

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 2019, 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 while 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.



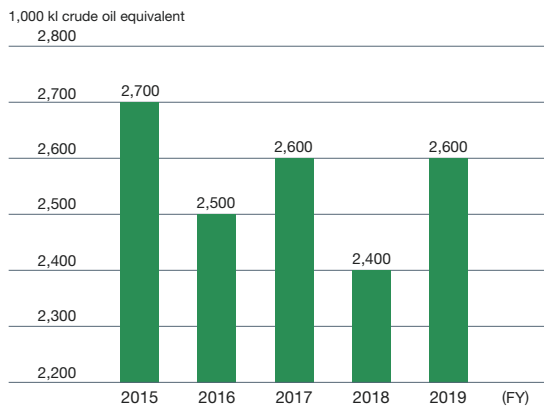
Environmental Conservation

Addressing Climate Change

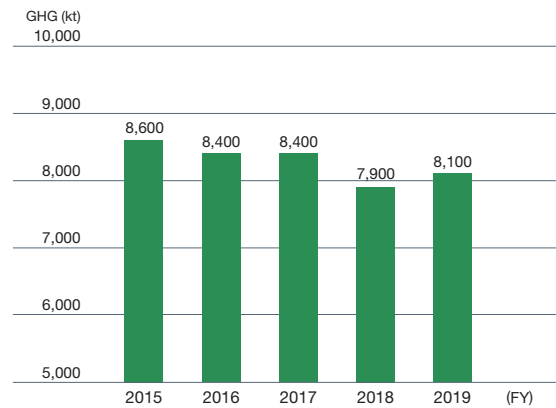
In line with the target set by Mitsubishi Chemical Holdings of reducing greenhouse gas emissions at least 17% compared with fiscal 2005 levels by fiscal 2015, MCC worked to cut its greenhouse gas emissions and achieved the fiscal 2015 target. We have maintained emissions at this lower level since fiscal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

** Since fiscal 2015, energy consumption and GHG emissions have been calculated based on the GHG Protocol.

Focus Energy Saving via Solar Power Generation at the Shiga Plant

MCC's Shiga Plant (Azai Area) has installed rooftop solar panels to generate solar power. With a maximum capacity of 250 kW, these solar panels help reduce net power consumption at peak demand times in the summer, when the use of air conditioning increases demand. From their installation in 2014 to June 2019, they generated approximately 1,600 MWh (reducing CO₂ emissions approximately 696 tons). MCC will continue to use clean energy to help prevent climate change.



Solar panels at the Shiga Plant

Life Cycle Assessments

Life cycle assessment 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

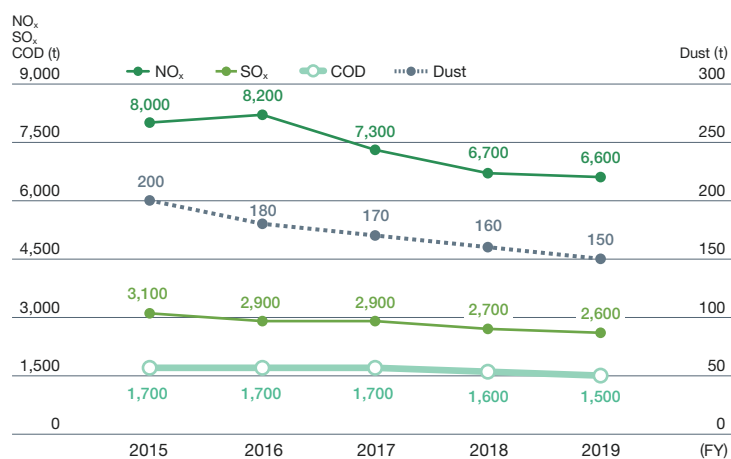
MCC handles a wide range of chemical substances and therefore maintains ongoing measures to reduce emissions of hazardous air pollutants and of pollutants into public bodies of water through such means as installing and improving emission gas and wastewater treatment facilities.

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). MCC's emissions of PRTR-regulated substances¹ and VOCs² have also been declining.

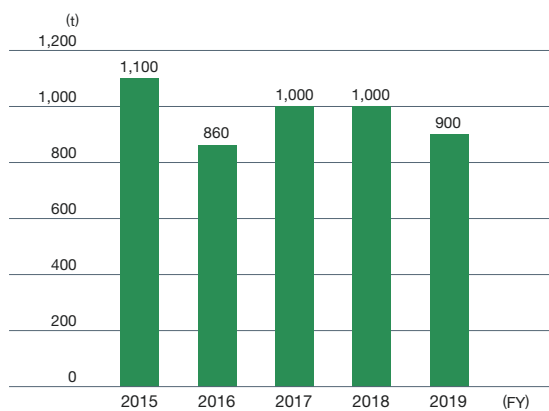
1 Pollutant Release and Transfer Register (PRTR): A system for filing notifications of the amounts of chemical substances released and transferred. This system enables the identification, aggregation and publishing of data on the types, sources and amounts of hazardous chemical substances that have been 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).

