

# Mirel™ P4001

Polyhydroxyalkanoate

Metabolix

## Message:

Mirel™ P4001 is a general purpose, high melt strength material suitable for cast sheet extrusion. Mirel™ P4001 is designed for a wide range of sheet applications including gift cards, promotional materials, indoor/outdoor signage, plant pots and plant tags.

Mirel™ P4001 can be processed on conventional extrusion equipment with either an up-stack or down-stack roll configuration.

General Information	
Features	Comstable
	Updatable resources
	Good melt strength
	Biodegradable
	General
Uses	Displays
	Sheet
	General
Forms	Particle
Processing Method	Extrusion
	Sheet extrusion molding

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.40	g/cm <sup>3</sup>	ASTM D792
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength (Yield)	20.0	MPa	ASTM D638
Tensile Elongation (Break)	5.0	%	ASTM D638
Flexural Modulus	1900	MPa	ASTM D790A
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact	37	J/m	ASTM D256A
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648B
0.45 MPa, not annealed	110	°C	ASTM D648B
1.8 MPa, not annealed	57.0	°C	ASTM D648B
Vicat Softening Temperature	133	°C	ASTM D1525 <sup>1</sup>
Fill Analysis	Nominal Value	Unit	Test Method
Apparent Viscosity (180°C, 100 sec <sup>-1</sup> )	1200	Pa · s	ASTM D3835
Extrusion	Nominal Value	Unit	
Drying Temperature	80.0	°C	
Drying Time	4.0	hr	

Suggested Max Moisture	0.10	%
Cylinder Zone 1 Temp.	175	°C
Cylinder Zone 2 Temp.	170	°C
Cylinder Zone 3 Temp.	165	°C
Melt Temperature	165 - 170	°C
Die Temperature	165	°C

Extruder Screw Compression Ratio <sup>2</sup>

Extrusion instructions

A-roll (Top roll of a down-stack): <32°C  
B-roll (Middle roll): 50 to 65°C  
C-roll (Bottom roll of a down-stack): 65°C

NOTE

- 标准 B (120°C/h), 压力 1 (10N)
- Any mixing sections should be low shear design.

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