World Lubricants

Industry Study with Forecasts for 2017 & 2022

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World demand to rise 2.3% annually through 2017

World demand for lubricants is expected to increase 2.3 percent per year to 43.9 million metric tons in 2017. The fastest growth will be in Asia, supported by rising vehicle ownership rates and ongoing industrialization in large countries such as China. Above average increases will also occur in South America, the Middle East, and Africa. These regions will each experience healthy economic growth, rising manufacturing output, and expanding motor vehicle parks -- all of which will support lubricant consumption. In contrast, demand will remain nearly flat in the developed countries of North America and Western Europe, where efficiency gains will offset the effects of rising economic and industrial output. Although volume growth will be restrained in these regions, lubricant suppliers will benefit from increasing demand for premium, high-value products such as synthetic and bio-based lubricants.

Agriculture, other markets to be fastest growing

Motor vehicle aftermarket demand accounts for the largest share of lubricant consumption globally. Demand for motor vehicle lubricants will increase quickly in many developing countries due to rapid growth in the number of cars and trucks in use. However, advances in lubricant quality will allow for longer drain intervals, restraining stronger growth in all regions. Demand for lubricants used in the manufacturing market will see healthy growth, driven by rising manufacturing output especially in developing countries. Asia, Eastern Europe, South America, the Middle East, and Africa will benefit from the continued shift of global manufacturing activity to these regions. Gains in other markets, including agriculture, construction, and non-motor vehicle transportation, will in the aggregate outpace those in both the motor vehicle and manufacturing markets through 2017. Healthy economic growth, investment in infrastructure and other construction, and the increasing mechanization of the economies in developing countries will result in strong performance in these markets.

Hydraulic fluids, process oils to see fastest gains

Engine oils constitute the largest share of lubricant consumption by product type. Although rapidly growing motor vehicle parks will support gains, engine oils will be subject to downward pressure from lengthening drain intervals, and as a result will grow in line with the average pace. Hydraulic fluids and process oils will see the fastest gains, due to the wide range of applications these products are used in. Like hydraulic fluids, other products such as general industrial oils, gear oils, and greases are widely used in a variety of applications and will benefit from the trends of mechanization and industrialization in developing regions.
Demand for lubricants in India is projected to increase 5.9 percent per year to 2.5 million metric tons in 2017. Continued development of India’s economy, expansion of the country’s manufacturing sector, rapid growth of its motor vehicle park, and the ongoing mechanization of a variety of economic activities will drive growth in all lubricant markets; however, the largest increases are expected in the motor vehicle aftermarket, supported by the rapid pace of economic growth in the country.

India’s consumption of aftermarket motor vehicle lubricants is projected to register an annual gain of 7.1 percent per year to 720,000 metric tons in 2017. Because of India’s reliance on motorcycles and three-wheelers for personal transport, motor vehicle lubricant use forms a below average percentage of India’s lubricant demand, with a relatively large portion consumed by medium- and heavy-duty trucks and buses as opposed to light cars. Rising personal income levels, an expanding middle class population, and the construction of new roads and highways will continue to drive increases in vehicle ownership and lubricant demand, though motorcycles and three-wheelers will remain dominant.

Demand for lubricants in the manufacturing market is expected to register annual gains of 5.3 percent. Growth will result from rapid expansion of manufacturing output, which slowed during the global recession of 2009 but is expected to outpace all other major countries except China through 2017. India’s manufacturing sector is diverse. The country is a major producer of steel, motor vehicles, textiles, consumer goods, and other manufactured products, with rapidly growing chemical, plastic, and rubber sectors. Operations in these industries consume a large volume of lubricants, both those used in manufacturing and other industries.

