Stretch & Shrink Film

US Industry Study with Forecasts for 2015 & 2020

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US demand to rise 3.3% annually through 2015

Demand for stretch and shrink film in the US is forecast to rise 3.3 percent yearly to $2.4 billion in 2015, driven by accelerating demand for product packaging and for the bundling and protection of goods during warehousing and distribution, as well as competitive advantages over other packaging materials. Other stimuli include resin and machinery improvements, and opportunities in areas such as stretch hoods and stretch labels and sleeves.

LDPE stretch/shrink film resins to remain dominant

Demand for stretch and shrink film resins is expected to rise 2.5 percent annually to 1.9 billion pounds in 2015. Low density polyethylene (LDPE) is the leading stretch and shrink film resin and is forecast to see healthy growth in volume demand through 2015. Polyvinyl chloride (PVC) stretch and shrink film demand will remain flat through 2015 in volume terms, though value gains will be based on price increases.

Shrink film to outpace dominant stretch film

Stretch film demand will increase 2.8 percent annually through 2015 to $1.4 billion, accounting for almost three-fifths of the total. The fastest growth is anticipated for stretch hoods due to their cost advantages, high throughput rates and excellent load integrity and weather protection. Stretch film advances will result from advantages in energy and labor savings. Demand for shrink film will grow 4.2 percent annually to $970 million in 2015. Advances will be promoted by shrink film’s high clarity and excellent print capabilities, greatly enhancing product marketability. In particular, growth will be aided by increased use in labels. Shrink film also provides a better seal and moisture barrier than stretch film, and is frequently used in conjunction with corrugated trays as a case overwrap. Shrink film is well-suited for covering heavy, non-uniform pallet loads such as heavy equipment or bricks due to its higher puncture resistance and ability to help maintain load integrity.

Storage and distribution market to grow the fastest

Storage and distribution markets for stretch and shrink film will increase 3.9 percent per year to $1.3 billion in 2015, accounting for 54 percent of the total. Advances will be stimulated by increasing retail trade and industrial activity, as well as export markets. The primary growth driver will be pallet wrap, due to its competitive advantages over strapping, tape and other bulk unitization methods. Product packaging demand will rise 2.8 percent annually to $1.1 billion in 2015, stimulated by growing retail trade and concomitant needs for product packaging for food, beverage, consumer and other items.

Gains in stretch and shrink film will be driven mainly by accelerating demand for product packaging and for the bundling and protection of goods during warehousing and distribution.
RESINS

Linear Low Density Polyethylene

Demand for linear low density polyethylene stretch and shrink film is forecast to expand 2.4 percent per year to 1.2 billion pounds in 2015, accounting for 63 percent of all stretch and shrink film. Opportunities will reflect LLDPE’s high impact and tensile strength, as well as elongation properties, permitting resin savings and greater downgauging potential than conventional grades. Metallocene grades of stretch film offer lower haze, better clarity and lower hazes compared to ethylene vinyl acetate and very low density polyethylene. Metallocene films also seal at lower temperatures and are tougher, enabling reduced film thicknesses. Downgauging, which reduces resin consumption, partially offsets the higher per pound cost of metallocene grades.

Among the metallocene-based stretch film offered by producers are Pinnacle Films’ (Inteplast) seven-layer cast films produced under the APEX, PEAK and PALLETLOCK NANOLAYER brand names. These films are based on EXCEED metallocene-based linear low density polyethylene resins from ExxonMobil Chemical. APEX stretch films are designed to provide maximum clarity, puncture resistance and toughness, while PEAK stretch films feature quiet unwinding, ultraviolet light resistance and consistent cling. PALLETLOCK NANOLAYER stretch films are engineered to reduce thickness while maintaining holding force and puncture resistance.

LLDPE stretch film will see growth due to its lower cost and excellent performance properties in diverse applications ranging from pallet wrap to sleeve labels and product packaging. Gains are also expected to shrink film, with advances fueled by good opportunities such as multipack beverage packaging and sleeve labels. Shrink films have advantages over stretch films in the labeling of contour bottles.

