DuPont™ Appeel® 2044 is a blown or cast film resin designed to be a sealing layer for lidding applications. It provides a peelable seal over a broad temperature range to a number of container materials including ABS, CPET, HDPE, PETG, PP, PS, and APET. It will provide stronger seals to HIPS, PVC, and HDPE. Appeel® 2044 is a modified ethylene vinyl acetate polymer available in pellet form for use in conventional extrusion and coextrusion equipment designed to process polyethylene resins.

**Restrictions**

**Material Status**

- Commercial: Active

**Typical Characteristics**

**Uses**

- Lidding Sealant

**Typical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Nominal Values</th>
<th>Test Method(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>0.95</td>
<td>ASTM D792</td>
</tr>
<tr>
<td>Melt Flow Rate (190°C/2.16kg)</td>
<td>2.6 g/10 min</td>
<td>ISO 1183</td>
</tr>
<tr>
<td><strong>Thermal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting Point (DSC)</td>
<td>79°C (174°F)</td>
<td>ASTM D3418</td>
</tr>
<tr>
<td>Vicat Softening Point ()</td>
<td>54°C (129°F)</td>
<td>ASTM D1525</td>
</tr>
</tbody>
</table>

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 235°C (455°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.

Blown Film Processing

Nominal Values

Blown Film Processing Information

Blown Film: In blown film coextrusion processes the temperature of the Appeel® 2044 should be maintained in the 160 - 185°C range. It is also important that the Appeel® 2044 be supported with materials having sufficient melt strength.

Additive package: For blown film processing, it is suggested to add 3% to 5% of DuPont Elvax CE9619-1, a special slip and antiblock masterbatch. This masterbatch addition facilitates better web handling and roll formation.

Following is an example of a suggested temperature profile for blown film processing. Adjustments would then be made to suit the individual process and applications needs.

Feed Zone 140°C (284°F)
Second Zone 150°C (302°F)
Third Zone 160°C (320°F)
Fourth Zone 180°C (356°F)
Fifth Zone 180°C (356°F)
Adapter Zone 180°C (356°F)
Die Zone 170°C (338°F)

FDA Status Information

APPEEL® 2044 Lidding Sealant Resin complies with Food and Drug Administration Regulation 21 CFR 175.105 - - Adhesives. This Regulation describes adhesives that may be used as components of articles intended for use in packaging, transporting, or holding food, subject to the limitations and requirements therein.

APPEEL® 2044 Lidding Sealant Resin also complies with Food and Drug Administration Regulation 21 CFR 177.1350 - - Ethylene-vinyl acetate copolymers, 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 (b)(1) 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.

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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CAUTION: Do not use DuPont materials in medical applications involving implantations in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of DuPont POLICY Regarding Medical Applications H-50103-3 and DuPont CAUTION Regarding Medical Applications H-50102-3.

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This data sheet is effective as of 08/07/2010 02:00:22 PM and supersedes all previous versions.