Initiatives to Reduce Environmental Impact

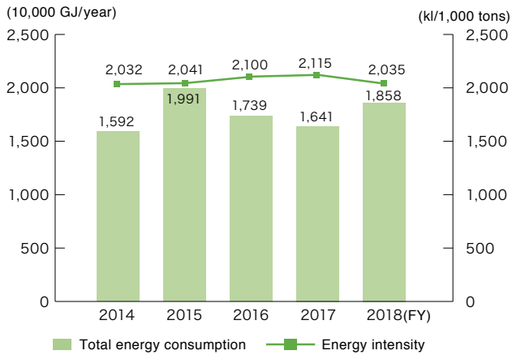
We use significant amounts of electricity and fossil fuels in the manufacturing process and emit soot and smoke. For this reason, we are actively working on energy-saving measures and to reduce the environmental impact on the atmosphere and water.

Curbing global warming and energy conservation measures

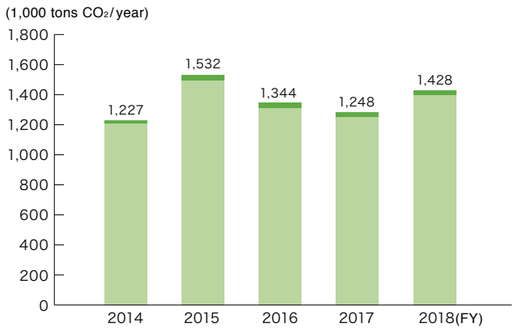
In the manufacturing process, we are working on the efficient use of energy, such as using high temperature exhaust gas from the electric furnace for the drying process of nickel ore, reducing the amount of fuel oil and liquefied natural gas (LNG) used.

Total energy consumption and CO_2 emissions in FY2018 both increased compared to FY2017 due to increased production, but energy consumption per unit of production (energy intensity) decreased by 3.8%. This is thought to be due to the improvement in processes to improve energy efficiency in addition to the improvement in thermal efficiency as production volume increased.

■ **Total energy consumption**



■ **CO_2 emissions**

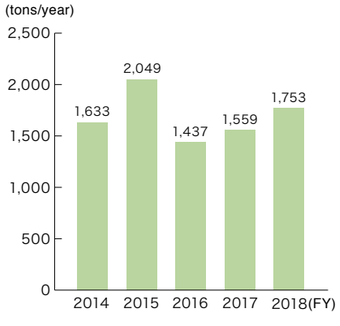


Air pollution control measures

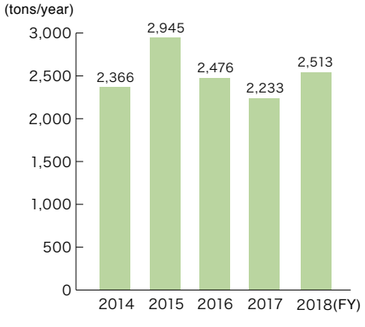
In order to control the smoke generated from the manufacturing process and our own power generation facilities, we have implemented measures such as continuous monitoring with telemeters and upgrading of gas emission measuring devices, as well as raising employee awareness through communication of management conditions for the value of voluntary controls and education on regulatory compliance. In addition, we combat the dispersion of dust through 24-hour water spraying of the storage yards and on-site road surfaces and continuous surveillance with dust monitors. In FY2018, air pollutant emissions increased with increased production. We will continue to work on smoke control.

Exhaust gas measurement education

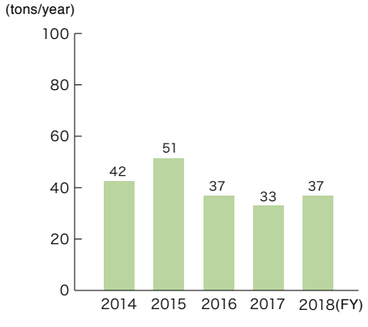
■ **SOx emissions**



■ **NOx emissions**



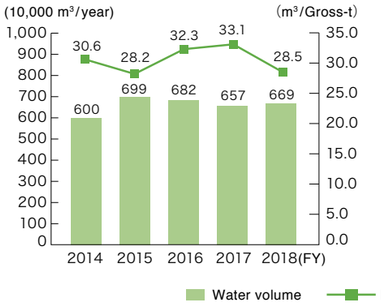
■ **Dust emission**



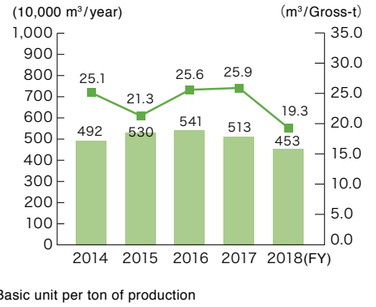
Water pollution control measures

We are working to reduce water consumption by using re-circulating water to cool electric furnaces and ferronickel slag. Regarding drainage, in addition to periodic inspections, we carry out thorough day-to-day management via real-time monitoring, using continuous monitoring systems, and employee patrols. In addition, wastewater treatment facilities are appropriately managed, such as by adjusting the amount of treated water when the turbidity concentration rises during rainfalls. In FY2018, drainage did not exceed agreed levels.

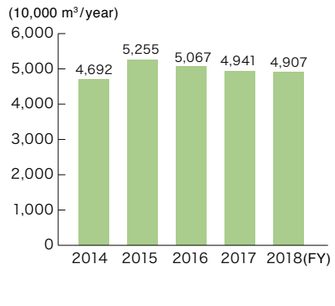
■ **Water supply amount**



■ **Total drain water volume**



■ **Recycled water volume**

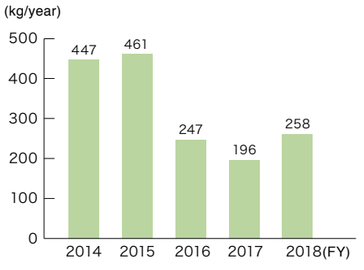


Proper management of chemical substances

In accordance with the Pollutant Release and Transfer Register (PRTR) system, emissions and transfers of substances subject to notification are recorded and reports sent to the government every year. In FY2018, there were four substances subject to PRTR notification as shown in the table. For chemical substances, we manage the purchase, use, and storage volume, and are working to reduce the use of hazardous substances. In FY2019, we plan to introduce a chemical management system and implement even more thorough management.

Nickel compounds discharged from the ferronickel manufacturing process are one of our most important management items, and we have put in place measures such as the installation of dust monitors, 24-hour watering, and use of a motorized sweeper for cleaning.

■ **Nickel compound emissions**



■ **Substances subject to PRTR notification in FY2018**

		Nickel compounds (kg/year)	Chromium and trivalent chromium compounds (kg/year)	Manganese and other compounds (kg/year)	Dioxins class compounds (mg/year)
Emission volumes	Atmospheric	209	71	46	0.00015
	Waterways	49	0	0	0
	Soil	0	0	0	0
	Landfill	0	0	0	0
Transfer volumes	External waste	0	0	0	18

Observance of environmental laws and regulations

Based on the Act on Rational Use and Appropriate Management of Fluorocarbons, we regularly inspect industrial air conditioners and refrigeration equipment, etc. owned by our company. No leaks that required reporting were found in the inspections.

For waste incinerators, which are classified as mercury discharge facilities under the Air Pollution Control Act, we measure the total mercury content in exhaust gases in accordance with the Act.

We also contract out for appropriate disposal of mercury-containing product waste (fluorescent lamps, etc.) designated by the Waste Management and Public Cleansing Act. In addition, for machines that contain polychlorinated biphenyls (PCBs), we are working to eliminate treatment with oil containing trace amounts of PCB for large transformers.