

Basic Chemicals Segment

Review of Operations

The Idemitsu Group uses naphtha, either acquired from crude oil refining processes at our refineries or imported, as the feedstock to manufacture and sell various petrochemicals, including olefins (such as ethylene and propylene) and aromatics (such as benzene, styrene monomers, mixed xylene, and paraxylene). We supply naphtha to companies based in the Chiba and Tokuyama Complexes in Japan as well as to companies overseas. In addition, we maintain Group manufacturing bases in Malaysia and Vietnam as we expand business globally.



Social Issues

- Stable supply of basic feedstock for petrochemicals indispensable to daily life
- Shift to a sustainable business that helps reduce plastic waste and GHGs

Risks

- Flood of low-cost ethylene derivatives made from North American shale gas and oil into the Asian market
- Economic slowdown and lower demand due mainly to prolonged U.S.-China trade tensions and effects of the COVID-19 pandemic
- Lower demand for and tougher regulations on general-purpose plastics due to the marine plastic problem

Strengths

- Business development leveraged by integrated oil refining and petrochemical manufacturing
- Top-level ethylene production capacity in Japan and a supply network serving customers located in petrochemical complexes

Opportunities

- Growing demand for petrochemicals amid economic development and population growth in Asia regions
- Potential to use highly cost-competitive overseas feedstocks, such as North American shale oil and gas
- Creation of markets due mainly to changing lifestyles in Japan and growing demand for functional plastics

Business Environment

In recent years, it is installed new petrochemical production equipment, mainly in China, and continue to progress with the installation of a new cracker for North American shale oil. The supply and demand balance has deteriorated due mainly to economic stagnation caused by the COVID-19 pandemic, which began in early 2020. Although some regions are seeing signs of recovery, the effects are expected to persist going forward. Over the medium to long term,

due to population growth and an expanding middle class in emerging countries and Asian regions, we expect global demand for basic chemicals, including ethylene, to continue growing.

Plastic, however, is one petrochemical end-product. Amid increasing concern over the impact of plastic waste on ecosystems and marine pollution, governments and industrial groups are being called on to work together to minimize and reuse waste.

Medium-term Management Plan

To further stabilize the revenue base of our domestic business, which is underpinned in part by the Basic Chemicals Segment, we are working to restructure our existing businesses, appropriately respond to business risks, and globally develop new businesses.

We are promoting operations that are integrated with those of the petroleum and basic chemical businesses. To this end, we will continue considering and implementing specific measures to help stabilize the business base and expand revenue, such as further promoting effective production at refineries and complexes across Japan and adjusting the transfer of oil fractions, while carefully assessing the external environment, including assumptions that petroleum demand will decline and chemical demand will remain firm due to the pandemic. At the same time, we are continuing to maximize integration synergies, for example, by optimizing logistics functions through the rationalization of supply bases and sales channels for propylene, aromatics, and solvents and the establish-

ment of a new distribution center.

To help enhance the competitiveness of our petrochemical complexes, we are systematically promoting investment with plans to finish construction and upgrade to highly efficient naphtha crackers at the Tokuyama Complex in FY2020. When the crackers come on line, we expect to realize a 30% improvement in energy savings.

In conjunction with the aforementioned structural reforms, going forward we will continue strengthening our alliances with other companies at the Chiba and Shunan petrochemical complexes, as well as enhancing our cost competitiveness by diversifying our feedstocks (producing chemicals from gas and other sources rather than naphtha, our main feedstock). Overseas, we will continue considering the potential of new businesses, such as partnerships with other companies, based on expected supply and demand in North America and Asia and the needs of each country.

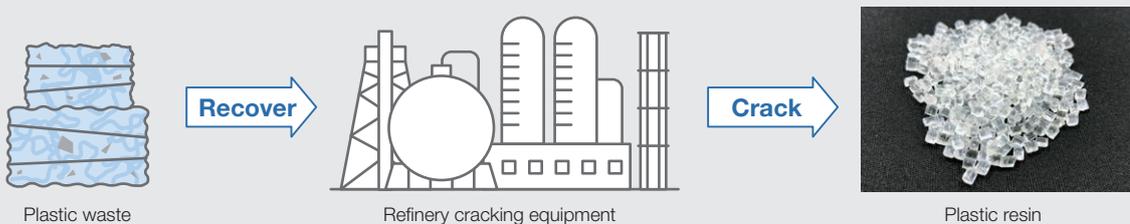
Recycling Plastic Waste



In FY2019, we launched the Material Circular Economy Working Group as an in-house organization. The working group has been promoting specific company-wide initiatives to solve problems. One example is considering and implementing measures to collect data from the industrial groups we have joined and to spur collaboration between government and industry.

Addressing the plastic waste problem, we are working to

realize a circular business that uses our oil refining cracking equipment to revert waste plastic into chemical feedstock. We have been testing experimental equipment since FY2019 with the aim of starting commercial operations in FY2022. Once operations begin, we expect to be able to process 10,000 tons of plastic waste per year.



HIGHLIGHTS

Addressing the Marine Plastic Problem

The marine plastic problem affects all companies in the supply chain, and we have joined two industry groups and begun shar-

ing and searching for data. In addition, we are working to raise awareness of the marine plastic problem in-house.

■ Japan Initiative for Marine Environment (JaIME)

This initiative was established by five groups in Japan's chemicals industry: the Japan Chemical Industry Association, the Japan Plastics Industry Federation, the Plastic Waste Management Institute, the Japan Petrochemical Industry Association, and the Vinyl Environmental Council.

■ Japan Clean Ocean Material Alliance (CLOMA)

361 companies and groups from the plastic supply chain have joined this alliance as of August 27, 2020.

HIGHLIGHTS