Collaborating on a recyclable, all-PE SUP for dry foods & liquids

The Stand-Up-Pouch (SUP) market has consistently grown, with more complex structures developed over the years. Now, many are desiring to incorporate mono-material packaging for recyclability. But how to maintain the higher performance?

Collaboration made it happen. Working with Asian converters and bag making machinery manufacturers, and using INNATE™ TF Polyethylene Resins, a recyclable, all-PE structure SUP was realized. And it passed the tests. The structure demonstrated excellent stiffness and toughness, excellent appearance, strong seals, and fast pouch making – up to 120 packs per minute.

Applications for the SUP include dry food, pet food, other granule-type content, as well as liquids.

INNATE™ TF Polyethylene Resins for Tenter Frame Biaxial Orientation (1.7g/10 min MI; 0.926 g/cm³ density) feature a unique molecular architecture that offers a wealth of features and benefits, including recyclability.

Polyethylene films created using INNATE™ TF resins demonstrate outstanding physical properties. Compared to traditional PE products, films made with INNATE™ TF polyethylene resins can achieve up to 80% less haze, twice the impact strength and tensile modulus, and three times the puncture resistance and tensile strength. Add in dazzling optics for printing and low-temperature resistance, and it’s easy to see why we think INNATE™ TF resin is the Future of sustainable packaging.

### TF-BOPE laminated solution

<table>
<thead>
<tr>
<th>Test item</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gelbo flex (cycles before pin hole appears)²</td>
<td>13,500</td>
</tr>
<tr>
<td>Gloss % (¹)</td>
<td>95</td>
</tr>
<tr>
<td>Haze % (¹)</td>
<td>1.8</td>
</tr>
<tr>
<td>Dart drop impact A (g)</td>
<td>676</td>
</tr>
<tr>
<td>Puncture force (N)</td>
<td>114</td>
</tr>
<tr>
<td>Pouch making efficiency</td>
<td>120 packs/min (1L SUP)</td>
</tr>
<tr>
<td>Single bag drop (2m on 6 sides)</td>
<td>PASS</td>
</tr>
</tbody>
</table>

¹ TF-BOPE (25 µm) film

² OPP or OPET (15µm)

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**Recyclability**
- All-PE structure with excellent packaging performance
- Excellent gloss, transparency and haptics
- Matte surface option available
- Printability
- Touch and feel close to incumbent PET lamination structure

**Appearance**
- Superior film toughness
- Can pass stringent drop tests
- Packaging integrity and reduce waste

**Abuse resistance**
- Fast packing speed on pouch making lines

**Packaging efficiency**
- Recyclability
- Abuse resistance
- Appearance
- Packaging efficiency

**TF-BOPE (20-25µm)**

**Structure**

- OPA or OPET (15µm)
- PE film (130µm)

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