

Thailand experienced significant flood damage due to overflowing rivers following constant heavy rain that began in July 2011.

Employees from the Lucite International Group company, Thai Poly Acrylic Public Company Limited (TPA), participated in cleanup activities in surrounding flood-stricken areas. Through these actions, TPA made every possible effort to aid in the rapid restoration of these communities.



Thai MMA (TMMA), together with its fellow Thai-based methyl methacrylate (MMA) production partner, the Siam Cement Group (SCG)—took part in initiatives in nearby communities that included installing floodgates in mountain creeks, building facilities for children, and upgrading school playgrounds and children's libraries. Each activity was funded by SCG in order to support the initiatives of both the national and local governments. Looking ahead, TMMA and SCG will continue working together to communicate with local communities.



### ■ Exchanges with Local Communities through Sports

Each Group company makes its grounds, gymnasiums and other facilities available to the local community, which many residents make use of. In addition, Group companies organize sports tournaments in an effort to foster exchanges with local residents and promote the development of young people.

### ■ Clean-Up Activities

To keep local communities clean, Mitsubishi Rayon carries out cleanup activities in neighboring areas on a regular basis. Efforts are not limited to internal activities as Mitsubishi Rayon joins clean-up campaigns organized by local governments and non-profit organizations. Through these efforts, we are undertaking environmental beautification activities that reflect local interests.



Cleanup activities near the Asakura River  
(Toyohashi Production Center)

## Activities for Nurturing and Educating the Next Generation

The simple questions "Why?" and "How?" that children ask are the origins of manufacturing. Wishing to convey the wonders and delights of science using its products and everyday items, the Mitsubishi Rayon Group sends its employees to elementary and junior high schools to teach lessons.

### ■ Waku Waku! (Exciting) science classroom

Mitsubishi Rayon participated as a member of the MCHC Group in science experiment demonstrations using plastic optical fibers at the Summer Vacation Chemistry Experiment Show 2012, which was held near the head office at the Science Museum in August 2012. Thanks to this demonstration, many children were able to experience first hand the mysteries of light.



In addition, the Mitsubishi Rayon Group company, ACRYSDUNDAY Co., Ltd. held the ACRY Club at home center outlets nationwide, giving children and their parents the opportunity to participate in free, hands-on carpentry workshops using acrylic resin boards.



### ■ Developing Future Scientists

Young researchers employed at the Otake Research Laboratories and Products Development Laboratories visited Ohtake Junior High School in Otake City in December 2012 to teach science lessons with the aim of sparking the students' interest in R&D.





### ■ Supporting the Soalon Design Contest

Mitsubishi Rayon Textile Co., Ltd. supports a design contest for Bunka Gakuen students, who are expected to eventually play an active role in the fashion industry. Mitsubishi Rayon Textile supplied the Soalon, a rare triacetate fiber that is environmentally friendly, for the textiles used in the contest.



### ■ Supplying Carbon Fiber to Schools Competing in Japan's Student Formula SAE Competition

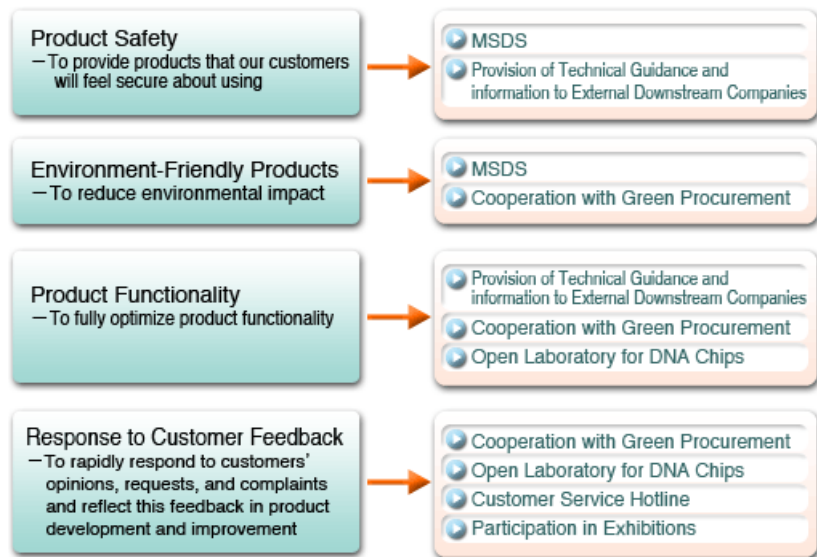
Lightweight and strong, carbon fiber has gained attention as a material that enables massive weight reduction. In Student Formula SAE Competition of Japan, teams of students compete in a test of their overall manufacturing capabilities as they plan, design and produce car bodies. Mitsubishi Rayon supplies carbon fiber as a material for the car body and parts to Toyohashi University of Technology's Car Society, one of the competitors.



**Relationships with Customers/Product Safety**

The Mitsubishi Rayon Group is working to ensure the safety of its products to deliver the highest level of quality possible to customers. We are also endeavoring to communicate with a greater number of customers through events and exhibitions.

**Relationships with Customers**



■ **MSDS**

In the sale and delivery of chemical products, the Mitsubishi Rayon Group provides information on the properties, proper handling and disposal of the products in the form of material safety data sheets (MSDSs).

■ **Providing Technical Services and Information to Customers**

We comply with the differing legal regulations of the countries in which we do business while disclosing product material specifications to meet customer needs. Moreover, we provide such services for fiber processors as preparing technical manuals, dispatching technicians and developing quality management databases.

■ **Cooperation with Green Procurement**

Upon request, we provide customers with information on hazardous substances contained in chemical products.

■ **Open Laboratory for DNA Chips**

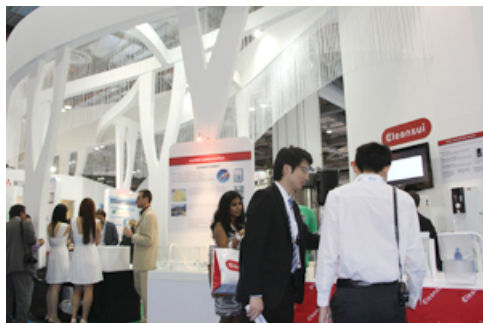
In April 2001, we established a special open laboratory for DNA chips within our Yokohama Corporate Research Laboratories as a forum for information exchange with customers.

■ **Customer Service Hotline**

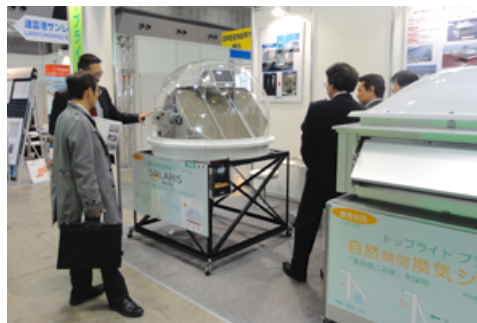
We have established a toll-free hotline to field opinions, inquiries, and complaints from customers in relation to our CLEANSUI home water purifiers.

