World Asphalt (Bitumen)

Industry Study with Forecasts for 2017 & 2022

Study #3129 | February 2014 | $6300 | 429 pages
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MARKET ENVIRONMENT

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(continued on following page)
Gains will be driven by especially strong growth in consumption in China and other developing countries, and by a steady recovery in the mature asphalt markets of developed nations.

World demand to rise 3.6% annually through 2017

World demand for asphalt is projected to rise 3.6 percent annually through 2017 from a weak 2012 base to 121 million metric tons (734 million barrels). Gains will be driven by especially strong growth in consumption in China and other developing countries as they work to improve their transportation infrastructures. Mature asphalt markets in developed nations, which declined between 2007 and 2012, will recover steadily, though in most cases demand will not regain 2007 levels until well after 2017.

Asia/Pacific region to be fastest growing market

The Asia/Pacific region has overtaken North America as the largest regional market for asphalt and will continue to record the fastest advances through 2017, driven primarily by strong growth in China and India. China alone accounts for over 20 percent of the global market and is expected to surpass the US as the world’s leading asphalt consumer by 2017. However, growth in China will decelerate as massive national infrastructure programs give way to smaller projects and road maintenance. In contrast, India is expected to continue with large public works projects that are necessary for the country’s continued economic development. Growth is also expected to be strong in other developing Asian countries where large public works projects are planned.

However, this will be offset to some extent by slower growth in mature markets like Japan and Australia. Also, gains in many of the region’s developing markets will continue to be affected by political and financial issues.

Demand to recover in North America, Western Europe

North America is a major asphalt consumer due to the need for maintenance on the massive regional network of roads and highways. Demand for asphalt in the United States will rebound from the sharp declines in the 2007-2012 period, driven by stronger economic growth and increased construction activity, though demand in 2017 is expected to remain below the 2007 level. The US and Canada are significant consumers of asphalt for roofing products; demand for those products will rise with increased building construction expenditures.

Recovery in asphalt demand in Western Europe will be driven by increased expenditures on road maintenance and repair applications after years of very low spending on infrastructure improvements. Many countries have road repair backlogs, which will bolster demand for asphalt. However, while demand for asphalt will register respectable growth through 2017, gains will not make up for the declines seen in the 2007-2012 period.
Japan: Asphalt Demand by Product

Consumption of asphalt in Japan is forecast to increase slightly less than one percent per annum through 2017 to 2.9 million metric tons. Paving markets will see the strongest growth through the forecast period.

The total length of Japan’s paved road network will increase less than one percent per annum through 2017 to 1.1 million kilometers. Public transportation is widely used in Japan because of the country’s small size and high population density. Nevertheless, the country maintains a well-developed network of paved roads and highways.

In Japan, certain tax revenues are specifically earmarked for construction, including federal taxes on motor fuels and vehicles as well as the federal and local consumption tax. In 2005, when the federally operated road corporation was privatized in an effort to relieve the government of debt from operating the road network, the government began to subsidize the notoriously high tolls on Japanese expressways. Beginning in April 2014, the toll discounts for drivers will end because government toll subsidies will be used up. Changes in the tolls have created budget instability for Japanese highway operators. While toll collection is set to end when the debt from expressway construction is paid off in 2050 (according to the 2005 privatization law), these plans may change to account for the need for maintenance and repair spending on the Japanese expressway network.

Demand for asphalt in paving applications in Japan is forecast to rise 2.5 percent per annum through 2017 from a weak 2012 base to 2.2 million metric tons. Advances will be driven by positive growth in nonbuilding construction spending, which the country has not seen since the beginning of the 21st century. Asphalt emulsions and other specialty paving products, which are used more heavily in road repair and maintenance, will see the strongest growth through the forecast period.

