

Provisional Product Data Sheet
Mirel™ P1003/ F1005
Injection Molding Grade

Mirel P1003 is a general purpose injection molding grade with high modulus. Mirel F1005 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	P1003/F1005
General Description		General Purpose Higher Modulus
Physical Properties		
Mold Shrinkage	ASTM D955	1.25-1.55% (0.0125-0.0155 in/in)
Specific Gravity	ASTM D792	1.40
Mechanical Properties		
Tensile Strength	ASTM D638	25 MPa (3625 psi)
Tensile Modulus	ASTM D638	3000 MPa (435000 psi)
Tensile Elongation at Break	ASTM D638	4%
Flexural Strength	ASTM D790 A	40 MPa (5800 psi)
Flexural Modulus	ASTM D790 A	2000 MPa (290000 psi)
Notched Izod Impact Strength	ASTM D256 A	26 J/m (0.5 ft-lb/in)
Thermal Properties		
Heat Distortion Temperature	ASTM D648 B (0.455 MPa)	132°C (269°F)
	ASTM D648 B (1.82 MPa)	77°C (170°F)
Vicat Softening Temperature	ASTM1525 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)

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

Processing Conditions	
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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