## ■ Participation in Exhibitions

The Mitsubishi Rayon Group is working to initiate direct dialog with a greater number of customers by proactively taking part in exhibitions. To improve customer satisfaction with regard to products and services, the Group reflects feedback from customer in its product safety and quality improvement initiatives.



Exhibiting at Singapore International Water Week  
(SIWW) 2012



Exhibiting at the Eco House & Eco Building Expo  
(Ryoko Co., Ltd.)

## Proceeding with REACH\* Registration

The Group completed the registration of six high-production substances by the 2010 deadline and is currently preparing to register other substances by the 2013 deadline in cooperation with consortiums in Europe. Since 2010, we have been promoting the sharing of REACH regulation-related information with Mitsubishi Chemical Corporation. Also, we are advancing preparations for REACH registration through intensive collaboration with Lucite International as the Mitsubishi Rayon Group's representative in Europe.

\*REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) is an EU regulation to protect human health and the environment

## Ensuring GHS\*<sup>1</sup> Compliance in Individual Countries

Although the Group has completed the incorporation of Japanese GHS requirements into its MSDS\*<sup>2</sup>, many East Asian countries, such as China, South Korea and Taiwan, have formulated their own GHS regulations as part of their efforts to establish effective legal frameworks. While establishing GHS information access routes, we will appropriately address GHS policies being formulated in various countries.

\*1 GHS: Globally Harmonized System of Classification and Labelling of Chemicals

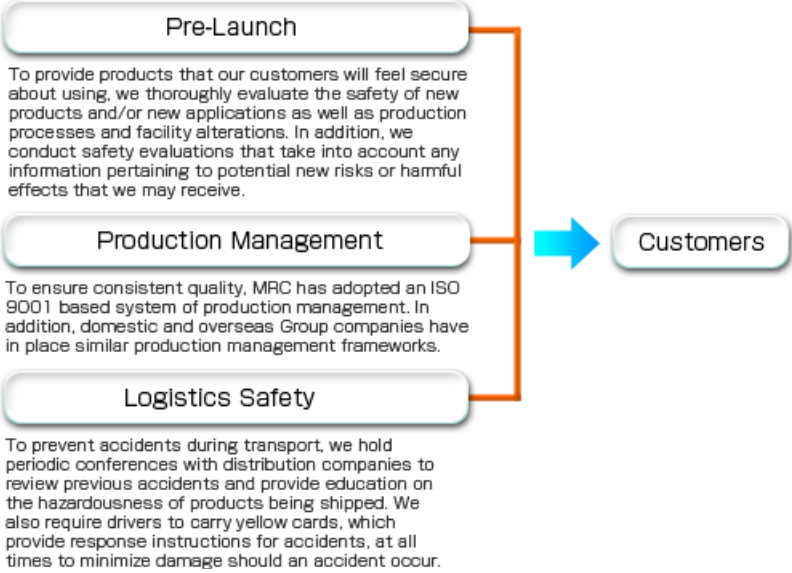
\*2 MSDS: Material Safety Data Sheet

## Safety of Product

### Basic Policy on Safety of Product

The Mitsubishi Rayon Group has established the basic management policy of providing safe products that are reliable and satisfactory from our customers' perspective.

Established in 1995



## Relationships with Suppliers

### Promotion of CSR Procurement

The Mitsubishi Rayon Group acts in line with its basic policy of undertaking fair and transparent transactions. Contributing to the realization of better lives on a sustainable basis, the Group formulated the CSR Procurement Policy to gain the cooperation of suppliers and build healthy business relationships with them.

In fiscal 2013, Mitsubishi Rayon will work to deepen communications particularly with suppliers. In addition, we plan to share with suppliers rules based on CSR procurement guidelines that we are formulating. Looking ahead, we will formulate standards for selecting suppliers in line with such factors as legal compliance, human rights, labor, safety and hygiene.

#### CSR Procurement Policies

##### 1. Compliance with laws and social standards

We will maintain high ethical standards and adopt a basic stance of complying with laws and social standards to conduct sound purchasing and procurement, and we will endeavor to operate fairly and equitably.

##### 2. Securing the ecological soundness and safety of products purchased

We will always place top priority on environmental considerations and maintenance of safety when purchasing and procuring products and services.

##### 3. Respect for human rights and improvement to working conditions

In purchasing and procurement, we will respect the fundamental human rights of workers and carry out our operations without unjust discrimination. In parallel, we will strive to ensure the safety and health of all those working in the Mitsubishi Rayon Group's workplaces and to improve working conditions.

##### 4. Development of partnerships

We will maintain mutual relationships of trust with all business partners under the fundamental awareness that we are working together, mutually for business implementation and for conducting fair and transparent purchasing and procurement.

##### 5. Requests for business partners

- (1) Compliance with laws and social standards
- (2) Provision of products and services whose ecological soundness and safety have been ensured
- (3) Initiatives for raising respect for human rights and improving working conditions
- (4) Provision of satisfactory quality and prices, reliable delivery periods and timely information

Established in March 2008

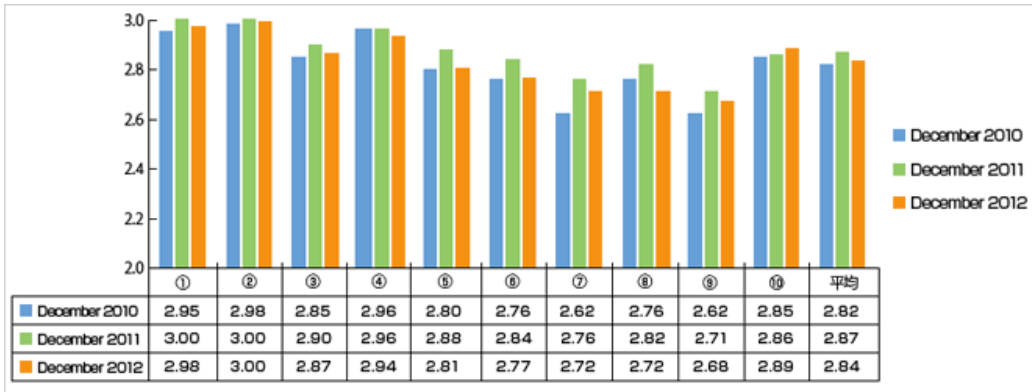
#### ■ Requesting Suppliers Complete and Submit the CSR Procurement Questionnaire

For suppliers who have been asked to complete and submit Mitsubishi Rayon's CSR Procurement Questionnaire, please download the form by clicking the link below.