### Table VI-6

<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>Construction Expenditures (bil 2011$)</td>
<td>337.5</td>
<td>592.0</td>
<td>843.0</td>
<td>1165.0</td>
<td>1623.0</td>
</tr>
<tr>
<td>Paved Roads (000 kilometers)</td>
<td>1604</td>
<td>1996</td>
<td>2116</td>
<td>2465</td>
<td>2872</td>
</tr>
<tr>
<td>kg asphalt/000$ construction</td>
<td>7.8</td>
<td>6.1</td>
<td>5.5</td>
<td>5.2</td>
<td>4.8</td>
</tr>
<tr>
<td>m tons paving products/km road</td>
<td>1.4</td>
<td>1.6</td>
<td>1.9</td>
<td>2.1</td>
<td>2.3</td>
</tr>
<tr>
<td>Asphalt Demand</td>
<td>2.62</td>
<td>3.60</td>
<td>4.67</td>
<td>6.05</td>
<td>7.75</td>
</tr>
<tr>
<td>Paving Products:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asphalt Cement</td>
<td>1.95</td>
<td>2.65</td>
<td>3.41</td>
<td>4.38</td>
<td>5.52</td>
</tr>
<tr>
<td>Asphalt Emulsions, Other Paving Products</td>
<td>0.35</td>
<td>0.47</td>
<td>0.61</td>
<td>0.79</td>
<td>1.03</td>
</tr>
<tr>
<td>Roofing Products</td>
<td>0.25</td>
<td>0.38</td>
<td>0.53</td>
<td>0.72</td>
<td>0.99</td>
</tr>
<tr>
<td>Other Asphalt Products</td>
<td>0.07</td>
<td>0.10</td>
<td>0.12</td>
<td>0.16</td>
<td>0.21</td>
</tr>
<tr>
<td>% India</td>
<td>11.1</td>
<td>13.1</td>
<td>12.7</td>
<td>13.1</td>
<td>13.9</td>
</tr>
<tr>
<td>Asia/Pacific Asphalt Demand</td>
<td>23.6</td>
<td>27.6</td>
<td>36.6</td>
<td>46.1</td>
<td>55.8</td>
</tr>
</tbody>
</table>
Company Profiles

Ennis-Flint
115 Todd Court
Thomasville, NC 27360
336-475-6600
http://www.ennisflint.com

Annual Sales: $450 million (estimated)
Employment: 600 (estimated)
Key Products: decorative pavement systems

According to Ennis-Flint, the Company is the world’s leading manufacturer and distributor of pavement marking materials. The privately held company’s products traffic paints, thermoplastics, and decorative pavement systems have applications in the production of streets, highways, local roads, parking lots, crosswalks, intersections, and airport and military base pavements, among other end uses.

The Company is active in the world asphalt industry via the provision of decorative pavement systems, including products and processes sold under the STREETPRINT, DURATHERM, RIDE-A-WAY, LOGOTHERM, and TRAFFICSCAPES. Used in the production of flexible paved surfaces, the STREETPRINT decorative pavement system comprises a flexible yet durable asphalt base that is laid upon a substrate. After the asphalt is heated, a textured sheet made from proprietary acrylic emulsions and binder materials is laid on the heated asphalt surface. Though similar to the STREETPRINT system, the DURATHERM decorative pavement system features a more durable thermoplastic inlay sheet that is designed to withstand high traffic loads. For colored bike paths, the Company makes the RIDE-A-WAY pavement system, which comprises a blend of epoxy modified acrylic polymers, sand, and aggregates laid upon a heated asphalt surface.

