



Dow Packaging & Specialty Plastics

Product Data Sheet

APPEEL™ 20D784

Peelable Resin

General Information

Product Description APPEEL™ 20D784 is a modified ethylene acrylate resin designed to function as a sealing layer for lidding applications. It is most often suggested to provide peelable seals over a broad temperature range to a number of container materials including PP, PS, PET, and some PVC types. APPEEL™ 20D784 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

Characteristics / Benefits Contains amide slip agent

Typical Properties

Physical	Nominal Values	Test Method(s)	
*Density ()	0.93 g/cm ³	ASTM D792	ISO 1183
*Melt Flow Index (190°C/2.16kg)	9.0 g/10 min	ASTM D1238	ISO 1133
Thermal	Nominal Values	Test Method(s)	
*Melting Point (DSC)	98 °C (208.4 °F)	ASTM D3417	ISO 3146
Vicat Softening Point ()	60 °C (140 °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 300 °C (572 °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.

Blown Film

Nominal Values

Processing Information

Blown Film: In blown film coextrusion processes the temperature of the APPEEL™ 20D784 should be maintained in the 160 - 185° C range. It is also important that the APPEEL™ 20D784 be supported with materials having sufficient melt strength.

Additive package: For blown film processing, it is suggested to add 3% to 5% of 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	130 °C (266 °F)
Second Zone	150 °C (302 °F)
Third Zone	170 °C (338 °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)

Cast Film / Sheet

Nominal Values

Processing Information

Cast Film: The melt temperature of APPEEL™ 20D784 should be maintained in the 210 - 260°C range in cast film 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 300C (572F) should be avoided because of possible thermal degradation of the resin.

Following is an example for suggested temperature profile on the high side of the processing range. Lower temperatures in the final metering zone, adapter and die are suggested if compatible with the process and application.

Feed Zone	160 °C (320 °F)
Second Zone	185 °C (365 °F)
Third Zone	235 °C (455 °F)
Fourth Zone	260 °C (500 °F)
Fifth Zone	260 °C (500 °F)
Adapter Zone	260 °C (500 °F)
Die Zone	260 °C (500 °F)

Extrusion Coating/Lamination

Nominal Values

Processing Information

Extrusion Coating: The melt temperature of APPEEL™ 20D784 should be maintained in the 235 - 285°C 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 300C (572F) should be avoided because of possible thermal degradation of the resin.

Following is an example for suggested temperature profile on the high side of the processing range. Lower temperatures in the final metering zone, adapter and die are suggested if compatible with the process and application.

Feed Zone	160 °C (320 °F)
Second Zone	210 °C (410 °F)
Third Zone	235 °C (455 °F)

Fourth Zone	260 °C (500 °F)
Fifth Zone	285 °C (545 °F)
Adapter Zone	285 °C (545 °F)
Die Zone	285 °C (545 °F)

FDA Status Information

APPEEL™ 20D784 resin complies with Food and Drug Administration Regulation 21 CFR 177.1340 - - Ethylene-methyl acrylate copolymer resins, 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) 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.

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.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

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Any and all medical application use of Dow materials, whether a device, a component, or any type of primary or secondary packaging of a medically related object or substance, needs to be reviewed and approved by Dow before any Dow material can be tested in such application.

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For further information contact your Dow sales or technical representative to request a Medical Application Review Request Form.

Additional details of Dow's Medical Applications Policy are available at:

<https://www.dow.com/en-us/support/product-safety.html>

Tobacco and Marijuana Policy

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Harmful Applications Policy

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For additional information, not covered by the content of this document, contact us via our web site

http://www.dow.com/products_services

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P&SP Disclaimer

Additional Information

To contact Dow via Toll-Free or Local Toll phone numbers in specific countries, please see the following webpage:

<https://www.dow.com/en-us/support/contact-representative.html>

<http://www.dow.com>

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