



APPEEL™ 72D811

Peelable Resin

Description

Product Description

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

Commercial: Active

Typical Characteristics

Uses

Lidding Sealant

Applications

APPEEL™ 72D811 is typically utilized in blown film and cast film processes.

Typical Properties

Physical

Nominal Values

Test Method(s)

*Density ()

0.93 g/cm³

ASTM D792

ISO 1183

*Melt Flow Rate (190°C/2.16kg)

6.9 g/10 min

ASTM D1238

ISO 1133

Thermal

Nominal Values

Test Method(s)

*Melting Point (DSC)

94 °C (201.2 °F)

ASTM D3418

ISO 3146

Heat Seal Evaluation

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

*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 Dow 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.

**Blown Film Processing
Processing Information**

Nominal Values

Blown Film: In blown film coextrusion processes the temperature of the APPEEL™ 72D811 should be maintained in the 160 - 185° C range.

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	135 °C (275 °F)
Second Zone	160 °C (320 °F)
Third Zone	185 °C (365 °F)
Fourth Zone	185 °C (365 °F)
Fifth Zone	185 °C (365 °F)
Adapter Zone	185 °C (365 °F)
Die Zone	173 °C (343.4 °F)

**Cast Film / Sheet Processing
Processing Information**

Nominal Values

Cast Film: In cast film coextrusion processes the temperature of the APPEEL™ 72D811 should be maintained in the 185 - 235° C range.

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

Feed Zone	135 °C (275 °F)
Second Zone	160 °C (320 °F)
Third Zone	185 °C (365 °F)
Fourth Zone	210 °C (410 °F)
Fifth Zone	210 °C (410 °F)
Adapter Zone	210 °C (410 °F)
Die Zone	210 °C (410 °F)

**Extrusion Coating/Lamination
Processing Information**

Nominal Values

Extrusion Coating: the temperature of the APPEEL™ 72D811 should be maintained in the 235 - 260° C range.

Following is an example of a suggested initial temperature profile for processing. Adjustments would then be made to suit the individual process and applications needs. Temperatures beyond zone 3 can be increased up to 260C (500F) if needed, but in general run as cool as possible while achieving the desired performance.

Feed Zone	160 °C (320 °F)
Second Zone	210 °C (410 °F)
Third Zone	235 °C (455 °F)
Fourth Zone	248 °C (478.4 °F)
Fifth Zone	248 °C (478.4 °F)
Adapter Zone	248 °C (478.4 °F)
Die Zone	248 °C (478.4 °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.

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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 Dow representative.

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Published August 2019

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Version: 214.0

Last modified at 8/31/2019 11:28 AM