Table V-11
SPAIN: ASPHALT SUPPLY & DEMAND

<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>Population (mil persons)</td>
<td>41.4</td>
<td>45.0</td>
<td>46.6</td>
<td>48.0</td>
<td>49.3</td>
</tr>
<tr>
<td>$ GDP/capita</td>
<td>30,510</td>
<td>33,330</td>
<td>30,840</td>
<td>31,670</td>
<td>34,380</td>
</tr>
<tr>
<td>Gross Domestic Product (bil 2011$)</td>
<td>1,263</td>
<td>1,500</td>
<td>1,437</td>
<td>1,520</td>
<td>1,695</td>
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<tr>
<td>kg asphalt/capita</td>
<td>54</td>
<td>60</td>
<td>32</td>
<td>43</td>
<td>49</td>
</tr>
<tr>
<td>kg asphalt/000$ GDP</td>
<td>1.77</td>
<td>1.81</td>
<td>1.02</td>
<td>1.35</td>
<td>1.42</td>
</tr>
<tr>
<td>Primary Asphalt Demand (mil metric tons)</td>
<td>2.24</td>
<td>2.72</td>
<td>1.47</td>
<td>2.05</td>
<td>2.40</td>
</tr>
<tr>
<td>Primary Asphalt Demand (mil bbls)</td>
<td>13.6</td>
<td>16.5</td>
<td>8.9</td>
<td>12.4</td>
<td>14.6</td>
</tr>
<tr>
<td>+ net exports &amp; stock increases</td>
<td>1.5</td>
<td>-0.5</td>
<td>5.7</td>
<td>1.8</td>
<td>-0.7</td>
</tr>
<tr>
<td>Primary Asphalt Production (mil bbls)</td>
<td>15.1</td>
<td>16.0</td>
<td>14.6</td>
<td>14.2</td>
<td>13.9</td>
</tr>
</tbody>
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Page 7
Other Studies

Precast Concrete Products
US demand for precast concrete products is forecast to rise 6.4 percent per year to $12.2 billion in 2018. The dominant structural and architectural building component segments will grow the fastest, as they rebound from previous steep declines. The residential market will see above average gains in precast concrete roofing tiles, siding and fencing. This study analyzes the $8.9 billion US precast concrete products industry, with forecasts for 2018 and 2023 by product, market and US region. The study also evaluates company market share and profiles industry competitors.

#3244 January 2015 $5200

Construction Chemicals
US demand for chemicals used in on-site construction will rise 8.2 percent annually through 2018 to $12.1 billion. Sprayed polyurethane foam, cement and asphalt additives, and grouts and mortars will grow the fastest. Higher value formulations will continue to gain market share in response to environmental and performance concerns. This study analyzes the $8.1 billion US construction chemical industry, with forecasts for 2018 and 2023 by product and application. The study also evaluates company market share and profiles industry players.

#3239 January 2015 $5200

Bricks, Blocks & Pavers
Demand for bricks, blocks and pavers in the US is forecast to rise 8.8 percent per annum from a low 2013 base to $8.9 billion in 2018. Bricks, typically made of clay, will see the most rapid growth of any product, driven by a rebound in new housing construction. Pavers will be the second fastest growing type, driven in part by interest in "green" building materials such as permeable pavers. This study analyzes the $5.8 billion US brick, block and paver industry, with forecasts for 2018 and 2023 by product, material, market, application and US region. The study also evaluates company market share and profiles industry players.

#3236 November 2014 $5200

World Cement & Concrete Additives
Global demand for cement and concrete additives will rise 9.3 percent annually to $21.2 billion in 2017. All regions will post strong growth, while the Asia/Pacific region will remain the largest market. Chemical additives will post strong growth based in part on higher loadings and higher value products in developing areas. This study analyzes the $13.6 billion world cement and concrete additive industry, with forecasts for 2017 and 2022 by type, market, world region, and for 21 countries. The study also evaluates company market share and profiles industry players.

#3130 March 2014 $6100

Fiber Cement
US fiber cement demand is forecast to rise 8.5 percent annually through 2017 to 2.9 billion square feet, valued at $2.2 billion. The new residential market will grow the fastest as housing starts rise and home builders specify fiber cement siding and trim because it can look like brick and stone, and is perceived as more attractive than vinyl. This study analyzes the 1.9 billion square foot US fiber cement industry, with forecasts for 2017 and 2022 by material, application, market and US region. The study also evaluates company market share and profiles industry players.

#3128 January 2014 $5100

About The Freedonia Group

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- Plastics
- Life Sciences
- Packaging
- Building Materials
- Security & Electronics
- Industrial Components & Equipment
- Automotive & Transportation Equipment
- Household Goods
- Energy/Power Equipment

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