Product Data Sheet

SUMITOMO POLYPROPYLENE
FS3011E
Homopolymer, Biaxially Oriented Film

Applications
For printing lamination, adhesive tape, food packaging, cigarette packaging, etc.

Characteristics
Medium flow BOPP with excellent clarity, gloss and stiffness. Excellent processability and suitable for metallization.

Typical Processing Conditions
- Extrusion temperature: 190 – 250 °C
- Stretching temperature: 130 – 160 °C
- Stretching ratio MD / TD: 4 – 7 / 7 – 10

Typical Properties

<table>
<thead>
<tr>
<th>Physical</th>
<th>Value</th>
<th>Unit</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melt Flow Rate</td>
<td>230 °C, 2.16 kg</td>
<td>3.0</td>
<td>g/10min</td>
</tr>
<tr>
<td>Density</td>
<td>0.9</td>
<td>g/cm³</td>
<td>ASTM D792-A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mechanical</th>
<th>Value</th>
<th>Unit</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>32</td>
<td>MPa</td>
<td>ASTM D638</td>
</tr>
<tr>
<td>Tensile Elongation</td>
<td>9</td>
<td>%</td>
<td>ASTM D638</td>
</tr>
<tr>
<td>Flexural Modulus</td>
<td>1265</td>
<td>MPa</td>
<td>ASTM D790</td>
</tr>
<tr>
<td>Flexural Strength</td>
<td>35</td>
<td>MPa</td>
<td>ASTM D790</td>
</tr>
<tr>
<td>Izod Impact, Notched</td>
<td>23 °C</td>
<td>2.8</td>
<td>kJ/m²</td>
</tr>
<tr>
<td>Rockwell Hardness</td>
<td>98</td>
<td></td>
<td>ASTM D785</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Film</th>
<th>Value</th>
<th>Unit</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength at Break</td>
<td>MD / TD</td>
<td>100 / 215</td>
<td>MPa</td>
</tr>
<tr>
<td>Tensile Elongation at Break</td>
<td>MD / TD</td>
<td>85 / 15</td>
<td>%</td>
</tr>
<tr>
<td>Tensile Modulus, 1% Secant</td>
<td>MD / TD</td>
<td>2100 / 3850</td>
<td>MPa</td>
</tr>
<tr>
<td>Haze</td>
<td>0.1</td>
<td>%</td>
<td>ASTM D1003</td>
</tr>
<tr>
<td>Gloss</td>
<td>45°</td>
<td>155</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thermal</th>
<th>Value</th>
<th>Unit</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vicat Softening Temperature</td>
<td>10 N</td>
<td>153</td>
<td>°C</td>
</tr>
</tbody>
</table>

The values shown are typical values measured on the product and are not to be considered as guaranteed specifications; actual test results may vary.

Test specimen preparation conditions: as per ASTM D4101
Film fabrication conditions: monolayer film produced on sequential biaxially oriented film machine, MDO stretch ratio 5, TDO stretch ratio 8, thickness 20 μm
Manufacturer
FS3011E is manufactured in Saudi Arabia by Rabigh Refining & Petrochemical Co. (Petro Rabigh). Petro Rabigh is an ISO 9001, ISO 14001 and OHSAS 18001 certified company.

Food Contact Application
Unmodified FS3011E complies with the requirements of:
- US FDA Regulation 21 CFR 177.1520 and its amendments
Please contact your nearest SCA representative for more information.

Restriction of Hazardous Substances
The substances regulated under EU Directive 2011/65/EC and its amendment on RoHS in electrical and electronic equipment, are not used in the manufacturing process of FS3011E and are therefore not expected to be present.

Storage and Handling
FS3011E is supplied in 25 kg bags or in bulk containers depending on packaging options available for different markets. It is advisable to store in a well ventilated storage facility, protected from rain, direct exposure to sunlight, temperature and dust.
Moisture may accumulate inside the packaging if there is a significant fluctuation in ambient temperature and high relative humidity. If this occurs, customer is strongly advised to dry the resin prior to use. Direct exposure to sunlight and excessive ambient temperature may affect the properties, appearance and odor characteristic of the resin.
It is recommended to process FS3011E within six months upon receipt.
Please refer to the Safety Data Sheet (SDS) for information regarding industrial health and safety issues.

Disposal and the Environment
SCA prioritizes environmental management in all our operations in responsibility and respect towards the community and the environment.
Unmodified FS3011E is readily recyclable, both for reuse via reprocessing and for energy reclamation through incineration. If disposed in landfill, our products, which are inert materials, do not pose pollution risks since they do not generate gaseous or liquid emissions.

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