World Polyethylene

Industry Study with Forecasts for 2018 & 2023

Study #3210 | October 2014 | $6200 | 495 pages
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### INDUSTRY STRUCTURE

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Demand will be driven by polyethylene’s versatility, easy processability, low cost, and recyclability; by new ethylene feedstocks; and by improved polymerization catalyst technologies.

World demand to rise 4.0% annually through 2018

Global demand for polyethylene resins will rise 4.0 percent per year to 99.6 million metric tons in 2018, valued at $164 billion. Gains will match overall world economic growth, fueled by an acceleration in consumer spending and manufacturing activity. Polyethylene will continue to be the most widely used plastic resin in the world, benefiting from its versatility, easy processability, low cost, and recyclability. The development of ethylene feedstocks from new sources such as shale gas, coal, and biobased materials will also give polyethylene a price advantage over other plastic resins. Moreover, continually improving polymerization catalyst technologies will enhance the performance, customization, and yield of polyethylene resins. Further increases will be limited, however, by the highly commoditized and mature position of polyethylene. Additionally, major polyethylene applications such as plastic bags have increasingly become subject to environmental regulations and bans.

Asia/Pacific region to remain largest, fastest growing market

The Asia/Pacific region will continue to be the largest and fastest growing polyethylene market through 2018, fueled by strong growth in China, which alone accounted for nearly one-quarter of global demand in 2013. India and Vietnam will also be among the world’s most rapidly expanding markets. However, advances in most emerging Asian countries will rise at a slower pace than during the 2008-2013 period. On the other hand, North America will see a significant improvement in polyethylene demand, while the markets in Western Europe and Japan will rebound from recent declines.

LLDPE to gain market share over LDPE

HDPE is the most widely used of the three polyethylene resins, accounting for just under half of total demand in 2013. Above average growth is expected for HDPE through 2018, driven by its rising use in construction products such as pipe and the increasing popularity of blow-molded HDPE containers in emerging market countries. LLDPE will continue to gain market share over LDPE going forward, as LLDPE is the primary beneficiary of metallocene catalyst technology, which improves resin performance. Packaging will remain the largest outlet for polyethylene, accounting for a majority of demand in 2018. The resin’s favorable sealing, stiffness, moisture barrier, and clarity properties make it an indispensable material in the packaging industry. Film accounts for about half of global polyethylene demand and tends to comprise a particularly large portion of the market in developing countries.
Asia/Pacific

China: Polyethylene Demand

Demand for polyethylene in China is forecast to rise 6.1% per year to 27.7 million metric tons in 2018. Gains will be well above the global average and among the fastest of any country, further expanding China's position as the world's largest polyethylene consumer. Strong growth in manufacturing output, packaging shipments, personal consumption, and fixed investment spending will all bolster demand for polyethylene in China. Increasing levels of disposable income among consumers in the country, along with higher per capita demand for polyethylene packaging and consumer goods such as housewares. However, advances for polyethylene through 2018 will decelerate significantly from the double-digit gains of the 2008-2013 period and are expected to lag increases in manufacturing activity and economic growth overall. This trend is due in part to a greater focus on higher value manufactured goods and service industries in the Chinese economy, rather than on the production of basic products more likely to consume high volumes of polyethylene.

In packaging, China is rapidly increasing its use of key materials such as film, blow molded bottles, and injection molded products such as caps, lids, and pails. Although the use of plastic packaging remains low by global standards, this sector is expanding due to the advantages offered by polyethylene over competitive packaging materials such as glass, metal, and paper. Food packaging applications for polyethylene will see particularly strong growth, in part due to health and food safety concerns triggered by recent scares involving fresh food that spoiled or was contaminated due to poor refrigeration. Chinese consumers are also broadening their interest in packaged products as urbanization progresses and middle class populations expand. A substantial increase in the number of in large supermarkets serving the Chinese public has boosted demand for polyethylene packaging, such as bags, pouches, overwrap, and rigid containers.

### Table VII-4

**China: Polyethylene Production, Utilization, & Trade**

<table>
<thead>
<tr>
<th>Item</th>
<th>2003</th>
<th>2008</th>
<th>2013</th>
<th>2018</th>
<th>2023</th>
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<tr>
<td>Population (million persons)</td>
<td>1288</td>
<td>1323</td>
<td>1356</td>
<td>1388</td>
<td>1408</td>
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<tr>
<td>$ GDP/capita</td>
<td>4550</td>
<td>7660</td>
<td>11420</td>
<td>15800</td>
<td>21160</td>
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<tr>
<td>Gross Domestic Product (bil 2012$)</td>
<td>5862</td>
<td>10133</td>
<td>15488</td>
<td>21930</td>
<td>29790</td>
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<tr>
<td>Gross Fixed Capital Form (bil 2012$)</td>
<td>1973</td>
<td>3837</td>
<td>7199</td>
<td>9930</td>
<td>13020</td>
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<tr>
<td>Manufacture Value Added (bil 2012$)</td>
<td>1393</td>
<td>2881</td>
<td>4775</td>
<td>7000</td>
<td>9910</td>
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<td>Personal Consumption Exp (bil 2012$)</td>
<td>2317</td>
<td>3596</td>
<td>5591</td>
<td>8390</td>
<td>12140</td>
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<tr>
<td>kg polyethylene/capita</td>
<td>6.7</td>
<td>8.8</td>
<td>15.2</td>
<td>19.9</td>
<td>25.4</td>
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<tr>
<td>kg polyethylene/000$ GDP</td>
<td>1.47</td>
<td>1.15</td>
<td>1.33</td>
<td>1.26</td>
<td>1.20</td>
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<td>Polyethylene Demand</td>
<td>8605</td>
<td>11655</td>
<td>20590</td>
<td>27650</td>
<td>35700</td>
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<td>net exports</td>
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<td>Polyethylene Production</td>
<td>4030</td>
<td>7210</td>
<td>11000</td>
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<td>HDPE</td>
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<td>LLDPE</td>
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<td>2230</td>
<td>4250</td>
<td>5760</td>
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<td>LDPE</td>
<td>830</td>
<td>2130</td>
<td>2040</td>
<td>2450</td>
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<td>operating rate (%)</td>
<td>93.3</td>
<td>97.8</td>
<td>84.4</td>
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<td>4320</td>
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<td>13030</td>
<td>18200</td>
<td>23250</td>
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### Chart IX-1