Please fax or email the completed form to the designated Mitsubishi Rayon manager.

\*Suppliers who submit questionnaires without being requested to will not receive a reply. Thank you for your understanding.

In fiscal 2012, the survey on distribution companies was conducted for the third time. As was expected, the surveys revealed the same trend as the Group's suppliers' questionnaire, with results for questions (7) and (9) of the survey (see table below) remaining low.



Continuing on from fiscal 2011, we also conducted surveys of distribution companies' energy conservation initiatives. The survey results confirmed that respondents were implementing new initiatives that include obtaining qualifications, particularly the Safe Workplace (G-Mark) Certification and Green Management Certification, as well as introducing eco drive recommendations, and energy-saving vehicles and equipment.



NRS Corporation being awarded a prize for zero transport accidents at the Hazardous Materials Distribution Safety Conference.

In fiscal 2013, Mitsubishi Rayon will provide feedback on survey results to all participating suppliers and distribution companies. In addition to introducing our KAITEKI activities, we plan to hold discussions about low scores for questions (7) and (9) in order to deepen mutual understanding.

From fiscal 2014 onward, we will work to enhance mutual CSR activities through on-site visits. We will also request that overseas Group companies (seven in Asia) conduct CSR surveys starting in fiscal 2013. In so doing, the Mitsubishi Rayon Group will take steps to fully manage suppliers through its CSR activities.

## Relationships with Employees

In order to maintain both sustainable business growth and employee satisfaction, the Mitsubishi Rayon Group respects the diverse talents of its employees while creating workplaces that offer them opportunities to achieve their ambitions and fully display their skills.

### Human Resource Development

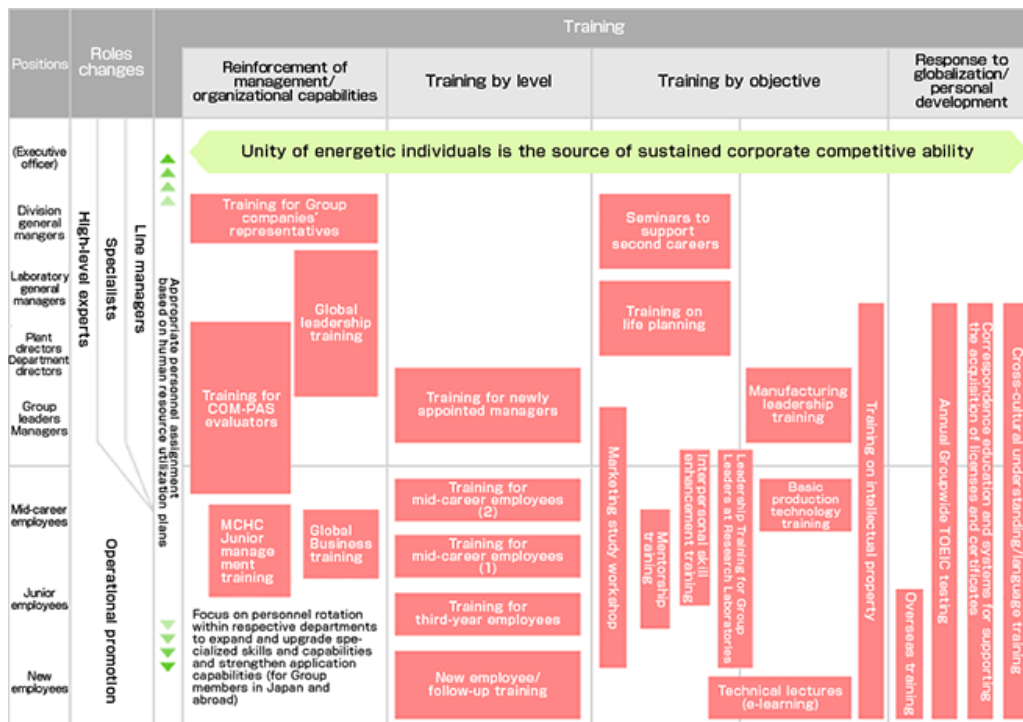
Based on its view that the capabilities of people and organizations are the key source of corporate growth and competitive ability, the Mitsubishi Rayon Group views human resource recruitment, training and application as important management challenges, and focuses its efforts on these areas.

#### ■ Training Programs

The Mitsubishi Rayon Group supports employees' efforts to develop their capabilities and skills by combining daily on-the-job (OJT) training with training programs and activities that assist in personal development. The Mitsubishi Rayon Group has adopted human rights education, legal compliance, thorough enforcement of corporate ethics, and the promotion of safety and environmental management as common themes of the stratified training programs it has designed for new employees and managers. In addition, in view of the Group's increasing global operations, it is increasing its efforts to train individuals who can serve as managers based on their understanding of the cultures and systems of the regions where they are assigned.

#### Main training system

- Various personal development training programs
- Stratified training extending from new employees to newly appointed managers
- Life planning training



»Expansion image

### ■ COM-PAS Target-based Personnel Evaluation System

The Mitsubishi Rayon Group takes the view that strong unity of direction across all Group members is critical for its sustained development in the years ahead. Based on this view, the Group has introduced a personnel performance evaluation system that stimulates communication within its organization, provides employees with common organizational targets, and accurately rates individuals who work hard and succeed in achieving the targets. This system is nicknamed COM-PAS (Communication, Plan, Action & Success). To make the system more effective, the Group offers manager-focused training to evaluators on an annual basis in order to increase the fairness, persuasiveness and transparency of the evaluations. The Mitsubishi Rayon Group believes that this target-based personnel management process, from target establishment to performance evaluation, maximizes the capabilities of individual employees and, by extension, allows the entire Group to display its organizational strength.



Training for COM-PAS evaluators

## Employment

### ■ Basic Policy for Employing Recent Graduates and Mid-Career Workers

The conditions in which companies operate are changing on a daily basis along with social frameworks. The Mitsubishi Rayon Group continues to hire a diverse array of promising individuals in order to survive under these conditions and to achieve the Group's goals. The Group's employment strategy is to concentrate on career workers on an as-needed basis, in addition to the periodic recruitment of recent graduates.

### ■ Internship

Mitsubishi Rayon offers an internship program which is available mainly to students from universities, graduate schools and technical colleges. Each Mitsubishi Rayon production center receives 10 to 30 students every year, which gives the students the opportunity to gain firsthand experience in manufacturing and research on-site and to consider their career options. Mitsubishi Rayon makes the internship program available to foreign students in Japan as well.

## Work-Life Balance

### ■ Measures for Supporting Efforts to Balance Work and Family Life

Since fiscal 2005, the Mitsubishi Rayon Group has established and implemented its Action Plan for General Business Operators in accordance with the Act for Measures to Support the Development of the Next Generation. This action plan helps us boost corporate vitality and contribute to society through the development of better working conditions for Group employees, which includes supporting their efforts to balance work and family life. Mitsubishi Rayon's latest measures are as follows.



