ExxonMobil is expanding the hydrocracker unit at its Rotterdam, Netherlands, refinery (above) to upgrade heavier byproducts into cleaner, higher-value finished products, including EHC™ Group II base stocks and ultra-low sulfur diesel, to meet growing global market demand.

KEITH WADDELL

Expert Insight into the Industry's Most Talked about Trend:

The Growing Use of Group II Base Stocks

Base stocks are crucial components of all finished lubricants. With the base stock percentage of a finished lubricant ranging from 80 to 90 percent, the selection of base stocks is key. These essential ingredients are not commodities and their impact on finished lubricant performance should not be overlooked. At ExxonMobil, we like to say that a finished lubricant's integrity is defined by its base stock.

As finished lubricant specifications become more stringent, conventional API Group I separation technology is not sufficient to meet necessary requirements for certain applications. These tighter specifications demand higher performing base stocks, met by the conversion of molecules. And so, finished lubes manufacturers are increasingly demanding Group II.

Driving Factors behind the Growing Role of Group II

The demand for Group II base stocks really came into play around the late 1990s. Finished lubricant manufacturers, specifically in the automotive sector, were challenged to develop product formulations that offered increased fuel economy and longer drain intervals. Improved oxidation stability and reduced volatility, largely a function of the base stock used, are key to meeting these technical requirements. These engine oil performance requirements have continued to become more stringent around the globe, driving the growth in demand for Group II.

During the same period, greater demand for diesel fuel has driven increasing investments in hydrocrackers, which established a platform for Group II production growth.

With a lower cost to produce from hydrocracking and catalytic dewaxing technology, and with a drive to meet a wide variety of applications, Group II

In June 2016, ExxonMobil and government leaders gathered at its Rotterdam, Netherlands, refinery (above) to break ground and begin construction of a new hydrocracker.

Underscoring the company's commitment to investing in new manufacturing capacity, ExxonMobil completed a Group II expansion project at its Baytown, Texas, refinery (above) in 2015.

ExxonMobil's Jurong, Singapore, base stock refinery (above) has been serving the Asia-Pacific market with additional Group II capacity since the refinery's expansion was completed in early 2015.

base stocks are becoming the "workhorse" grade of the industry.

Market-Specific Trends & Outlook

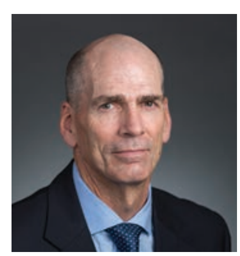
The penetration of Group II base stocks differs across regions. North America led the growth, driven by its large engine oil market needs. Asia Pacific followed, with Group II meeting the general growth in the region. Western Europe has seen slower penetration because the area has not had large quantities of local Group II production; therefore, Group III has been used in applications where Group II can provide the same desired quality. While original equipment manufacturer requirements in Europe have been largely met by Group III, Group II has a cost advantage and is more fit for purpose for target applications. As a result of the global need for Group II, finished lubricants blenders look to secure reliable supplies of consistent quality base stocks.

ExxonMobil, for example, produces Group II base stocks that have a high level of compatibility with specification requirements globally. This compatibility helps reduce operational complexity by enabling single formulations around the globe without the need for costly re-qualification in each region. ExxonMobil's recent Group II investments in Baytown, Texas; Jurong, Singapore; and Rotterdam, Netherlands, demonstrate the company's commitment to providing a reliable, global supply of base stocks and continuous innovation in Group II manufacturing technology.

In fact, ExxonMobil's investment in Rotterdam represents the first world-scale production site of Group II in Europe and will become a major asset in the company's global network to support evolving customer quality requirements. Construction began this June and production is expected to commence in 2018. Upon start-up, ExxonMobil will be the largest Group I and Group II base stock producer in the world, with significant manufacturing assets spanning three continents.

Long-term View on the Base Stock Industry

Looking ahead, the finished lubricants industry will need to address important issues such as demand for higher quality products, greater lubricant complexity, and expanded global supply chains. Since quality finished lubricants are built on quality base stocks, producers of base stocks will play a key role in addressing the industry's growing needs. ExxonMobil is uniquely positioned to provide solutions and meet those needs. □



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