Environmental Conservation

Basic Policy and Key Measures

Aiming to contribute to the global environment, Mitsubishi Chemical (MCC) proactively works to reduce its greenhouse gas emissions, conserve resources and energy, prevent contamination of the air, water and soil, limit waste generation, encourage reuse and recycling, engage in activities and develop technologies that help conserve the natural environment, and develop and produce environmentally friendly products. In these ways, MCC strives to reduce its environmental burden at every level of its business activities.

In addition, to ensure legal compliance, we carry out training on environmental laws and regulations, conduct environmental audits and hold twice annual liaison meetings at which MCC Group managers in charge of environmental issues exchange the latest information about legal amendments and other issues.

In fiscal 2017, we set the annual targets of zero environmental incidents and contributing to the global environment and implemented the following key measures

- **Reducing Environmental Risk**
  We are implementing legal education and environmental audits to ensure compliance with environmental laws and regulations and systematically reducing environmental risk by implementing risk assessments.

- **Reducing Environmental Impact**
  We are working to reduce our environmental impact through such means as cutting greenhouse gas emissions, saving resources and energy, and reducing emissions of pollutants.

- **Coexisting Harmoniously with Local Communities**
  We are letting local communities know about our environmental conservation initiatives and promoting harmonious coexistence through communication.

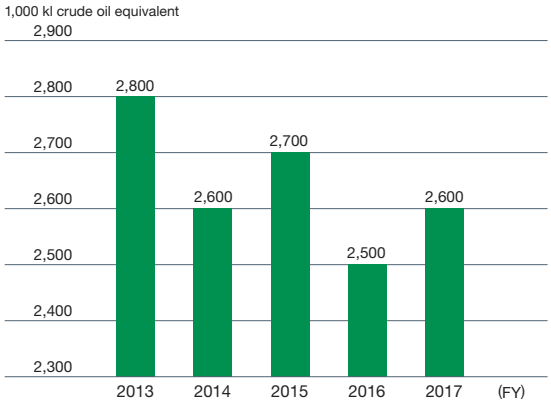
Environmental Conservation

Addressing Climate Change

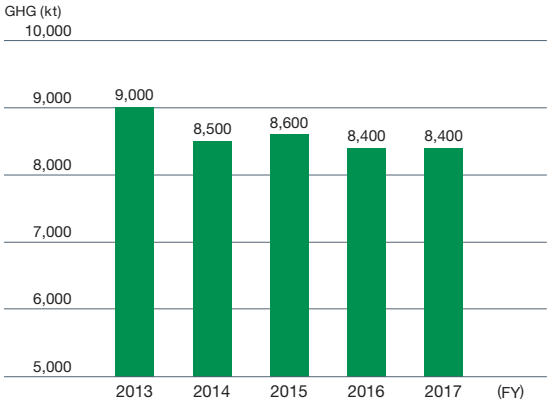
In line with the target set by Mitsubishi Chemical Holdings (MCHC) of reducing greenhouse gas emissions at least 17% compared with fiscal 2005 levels by fiscal 2015, MCC worked to cut its greenhouse gas emissions and achieved the fiscal 2015 target. We have maintained emissions at this lower level since fiscal 2016.

Going forward, we will expand the range covered by this measure to include overseas Group companies and advance initiatives to further reduce greenhouse gas emissions as we aim for the targets of the MCC Group medium-term management plan.

Energy Consumption



Greenhouse Gas Emissions



* Environmental data for fiscal 2016 and earlier are the totals of the figures for the previous Mitsubishi Chemical, Mitsubishi Plastics, Mitsubishi Rayon, and their respective domestic group companies.

** Since fiscal 2015, energy consumption and GHG emissions have been calculated based on the GHG Protocol. Energy consumption is given as the total of that for the three previous companies before the formation of the current Mitsubishi Chemical but does not include their domestic group companies.

Life Cycle Assessments

Life cycle assessment (LCA) is an approach that enables the quantitative evaluation of the environmental burden generated by a product or service over its entire life cycle (from resource collection through raw material production, product manufacturing, distribution, consumption, disposal and recycling) or at specific stages of said life cycle. The evaluation of the environmental impact of MCC's products and services over their entire life cycles better enables the company to develop environmentally friendly products and services and provide them to society.