## **Action Plan for General Business Operators in accordance with the Act for Measures to Support the Development of the Next Generation (Fourth)**

The following action plan has been formulated to enable all employees to reach their full potential by creating positive working environments that allow them to both work and raise children.

### **1. Two-year plan from April 1, 2012 to March 31, 2014**

#### **2. Overview**

<Objective One>

Create an environment that makes working and raising children easier for male and female employees and, in turn, fosters an ongoing sense of enthusiasm toward for their duties.

The following measures commenced in April 2012:

- Create Groupwide mechanisms that encourage employees to feel positive about returning to work mainly through consultations with those taking parental leave
- Encourage male employees to participate in child rearing
- Promote and entrench proper understanding and management of work-life balance support systems

<Objective Two>

Undertake measures to create enthusiastic and dynamic workplaces

The following measures commenced in April 2012:

- Enhance measures to reduce overtime work and encourage employees to take paid vacations
- Strengthen measures to increase mutual understanding and cooperation among employees with diverse backgrounds

<Objective Three>

Bolster measures that foster the development of the next generation

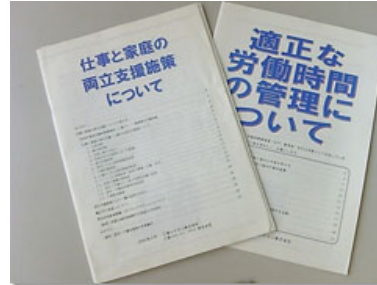
The following measures commenced in April 2012:

- Increase opportunities for children to tour their parents' workplaces
- Provide opportunities for youth to learn about different professions and receive hands-on work experience

In 2008 and 2010, the Group was certified by the Tokyo Labor Bureau as a General Business Operator Conforming to Standards based on the Act for Measures to Support the Development of the Next Generation and obtained the Kurumin Certification Mark. Garnering positive evaluations for establishing and successfully implementing flexible childcare and nursing systems that far exceed legal standards, the Group received the Tokyo Labor Bureau Director's Excellence Award from the Ministry of Health, Labour and Welfare in 2010 at the Commendations for Equal and Balancing Promotion Companies (Family-Friendly Company category).



Next Generation Kurumin Certification Mark



Booklets distributed to employees to promote efforts for improving work-life balance

Almost 100% of employees who gave birth in recent years have taken childcare leave. Childcare leave is granted through consultations with three individuals—the individual requesting leave, her supervisor and the personnel manager—in order to create an atmosphere that enables employees to fulfill their family responsibilities while being able to reach their full potential at work. Maintaining this type of work-life balance goes a long way towards alleviating anxiety and encourages employees to look forward to returning to work. Thanks to these initiatives, nearly all employees who took childcare leave have resumed their duties.

In addition to enhancing work-life balance support systems, we are promoting the realization of continuous work-life balance by cultivating a corporate culture that values mutual respect and understanding for various lifestyles and values.

#### ■ Measures for Supporting both Work and Nursing Care

To date, Mitsubishi Rayon has maintained nursing care support programs centered on nursing care leave, shortened working hours for nursing, and lifestyle financial assistance (nursing). In partnership with external NPOs, additional support is provided by enhancing information provision systems intended to alleviate nursing care-related anxiety and difficulties. Through these efforts, we are striving to ease the mental and physical burdens placed on employees providing nursing care and create an environment that makes it easy to engage in both work and nursing care.

#### ■ Welcome Back Scheme

Mitsubishi Rayon maintains the Back-To-Work Registration Scheme to give former employees who had left voluntarily the opportunity to return to work with the Company. Registration is open to all former employees regardless of their reason for leaving, including childbirth and nursing.

### ■ Human Rights Protection

The Mitsubishi Rayon Group expresses its fundamental policies on human rights in the Corporate Behavior Charter and Compliance Behavior Standards, and has formulated the Human Rights Enlightenment Policy. The Group respects human rights and strives to create fair working environments for employees. In addition, the Group is seeking to raise awareness of the need to respect human rights by giving human rights education lectures in various Group employee training programs. With regard to sexual harassment and workplace bullying, the Mitsubishi Rayon Group has spelled out its position of zero tolerance in its employment regulations. The Group is raising awareness of sexual harassment through in-house magazines and employee training programs. In addition, the Group has set up sexual harassment counseling desks in head offices, branch offices and production centers, and has established a committee to formulate countermeasures in a bid to develop a system able to rapidly respond to any form of sexual harassment.

### ■ Employment of People with Disabilities

As part of its CSR activities, Groupwide efforts are made to hire more people with disabilities and develop facilities to accommodate them in an attempt to achieve and exceed the statutory requirement.

### ■ Reemployment policy

The Mitsubishi Rayon Group reemploys workers in accordance with the intention of the revised Law Concerning Stabilization of Employment of Older Persons. In principle, all employees, including managers, are eligible for reemployment after the age of retirement based on the conditions specified by the Group. The Mitsubishi Rayon Group ensures compatible working styles for reemployed individuals so that they continue to feel as motivated as ever.

### ■ Mentorship System

Mitsubishi Rayon has introduced the Mentorship System, which encourages senior employees to provide ongoing support and guidance to young career employees in order to help them adapt to the work environment, encourage their development into full members of society and improve their job performance.

### ■ Support for Resuming Work after Forced Absences Due to Illness and Injury

It is important to prevent physical and mental illness and injury through lifestyle improvements and everyday care. If employees do become ill or injured, it is essential to create an environment that allows them to concentrate on their treatment for the required length of time and then return to work without any problems. Accordingly, Mitsubishi Rayon offers follow-ups to sick employees in cooperation with occupational physicians while they are undergoing treatment. In addition, we produce a work resumption program for each employee following his or her application to resume work. Based on the program, Mitsubishi Rayon workers can return to work in two stages, which consist of working on a trial basis and shorter working hours upon returning to work. These support initiatives allow employees to gradually build up to a return to full-time work after a required preparatory period.

## Occupational Health

In order to promote Groupwide activities concerning hygiene and safety in the same manner as safety and the environment, the Health and Hygiene Group was established in 2012, which oversees initiatives in this area. In cooperation with occupational physicians and occupational health staff members, the Health and Hygiene Group devises activity principles and policies as well as common measures regarding operating environments and methods, and employee health maintenance and improvement. In addition, internal policies are formulated in accordance with the Industrial Safety and Health Act and other health-related laws to proactively promote measures in such areas as overwork-related health disorder prevention and mental health.

