Thermoplastic Compounding by Independents

US Industry Study with Forecasts for 2013 & 2018

Study #2577 | February 2010 | $4700 | 252 pages
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Volume gains will reflect needs for higher performance compounds and the unique advantages offered by independent compounders, such as rapid product development and delivery.

**US demand to rise 2.7% annually through 2013**

Demand for independently compounded thermoplastics in the US is forecast to rise 2.7 percent yearly to 7.5 billion pounds in 2013. Volume gains will reflect needs for higher performance compounds and the unique advantages offered by independent compounders, such as rapid product development and delivery. Value gains will be fueled by shifts in the product mix toward more highly tailored resin formulations.

**TPEs, polypropylene show best growth prospects**

Best opportunities are expected for thermoplastic elastomers (TPEs) and polypropylene. Demand for independently compounded TPEs is projected to rise 4.2 percent yearly through 2013. Advances will be fostered by new areas of growth as a result of design trends emphasizing soft-touch features and improved ergonomics. Demand for independently compounded polypropylene (PP) is expected to expand 3.6 percent per annum through 2013 based on the resin’s flexibility and low cost. PP is widely used as a base resin due to its ability to carry heavy filler loadings such as glass fibers, flame retardants or colorants. Near-engineered grades of PP can be compounded to replace a variety of more expensive engineering plastics.

Demand for independently compounded engineering plastics will be driven by growing needs for custom tailored formulations with higher performance ranges, with further gains constrained by competition from resin producers. Leading engineering resins are acrylonitrile-butadiene-styrene, polycarbonate and nylon based on their widespread use in electrical and electronic and motor vehicle parts and components. Independently compounded polyvinyl chloride (PVC) demand will expand at a below-average pace due to environmental and health concerns, and competition from other resins such as thermoplastic olefins (a TPE) and PP. Independently compounded polystyrene will exhibit the slowest advances due to cost and performance disadvantages vis-a-vis PP and other resins.

**Motor vehicles to be fastest growing market**

Construction will remain the leading market for independently compounded thermoplastics. Most rapid growth, however, is expected for motor vehicles. Construction opportunities will be based on a rejuvenated residential building construction segment, while motor vehicle advances will reflect rebounding motor vehicle production levels and needs to enhance fuel efficiency via downweighting. Good growth is also anticipated in smaller volume markets such as packaging and industrial machinery as a result of needs to enhance marketability and product performance.
MARKETS

Demand by Vehicle Type

Motor vehicle markets for independently compounded thermoplastics are forecast to grow 4.3 percent per year to 1.4 billion pounds in 2013, outpacing increases in motor vehicle production. Increases will be attributable to needs for higher performance materials with heightened heat resistance and strength to supplant metal in interior, under-the-hood, and exterior applications.

Independent compounders accounted for nearly one-fourth of all compounded resins used in motor vehicle applications in 2008. This relatively high level indicates the high performance requirements of motor vehicle components and the need for close customer liaison. Independent compounders are better able to fill these requirements than resin producers or processors. Additionally, motor vehicle producers are making more frequent product changes to their vehicles in order to differentiate them from competitors to garner additional market share. This requires shorter production runs and more rapid turnaround times, another attribute of independent compounders.

Advantages of plastics in motor vehicle applications include light weight, high strength, corrosion resistance, parts consolidation and lower tooling costs than steel. Further independent compounding growth will be threatened by competition from resin producers such as DuPont that are active in the motor vehicle market. However, continued opportunities are anticipated for independent compounders in light of the high levels of customization and technical support required. Motor vehicle producers also frequently source materials from independent compounders as independents can offer a broader range, thus enabling them to use the most appropriate resin for a given application rather than just what is made by the resin manufacturer.