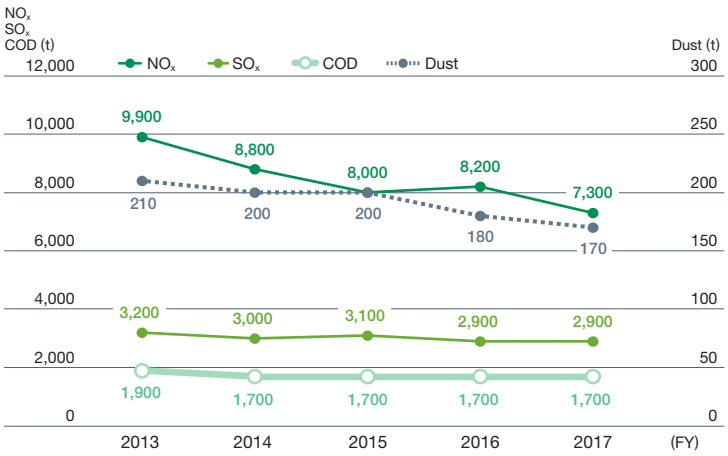
Preventing Air, Water and Soil Pollution

MCC handles a wide range of chemical substances and therefore maintains ongoing measures to reduce emissions of hazardous air pollutants and of pollutants into public bodies of water through such means as installing and improving emission gas and wastewater treatment facilities.

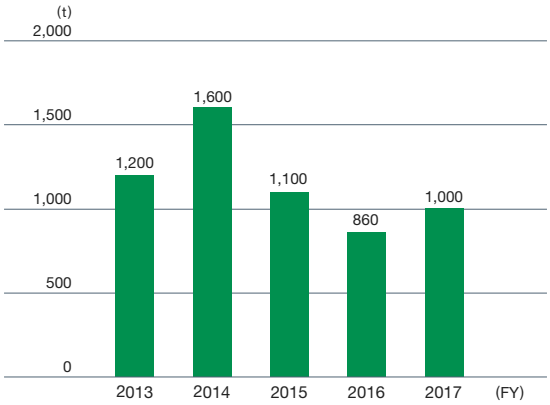
We have been reducing or maintaining at a steady level the environmental burden our businesses place on atmospheric and water quality, as measured by NO_x, SO_x and dust emissions as well as chemical oxygen demand (COD). In fiscal 2017, we reduced emissions of NO_x 900 tons due to structural reorganization and other factors. MCC's emissions of PRTR-regulated substances[1] and VOCs[2] rose due in part to increased production volume.

1 Pollutant Release and Transfer Register (PRTR): A system for filing notifications of the amounts of chemical substances released and transferred. This system enables the identification, aggregation and publishing of data on the types, sources and amounts of hazardous chemical substances that have been released into the environment or transferred outside facilities as waste.
2 Volatile organic compound (VOC): Typical substances include toluene and xylene. These compounds became subject to regulation by the amended Air Pollution Control Act of 2006 as source substances of photochemical oxidants (photochemical smog).

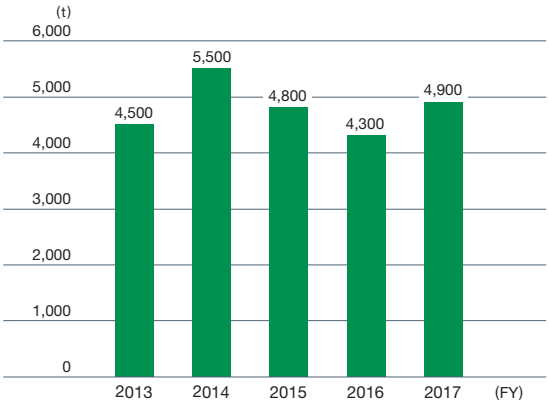
Reducing Our Environmental Burden on the Atmosphere and Public Water Sources



PRTR-Regulated Substance Emissions



VOC Emissions



Environmental Conservation

Focus: Tackling Marine Plastic Debris

MCC is actively working to tackle the problem of marine plastic debris. We joined the Japan Plastics Industry Federation's declaration on solving the problem of marine plastic debris. Each plant, of course, strives to prevent emissions of pellets and resins into rivers and oceans. In addition, each plant also promotes volunteer efforts to clean the coastal areas of nearby rivers and oceans.