Moreover, the Group has recently introduced an independent health examination system in order to develop an environment that helps prevent employee illness, enabling employees to work safely anywhere. Looking ahead, the Mitsubishi Rayon Group will expand in stages the scope of its health-related activities to all Group companies, particularly those located overseas. Through these initiatives, the Group is supporting the realization of KAITEKI workplaces where all employees can continue working in a safe, secure and healthy manner.

CSR Report

KAITEKI Report 2013

CSR reports of Mitsubishi Chemical Holdings are available from here  
[KAITEKI Report 2013](#)

Back Number

This site provides details of the Mitsubishi Rayon Group's CSR Activities in FY2011.



[FY 2001](#)  
(PDF:1.2MB)



[FY 2002](#)  
(PDF:301KB)



[FY 2003](#)  
(PDF:421KB)



[FY 2004](#)  
(PDF:621KB)



[FY 2005](#)  
(PDF:5.0MB)



[FY 2006](#)  
(PDF:6.4MB)



[FY 2007](#)  
(PDF:4.4MB)



[FY 2008](#)  
(PDF:7.1MB)



[FY 2009](#)  
(PDF:3.8MB)



[FY 2010](#)  
(PDF:4.2MB)



[FY 2011](#)  
(PDF:3.5MB)

## Corporate Governance

### Basic Perspective

The Mitsubishi Rayon Group is working to enhance its corporate governance by undertaking fair business activities in compliance with laws and with a high standard of corporate ethics.

### Basic Perspective and Status of the Internal Control System

To achieve this, the Group has established the following systems:

#### 1. System for ensuring that the execution of director and employee duties conforms to laws and the Company's Articles of Incorporation

- In order to conduct operations in accordance with the Company's management philosophy, directors shall conduct themselves in a highly ethical manner that exceeds legal compliance and complies with the Business Code of Conduct Based upon Corporate Ethics.
- Directors shall hold Board of Directors' meetings regularly every two months and on an as-needed basis to make decisions on necessary business execution, receive operations reports, and exchange information.
- Directors shall monitor the execution of each other's duties in other areas to ensure the legality of their actions. In the event that another director is discovered engaging in illegal activities, directors shall report this immediately to the corporate auditors (Board of Corporate Auditors) and the Board of Directors, and take the necessary steps to rectify infractions of the law based on a thorough investigation.

#### 2. System for storing and managing information on the execution of director duties

- The Board of Directors shall conduct adequate audits of the document management system based on regulations regarding the storage of important documents (including minutes of the general meeting of shareholders' and Board of Directors' meetings) on the execution of director duties. In addition, the Board shall maintain measures to properly store all of the Company's information assets in accordance with the Mitsubishi Rayon Group Information Security Policy and information asset control rules.
- The Company shall ensure the promptness and accuracy of methods for conveying management conference screening results of Board of Directors' and director decision making processes, internal decision requests, and related business execution systems by utilizing an electronic document management system composed mainly of electronic bulletin boards and notifications.

#### 3. Other systems and regulations for managing exposure to loss

- The Board of Directors determine external factors, including politics, economic conditions and natural disasters, as well as the important risk categories in all areas of business management, including production, sales, products, finance, R&D, and systems. The Board shall maintain systems that accurately prevent and respond to risk that could pose a threat to business continuity.
- The Board of Directors has placed the Risk Management Committee under the control of the CSR Management Meeting, which regulates the Mitsubishi Rayon Group's risk management activities undertaken independently by committee members, and the conduct of supervisors and management methods related to the Company's important business execution risks are stipulated in its risk management rules. The Board shall strengthen risk prevention systems regarding individual operational risks in accordance with operations standardized with the Company's business operation rules.

- The Company shall establish a crisis management headquarters as needed to enable organized responses to disasters, accidents, and other incidents in accordance with its risk management rules.

#### **4. System for ensuring that directors efficiently execute their duties**

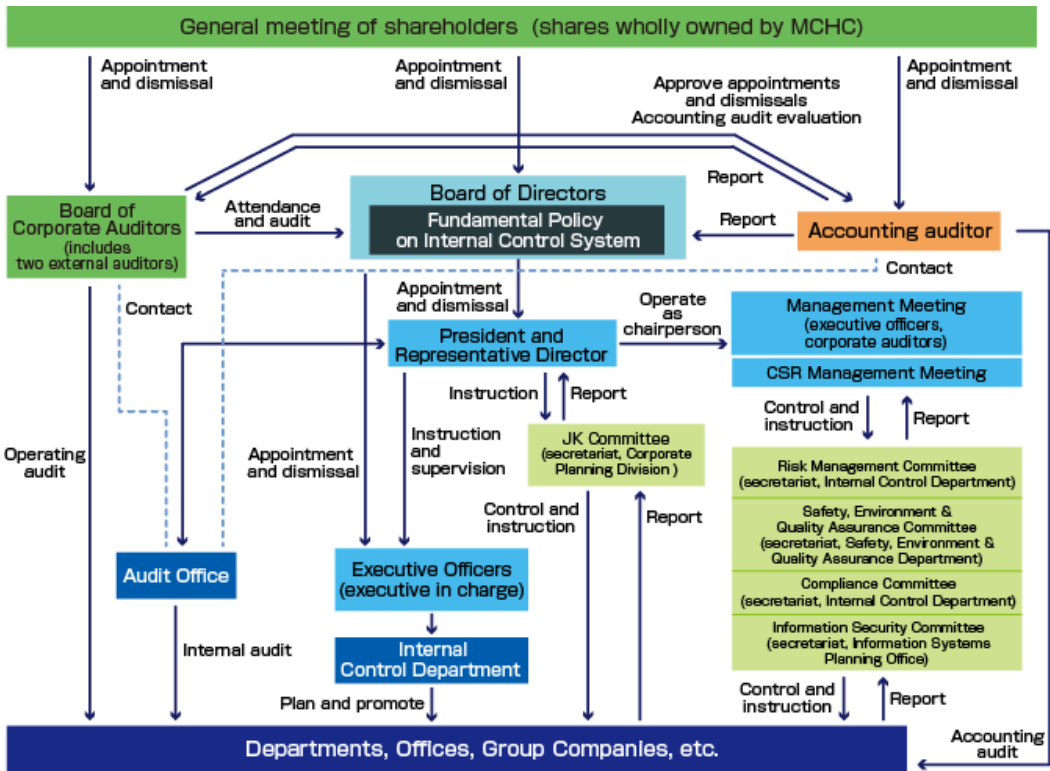
- The Board of Directors as a rule convenes the Management Meeting once per week to undertake preliminary deliberations on important matters within the scope of the authority granted by the Board. In so doing, the Company is working to increase the efficiency of business execution, which includes expediting clarification and decision making on matters taken up at Board of Directors' Meetings.
- The President shall use the electronic bulletin board system to promptly communicate to all executive officers and relevant divisions matters decided at Board of Directors' and Management meetings.
- The Board of Directors shall maintain a system that promotes operational efficiency and legal compliance by establishing a CSR Management Meeting and presiding over the activities of the Risk Management, Safety, Environment & Quality Assurance, Corporate Ethics, Information Security committees.
- The Audit Office directly controlled by the president reports the results of internal audits to the president and relevant departments, and holds information exchanges among corporate auditors in accordance with internal audit rules.

