Distinctive Thermoformed Sheet for Automotive Applications

Dow Elastomers is meeting the challenge for thermoformers and their automotive customers with distinctive ENGAGE™ Polyolefin Elastomers. With physical properties (see Table 1), ideal for automotive applications, these innovative soft thermoplastic polyolefin elastomers offer the ability to help solve the biggest challenges faced by typical soft TPO sheeting.

CHALLENGE: Low Gloss Without Coatings

SOLUTION: By utilizing product synergies with high-melt-strength polypropylene, innovative polyolefin elastomers from Dow enable soft TPO sheeting with:
- Low gloss - less than 1.5% post-thermoformed gloss at 60°
- Reduced cost - rich looking accents without the added cost of coatings

CHALLENGE: Broad Processing Window

SOLUTION: The melt strength of ENGAGE™ Polyolefin Elastomers have demonstrated enhanced bubble stability for thin-gauge sheet thermoforming, providing:
- Controlled sag across a broad temperature range
- Reduced thinning
- Reduced tear

CHALLENGE: Surface Quality Retention

SOLUTION: Thermoformed sheets using ENGAGE™ Polyolefin Elastomers demonstrate:
- Good scratch/mar resistance
- Extended weathering exposure without surface degradation
- Excellent resistance to common cleaning agents

Proof Positive - or Negative!

In either positive or negative thermoforming processes, ENGAGE™ Polyolefin Elastomers provide thermoformers the ability to meet the industry challenges and create low-gloss, durable sheeting desired by automotive manufacturers for use in a variety of applications from instrument panel skins to flooring.

The proof is in your hands right now. Check out the attached sample. See the look. Feel the texture. And believe that the answers you’ve been looking for are finally here.

Table 1: Comparative Physical Properties of Selected High-Melt-Strength Elastomers

<table>
<thead>
<tr>
<th>PROPERTIES</th>
<th>ENGAGE™ 7387</th>
<th>Developmental ENR 7487</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melt Index (2.16 kg @ 190°C), dg/min</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
</tr>
<tr>
<td>Density, g/cc</td>
<td>0.87</td>
<td>0.86</td>
</tr>
<tr>
<td>Hardness, Shore A</td>
<td>68</td>
<td>57</td>
</tr>
<tr>
<td>Ultimate Tensile, Mpa</td>
<td>10.6</td>
<td>8</td>
</tr>
<tr>
<td>DSC, Tm, °C</td>
<td>47.2</td>
<td>36.5</td>
</tr>
<tr>
<td>DSC, Tc, °C</td>
<td>34.5</td>
<td>17</td>
</tr>
<tr>
<td>DSC, Tg, °C</td>
<td>-51.3</td>
<td>-57</td>
</tr>
</tbody>
</table>

All data per Dow testing. Complete protocols and results available upon request.

™Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
See it. Feel it. Believe it.

For additional information regarding ENGAGE™ Polyolefin Elastomers, contact your Dow Technical Service & Development professional, your Dow Elastomers seller, or call the Dow Customer Information Group (CIG) at 1-800-441-4369. Find out more about Dow Elastomers and Dow products for soft TPO applications at www.dowelastomers.com.

NOTICE: If products are described as “experimental” or “developmental”: (1) product specifications may not be fully determined; (2) analysis of hazards and caution in handling and use are required; (3) there is greater potential for Dow to change specifications and/or discontinue production; and (4) although Dow may from time to time provide samples of such products, Dow is not obligated to supply or otherwise commercialize such products for any use or application whatsoever.

The information herein is supplied upon condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Dow be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information herein or the product to which that information refers. Nothing contained herein is to be construed as a recommendation to use any product, process, equipment, or formulation in conflict with any patent, and Dow makes no representation or warranty, express or implied, that the use thereof will not infringe any patent. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER NATURE ARE MADE HEREBUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.