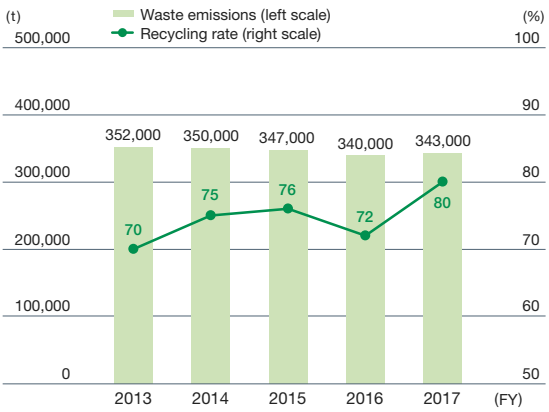
Volunteers cleaning the beach near the Sakaide Plant

Beach cleaning volunteers from the Toyama Plant

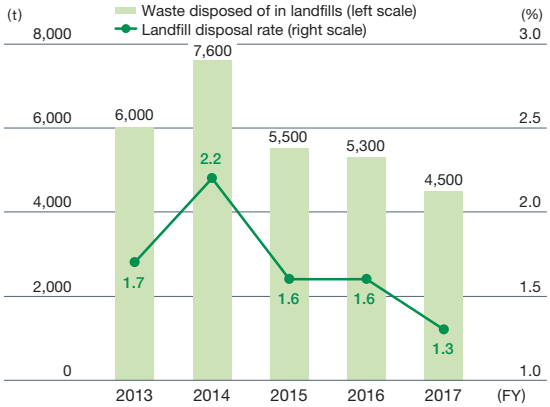
Waste Reduction and Recycling

MCC is advancing 3R activities (reduce, reuse, recycle) in an effort to reduce its industrial waste. As a result of such efforts, although there have been fiscal years in which, due in part to increased construction waste, waste disposed of in landfills increased, we have put the generation of said waste back on a downward track by promoting recycling. Going forward, we will continue working to improve the recycling rate of industrial waste by strictly enforcing sorted collection and strengthening coordination with disposal contractors.

Industrial Waste Emissions and Recycling Rate



Waste Disposed of in Landfills and Landfill Disposal Rate



Biodiversity Conservation

Based on MCHC's Biodiversity Conservation Policy, MCC pursues initiatives that contribute to the global environment and thus conserve biodiversity. Through these initiatives, we work to reduce environmental risk and impact and thereby lessen our business activities' impact on biodiversity. In addition, we strive to conserve the natural environment by cleaning up neighboring areas and coastal areas and protecting our plants' green areas.

Environmental Accounting

MCC uses environmental accounting, based on the Ministry of the Environment's guidelines, to better understand the costs and effects of its environmental burden reduction and conservation efforts.

In fiscal 2017, MCC invested ¥2.7 billion in such areas as reinforcing wastewater management and air pollution prevention and incurred ¥31.4 billion in expenses, including those for the operation and maintenance of pollution prevention equipment and proper waste disposal. Meanwhile, such positive factors as revenue from the sale of valuable materials and savings from energy use and lower waste disposal costs totaled ¥2.6 billion.

Investment and Expenses Related to Environmental Conservation and Process Safety

Environmental conservation costs (Millions of yen)

Category		Main initiatives	FY2017	
			Investment	Expenses
Costs within business areas	1. Pollution prevention costs	Air pollution prevention, dust countermeasure reinforcement, dust collection system replacement, water pollution prevention, activated sludge consolidation, wastewater management reinforcement, response to deterioration of wastewater facilities and pipes, etc.	1,353	17,693
	2. Global environmental conservation costs	CO_2 emissions reduction, operational improvement, etc.	952	1,231
	3. Resource-recycling costs	Industrial waste reduction, proper waste disposal, resource conservation, energy conservation, etc.	264	6,359
Upstream/downstream costs		Waste reclamation, green purchasing, etc.	0	0
Environmental conservation costs in management activities		Operation of units to address environmental conservation, ISO 14001 compliance and renewal, national exams, environmental education, etc.	0	1,564
Environmental conservation costs in R&D activities		R&D for increased productivity	0	3,370
Environmental conservation costs in social contribution activities		Construction and upkeep of factory green spaces	118	460
Costs of dealing with environmental damage		Cleanup of contaminated soil, etc.	18	43
Other environmental conservation-related costs			0	687
		Subtotal	**2,706**	**31,406**

Positive economic effects (Millions of yen)

	FY2017
(1) Income from recycling	1,611
(2) Energy cost savings	323
(3) Income from resource conservation	693
Subtotal	**2,626**