Dow Packaging & Specialty Plastics

Product Data Sheet

APPEEL™ 55010

Peelable Resin

General Information

Product Description	APPEEL™ 55010 is a modified polyolefin resin designed to function as a sealing layer for lidding applications, most commonly sealing to polyproylene. It is available in pellet form for use in conventional extrusion or coextrusion equipment designed to process polyethylene resins.

Status

Material Status	Commercial: Active

Typical Characteristics

Uses	Lidding Sealant
Applications	- APPEEL™ 55010 has strong sealability to PP and allows a peelable seal from it. - Boiling resistance. APPEEL™ 55010 endures boiling process. - In the case of: OPET/ adh // APPEEL™ 55010 , these film structures endure boiling condition at 120C / 30min Typical structures for this lidding would be: OPET / adhesive // APPEEL™ 55010 OPET / adhesive // coex film with APPEEL™ 55010 APPEEL™ 55010 is used as a heat seal layer in lidding material for injection molded and vacuum molded PP containers used in the packaging of puddings, jelly, and other food items.

Typical Properties

Physical	Nominal Values	Test Method(s)	
*Density ( )	0.92 g/cm³	ASTM D792	ISO 1183
*Melt Flow Index (190°C/2.16kg)	2.5 g/10 min	ASTM D1238	ISO 1133

Thermal	Nominal Values	Test Method(s)	
*Melting Point (DSC)	142 °C (287.6 °F)	ASTM D3418	ISO 3146
Vicat Softening Point ( )	99 °C (210.2 °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	280 °C (536 °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: The melt temperature of APPEEL™ 55010 should be maintained in the 160 - 185ºC range. 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 280C should be avoided because of possible thermal degradation of the resin. If the process is stopped for short periods of time, the APPEEL™ 55010 resin extruder should be kept turning at low rpm. For a permanent shutdown, the APPEEL™ 55010 resin should be purged out using an available polyethylene resin run at the same extrusion temperature used for the APPEEL™ 55010 resin. Never raise temperature over 280ºC until APPEEL™ 55010 resin is completely purged out. APPEEL™ 55010 requires relatively low processing temperatures and cooling the bottom of hopper due to its low Vicat point and higher comonomer level. Following is an example for suggested temperature profile on the low side of the processing range. Higher temperatures in the final metering zone, adapter and die are suggested if compatible with the process and application.
Feed Zone	135 °C (275 °F)
Second Zone	160 °C (320 °F)
Third Zone	160 °C (320 °F)
Fourth Zone	160 °C (320 °F)
Fifth Zone	160 °C (320 °F)
Adapter Zone	160 °C (320 °F)
Die Zone	160 °C (320 °F)

Cast Film / Sheet	Nominal Values
Processing Information	Cast Film: The melt temperature of APPEEL™ 55010 should be maintained in the 210 - 235ºC range. 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 280C should be avoided because of possible thermal degradation of the resin. If the process is stopped for short periods of time, the APPEEL™ 55010 resin extruder should be kept turning at low rpm. For a permanent shutdown, the APPEEL™ 55010 resin should be purged out using an available polyethylene resin run at the same extrusion temperature used for the APPEEL™ 55010 resin. Never raise temperature over 280ºC until APPEEL™ 55010 resin is completely purged out. APPEEL™ 55010 requires relatively low processing temperatures and cooling the bottom of hopper due to its low Vicat point and higher comonomer level. 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	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™ 55010 Lidding Sealant Resin complies with Food and Drug Administration Regulation 21 CFR 177.1520(c)3.2a subject to extractive limitations of 177.1330(c)** **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	**For information on regulatory compliance outside of the U.S.A., consult your local Dow 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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https://www.dow.com/en-us/support/product-safety.html

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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

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