



Provisional Product Data Sheet  
**Mirel™ P1004/ F1006**  
**Injection Molding Grade**

Mirel P1004 is a general purpose injection molding grade with high toughness. Mirel F1006 is FDA cleared for use in non-alcoholic food contact applications, from frozen food storage and microwave reheating to boiling water up to 212°F. FDA clearance includes products such as house-wares, cosmetics and medical packaging.

Mirel is suitable for a wide range of injection molded food service and packaging applications including caps and closures, and disposable items such as forks, spoons, knives, tubs, trays, jars, and consumer product applications.

**Provisional Material Properties\***

	Method	P1004/F1006
<b>General Description</b>		General Purpose Higher Toughness
<i>Physical Properties</i>		
Mold Shrinkage	ASTM D955	1.25-1.55% (0.0125-0.0155 in/in)
Specific Gravity	ASTM D792	1.30
<i>Mechanical Properties</i>		
Tensile Strength	ASTM D638	24 MPa (3480 psi)
Tensile Modulus	ASTM D638	1600 MPa (232000 psi)
Tensile Elongation at Break	ASTM D638	7%
Flexural Strength	ASTM D790 A	33 MPa (4785 psi)
Flexural Modulus	ASTM D790 A	1300 MPa (188500 psi)
Notched Izod Impact Strength	ASTM D256 A	31 J/m (0.6 ft-lb/in)
<i>Thermal Properties</i>		
Heat Distortion Temperature	ASTM D648 B (0.455 MPa)	123°C (253°F)
	ASTM D648 B (1.82 MPa)	63°C (145°F)
Vicat Softening Temperature	ASTM 1525 B10	124°C (255°F)

\*Properties are not to be regarded as specifications.



**Processing Recommendations\***

Drying Conditions	(Dessicant) 2 to 4 hours @ 80°C (176°F)
Melt Temperature	160°C-165°C (320°F-329°F)

<b><i>Equipment Recommendations</i></b>	
Screw Profile	(Low Shear GP) 2.2:1 to 2.6:1
Non-Return Valve	Standard Check Ring

<b><i>Processing Conditions</i></b>	
Barrel Zone Settings	Reverse Temperature Profile
Rear	175°C-180°C (347°F-356°F)
Middle	170°C-175°C (338°F-347°F)
Front	165°C-170°C (329°F-338°F)
Nozzle	165°C-170°C (329°F-338°F)
Mold Temperature (A/B)	55°C-65°C (131°F-149°F)
Screw Speed (Slow)	< 200 rpm
Back Pressure (Low)	< 3.45 MPa (500 psi) Melt
2nd Stage Pressure (Low)	< 30% of 1st Stage Pressure

\*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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PDS P1004-F1006 rev. July 10