**TABLE VI-8**

India: Lubricant Demand by Product & Formulation (thousand metric tons)

<table>
<thead>
<tr>
<th>Item</th>
<th>2002</th>
<th>2007</th>
<th>2012</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia/Pacific Lubricant Demand</td>
<td>10075</td>
<td>12750</td>
<td>15550</td>
<td>19000</td>
<td>22900</td>
</tr>
<tr>
<td>% India</td>
<td>10.9</td>
<td>11.5</td>
<td>11.9</td>
<td>13.0</td>
<td>13.8</td>
</tr>
<tr>
<td>India Lubricant Demand</td>
<td>1100</td>
<td>1465</td>
<td>1850</td>
<td>2465</td>
<td>3160</td>
</tr>
<tr>
<td>By Product:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Oils</td>
<td>445</td>
<td>595</td>
<td>810</td>
<td>1135</td>
<td>1475</td>
</tr>
<tr>
<td>Process Oils</td>
<td>240</td>
<td>340</td>
<td>425</td>
<td>530</td>
<td>680</td>
</tr>
<tr>
<td>Hydraulic Fluids</td>
<td>110</td>
<td>135</td>
<td>150</td>
<td>205</td>
<td>255</td>
</tr>
<tr>
<td>Metalworking Fluids</td>
<td>65</td>
<td>80</td>
<td>90</td>
<td>125</td>
<td>160</td>
</tr>
<tr>
<td>Other</td>
<td>240</td>
<td>315</td>
<td>375</td>
<td>470</td>
<td>590</td>
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<td>By Formulation:</td>
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<td>Petroleum</td>
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<td>1760</td>
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<tr>
<td>Nonconventional</td>
<td>20</td>
<td>45</td>
<td>90</td>
<td>135</td>
<td>260</td>
</tr>
</tbody>
</table>

**CHART VIII-1**

World Lubricant Market Share by Company (39.2 million metric tons, 2012)
Indian Oil Corporation Limited
3079/3 JB Tito Marg
Sadiq Nagar
New Delhi 110049
India
91-11-2626-0000
http://www.iocl.com

Revenues:  $90.7 billion (FY 2012)
Employment:  34,230 (FY 2012)

Key Products:  automotive, industrial, agricultural, railroad, marine, and other finished lubricants; and lubricating base oils

Indian Oil manufactures and markets petroleum products, crude oil, lubricants and greases, heavy distillates and diesel fuels throughout India and Southeastern Asia. The Company also has one of the largest pipeline systems in India and is active in the power generation industry. Indian Oil, which is 78.92 percent owned by the government of India, operates through three segments: Petroleum Products, Petrochemicals, and Other Businesses.

The Company is involved in the world lubricant industry through the Petroleum Products segment, which had revenues of $79.9 billion in FY 2012. The segment’s activities include the development, manufacture, marketing, and distribution of lubricants and greases, which are marketed primarily under the SERVO brand name. The SERVO product portfolio consists of more than 1,000 grades intended for use in a wide range of automotive, industrial, agricultural, railroad, marine, and other applications. Specific products include SERVO 2T SUPREME two-stroke engine oils, SERVO 4T four-stroke engine oils, SERVO SUPER passenger car motor oils, SERVO PRIDE and SERVO SKODA

Table VI-7
INDIA: LUBRICANT DEMAND BY MARKET
(thousand metric tons)

<table>
<thead>
<tr>
<th>Item</th>
<th>2002</th>
<th>2007</th>
<th>2012</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Domestic Product (bil 2011$) kg</td>
<td>2221</td>
<td>3355</td>
<td>4664</td>
<td>6410</td>
<td>8890</td>
</tr>
<tr>
<td>Motor Vehicles in Use (mil units) kg</td>
<td>2725</td>
<td>3702</td>
<td>4500</td>
<td>6750</td>
<td>9975</td>
</tr>
<tr>
<td>kg lubricant/mil $ GDP</td>
<td>595</td>
<td>457</td>
<td>434</td>
<td>392</td>
<td>355</td>
</tr>
<tr>
<td>Motor Vehicles in Use (mil units) kg</td>
<td>23.5</td>
<td>21.7</td>
<td>19.0</td>
<td>17.6</td>
<td>14.5</td>
</tr>
<tr>
<td>kg MV lubricant/vehicle</td>
<td>1100</td>
<td>1465</td>
<td>1850</td>
<td>2465</td>
<td>3160</td>
</tr>
<tr>
<td>Lubricant Demand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Vehicle Aftermarket</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td></td>
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<td></td>
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<tr>
<td>Other</td>
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