



APPEEL™ 20D828

Peelable Resin

General Information

Product Description

APPEEL™ 20D828 is a modified ethylene acrylate resin designed to function as a sealing layer for lidding applications. It is most often suggested to provide strong peelable seals over a broad temperature range to a number of container materials including PP, PS, PET, PVC, Aclar™, Barex™, and certain epoxy coatings.

APPEEL™ 20D828 is available in pellet form for use in conventional extrusion and coextrusion equipment designed to process polyethylene resins.

Status

Material Status

Commercial: Active

Typical Characteristics

Uses

Lidding Sealant

Features

Low seal initiation temperature, wide process window and strong seals to multiple substrates

Characteristics / Benefits

Contains amide slip agent

Applications

General purpose peelable sealant for PP, PS, PET, PVC, Aclar™ and Barex™, and certain epoxy coatings. (This resin will also seal to HDPE, providing seals ranging from very strong peelable to full lock up, dependent upon the container flange width and sealing conditions.)

Note: films made with APPEEL™ 20D828 are translucent in appearance.

Typical Properties

Physical	Nominal Values	Test Method(s)	
*Density ()	1.02 g/cm ³	ASTM D792	ISO 1183
*Melt Flow Index (190°C/2.16kg)	13.0 g/10 min	ASTM D1238	ISO 1133
Thermal	Nominal Values	Test Method(s)	
*Melting Point(DSC)	97 °C (206.6 °F)	ASTM D3418	ISO 3146
Vicat Softening Point ()	58 °C (136.4 °F)	ASTM D1525	ISO 306

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** 240 °C (464 °F)

General Processing Information APPEEL™ 20D828 is moisture sensitive and drying is recommended for 5 hours at 55° C (131° F) before processing, if the bag or box liner has been previously opened. A dessicated air dryer with a dewpoint of -40C (-40F) is recommended.

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.

Blown Film

Nominal Values

Processing Information

APPEEL™ 20D828 can be processed at temperatures up to 240° C (464° F).

It is suggested that APPEEL™ 20D828 process temperatures be maintained in the 150° C - 190° C (302° F - 356° F) range.

Process temperatures above 190°C (374°F) can result in high sticking of the film.

Due to the higher melt flow rate of APPEEL™ 20D828, it is critical to coextrude with materials of sufficient melt strength.

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)

Extrusion Coating/Lamination

Nominal Values

Processing Information

The melt temperature of APPEEL™ 20D828 should be maintained in the 180°C - 240°C (356°F - 464°F) range in extrusion coating processes.

Selection of a specific melt temperature will depend on screw configuration, potential power limitations, and the need to match melt viscosities. However, melt temperatures above 240°C (464°F) should be avoided because of possible thermal degradation of the resin.

Feed Zone 160 °C (320 °F)

Second Zone 185 °C (365 °F)

Third Zone 210 °C (410 °F)

Fourth Zone 235 °C (455 °F)

Fifth Zone 235 °C (455 °F)

Adapter Zone 235 °C (455 °F)

Die Zone 235 °C (455 °F)

APPEEL™ 20D828 resin complies with Food and Drug Administration Regulation 21 CFR 175.105 - - Adhesives. This Regulation describes adhesives that may be used



Information



as components of articles intended for use in packaging, transporting, or holding food, subject to the limitations and requirements therein.

APPEEL™ 20D828 resin also complies with Food and Drug Administration Regulation 21 CFR 175.320 - Resinous and polymeric coatings for polyolefin films, subject to the limitations and requirements therein. This Regulation describes resinous and polymeric coatings for polyolefin films that may be used in contact with food under Conditions of Use C through H (as described in Table 2 of 21 CFR 176.170(c)), 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 Dow 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, Dow 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.

