Synthetic Lubricants & Functional Fluids

Industry Study with Forecasts for 2015 & 2020

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#### MARKET ENVIRONMENT

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#### INDUSTRY STRUCTURE

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Demand will benefit from synthetics growth in the lubricant market, as well as increasingly stringent environmental standards, and the increasing availability of new and high quality basestock capacity.

**US demand to grow 8.6% annually through 2015**

US demand for synthetic lubricants and functional fluids is forecast to climb 8.6 percent per year to $7.4 billion in 2015. Synthetics will expand their share of the overall lubricant market, propelled by the higher performance requirements of modern equipment, as well as increasingly stringent environmental standards. Gains will also be fueled by the expanding availability of high quality basestocks due to rising investment in new basestock capacity, both in the US and overseas. As the supply of these materials expands, original equipment manufacturers (OEMs) are becoming more willing to recommend the use of high performance synthetic products, particularly as OEMs make steps toward global specifications.

**Vehicle & equipment market to remain dominant**

The vehicle and equipment market will remain the largest outlet for synthetic lubricants through the forecast period. Within this market, light vehicles account for the majority of demand due to the universally synthetic nature of antifreeze, brake and deicing (windshield wiper) fluids, in addition to the rising use of synthetic engine oils and transmission fluids. Although demand in this segment will continue to rise, more rapid gains will be achieved in the medium and heavy vehicle sector. Fueling growth will be increasingly stringent greenhouse gas emissions and fuel economy regulations, which will generate greater interest in lower viscosity engine oils that can handle higher loads and perform well in higher operating temperatures.

**Engine oil to remain fastest-growing product**

Engine oil will remain the fastest-growing product type through 2015. These lubricants primarily find use in automotive applications, and will therefore benefit from a rebound in motor vehicle output from the declines of the 2005-2010 period, as well as continued gains in the number of motor vehicles in use. The adoption of the GF-5 and API SN engine oil specifications in 2010 will further promote gains. Major auto makers such as Toyota, Honda and GM now require at least some type of synthetic or synthetic blend motor oil for nearly all of their vehicles. This will drive demand for synthetics in the engine oil market. Although volume gains will be limited by lengthening oil change intervals, demand for synthetics will grow as they capture a greater share of the market from conventional formulations.

Among the various materials utilized to formulate synthetic lubricants and functional fluids, glycol fluids represented the leading category in 2010. However, glycol’s share of the market is forecast to decline due to maturity in the large antifreeze segment, along with a shift toward extended flush intervals and fill-for-life components in automotive design technology. Polyalphaolefins (PAOs) and Group III base oils are also key materials, and are projected to expand at the fastest rates through 2015.
MARKETS

Medium- & Heavy-Duty Vehicles -- Demand for synthetic lubricants and functional fluids used in medium- and heavy-duty vehicles and buses is expected to rise nearly 14 percent per year through 2015. Sales are projected to exceed $800 million in 2015, with a volume of more than 56 million gallons. Increasingly stringent environmental regulations will drive demand for synthetic lubricants as engine manufacturers and vehicle producers develop cleaner technologies that will utilize synthetic lubricants. Demand is also expected to be bolstered by a significant rebound in vehicle production following the declines experienced between 2005 and 2010. Continued increases in the medium- and heavy-duty motor vehicle park will also support demand. Moreover, fleet owners are seeking to reduce downtime and extend drain intervals, generating greater interest in synthetic lubricants and functional fluids. This will drive demand in spite of the skepticism that has historically limited demand for these products in this segment, as the traditionally conservative industry becomes more comfortable with the use of synthetic engine oils. Over the longer term, however, growth in market volume will be restrained by the use of lubricants with extended drain intervals, although this may be somewhat mitigated by increasing levels of biodiesel in the fuel supply. (Biodiesel tends to accumulate in the engine oil, which is best addressed through oil changes.)

Synthetics accounted for 15 percent of total fluid demand in medium-and heavy-duty trucks and buses in 2010. While synthetics currently represent only a small share of the market, they will become increasingly important based on their enhanced performance properties and extendability to further extend drain intervals. In terms of market valuation, transmission and hydraulic fluids, engine oils and heat transfer fluids are the most widely used synthetics in the medium and heavy vehicle segment. Engine oils are projected to offer by far the best growth prospects through the forecast period as synthetics increasingly penetrate this market. Demand for transmission and hydraulic fluids, gear oils and...

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<td>Gross Domestic Product (bil 2005$)</td>
<td>112</td>
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<td>gal oil/mil $ GDP</td>
<td>128</td>
<td>105</td>
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<td>Engine Oil Demand</td>
<td>144</td>
<td>132</td>
<td>109</td>
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<td>% synthetic</td>
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<td>$/gallon</td>
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<td>176</td>
<td>316</td>
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<td>Synthetic Functional Fluid Demand (mil $)</td>
<td>202</td>
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<td>488</td>
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SYNTHETIC LUBRICANT & FUNCTIONAL FLUID MARKET SHARE ($4.9 billion, 2010)

Others 36.2%
CLC Lubricants Company
ON902 Old Kirk Road
Geneva, IL 60134
630-232-7900
http://www.clclubricants.com

Annual Sales: $15 million (estimated)
Employment: 40 (estimated)

Key Products: semi-synthetic and fully synthetic lubricants and metalworking fluids

CLC Lubricants produces and markets industrial lubricants and metalworking fluids for a range of applications. CLC is privately held.

The Company’s lubricant and fluid offerings are synthetic and semi-synthetic types for industrial and metalworking applications. These products are typically used by fastener manufacturers, injection molders, extruders and heat treaters. Among other products, for industrial applications, CLC Lubricants produces LUBRI-MAX SYN 32 HT synthetic industrial greases. The Company’s metalworking fluids include semi-synthetic coolants in light- to moderate-duty, moderate- to-heavy-duty, and heavy-duty varieties; synthetic coolants in light- to-moderate-duty and moderate-duty formulations; CHEM FINISH synthetic fluids and CHEM FINISH skin-friendly, semi-synthetic fluids for honing/lapping and other applications; and a range of CARB “O” GRIND metalworking fluids formulated with fully synthetic bases and synthetic ester technology, superior Group II oils with proprietary synthetic ester packages, and ultra-pure synthetic fluids that can be filtered to one micron.

CLC Lubricants conducts manufacturing and other operations at a 27,000-square-foot facility in Geneva, Illinois. The Company also

“Demand for silicone-based synthetic fluids is forecast to expand 7.1 percent per annum through 2015 to $380 million, with volume rising to more than eleven million gallons. Silicone fluids will record below-average advances, with competition from less expensive mineral oil- and other synthetic-based lubricant formulations serving as a key factor restricting growth. Due to the high cost of these fluids, silicones find only limited use as liquid lubricants. Demand is generally ...”

--Section IV, pg. 114
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