#### **5. System for ensuring appropriate operations in corporate groups**

- Realizing sound business operations in accordance with corporate behavior charter based upon Corporate Ethics and the Compliance Code of Conduct is the common goal of directors and employees of all Group companies in Japan and overseas.
- In order to realize appropriate operational control, the Board of Directors shall undertake reporting, communication and guidance regarding Group companies, which are stipulated by Group company management regulations that are applied Groupwide, while respecting the independence of each Group company.
- In addition to conducting internal audits of Group companies in compliance with internal audit rules, the Company promotes information sharing under the direction of the Audit Office through various modes of communication and consultations regarding Group company corporate auditor duties.

#### **6. System for ensuring the efficiency of audits conducted by corporate auditors**

- Assistant corporate auditors are appointed to help corporate auditors execute their duties. To ensure the independence of assistant corporate auditors, appointments, evaluations, transfers and other matters require the approval of the Board of Corporate Auditors. To increase the effectiveness and mobility of audits, corporate auditors conduct hearings as needed to gain feedback from directors and employees, as well as regularly convene individual meetings with directors and executive officers, on the status of operations for important business execution matters and the establishment of an internal control system. The Board of Corporate Auditors, accounting auditors and the Audit Office ensure that corporate auditors conduct effective audits by regularly holding information exchange meetings and by maintaining close communication and coordination.



»Expantion image



## Compliance

The Mitsubishi Rayon Group is expanding its autonomous activities to steadily raise the compliance awareness of every employee by positioning compliance in its corporate endeavors as one of its top priorities and through the formulation of the Business Code of Conduct and Compliance Code of Conduct.

### Compliance Committee

The Compliance Committee meets twice per year to make decisions on Groupwide compliance promotion policies and plans as well as manages the progress of, verifies the effectiveness of, and formulates improvement measures for these activities. In addition, the Compliance Committee works to broaden the scope of monitoring activities, which includes upgrading compliance-related regulations, proposing disciplinary actions, and checking the status of the Company's compliance consultation desks.

### Thorough Compliance Education, Training and PR

We make every effort to regularly conduct education, training and PR at each workplace to fully instill an awareness of shared values and our Business Code of Conduct in each employee.

In fiscal 2012, basic compliance training via e-learning was conducted specifically for assistant sales managers and new managers in order to test their knowledge and understanding of compliance in such areas as customers, partners, competitors and society. In addition, we held workshops for approximately 400 managers and group leaders given their key role in promoting compliance. The workshops focused on increasing one's own sensitivity towards compliance and becoming more attuned to the latest information on this topic. We also conducted group discussions mainly on workplace issues with the purpose of raising awareness of compliance among employees and deepening communication during daily operations at every workplace.

Using internal databases, we published the Compliance Report every other month to showcase good compliance actions as well as publicize such issues as relevant laws and behaviors subject to disciplinary action. The Compliance Report serves as part of our employee education and awareness raising activities.

### Compliance Awareness Survey

In order to confirm the status of compliance promotion, the compliance awareness survey was conducted for the first time targeting Mitsubishi Rayon employees in conjunction with each Mitsubishi Chemical Holdings Group company. Survey results are conveyed to employees, used to confirm current compliance status and promote future compliance promotion activities.

## **Compliance Consultation Desk**

In order to rapidly identify and appropriately address compliance infringements, the Mitsubishi Rayon Group has set up two external compliance consultation desks staffed by attorneys and operated by a specialist management company and two in-house desks staffed by corporate auditors and operated by the Internal Control office. All of these desks form a consultation and reporting system that the Company utilizes in its efforts to appropriately manage and promote compliance. The privacy and human rights of everyone using this service is protected, the information gathered is not handled in a disadvantageous manner, and steps are taken under the direction of the Chief Compliance Officer (CCO) to remedy problems as soon as possible.

## **Compliance Activities in Overseas Group Companies**

It is necessary to conduct compliance promotion activities that conform to individual circumstances given that laws, culture and social systems differ from one region and country to another. As such, Mitsubishi Chemical Holdings America, Inc. (North America), Mitsubishi Chemical Holdings (Beijing) Co., Ltd., and Group companies based in other Asian countries take the lead in conducting compliance training in their respective regions. In addition, Mitsubishi Rayon (Shanghai) Co., Ltd. plans and implements compliance initiatives in China.

## Risk Management

The Mitsubishi Rayon Group is aware that in order for the Group to meet public demands and sustain its development, it is essential for it to establish a mechanism for thoroughly understanding and managing various key risks both within and outside its business, in other words a "risk management system." With this awareness, the Mitsubishi Rayon Group has undertaken the following activities for managing risks.

### Risk Management System

The Mitsubishi Rayon Group's risk management initiatives respond to both important operational risks from a companywide perspective and risks inherent in each business activity undertaken by the Group.

#### (1) Risks That Significantly Impact Operations

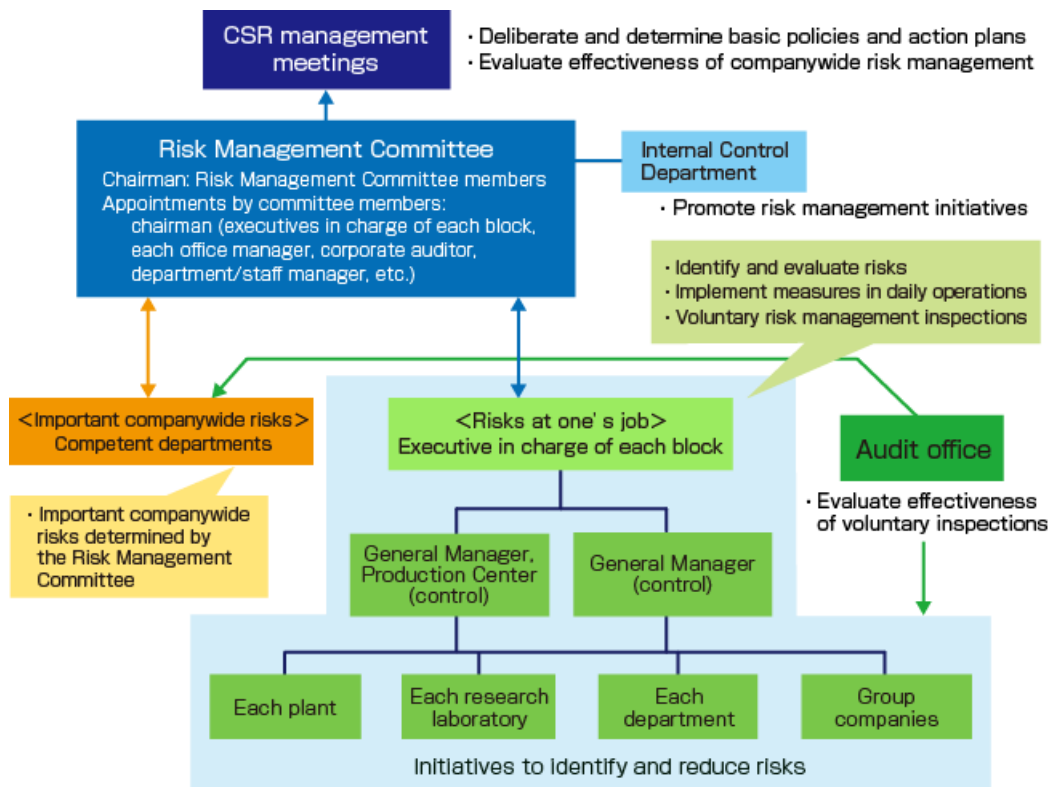
Taking into account the social environment and other factors, the Risk Management Committee sets important companywide risks yearly and appoints the competent department to implement key measures in response to each risk.

