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Media Release - Base Oils

Base Oil Supply Said to Depend on Fuels

Base stock supply is likely to remain tight until demand for (aviation) fuels picks up again, an industry insider told attendees of the ICIS World Base Oils & Lubricants Live virtual conference yesterday. As long as supply is short, it will likely exert upward pressure on prices.

In the second half of 2020, "the economics of fuels refining clashed with the economics of base stock refining," resulting in higher base stock prices, said Victor Martinez, global base stocks and specialties sales director with Exxon Mobil Fuels & Lubricants. Martinez recently replaced David Parsons, who has retired.

To explain this phenomenon, Martinez reminded us that refiners must purchase 10 barrels of paraffinic crude oil to make one barrel of virgin paraffinic base stock. The crude is run through distillation units and vacuum processing, resulting in eight barrels of intermediate feedstock for diesel, jet fuel (aviation) and gasoline. The remaining two barrels are vacuum gas oil, the feedstock for base oils.

After processing, about half of the VGO becomes base oil, while the rest is destined to go back into fuels applications, Martinez noted. "So you can see how much smaller the base stock production is relative to fuels, and how difficult that makes it for a base stock refiner to overcome fuels refining economics," he said. "As fuels margins are negative, it puts a tremendous amount of pressure on the base stock market to cover all nine barrels of the rest of that fuels production."

Only six virgin base oil refineries in the world are not integrated into a larger fuels refinery, according to Amy Claxton, CEO of My Energy Consulting.

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The impacts of the novel corona-virus were first felt a year ago in China and quickly spread around the rest of the world. Road and air travel ground to a near halt, and industrial production slowed, resulting in a sudden drop in demand for fuels products. Refiners had less need to buy crude for processing, which reduced the availability of feedstock to run base oil units, Martinez recounted.

At the same time, drivers needed less frequent oil changes, and industrial lubes demand slowed. "Global finished lubricant demand dropped hard in April and May, and base stock demand followed suit," he said. "The drop in base stock demand coincided with the drop in base stock production, and the resulting global markets were approximately balanced in the first half of 2020."

While demand for finished lubes began to recover in the summer, fuels demand remained depressed. According to Martinez, last year's drop in refining margins was worse than during any previous economic crisis.

Refiners have reacted to the low margins by shutting down entire refineries, closing units within refineries, and converting to terminals and future bio-fuels production. But fuels remain oversupplied, so production cutbacks also remain.

By the second half of the year, demand for fuels was still low, but lubricant demand had recovered – close to pre- COVID levels in some markets, such as China, Martinez said. "Specifically, there has been demand growth in the use of Group I base stocks, targeted at the industrial sector," he later told Lube Report.

The increased demand for base stock, amid low refinery run rates, has put upward pressure on base oil prices.

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“On top of the limitations to base stock supply as a consequence of the fuels environment, we are also seeing a heightened maintenance period, as a handful of planned base stock unit maintenance events across the industry were delayed from 2020 into 2021 as a direct consequence of COVID,” further tightening supply in the near term, he explained.

When the market will lengthen depends on how long the stunted fuels demand persists, Martinez said. The longer fuels margins remain low, the longer feedstock availability will remain tight – and the more difficult it will be for refineries to remain in business.

Multiple projections show fuels demand rising through 2022 but vary as to when the recovery is complete. Exxon Mobil expects that demand for liquid hydrocarbons, including fuels, will recover to 95 million to 110 million barrels per day in that time frame, dependent upon various factors, such as vaccine roll out programs, government support and less restrictive lock-downs, Martinez said.

“Once the fuels industry is recovered, the base stock industry will recover, right? Maybe, maybe not,” Martinez cautioned. Exxon Mobil estimates a 100,000 barrel-per-day oversupply in the base stock market dating from 2019, along with essentially flat lubricant demand. For some base oil producers, a return to the low margins seen in 2019 could force additional rationalization until the market is more balanced, he said.

Later, he adopted a more optimistic tone: “We believe that if more mature markets return to normalcy, by the second half of 2021, due to an efficient vaccine roll out program and less restrictive lock-downs, we anticipate fuel demand to improve, refineries to run again and base stocks supply to recover.”

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