**World Polyethylene Market Share by Company**

($127 billion, 2013)

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Sample Profile,
Table & Forecast

COMPANY PROFILES

Eni SpA
Piazzale Enrico Mattei 1
00144 Rome
Italy
39-06-59-821
http://www.eni.it

Sales: $152.3 billion (2013)
Geographic Sales: (2013, as percent of total) Italy 28%, Other Countries in the European Union 28%, Americas 7%, Asia 16%, Africa 11%, and Other Regions 1%
Key Products: low density polyethylene, linear low density polyethylene, very low density polyethylene, and high density polyethylene

Eni SpA is involved in the oil, natural gas, electricity generation, oilfield services and engineering markets. The Company operates in seven major segments: Exploration and Production, Gas and Power, Refining and Marketing, Chemicals, Engineering and Construction, Other Activities, and Corporate and Financial Companies. The Italian government owns a 30 percent stake in Eni.

Eni SpA is active in the world polyethylene industry through the Chemicals segment, which had sales of $7.4 billion in 2013. Including eliminations, polymers accounted for $3.9 billion of the segment’s total sales in 2013. The segment operates mainly through Eni’s Versalis SpA subsidiary (Italy), which is a key producer of petrochemicals and petroleum-based products, including polymers and elastomers. Among the polymers made by Versalis are polyethylene resins, such as RIBLENE low density polyethylene (LDPE), FLEXIRENE linear low density polyethylene (LLDPE), CLEARFLEX very low density polyethylene (VLDPE), and ERACLENE high density polyethylene (HDPE).

TABLE VII-6

CHINA:
POLYETHYLENE DEMAND BY RESIN, MARKET, & PROCESS
(thousand metric tons)

<table>
<thead>
<tr>
<th>Item</th>
<th>2003</th>
<th>2008</th>
<th>2013</th>
<th>2018</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Value Added (bil 2012$)</td>
<td>1393</td>
<td>2881</td>
<td>4775</td>
<td>7000</td>
<td>9910</td>
</tr>
<tr>
<td>kg polyethylene/000$ MVA</td>
<td>6.18</td>
<td>4.05</td>
<td>4.31</td>
<td>3.95</td>
<td>3.60</td>
</tr>
<tr>
<td>Polyethylene Demand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>By Resin:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDPE</td>
<td>3755</td>
<td>4905</td>
<td>9890</td>
<td>13460</td>
<td>17940</td>
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<tr>
<td>LLDPE</td>
<td>2570</td>
<td>3770</td>
<td>6670</td>
<td>8935</td>
<td>11590</td>
</tr>
<tr>
<td>LDPE</td>
<td>2280</td>
<td>2980</td>
<td>4030</td>
<td>5255</td>
<td>6170</td>
</tr>
<tr>
<td>By Market:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>1360</td>
<td>1660</td>
<td>2685</td>
<td>3380</td>
<td>4170</td>
</tr>
<tr>
<td>Construction Materials</td>
<td>860</td>
<td>1330</td>
<td>2900</td>
<td>3880</td>
<td>4950</td>
</tr>
<tr>
<td>Other Markets</td>
<td>2145</td>
<td>2705</td>
<td>4335</td>
<td>5510</td>
<td>6730</td>
</tr>
<tr>
<td>By Process:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Film</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrusion</td>
<td>1730</td>
<td>2420</td>
<td>4365</td>
<td>6000</td>
<td>7930</td>
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<tr>
<td>Blow Molding</td>
<td>675</td>
<td>965</td>
<td>2065</td>
<td>2960</td>
<td>4110</td>
</tr>
<tr>
<td>Injection Molding</td>
<td>1130</td>
<td>1460</td>
<td>2625</td>
<td>3455</td>
<td>4460</td>
</tr>
<tr>
<td>Other Processes</td>
<td>320</td>
<td>410</td>
<td>665</td>
<td>895</td>
<td>1130</td>
</tr>
</tbody>
</table>

STUDY COVERAGE

This Freedonia study, World Polyethylene, presents historical demand data (2003, 2008, 2013) plus forecasts (2018, 2023) by PE resin type, market and process for 6 regions and 27 major countries. The study also considers market environment factors, analyzes the industry structure, evaluates company market share and profiles 36 industry competitors worldwide.
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<table>
<thead>
<tr>
<th>Credit Card #</th>
<th>Expiration Date</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

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**Company __________________________**

**Division __________________________**

**Street **

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**Country __________________________**

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**Email __________________________**

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