#### (2) Risks Inherent in Each Department

Control departments formed from individual departments and offices, and related units formed from subordinate sections and plants each formulate independent risk countermeasures in accordance with unified companywide criteria and then undertake risk management from the perspective of each workplace. Specifically, these departments and units work to minimize risks by using the following PDCA cycle: (1) identify risks; (2) formulate risk countermeasures; (3) implement countermeasures; (4) evaluate countermeasure effectiveness; and (5) continue current and propose new risk countermeasures for the next fiscal year.

The Audit office checks and takes steps to improve the level of each proposed and implemented risk countermeasure with the aim of improving its effectiveness. The progress of risk management initiatives is managed through database systems in order to share risk-related information Groupwide, including overseas Group companies. Through these actions, we are working to maintain highly efficient and effective operations. In addition, we develop a matrix that reflects degree of impact and frequency in order to visualize the level of identified risks, the results of which are reported to the Risk Management Committee.

## Risk Management Chart



## Overseas Risk Management

Companies are expected to link manufacturing and sales bases in Japan, other Asian countries, the United States, Europe and elsewhere around the world in order to operate successfully in global markets. Against this backdrop, the need for ensuring sound management through enhanced corporate governance and risk management is gaining in importance.

The Mitsubishi Rayon Group engages in unified risk management Groupwide, encompassing operations both in Japan and overseas.

In particular, many Group companies operate overseas. In areas where the need for risk management is high, we undertake risk management in tandem with the Mitsubishi Chemical Holdings Corporation management companies, Mitsubishi Chemical Holdings America, Inc. (North America) and Mitsubishi Chemical Holdings (Beijing) Co., Ltd. (China). Strengthening and promoting risk management and governance functions in the rapidly developing Chinese market is a management issue of utmost importance for the Group. To this end, Mitsubishi Rayon Group is working to strengthen and promote the development of risk management activities aimed at enhancing business operations as well as improving governance capabilities in China. Specifically, Mitsubishi Rayon (Shanghai) plans and implements risk management initiatives.

### Enhance Risk Management in China

#### ■ Strengthening Corporate Risk Management in China

- In fiscal 2012, Mitsubishi Rayon (Shanghai) and each China-based Mitsubishi Rayon Group company continued to promote various initiatives to counter major legal and systemic risks in China that could directly affect operations. These included standardizing in-house rules and processes to effectively and accurately meet frequent changes in laws, regulations and other related systems; introducing a system aimed at identifying new latent risks; and enhancing the risk awareness of local staff regarding the law and operations by inviting an outside expert to hold compliance seminars. As part of Mitsubishi Rayon (Shanghai)'s risk-related training initiatives, workshops for legal affairs managers were held during the current fiscal year on the Labor Contract Act, Antimonopoly Act and Unfair Competition Prevention Act.

- The Mitsubishi Rayon Group is strengthening its responsiveness to risks associated with new cross-border business endeavors in Japan, China and elsewhere. To that end, we are undertaking risk management (i.e. addressing emergent risks and preventing projected ones) directly related to significant legal, taxation, intellectual property and labor risks in all of our Chinese business proposals.
- In cooperation with Mitsubishi Rayon Group companies based in China, the Group regularly holds meetings for general managers in China to determine the themes of specific risk management activities and monitor the progress of said activities. These meetings help the Group to steadily reinforce its corporate risk management in the face of a dynamically changing business environment. In addition, we are developing more efficient and effective risk management systems by augmenting risk management cooperation among China-based Group companies as a member of the Mitsubishi Chemical Holdings Group.

### ■ **Enhancing Risk Management to Ensure Safe, Environment-Friendly, High Quality Products in China**

- The Mitsubishi Rayon Group continued to develop risk management systems regarding safety, environmental and quality to promote the further upgrading of management standards common to all China-based Group companies as well as set safety and health management targets. We also held training to improve the risk management of Group company managers in an effort to enhance the capability of the local staff.
- We determined activity objectives and plans appropriate for each Group company and commenced these initiatives with the help of all employees in order to entrench safety initiatives that all employees can participate in.
- We have implemented safety days and a safety improvement month for all China-based Group companies. Specific activities are devised and promoted by each company independently. Through these actions, we are working to prevent typical accidents that occurred in the past, maintain proper safety consciousness, and create opportunities for employees to think about safety on their own.
- Regarding examples of accidents found in the Mitsubishi Rayon Group, Mitsubishi Rayon (Shanghai) summarizes cautionary notices and inspection points on accident prevention and then laterally disseminates this information to each Group company.

