

Pollutant Control and Waste Management

Cosmo Oil works to reduce environmental impacts by properly controlling pollutants and minimizing and recycling industrial waste.

Policy

The Group's refineries discharge exhaust gases and wastewater subject to control by the Air Pollution Control Law and the Water Pollution Control Law, respectively. Additionally, the refineries handle chemical substances that are specified in the Pollutant Release and Transfer Register Law. When the Cosmo Oil Group recognizes that measurable quantities of gas emissions and wastewater from its operations are nearing the maximum levels set by the Company, efforts are taken to prevent this ceiling from being reached.

In fiscal 2007, relevant authorities inspected the Chiba, Yokkaichi and Sakaide refineries as a result of cases in other industries in which air quality data was falsified. No significant findings were uncovered by these inspections.

The Group undertakes environmental impact assessments when installing large facilities or undertaking large-scale engineering work in accordance with relevant laws. For industrial waste, Cosmo Oil sets its own targets to reduce the volume of waste generated and to reduce and recycle excess sludge.

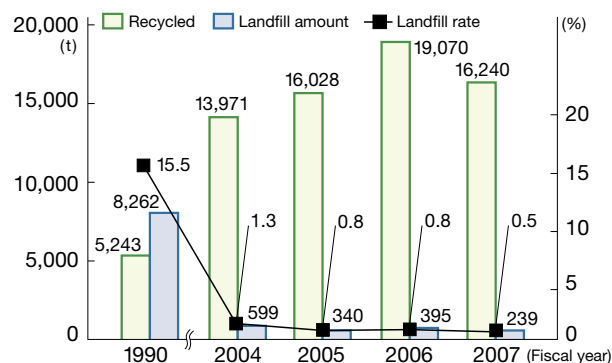
Striving to Achieve Zero Industrial Waste

In fiscal 2007, the Group's refineries made efforts to encourage the reuse of sludge as cement materials and materials for road beds, thereby decreasing the amount of waste. As a result, the Company reduced landfill produced by 97.1% over fiscal 1990 levels for a landfill rate of 0.5%. This met the target of the Petroleum Association of Japan's voluntary action plan.* Initiatives to reduce waste in oil depots and research centers were also successful, resulting in 244 tons of landfill for a landfill rate of 0.5% in fiscal 2007, reaching the target rate of less than 1% set in the Consolidated Medium-Term Environmental Plan. Cosmo Oil's subsidiaries and affiliates have also individually established their own targets and made efforts to reduce industrial waste materials.

*Petroleum Association of Japan's voluntary action plan

- 94% decrease in landfill production amount over fiscal 1990 levels in fiscal 2010.
- Landfill rate under 1%.

◆ Trends in the Volume of Industrial Waste at Four Refineries



Reducing Excess Sludge

Excess sludge discharged from wastewater treatment facilities accounts for the largest portion of all industrial waste in Japan. Sludge also makes up 57% of industrial waste generated at Cosmo Oil's refineries, and therefore, managing this sludge is extremely important. Up to the present, we have been researching* technologies for reducing excess sludge generated at refineries and have achieved large reductions in excess sludge at the Chiba and Sakaide refineries.

*Research is being carried out as a project supported by the Japan Petroleum Energy Center (JPEC).

Column

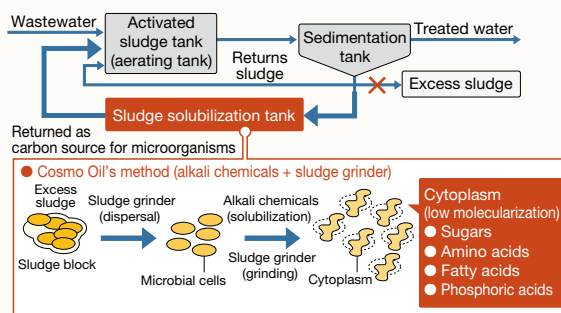
Development of technology for reducing excess sludge

The excess sludge discharged from wastewater treatment facilities accounts for the largest proportion of industrial waste. Cosmo Oil has developed efficient sludge volume-reduction technologies that combine physical crushing using a grinding machine with alkali chemical treatment.

Based on these technologies, Cosmo Oil participated in the JPEC project beginning in 2001, and began to operate sludge reduction facilities at the Sakaide Refinery in 2002. Since then, stable operation of this equipment has achieved an excess sludge reduction rate of 50%.* In addition, Cosmo Oil, in cooperation with another major Japanese company, developed and delivered the device to a major Japanese chemical manufacturer in fiscal 2006, and has reduced excess sludge by more than 80% in its operations. The Chiba refinery is serving as the test site for ongoing research to develop technology that will reduce excess sludge by more than 90%.

*Cosmo Oil received the Japan Petroleum Institute Award for Technological Progress in fiscal 2006 for this achievement.

◆ Fundamental Principle of Volume Reduction



◆ Flow of Industrial Waste at Four Refineries

