



Refiner boosts profits by using MIDW™ catalyst technology to meet cold-flow specifications in new markets

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Challenge

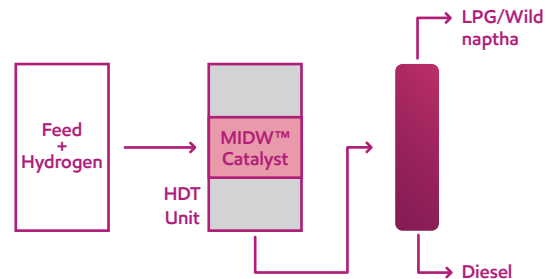
A Greek refiner needed to expand exports of automotive diesel oil beyond the saturated market in Greece. Northern markets, especially nearby Balkan countries, offered opportunities for ULSD (ultra low sulfur diesel) exports, if the refiner could meet the more stringent cold-flow specifications. While specifications in Greece required cold filter plugging point (CFPP) -5°C in winter and $+5^{\circ}\text{C}$ in summer, northern Balkan markets demanded -15°C or even lower during cold months.

At the refinery, engineers used additives to reduce cloud and pour points, as well as CFPP, but still could not profitably meet specifications. The refiner contacted ExxonMobil Chemical Company's Catalyst and Licensing business unit seeking a solution to help them profitably produce ULSD for export.

Solution

After analyzing the challenge, ExxonMobil engineers recommended installing a bed of MIDW catalyst in the HAGO (Heavy Atmospheric Gas Oil) hydrotreater, which was designed to accommodate the installation. MIDW technology uses a proprietary shape-selective catalyst for isomerization to convert normal paraffins to isoparaffins. Utilizing a drop-in solution, MIDW is easily integrated with other technologies and existing plant equipment at diesel-producing refineries.

ExxonMobil suggested one minor modification to the reactor, including adding a treat gas quench line and a quench nozzle in the inter-bed area to allow for quenching during warm months. The MIDW catalyst was loaded in sour mode replacing less than one-third of the hydrodesulfurization (HDS) catalyst.

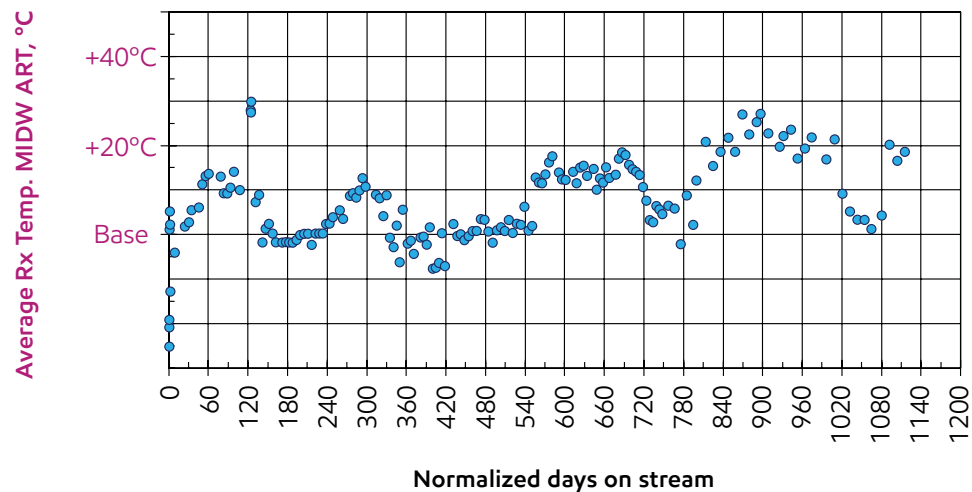


Result

The MIDW catalyst technology helped the refiner achieve its goal of producing high-quality ULSD that meets cold-flow specifications in northern markets. The MIDW catalyst enabled the refinery to produce CFPP at -15°C to -20°C, with the aid of additives, opening new markets in the Balkans. The catalyst cycle exceeded 1,000 normalized days.

By reaching new, northern markets that previously had been closed, the refiner achieved significant profits, exporting more than 30 percent of diesel production as ULSD instead of as lower value heating oil. MIDW technology helped improve the refiner's profitability.

Refinery's MIDW™ operation



MIDW™ technology proven to:

Reduce cloud point to at least

30°C

Minimize yield loss
at deep delta cloud

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