



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 thermoforming food contact grade is suitable for a wide range of thermoformed food service and packaging applications including cold and hot cups, cup lids, yogurt containers, tubs and trays for meats and vegetables, condiments cups, other single-serve and disposable food packaging. The material is suitable for storage as well as food service, from frozen food storage and microwave reheating to boiling water up to 212°F.

Provisional Material Properties*

	ASTM Method	P3001/F3002
General Description		General Purpose
Physical Properties		
Apparent Melt Viscosity (180°C, 100 sec ⁻¹)	D3835	1700 Pa-s
Specific Gravity	D792	1.29 g/cm ³
Mechanical Properties		
Tensile Strength at Yield	D638	19 MPa (2800 psi)
Tensile Elongation at Break	D638	13%
Flexural Modulus	D790 A	1.48 GPa (214 kpsi)
Notched Izod	D256 A	37 J/m (0.7 ft-lbs/in)
Permeability		
Oxygen Transmission Rate	D3985	26 cm ³ -mil/(100in ² -day)
Water Vapor Transmission Rate	F1249	19 g-mil/(100in ² -day)
Thermal Properties		
Heat Distortion Temperature	D648 B D648 B	116°C (241°F)@0.44 MPa (66 psi) 64°C (147°F)@1.80 MPa (264 psi)
Vicat Softening Point	D1525 A10	136°C (277°F)

*Properties are not to be regarded as specifications.



Processing Recommendations*

Equipment Recommendations	
Screw Profile	Low compression ratio (<3). Any mixing sections should be low shear design.
Material Preparation	
Moisture Content	<0.1%
Drying Conditions	4 hours @ 80°C (176°F)
Processing Temperatures	
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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