



Waste Reduction

Reduction of Final Disposal Volume

Issues/Targets and Results

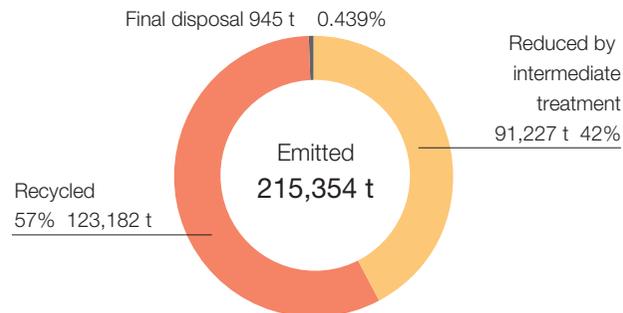
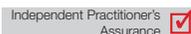
P	Fiscal 2017 Targets	D	Results	C	A	Evaluation/ Improvements	P	Fiscal 2018 Targets (Plan)
	Attain final disposal (landfill) volume of industrial waste at all refineries, the petrochemical plants of 0.5% or lower		Attained final disposal (landfill) volume of industrial waste at all refineries, the petrochemical plants of 0.5% or lower			Goal achieved		Attain final disposal (landfill) volume of industrial waste at all business sites of 1.0% or lower

Waste Reduction in the Manufacturing Sector

As part of efforts led by Nippon Keidanren to create a recycling-oriented society, the petroleum industry and the petrochemical industry are each setting voluntary targets*1 for reducing the landfill waste volume of industrial waste. Because Idemitsu has already attained these targets, we have set an even higher target and have been working to maintain the industrial waste ultimately deposited in landfills at or below 1.0% of the volume of waste generated at all refineries and petrochemical plants. In fiscal 2017, all refineries were able to achieve this target. However, the final disposal volume of our petrochemical plants was 2.0% of the waste they generated (total of Chiba Complex (Chemicals) and Tokuyama Complex) due to an increase in final disposal volume at the Tokuyama Complex. This is mainly due to the fact that we began processing material generated by the removal of facilities at the former Tokuyama Refinery (Tokuyama Complex), including its oil refining equipment, which shut down in March 2014.

*1 Voluntary Targets for Reducing the Final Disposal (Landfill) of Industrial Waste: (1) The petroleum industry (Petroleum Association of Japan): Reduce the final disposal (landfill) of industrial waste by more than 94% in fiscal 2010 versus fiscal 1990 level. Along with this, realize zero emissions of industrial waste as an independent industry target. Zero emissions is defined as an industrial waste landfill disposal rate of 1% or below. Final disposal (landfill) rate = Final disposal volume/volume of industrial waste generated. (2) Petrochemical Industry (Japan Chemical Industry Association: general incorporated association): Reduce outsourced final disposal (landfill) of industrial waste by 40% in fiscal 2010 versus fiscal 1990 level. Raise the amount of recycled industrial waste in fiscal 2010 by 15% versus fiscal 1990 level.

FY2017 Breakdown of Industrial Waste Treatment



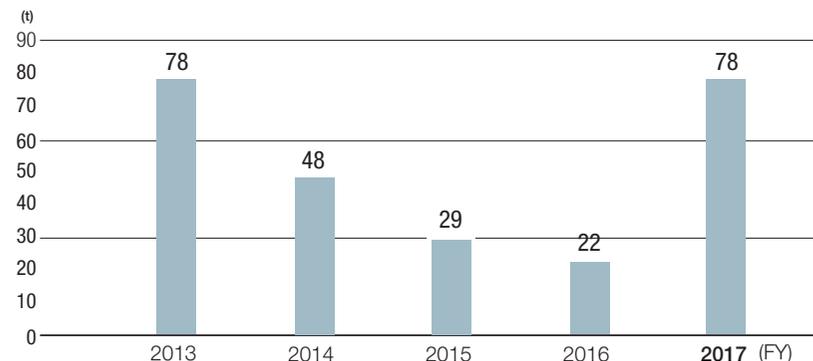
Scope of tabulation: The Hokkaido Refinery, Chiba Complex (Petroleum), Aichi Refinery, Chiba Complex (Chemicals), the Tokuyama Complex, Prime Polymer Co., Ltd.'s Anesaki Works, and Cray Valley Idemitsu Corporation (As of October 2017, the Chiba Refinery and Chiba Petrochemical Plant have been reorganized into the Chiba Complex. Within this report, each facility is referred to as the Chiba Complex (Petroleum) and Chiba Complex (Chemicals).)