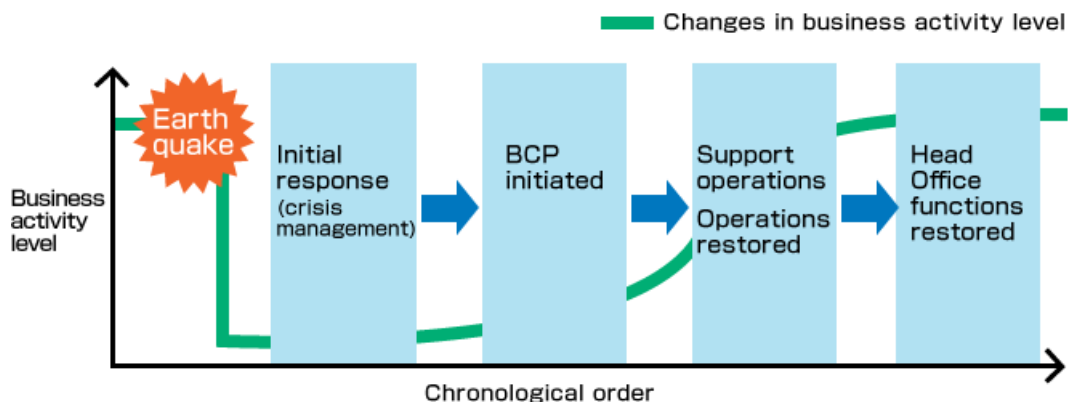
## **Business Continuity Plan (BCP)**

### ■ **Implementing Mitsubishi Rayon's Initial Response (Crisis Management)**

#### **Actions and BCP in Anticipation of an Earthquake Directly under Tokyo and BCP**

To prepare for a scenario in which the Mitsubishi Rayon Head Office is no longer operational following a major earthquake in Tokyo (presuming that all other business bases, excluding the Yokohama Production Center, are unaffected), we have formulated a continuity management to ensure the safety of Head Office employees as well as basic BCP-related conduct for each Head Office department. This conduct involves Head Office departments deciding in advance which support departments will take over individual Head Office operations. After the BCP has been initiated, support departments in each region will voluntarily begin providing assistance until Head Office operations are restored. Through these actions, we aim to fully restore Head Office functions as soon as possible.

## Chronological Order and Business Activity Level



\*The green line indicates the fastest possible restoration of pre-earthquake operations.

### ■ Continuity Management Drill

On November 4, 2012, we conducted a continuity management drill at the Head Office based on the presumption that a major earthquake has struck Tokyo during regular business hours. Issues identified during the drill were reflected in the revised continuity management plan.

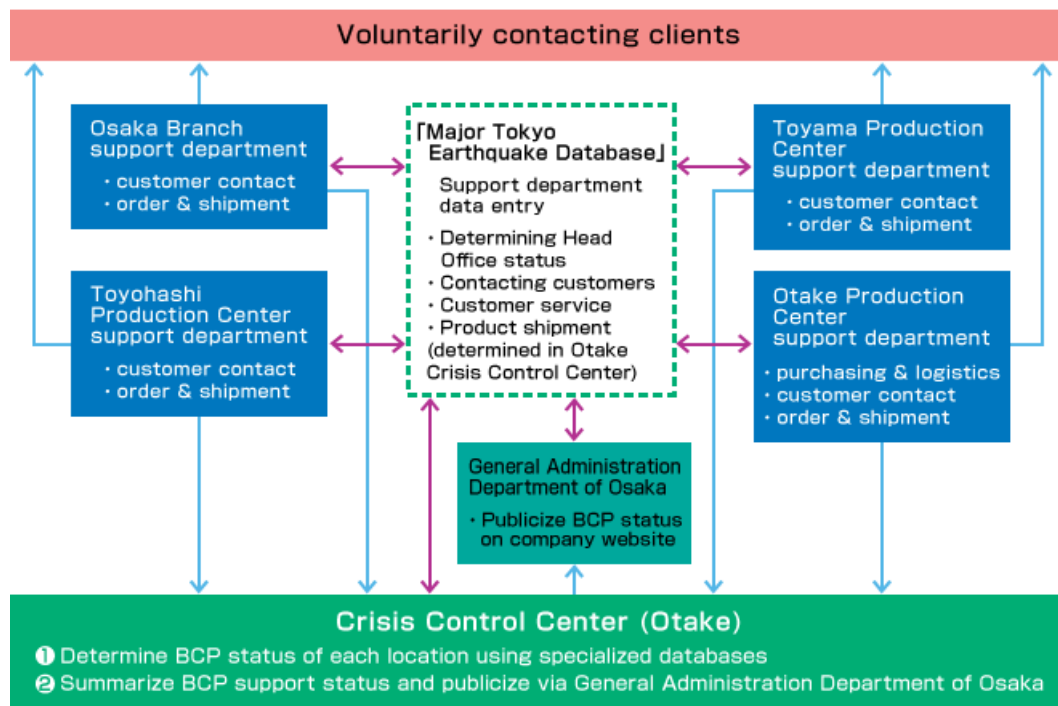
### ■ BCP Drill

Following the continuity management drill, we held a BCP drill under the presumption that a major earthquake has occurred in Tokyo. The drill involved the Osaka Branch, the Toyohashi, Toyama and Otake production center support departments, applicable Head Office departments-in-charge and the Otake Crisis Control Center.

During the drill, support department managers initiated the BCP after verifying that the Head Office was not operational due to the earthquake and gave instruction to the staff members in charge to commence support operations. The staff members in charge then contacted customers to inform them of the commencement of operations (assuming the customers are Head Office departments) and entered this information into the internal Major Tokyo Earthquake Database. In addition, the staff members in charge verified the Head Office sales status over several days using backbone operation systems and reported this information to the relevant managers. Following this, the managers reported the status of these actions to the Otake Crisis Control Center.

The Otake Crisis Control Center gathered and organized all drill-related information to ascertaining the BCP support status of all departments. Following this, the General Administration Department of Osaka publicized Mitsubishi Rayon's BCP implementation status on the company website (during the drill, information was recorded in internal databases).

Each regional support department was rated highly by their peers for their enthusiastic participation during the drill as well as their ability to act in a coordinated and precise manner. Looking ahead, we will work to improve our preparedness against actual disasters by upgrading necessary documents and regularly conducting BCP drills.



### ■ Future Issues

In order to effectively draft manuals and refine the BCP, repeated revisions and conducting regular drills are critical.

Head Office continuity management:

1. Conduct regular drills
2. Develop a joint disaster prevention system with the Yokohama Production Center

Head Office BCP:

1. Regularly revise manuals and conduct drills
2. Enhance documents and information required for business operations
3. Upgrade emergency fund disbursement functions in Otake Crisis Control Center

In addition, we are launching an investigation into BCP measures for business bases in order to formulate them in the same manner as those used at the Head Office.

### Information Security

The Mitsubishi Rayon Group established its Information Security Policy in fiscal 2004 and is undertaking activities centered on the Information Security Committee to increase information security. From the perspective of internal control (J-SOX), the Group inspected mobile devices and tightened control of information access rights in fiscal 2009. The Group has expanded the application of improved physical security measures in areas such as facilities, equipment and devices, with the use of IC cards<sup>※1</sup> called PIAS<sup>※2</sup>. We will continue to promote PDCA cycles to reinforce information security activities.

※1 IC card: A card mounted with integrated circuits (ICs) for data storage and computation

※2 PIAS: Physical Security Integrated Admission System, the Mitsubishi Rayon Group's unified access control system