EVs bring new opportunities for metalworking fluids in the United States

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The age of the internal combustion engine (ICE) is slowly fading, and the electric motor is the heir apparent upon which governments across the world have bestowed their blessings.

However, debate swirls around the timing of the ICE's decline and the resulting impact on lubricant demand. Recognising this uncertainty – as well as the fact that drivetrain lubricants will not be the only fluids affected – the North America-based Independent Lubricant Manufacturers Association (ILMA) commissioned a study by Kline & Co. to examine these questions in depth.

The most likely scenario for the United States follows major automakers' goals of 50% electric vehicle (EV) sales by 2030-2035. Penetration of the entire vehicle parc will be gradual, but the impact on passenger car engine oil (PCMO) is already being felt. Thirst for engine oil in the U.S. will decline 14% from 2021 to 2030. The drop becomes steeper after 2030 as battery-electric vehicle sales eclipse hybrid sales, reaching a 45% reduction in PCMO by 2040.

The commercial automotive segment will not escape a similar fate, though there is a significant delay in electrification between consumer and commercial vehicles.

Metalworking fluids (MWF) also face waning demand as EVs rise. Electric motors do not contain the bearings, gears, camshafts and engines that require large volumes of MWF to produce, allowing battery-electric vehicle production to consume one-third less MWF per vehicle than traditional models. The U.S. is the world's second-largest market for vehicle production after China, and the consumer automotive sector currently accounts for nearly a third of all MWF used in North America.

Metal removal fluids, specifically, will be most impacted, as they account for 60% of the MWFs used in passenger car manufacturing. Demand for protecting and treating fluids will experience a slight reduction in volume, while forming fluids – used to make car bodies – will remain unchanged.

There is a bright spot in the short term: MWF demand will actually increase over the next 5 to 10 years as vehicle production increases in the U.S., peaking in 2030. Additionally, swiftly expanding EV charging infrastructure will require more fluids for production of fabricated metal products, while wire drawing fluids get a bump from both charging stations and EVs themselves.

Demand for lubricants used in battery-electric vehicles will also get a bump of 15%-17% per year through 2040, including EV-specific coolants, greases and transmission fluids.

Europe and North America are similar in terms of technologies, stages of development and projected adoption rates of EVs. While Europe has the most aggressive EV sales penetration targets, the fleet of vehicles turns over at a slower rate.

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