

PAO — Down, but not out

By THOMAS F. GLENN

For close to 25 years, lubricants formulated with polyalphaolefin (PAO) had nearly exclusive rights to wear the "synthetic" label in the U.S. automotive market. This label became synonymous with high quality, high performance and high price.

Synthetic lubricants carved out a niche of close to 3 percent in passenger car motor oil (PCMO), and

1 percent in the heavy-duty automotive segment. In addition, synthetic lubricants wove their way into virtually every product category of industrial lubricants. In total, synthetics captured just under 3 percent of the lubricants business in the U.S.

Although a relatively small fish in a big pond of total lubricant sales, synthetic passenger car

motor oil enjoyed double-digit growth for nearly two decades. Many believed its growth was limited only by the availability of its feedstock, decene, and the time necessary for specifications to evolve to a point where PAO would be required, or the value-to-cost ratio would favor wider use.

The future of PAO in motor oils, however, changed virtually overnight. Precipitated by a challenge to Castrol's use of hydrocracked Group III mineral oils as a "synthetic" base stock, a 1999 ruling by the National Advertising

Division of the Council of Better Business Bureaus broadened the definition of synthetic lubricants to include Group III base stocks. With Group III granted the right to wear the "synthetic" label — and a cost differential of \$1.50 to \$2.00 a gallon in favor of Group III — most large lubricant producers moved quickly to replace PAO with Group III base stocks in their synthetic PCMO formulations. Mobil 1 was the most notable exception.

The switch proved to be a hard hit for PAO. Group III quickly displaced an estimated 7 million gallon of PAO in PCMO. This represented a loss of nearly 20 percent of total PAO sales in lubricants, and 40 percent in PCMO.

What we need to know is that PAO may be down, but it is not out.

Although PAO has taken a beating in the automotive segment, some of the wounds could heal with time. Passenger car and heavy-duty motor oil specifications will continue the march towards improved fuel economy, extended drains, reduced emissions, and other more challenging performance requirements. This march has already moved PCMO up the quality continuum for the work-horse viscosity grades and is now in a space that favors Group II+ and III.

As the quality march continues, prodded by auto and



engine manufacturers, it will test the mettle of both Group III and PAO. Although performance of these base stocks is exceedingly close by most meaningful measures, PAO has a significant advantage in low-temperature performance. This could prove to be the handhold needed to pull base stock demand out of the Group II+III space and into PAO territory. Market development will be slow, but auto makers specifying the use of 0W-30 and 0W-20 engine oil would drive such a victory. Since PAO may be the only show in town to meet the cold-cranking specification for these grades, ultimately this could result in a prize for PAO bigger than the one it lost in its first major battle with Group III.

In the interim, Group III is expected to hold firmly to the market share it captured from PAO in passenger car motor oil over the past four years, and possibly even score a few more significant victories due to its very attractive value-to-cost ratio.

Even beyond the PCMO market, there is still a lot of life and fight left in PAO. It continues to enjoy double-digit growth in many industrial lubricant applications. Industrial end-users are far less enamored with the term "synthetic" than they are with the track record of success PAO has built handling extreme temperatures and other challenging operating conditions. PAO will continue to do battle with Group III in the industrial segment, but it remains a strong incumbent and is expected to not only hold its ground, but also grow.

PAO also continues to capture market share in

heavy-duty gear oil applications and shows promise as a means to extend drains in heavy-duty diesel engines equipped with exhaust gas recirculation (EGR).

PAO is also expected to score some victories in both automotive and industrial lubricants as moves are made to optimize additive performance. In the past, the inherently high performance of PAO did not require it to demand much of additives. Competition changes this, and there is room for improvement. By optimizing the performance of additives in PAO base stocks, suppliers of PAO-based lubricants have the potential to distance themselves from Group III in ways meaningful to the end-user.

At the end of the day, we also need to know that the battles between PAO and Group III may prove to be no more than skirmishes between two transitional period base stocks. The more formidable competitor for both is likely to be base stock manufactured by gas-to-liquid (GTL) conversion. ■



Tom Glenn is president of PetroTrends Inc., a FuelQuest company. PetroTrends is a market research and consulting firm specializing in lubricant and fuel markets, marketing and manufacturing issues. Tom can be contacted at (732) 494-0405, or by e-mail at tom_glenn@petrotrends.com