<table>
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<tr>
<th>Item</th>
<th>1998</th>
<th>2003</th>
<th>2008</th>
<th>2013</th>
<th>2018</th>
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<td>lbs TP/000$ electrical &amp; electronic</td>
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<td>3.5</td>
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<td>Plastics in Electrical/Electronic*</td>
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<td>3219</td>
<td>2781</td>
<td>3080</td>
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<td>% independently compounded</td>
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<td>24.1</td>
<td>26.5</td>
<td>25.4</td>
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<td>Electrical/Electronic Indep Compound</td>
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<td>Thermoplastic Elastomers</td>
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<td>Polypropylene</td>
<td>28</td>
<td>32</td>
<td>32</td>
<td>37</td>
<td>40</td>
</tr>
<tr>
<td>% electrical/electronic</td>
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<td>11.2</td>
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<td>10.4</td>
<td>9.9</td>
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<td>6960</td>
<td>6570</td>
<td>7500</td>
<td>8310</td>
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<td>* includes thermoplastic elastomers</td>
<td></td>
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</tr>
</tbody>
</table>
Sample Profile, Table & Forecast

COMPANY PROFILES

Fortis Plastics LLC
3615 Voorde Drive
South Bend, IN 46628
574-485-1100
http://www.fortisplasticsgroup.com

Annual Sales: $200 million (estimated)
Employment: 950 (estimated)
Key Products/Services: engineered resin materials and custom compounding

Fortis Plastics, which is held by Monomoy Capital Partners LP (New York, New York), a private equity firm, is a diversified manufacturer of extrusion and injection molded plastics. The Company was formed in late 2008, when Monomoy Capital Partners integrated the profile extrusion product line of Atlantis Plastics Incorporated (Atlanta, Georgia), which had been acquired in October 2008; and the Leggett & Platt Plastics division (Murray, Kentucky), which had been acquired from Leggett & Platt Incorporated (Carthage, Missouri) in September 2008. Fortis Plastics provides injection- and custom-molding, resin compounding, and other services.

The Company entered the US thermoplastic compounding industry through the April 2009 acquisition of Global Thermoplastics LP (Houston, Texas), a manufacturer of engineered compounds for plastic molding applications. Global Thermoplastics produces, blends and distributes such engineered resin materials as polypropylene, polyethylene and polystyrene. The company also provides custom compounding services to meet customer requirements. In addition, Global Thermoplastics blends a significant portion of Fortis Plastics’ resin compounds. The company has a compounding facility in Houston, Texas that has an

TABLE III-7
POLYPROPYLENE MARKETS FOR INDEPENDENT COMPOUNDERS (million pounds)

<table>
<thead>
<tr>
<th>Item</th>
<th>1998</th>
<th>2003</th>
<th>2008</th>
<th>2013</th>
<th>2018</th>
</tr>
</thead>
<tbody>
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<td>Indep Polypropylene Compounding</td>
<td>935</td>
<td>1150</td>
<td>1125</td>
<td>1340</td>
<td>1480</td>
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<tr>
<td>Motor Vehicles</td>
<td>265</td>
<td>325</td>
<td>320</td>
<td>386</td>
<td>438</td>
</tr>
<tr>
<td>Consumer &amp; Institutional</td>
<td>237</td>
<td>295</td>
<td>290</td>
<td>350</td>
<td>385</td>
</tr>
<tr>
<td>Appliances</td>
<td>165</td>
<td>200</td>
<td>197</td>
<td>235</td>
<td>255</td>
</tr>
<tr>
<td>Packaging</td>
<td>140</td>
<td>180</td>
<td>170</td>
<td>200</td>
<td>215</td>
</tr>
<tr>
<td>Fibers &amp; Filaments</td>
<td>32</td>
<td>40</td>
<td>40</td>
<td>46</td>
<td>50</td>
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<tr>
<td>Electrical &amp; Electronic</td>
<td>28</td>
<td>32</td>
<td>32</td>
<td>37</td>
<td>40</td>
</tr>
<tr>
<td>Wire &amp; Cable</td>
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<td>26</td>
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<td>30</td>
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<td>19</td>
<td>25</td>
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<td>25</td>
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</tr>
</tbody>
</table>

“Appliance markets for independently compounded polypropylene are projected to rise 3.6 percent per annum to 235 million pounds in 2013. Gains will be driven by the good performance and low cost of polypropylene in uses such as room air conditioners, washing machine tubs and spindles, vacuum cleaner housings and other products. Polypropylene’s advantages in appliance uses include low cost, vibration dampening qualities, and chemical, stain and heat resistance.”
--Section III, pg. 72
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