DuPont™ Appeel® 72D811 resins Product Data Sheet

Description

Product Description
DuPont™ Appeel® 72D811 resin is designed to be a sealing layer to film or sheet lidding applications. It provides a peelable seal to a number of materials including HDPE, LLDPE, LDPE, EVA, and Ionomer.

Appeel® 72D811 is a modified ionomer polymer available in pellet form for use in conventional extrusion and coextrusion equipment designed to process polyethylene resins.

Restrictions

Material Status
• Developmental: Active

Typical Characteristics

Uses
• Lidding Sealant

Characteristics / Benefits
Appeel® 72D811 can be processed in blown film and cast film processes.

Typical Properties

Physical
• Density (g/cm³) 0.93
• Melt Flow Rate (190°C/2.16kg) 6.9 g/10 min

Test Method(s)
ASTM D792
ISO 1183
ASTM D1238
ISO 1133

Thermal
• Melting Point (DSC) 94°C (201°F)

Test Method(s)
ASTM D3418
ISO 3146

The performance of any sealant resin should be evaluated within the context of the application. The sealant is designed to bond to particular substrate(s). Many variables can affect seal strength, including the physical properties of the substrate being sealed to, thickness, flange or surface design, heat seal temperature, dwell time and pressure. The condition and type of the sealing equipment used, such as roller sealers versus platen seal mechanisms can make a significant difference.

In most cases sealant peel strength is used as a measure of performance. Although this is a convenient test, peel strength is affected not only by substrate adhesion but also by peel angle, separation rate, ambient temperature, tensile and modulus properties of the materials, and often by the time elapsed since the formation of the bond.

If sealant peel strength is used as a measure of sealant performance, it is imperative that peel strength be evaluated not only at the time of initial heat sealing the lid to the substrate, but throughout the life of the product and under all the conditions to which the sealant will be exposed. Only then does peel strength provide a reliable indication of adhesive performance in the specific application.
### Processing Information

**General**

- **Maximum Processing Temperature**: 260°C (500°F)

**General Processing Information**

If the process is stopped for short periods of time, the screw for the Appeel® extruder should be kept turning at a low rpm to keep material flowing.

After processing Appeel®, purge the material out using a polyethylene resin, preferably with a lower melt flow rate than the Appeel® resin in use. The "Disco Purge Method" is suggested as the preferred purging method, as this method usually results in a more effective purging process. Information on the Disco Purge Method can be obtained via your DuPont Sales Representative.

Never shut down the extrusion system with Appeel® in the extruder and die. Properly purge out the Appeel® with a polyethylene, and shut down the line with polyethylene or polypropylene in the system.

Materials of construction used in the processing of this resin should be corrosion resistant. Stainless steels of the types 316, 15-5PH, and 17-4PH are excellent, as is quality chrome or nickel plating, and in particular duplex chrome plating. Type 410 stainless steel is satisfactory, but needs to be tempered at a minimum temperature of 600°C (1112°F) to avoid hydrogen-assisted stress corrosion cracking. Alloy steels such as 4140 are borderline in performance. Carbon steels are not satisfactory. While stainless steels can provide adequate corrosion protection, in some cases severe purging difficulties have been encountered. Nickel plating has been satisfactory, but experiments have shown that chrome surfaces have the least adhesion to acid containing polymers. In recent years, the quality of chrome plating has been deteriorating due to environmental pressures, and the corrosion protection has not always been adequate. Chrome over top of stainless steel seems to provide the best combination for corrosion protection and ease of purging.

<table>
<thead>
<tr>
<th>Blown Film Processing</th>
<th>Nominal Values</th>
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</thead>
<tbody>
<tr>
<td>Blown Film Processing Information</td>
<td>Blown Film: In blown film coextrusion processes the temperature of the Appeel® 72D811 should be maintained in the 160 - 185°C range.</td>
</tr>
<tr>
<td>Feed Zone</td>
<td>135°C (275°F)</td>
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<tr>
<td>Second Zone</td>
<td>160°C (320°F)</td>
</tr>
<tr>
<td>Third Zone</td>
<td>185°C (365°F)</td>
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<tr>
<td>Fourth Zone</td>
<td>185°C (365°F)</td>
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<tr>
<td>Fifth Zone</td>
<td>185°C (365°F)</td>
</tr>
<tr>
<td>Adapter Zone</td>
<td>185°C (365°F)</td>
</tr>
<tr>
<td>Die Zone</td>
<td>173°C (343°F)</td>
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<table>
<thead>
<tr>
<th>Cast Film / Sheet Processing</th>
<th>Nominal Values</th>
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</thead>
<tbody>
<tr>
<td>Cast Film / Sheet Processing Information</td>
<td>Cast Film: In cast film coextrusion processes the temperature of the Appeel® 72D811 should be maintained in the 185 - 235°C range.</td>
</tr>
<tr>
<td>Feed Zone</td>
<td>135°C (275°F)</td>
</tr>
<tr>
<td>Second Zone</td>
<td>160°C (320°F)</td>
</tr>
<tr>
<td>Third Zone</td>
<td>185°C (365°F)</td>
</tr>
<tr>
<td>Fourth Zone</td>
<td>210°C (410°F)</td>
</tr>
<tr>
<td>Fifth Zone</td>
<td>210°C (410°F)</td>
</tr>
<tr>
<td>Adapter Zone</td>
<td>210°C (410°F)</td>
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</table>
Die Zone 210°C (410°F)

FDA Status Information

Appeel® 72D811 resin complies with Food and Drug Administration Regulation 21 CFR 177.1330, subject to the limitations and requirements therein. This Regulation describes polymers that may be used in contact with food, subject to the finished food-contact article meeting the extractive limitations under the intended conditions of use, as shown in paragraph (c) of the Regulation.

The information and certifications provided herein are based on data we believe to be reliable, to the best of our knowledge. The information and certifications apply only to the specific material designated herein as sold by DuPont and do not apply to use in any process or in combination with any other material. They are provided at the request of and without charge to our customers. Accordingly, DuPont cannot guarantee or warrant such certifications or information and assumes no liability for their use.

Regulatory Information

In Europe a diversity of regulations apply in various countries. In addition, constant changes linked to the effort of their harmonization under the umbrella of European Union Directive can be observed. This makes it impossible to accurately describe the food contact status in this brochure. Updated statements describing the situation in the various European countries can be obtained through your local sales representative.

Safety & Handling

For information on appropriate Handling & Storage of this polymeric resin, please refer to the Material Safety Data Sheet.

A Product Safety Bulletin, Material Safety Data Sheet, and/or more detailed information on extrusion processing and/or compounding of this polymeric resin for specific applications are available from your DuPont Packaging and Industrial Polymers representative.

Read and Understand the Material Safety Data Sheet (MSDS) before using this product

Regional Centres

DuPont operates in more than 70 countries. For help finding a local representative, please contact one of the following regional customer contact centers:

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This data sheet is effective as of 01/11/2011 02:46:58 PM and supersedes all previous versions.