



Dow Packaging & Specialty Plastics

Product Data Sheet

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)

FDA Status Information

APPEEL™ 20D828 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™ 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.

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

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Medical Applications Policy

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.

Dow requests that customers considering use of Dow products in medical applications notify Dow so that appropriate assessments may be conducted. Dow does not endorse or claim suitability of its products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Dow product is safe, lawful, and technically suitable for the intended use. **DOW MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF ANY DOW PRODUCT FOR USE IN MEDICAL APPLICATIONS.**

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

Dow does not support or intend for its products to be used, directly or indirectly, in the production of tobacco, the manufacture of tobacco products, the manufacture and use of electronic cigarettes (including vaping devices), the production of marijuana, or the manufacture of marijuana products intended for human consumption, where the Dow product (or its residues) may be present in the finished product or be alleged to facilitate the delivery of nicotine, other tobacco components, marijuana, or marijuana components.

Harmful Applications Policy

Dow does not intend for its products to be used in applications specifically intended to harm humans.

Disclaimer

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, the Customer is responsible for determining whether products and the information in this document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Dow assumes no obligation or liability for the information in this document. **NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.**

NOTICE: If products are described as "experimental" or "developmental": (1) product specifications may not be fully determined; (2) analysis of hazards and caution in handling and use are required; (3) there is greater potential for Dow to change specifications and/or discontinue production; and (4) although Dow may from time to time provide samples of such products, Dow is not obligated to supply or otherwise commercialize such products for any use or application whatsoever.

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

http://www.dow.com/products_services

Revision Date: 26-February-2021
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>

Updated February 2021

© 2019 The Dow Chemical Company

Version: 242.0
Last modified at 10/16/2019 3:49 PM

Form No. 914-010-01-0221 DOW