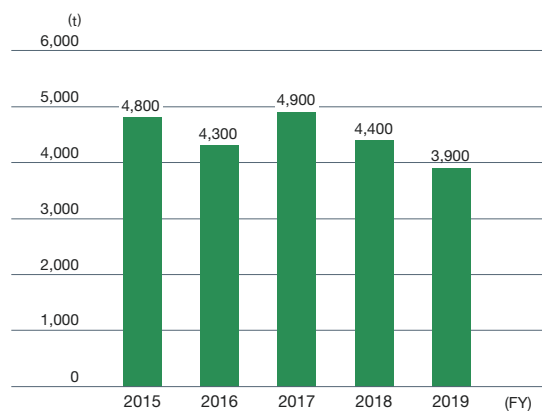
Reducing Our Environmental Burden on the Atmosphere and Public Water Sources



PRTR-Regulated Substance Emissions



VOC Emissions





Environmental Conservation

Focus Okayama Plant Carries out Environmental Education Initiatives for Local Residents

MCC's Okayama Plant invited local children on a plant tour, part of which was used for environmental education about ocean plastic issues and initiatives to solve them. In addition to providing information about plastics made with biodegradable polymers that MCC manufactures and employees' coastal clean-up activities, we taught the participants about the importance of each individual's efforts to properly sort garbage and recycle.

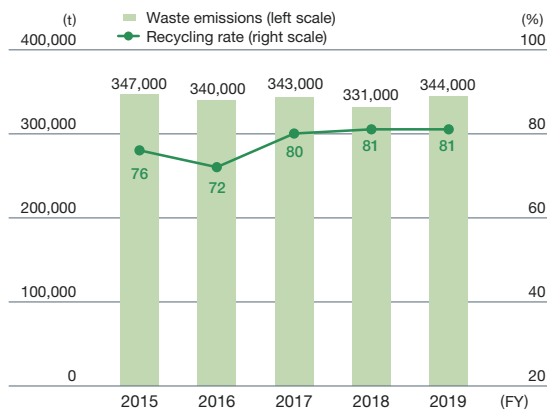


Environmental education presentation for local residents

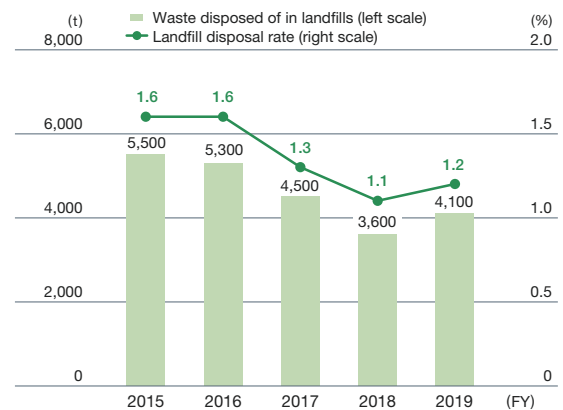
Waste Reduction and Recycling

MCC is advancing 3R activities (reduce, reuse, recycle) in an effort to reduce its industrial waste. As a result of such efforts, the industrial waste recycling rate is increasing, and the amount of waste disposed of in landfills has been decreasing. Going forward, we will continue working to improve our industrial waste recycling rate 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 the Mitsubishi Chemical Holdings Group Biodiversity Preservation 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 2019, MCC invested ¥4.7 billion in such areas as reinforcing wastewater management and air pollution prevention and incurred ¥33.4 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 ¥1.9 billion.

Investment and Expenses Related to Environmental Conservation and Process Safety

Environmental conservation costs				(Millions of yen)	
Category		Main initiatives	FY2019		
			Investment	Expenses	
Costs within business areas	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.	3,746	17,242	
	Global environmental conservation costs	CO ₂ emissions reduction, operational improvement, etc.	355	958	
	Resource-recycling costs	Industrial waste reduction, proper waste disposal, resource conservation, energy conservation, etc.	452	7,504	
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	1,945	
Environmental conservation costs in R&D activities		R&D for increased productivity	0	4,806	
Environmental conservation costs in social contribution activities		Construction and upkeep of factory green spaces	114	389	
Costs of dealing with environmental damage		Cleanup of contaminated soil, etc.	0	53	
Other environmental conservation-related costs			1	550	
Total			4,667	33,446	

Positive economic effects		(Millions of yen)
		FY2019
Income from recycling		1,176
Energy cost savings		382
Income from resource conservation		306
Total		1,864