SOLUTION DATA SHEET

Bio TPU™ Races to the Forefront in Sports Footwear

Markets
Sports footwear and accessories

Polymer
Pearlthane ECO thermoplastic polyurethane (TPU)

Key Benefits
- Transparent
- Equal or better performance than standard TPU
- Lightweight
- Bio TPU™ by Lubrizol

The use of bio-based materials is a growing trend across various sports and recreation market segments. However, to be considered for sporting goods applications, bio-based resins need to ensure equal or even better performance and cost competitiveness vs. existing products.
Pearthane™ ECO 12T95 (95 Shore A) is a bio-based TPU resin containing 32% of bio-based content as certified according to ASTM-D6866, suitable for injection moulded and extrusion applications.

For your bio-based sport shoes and accessories applications, Pearthane ECO TPU is a good alternative to standard petroleum-based TPUs, CoPA and CoPEs. The benefits are listed below:

- Pearthane ECO TPU exhibits a good combination of abrasion resistance, lightweight and cost performance, as illustrated in the following table:

<table>
<thead>
<tr>
<th>Property</th>
<th>CoPA</th>
<th>Pearthane™ ECO TPU</th>
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</thead>
<tbody>
<tr>
<td>Hardness 95A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abrasion Resistance (mm²)</td>
<td>50</td>
<td>28</td>
</tr>
<tr>
<td>Transparency</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>1.02</td>
<td>1.17</td>
</tr>
<tr>
<td>Price</td>
<td>++++</td>
<td>++</td>
</tr>
</tbody>
</table>

- Bio-based Pearthane ECO TPU grades have an improved hydrolysis resistance comparing to that of standard 100% petroleum-based TPU grades, as indicated below:

![Hydrolysis Resistance](image_url)

**Figure 1**: Hydrolysis Resistance of Pearthane ECO 12T95 vs. petroleum-based TPU.

- Pearthane ECO 12T95 TPU offers the OEMs serving the Sports footwear and accessories industries with a set of differentiated benefits such as:
  - 32% bio-based content as certified in accordance with ASTM-D6866
  - Reducing CO₂ emissions vs. standard petroleum-based TPU up to 40%, according to report "Carbon Footprint of Classical and New Polyurethane" by ESU-Services Ltd., Switzerland.

For more information, please visit our web: [www.lubrizol.com/Engineered-Polymers](http://www.lubrizol.com/Engineered-Polymers)