



Bynel® 4033

DuPont Packaging & Industrial Polymers - High Density Polyethylene

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General Information

Product Description

BYNEL® Series 4000 resins are anhydride-modified, high-density polyethylene resins. They are available in pellet form for use in conventional extrusion and coextrusion equipment designed to process polyethylene (PE) resins.

BYNEL 4033 is a grade with a higher level of anhydride modification, and is mainly intended for use as a component in a blend with other polyolefin resins. It is not intended for extrusion in its pure form in typical extrusions or coextrusions.

BYNEL Series 4000 resins are excellent moisture barriers and have a good hydrocarbon resistance. This unique combination of properties makes them useful in a variety of coextrusion applications. HDPE/EVOH tubing and HDPE/polyamide bottles for agricultural chemicals are two examples.

BYNEL 4000 series resins are most often used in coextrusion with EVA, EVOH, polyamide and PE.

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Features	• Hydrocarbon Resistant		
Uses	• Agricultural Applications • Blending	• Bottles • Tubing	
Agency Ratings	• FDA 21 CFR 175.105		
Forms	• Pellets		
Processing Method	• Coextrusion	• Extrusion	

ASTM & ISO Properties ¹

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	0.952		ASTM D792
Density	0.950	g/cm ³	ISO 1183
Melt Mass-Flow Rate (190°C/2.16 kg)	2.0	g/10 min	ASTM D1238
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	2.0	g/10 min	ISO 1133
Thermal	Nominal Value	Unit	Test Method
Vicat Softening Temperature	262	°F	ASTM D1525
Vicat Softening Temperature	262	°F	ISO 306
Peak Melting Temperature	275	°F	ASTM D3418
Melting Temperature (DSC)	275	°F	ISO 3146
Freezing Point			
--	237	°F	ASTM D3418
--	237	°F	ISO 3146

Processing Information

Extrusion	Nominal Value	Unit
Cylinder Zone 1 Temp.	320	°F
Cylinder Zone 2 Temp.	365	°F
Cylinder Zone 3 Temp.	455	°F
Cylinder Zone 4 Temp.	455	°F
Cylinder Zone 5 Temp.	455	°F
Adapter Temperature	455	°F

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Extrusion	Nominal Value	Unit
Melt Temperature	< 500	°F
Die Temperature	455	°F

Extrusion Notes

Processing conditions shown are for coextrusion with EVOH.

Processing conditions for coextrusion with nylon:

Zone 1: 160°C

Zone 2: 185°C

Zone 3: 235°C

Zone 4: 260°C

Zone 5: 260°C

Adapter: 260°C

Die: 260°C

Notes

¹ Typical properties: these are not to be construed as specifications.