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<tr>
<td>Plastic Packaging Shipments (mil $)</td>
<td>$32.8</td>
<td>$40.6</td>
<td>$45.6</td>
<td>$57.6</td>
<td>$70.7</td>
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<tr>
<td>$ film/000$ packaging</td>
<td>$8.4</td>
<td>$9.0</td>
<td>$10.1</td>
<td>$9.7</td>
<td>$9.8</td>
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<tr>
<td>Shrink Film Demand in Product Pkg</td>
<td>275</td>
<td>365</td>
<td>460</td>
<td>560</td>
<td>690</td>
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<td>Food &amp; Beverages:</td>
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<td>Food</td>
<td>152</td>
<td>211</td>
<td>275</td>
<td>346</td>
<td>443</td>
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<td>Meat, Poultry &amp; Seafood</td>
<td>88</td>
<td>118</td>
<td>143</td>
<td>173</td>
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<td>Dairy</td>
<td>29</td>
<td>41</td>
<td>53</td>
<td>67</td>
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<td>Produce</td>
<td>24</td>
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<td>21</td>
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<td>Paper &amp; Textile Products</td>
<td>26</td>
<td>34</td>
<td>40</td>
<td>48</td>
<td>58</td>
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<tr>
<td>Other</td>
<td>64</td>
<td>93</td>
<td>132</td>
<td>173</td>
<td>233</td>
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<tr>
<td>% packaging</td>
<td>54.5</td>
<td>55.7</td>
<td>58.2</td>
<td>58.0</td>
<td>58.0</td>
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<tr>
<td>Shrink Film Demand</td>
<td>505</td>
<td>655</td>
<td>790</td>
<td>970</td>
<td>1190</td>
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</tbody>
</table>

US STRETCH & SHRINK FILM MARKET SHARE ($2.0 billion, 2010)

- 62.2%
- 37.8%
- Others
Sample Profile, Table & Forecast

**COMPANY PROFILES**

Alliance Plastics LLC
398 York Southern Road
Fort Mill, SC 29715
803-802-7955
http://www.allianceplastics.net

Annual Sales: $15 million (estimated)
Employment: 30 (estimated)
Key Products: converted, machine- and hand-wrap, and specialty stretch films

Alliance Plastics LLC is a privately held converter of stretch films and cornerboard. The Company also sells steel strapping, carton sealing tape and carton sealing equipment. Alliance Plastics conducts manufacturing and converting activities at its Fort Mill, South Carolina headquarters facility.

The Company’s stretch films encompass converted, machine- and hand wrap, and specialty types. Converted stretch films are available from the Company under the BANDFLEX, STEELFLEX and X-WRAPPER brand names. BANDFLEX products include stretch banding films, which are marketed as an alternative to tape, string and strapping. Among these films are standard, extended core and automatic stretch banding varieties. STEELFLEX extended core stretch film is a high-performance cast film, while X-WRAPPER stretch banding film is engineered to reduce hand fatigue.

Machine wrap films from Alliance Plastics consist of OMEGA 80+, OMEGA and OPTIFLEX offerings. OMEGA 80+ film features enhanced puncture resistance and clarity, while OMEGA film provides one-sided cling characteristics and pre-stretch levels of up to 250 percent. OPTIFLEX film is a three-layer blown film that is designed to

### TABLE IV-3

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<tbody>
<tr>
<td>Food Shipments (bil $)</td>
<td>413.1</td>
<td>508.2</td>
<td>627.9</td>
<td>727.0</td>
<td>852.0</td>
</tr>
<tr>
<td>$ film/000$ food</td>
<td>1.03</td>
<td>0.97</td>
<td>0.81</td>
<td>0.78</td>
<td>0.75</td>
</tr>
<tr>
<td>Food Stretch &amp; Shrink Film</td>
<td>427</td>
<td>493</td>
<td>507</td>
<td>570</td>
<td>642</td>
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<tr>
<td>By Type:</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Stretch</td>
<td>339</td>
<td>375</td>
<td>364</td>
<td>397</td>
<td>432</td>
</tr>
<tr>
<td>Shrink</td>
<td>88</td>
<td>118</td>
<td>143</td>
<td>173</td>
<td>210</td>
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<tr>
<td>By Use:</td>
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<td></td>
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<tr>
<td>Meat, Poultry &amp; Seafood</td>
<td>252</td>
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<td>328</td>
<td>370</td>
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<tr>
<td>Dairy</td>
<td>97</td>
<td>114</td>
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<td>126</td>
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<td>Fresh Produce</td>
<td>32</td>
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<tr>
<td>Other Food</td>
<td>46</td>
<td>57</td>
<td>62</td>
<td>72</td>
<td>85</td>
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<tr>
<td>Food Stretch/Shrink Film in Product Pkg</td>
<td>735</td>
<td>875</td>
<td>955</td>
<td>1095</td>
<td>1265</td>
</tr>
</tbody>
</table>

“Demand for stretch and shrink film in the packaging of meat, poultry and seafood is expected to expand 2.6 percent per annum to $328 million in 2015. Growth will reflect stretch and shrink film’s advantages over other packaging materials in terms of source reduction capabilities, performance characteristics (e.g., high clarity and puncture resistance) and aesthetic appeal. For example ...”

--Section IV, pg. 97

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