Final Disposal (Landfill) of Industrial Waste



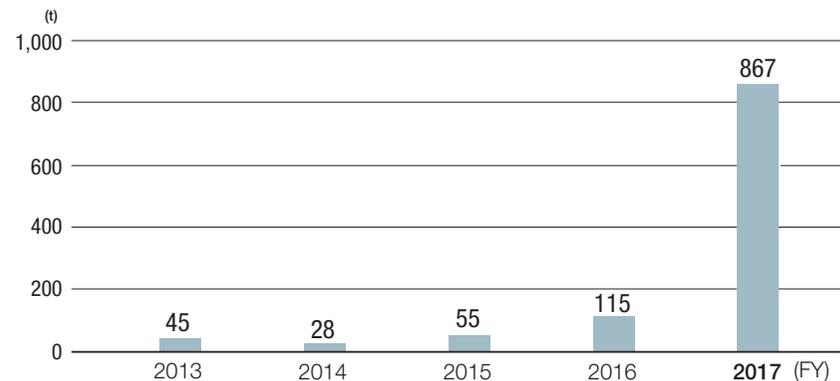
(Includes general business waste and valuable material in some cases)

Refineries



Scope of tabulation: Fiscal 2013: the Hokkaido, Chiba, Aichi and Tokuyama refineries
 From fiscal 2014 to 2016: the Hokkaido, Chiba and Aichi refineries
 Note: As of October 2017, the Chiba Refinery and Chiba Petrochemical Plant have been integrated into the Chiba Complex.
 Within this report, "Chiba Complex" refers to the combined total of the previous Chiba Refinery and Chiba Petrochemical Plant; "Chiba Complex (Petroleum)" refers to the previous Chiba Refinery only; and "Chiba Complex (Chemicals)" refers to the previous Chiba Petrochemical Plant only.
 Fiscal 2017: Hokkaido Refinery, Chiba Complex (Petroleum), Aichi Refinery

Petrochemical Plants



Scope of tabulation: Fiscal 2013: The Chiba and Tokuyama petrochemical plants, Prime Polymer Co., Ltd.'s Anesaki Works, and Cray Valley Idemitsu Corporation
 From fiscal 2014 to 2016: the Chiba Petrochemical Plant, the Tokuyama Complex, Prime Polymer Co., Ltd.'s Anesaki Works, and Cray Valley Idemitsu Corporation
 Note: As of October 2017, the Chiba Refinery and Chiba Petrochemical Plant have been integrated into the Chiba Complex.
 Within this report, "Chiba Complex" refers to the combined total of the previous Chiba Refinery and Chiba Petrochemical Plant; "Chiba Complex (Petroleum)" refers to the previous Chiba Refinery only; and "Chiba Complex (Chemicals)" refers to the previous Chiba Petrochemical Plant only.
 Fiscal 2017: Chiba Complex (Chemicals), Tokuyama Complex, Prime Polymer Co., Ltd.'s Anesaki Works, and Cray Valley Idemitsu Corporation



Recycling of Catalysts*2

Our refineries use approximately 2,000 tons of catalysts annually in the process that removes sulfur from heavy oil. Used catalysts with reduced desulfurization activity are regenerated by an outside contractor and used again at our refineries. Utilizing regenerated catalysts allows us to reduce the use of new catalysts by about 20%.

Moreover, these catalysts that can no longer be used for desulfurization sometimes contain rare metals like molybdenum and vanadium, which can be sold as valuable resources. Idemitsu properly processes them in line with external recycling demand.

*2 Catalyst: A substance that accelerates a specific chemical reaction without being modified (consumed) in the process. Catalysts play an important role in the production process of petroleum products and petrochemical products.

Recycling of Petrochemical Products

Departments handling plastic processed products are promoting the development of easily recycled products made from single-plastic resins and from recycled materials. We have also established a recycling system for used plastic containers. These containers are used as ink containers and for other purposes.

Reducing Waste at Service Stations

We distribute our Service Station Industrial Waste Management Manual to Idemitsu service stations to ensure compliance with relevant laws and regulations. Among the waste generated at service stations, we instruct service stations that used tires be collected for recycling by tire sales companies and industrial waste hauling companies, while used batteries be collected for recycling by the Lead Acid Storage Battery Recycle Association.