Technical Data Sheet

*Adflex* KS 311 P

Catalloy

**Product Description**

*Adflex* KS 311 P is a reactor TPO (thermoplastic polyolefin) manufactured using LyondellBasell’s proprietary *Catalloy* process technology. It is suitable for extrusion as well as injection molding and blow molding applications, including mechanical and decorative automotive parts requiring elastomeric type properties, like molded-in color automotive exterior components. The product is used by our customers for applications with paintable and weatherable requirements, such as injection molded fascias, claddings, bumper covers, body panels, step pads, and air deflectors. It is also used as a component in compounded materials for a wide range of industrial applications. The grade is available in natural pellet form.

**Regulatory Status**

For regulatory compliance information, see *Adflex* KS 311 P [Product Stewardship Bulletin (PSB) and Safety Data Sheet (SDS)].

**Status**  
Commercial: Active

**Availability**  
Africa-Middle East; Asia-Pacific; Australia and New Zealand; North America; South & Central America

**Application**  
Exterior Automotive Applications; Single Ply Roofing; Specialty Film; Stationery Film

**Market**  
Automotive; Compounding; Industrial, Building & Construction

**Processing Method**  
Cast Film; Compounding; Extrusion Blow Molding; Injection Molding

**Attribute**  
Good Colorability; Good Flexibility; Good Moldability; Good Processability; Good Surface Finish; Low Temperature Impact Resistance

### Typical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Nominal Value</th>
<th>Units</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melt Flow Rate, (230 °C/2.16 kg)</td>
<td>9.5</td>
<td>g/10 min</td>
<td>ISO 1133-1</td>
</tr>
<tr>
<td>Density, (23 °C, Method A)</td>
<td>0.89</td>
<td>g/cm³</td>
<td>ISO 1183-1</td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexural Modulus</td>
<td>530</td>
<td>MPa</td>
<td>ISO 178</td>
</tr>
<tr>
<td>Tear Strength</td>
<td>103</td>
<td>kN/m</td>
<td>ASTM D624</td>
</tr>
<tr>
<td>Tensile Stress at Break</td>
<td>15</td>
<td>MPa</td>
<td>ISO 527-1, -2</td>
</tr>
<tr>
<td>Tensile Stress at Yield</td>
<td>14</td>
<td>MPa</td>
<td>ISO 527-1, -2</td>
</tr>
<tr>
<td>Tensile Strain at Break</td>
<td>800</td>
<td>%</td>
<td>ISO 527-1, -2</td>
</tr>
<tr>
<td>Tensile Strain at Yield</td>
<td>14</td>
<td>%</td>
<td>ISO 527-1, -2</td>
</tr>
<tr>
<td><strong>Impact</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charpy Impact Strength - Notched</td>
<td>59</td>
<td>kJ/m²</td>
<td>ISO 179</td>
</tr>
<tr>
<td>(23 °C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: Failure Mode - Partial Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-20 °C)</td>
<td>4.1</td>
<td>kJ/m²</td>
<td>ISO 179</td>
</tr>
<tr>
<td>Note: Failure Mode - Partial Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-40 °C)</td>
<td>1.4</td>
<td>kJ/m²</td>
<td>ISO 179</td>
</tr>
<tr>
<td>Note: Failure Mode - Complete Break</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multi-axial Impact Strength
(23°C, 2.2 m/s, 3.2 mm plaque) 14 J ASTM D3763
Note: Failure Mode - Ductile
(-40°C, 6.6 m/s, 3.2 mm plaque) 26 J ASTM D3763
Note: Failure Mode - Ductile

Hardness
Shore Hardness, (Shore D, 15 sec) 46 ISO 868

Thermal
Vicat Softening Temperature, (A50) 112 °C ISO 306
Heat Deflection Temperature B, (0.45 MPa, Unannealed) 53 °C ISO 758-1, -2
DSC Melting Point 142 °C ISO 11357-3

Optical
Haze, (45 mil) 82 % ASTM D1003
Gloss, (60°, 45 mil) 76 ASTM D2457

Additional Information
Mold Shrinkage
Please contact LyondellBasell for shrinkage information.

Notes
These are typical property values not to be construed as specification limits.

Automotive Specifications
- FCA MS-DC243 Type B CPN 3689
- GM GMP.E/P.023

Processing Techniques
Specific recommendations for resin type and processing conditions can only be made when the end use, required properties and fabrication equipment are known.

Company Information
For further information regarding the LyondellBasell company, please visit http://www.lyb.com/.

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