World Silicones

Industry Study with Forecasts for 2015 & 2020

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World demand to rise 6.2% annually through 2015

World demand for silicones will rise 6.2 percent per year through 2015. Advances will represent a notable acceleration from the pace of the 2005-2010 period, in which most developed world markets in North America and Western Europe experienced sluggish increases -- or even declines -- in silicone demand. Going forward, gains will be driven by an improved economic outlook as these regions recover from the global economic recession of 2009. Advances will also be fueled by the increased penetration of high-value silicone materials into emerging applications, particularly in the newly industrialized nations of the world where the use of silicones is not yet mature. Price increases will reflect more rapid growth in demand for higher-value silicone products, although intense price competition among suppliers will limit gains.

Asia/Pacific region to be largest, fastest-growing

The Asia/Pacific region will remain the largest and fastest-growing outlet for silicones through 2015. Gains will continue to be driven by the large silicone market in China; although slowing from the nearly 20 percent annual growth seen during the 2005-2010 period, the country will post strong double-digit annual gains going forward. Silicone demand in the region will also benefit from healthy gains in countries such as South Korea, Taiwan and India, although subpar increases in the Japanese market will temper this to some extent. Above-average growth is also forecast for Central and South America, Eastern Europe and the Africa/Mideast region, areas in which silicone demand per capita is among the world’s lowest.

Silicone gels among fastest growing products

Elastomers and fluids were the two leading silicone product types in 2010, accounting for over 80 percent of total demand. Of the two, stronger growth is expected for elastomers, which will benefit from the rebounding construction and transportation markets. The fastest increases, however, will be for silicone gels and other smaller-volume products, fueled by emerging opportunities in electronic components and motor vehicles.
ASIA/PACIFIC

Japan: Markets & Products

Silicone demand in Japan is forecast to rise 3.0 percent per year to $1.3 billion in 2015. This will represent a notable improvement over the sluggish 2000-2010 decade, in which growth averaged just over one percent per year, fueled by a turnaround in manufacturing activity and construction spending. Nonetheless, the pace of increase in Japan will fall below the global average, as silicone demand will remain limited by relatively weak economic growth going forward. Japan will continue to be the third-largest market for silicones in 2015, trailing only the US and China. The country has among the world’s highest levels of silicone demand per dollar of GDP, as the country’s advanced manufacturing industry and large consumer base provide ample opportunities for silicone demand.

Electrical and electronic applications are the largest market for silicones in Japan, accounting for about one-third of demand in 2010 -- a larger portion than in any major country other than Taiwan. After declining for much of the 2000s, electronics production in Japan rebounded significantly in 2010, driving strong increases in demand for silicones. Emerging opportunities for silicones in electronic components for LEDs and photovoltaic modules have also bolstered demand in recent years. Going forward, however, relatively slow increases in Japanese production of electronic goods and electrical power generation equipment will restrain advances in silicone demand.

As the world’s second largest automaker, transportation is another important outlet for silicones in Japan. Transportation demand declined slightly during the 2005-2010 period, hampered by economic recession and declining output in the Japanese auto industry. While demand will rebound modestly through 2015, continuing sluggishness in motor vehicle production will serve to limit further gains.

