

Provisional Product Data Sheet

Mirel™ P3001/ F3002

Thermoforming Grade

Mirel P3001 is a general purpose, high melt strength grade suitable for sheet extrusion and thermoforming.

Mirel F3002 is pending FDA clearance for use in non-alcoholic food contact applications, from frozen food storage and microwave reheating to boiling water up to 212°F. The pending FDA clearance will include products such as house-wares, cosmetics and medical packaging.

Mirel is suitable for a wide range of thermoformed food service and packaging applications including tubs, trays, and a variety of consumer product applications.

Provisional Material Properties*

	Method	P3001/F3002
General Description		General Purpose
<i>Physical Properties</i>		
Apparent Melt Viscosity (180°C, 100 sec ⁻¹)	ASTM D3835	1700 Pa-s
Specific Gravity	ASTM D792	1.29 g/cm ³
<i>Mechanical Properties</i>		
Tensile Strength at Yield	ASTM D638	19 MPa (2800 psi)
Tensile Elongation at Break	ASTM D638	13%
Flexural Modulus	ASTM D790 A	1.48 GPa (214 kpsi)
Notched Izod	ASTM D256 A	6 kJ/m ² (0.7 ft-lbs/in)
<i>Thermal Properties</i>		
Heat Distortion Temperature	ASTM D648 B ASTM D648 B	116°C (241°F)@0.44 MPa (66 psi) 64°C (147°F)@1.80 MPa (264 psi)
Vicat Softening Point	ASTM D1525 A10	136°C (277°F)

*Properties are not to be regarded as specifications.

Processing Recommendations*

<i>Equipment Recommendations</i>	
Screw Profile	Low compression ratio (<3). Any mixing sections should be low shear design.

<i>Material Preparation</i>	
Moisture Content	<0.1%
Drying Conditions	4 hours @ 80°C (176°F)
<i>Processing Temperatures</i>	
Melt	165°C-170°C (330°F-340°F)
Extruder Temperature Profile	Reverse Temperature Profile
Rear	175°C (350°F)
Middle	170°C (340°F)
Front	165°C (330°F)
Die – Center Zone	165°C (330°F)
Die – Edge Zones	165°C (330°F)
A-roll (Top roll of a down-stack)	<32°C (90°F)
B-roll (Middle roll)	50°C-65°C (120°F-150°F)
C-roll (Bottom roll of a down-stack)	65°C (150°F)

* Typical conditions are not to be regarded as specifications.

About Mirel Bioplastics

Mirel is a family of bioplastic materials that have physical properties comparable to petroleum-based resins, yet are both biobased and biodegradable in natural soil and water environments, home composting systems, and industrial composting facilities, where these facilities are available. The rate and extent of Mirel's biodegradability will depend on the size and shape of the articles made from it. However, like nearly all bioplastics and organic matter, Mirel is not designed to biodegrade in conventional landfills.

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innovative bioplastics solutions to the world