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</thead>
<tbody>
<tr>
<td>Population (million)</td>
<td>126.8</td>
<td>127.7</td>
<td>127.1</td>
<td>125.5</td>
<td>123.2</td>
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<tr>
<td>GDP/capita</td>
<td>31,320</td>
<td>33,190</td>
<td>33,750</td>
<td>36,810</td>
<td>39,980</td>
</tr>
<tr>
<td>Gross Domestic Product (bil 2009$)</td>
<td>397</td>
<td>4,239</td>
<td>4,290</td>
<td>4,620</td>
<td>4,925</td>
</tr>
<tr>
<td>Manufacturing Value Added (bil 2009$)</td>
<td>686</td>
<td>7,720</td>
<td>7,250</td>
<td>8,100</td>
<td>8,740</td>
</tr>
<tr>
<td>Construction Expenditures (bil 2009$)</td>
<td>613</td>
<td>5,350</td>
<td>4,400</td>
<td>4,980</td>
<td>5,180</td>
</tr>
<tr>
<td>Health Expenditures (bil $)</td>
<td>255</td>
<td>3,230</td>
<td>3,980</td>
<td>4,750</td>
<td>5,600</td>
</tr>
<tr>
<td>Electronic Product Shipments (bil $)</td>
<td>338</td>
<td>2,590</td>
<td>3,760</td>
<td>4,200</td>
<td>4,550</td>
</tr>
<tr>
<td>Motor Vehicle Production (000 units)</td>
<td>10,145</td>
<td>10,800</td>
<td>9,625</td>
<td>9,850</td>
<td>9,815</td>
</tr>
<tr>
<td>$ silicones/capita</td>
<td>7.6</td>
<td>7.7</td>
<td>8.7</td>
<td>10.2</td>
<td>11.6</td>
</tr>
<tr>
<td>$ silicones/mil $ GDP</td>
<td>243</td>
<td>233</td>
<td>257</td>
<td>277</td>
<td>290</td>
</tr>
<tr>
<td>Silicone Demand (mil $)</td>
<td>967</td>
<td>989</td>
<td>1,103</td>
<td>1,280</td>
<td>1,430</td>
</tr>
</tbody>
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Zhejiang Wynca Chemical Industry Group Company Limited
555, Xinan East Road
Xinan Jiang Street
Jiande, Zhejiang
China
86-571-6472-389
http://www.wynca.com
Sales: $642 million (2010)
Employment: 1,850 (2010)
Key Products: chlorosilane, siloxane intermediates, basic polysiloxane, heat-cured silicone rubber, liquid silicone rubber, room-temperature vulcanization silicone, silicone-based surfactants, silicone resins, silicone oils and silane.

Zhejiang Wynca Chemical Industry Group is a manufacturer of silicones, pesticides and fine chemicals under the WYNCA brand name. The Company markets its products in China, Southeast Asia, Australia, North and South America, and Africa.


```
TABLE VI-6
JAPAN -- SILICONE DEMAND BY MARKET & PRODUCT
(million dollars)

<table>
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<tbody>
<tr>
<td>Silicone Demand</td>
<td>967</td>
<td>989</td>
<td>1103</td>
<td>1280</td>
<td>1430</td>
</tr>
<tr>
<td>By Market:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical &amp; Electronic</td>
<td>325</td>
<td>270</td>
<td>371</td>
<td>425</td>
<td>475</td>
</tr>
<tr>
<td>Construction</td>
<td>134</td>
<td>136</td>
<td>129</td>
<td>159</td>
<td>181</td>
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<tr>
<td>Transportation</td>
<td>183</td>
<td>216</td>
<td>213</td>
<td>245</td>
<td>275</td>
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<td>Health Care</td>
<td>108</td>
<td>126</td>
<td>139</td>
<td>153</td>
<td>164</td>
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<tr>
<td>Chemical</td>
<td>54</td>
<td>59</td>
<td>57</td>
<td>72</td>
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<tr>
<td>Other</td>
<td>163</td>
<td>182</td>
<td>194</td>
<td>226</td>
<td>255</td>
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<tr>
<td>By Product:</td>
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<tr>
<td>Elastomers</td>
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<td>Fluids</td>
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<td>Resins</td>
<td></td>
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<tr>
<td>Gels &amp; Other</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Japan</td>
<td>45.5</td>
<td>33.2</td>
<td>23.3</td>
<td>18.3</td>
<td>14.0</td>
</tr>
<tr>
<td>Asia/Pacific Silicone Demand</td>
<td>2125</td>
<td>2975</td>
<td>4730</td>
<td>7000</td>
<td>10200</td>
</tr>
</tbody>
</table>
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“Fastest growth, however, will be seen in Japan’s chemical silicone market, as a turnaround in chemical manufacturing activity and polyurethane foam production will drive nearly five percent annual growth in silicone demand through 2015. Similarly, construction markets are expected to see above-average gains in demand. After declining nearly four percent per year from 2005 to 2010, construction spending in the country is expected to rebound, fueling healthy gains in demand for silicones.”

--Section VI, pg. 145
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