# Symbios® 4102

## Polypropylene

#### Braskem

#### Message:

Braskem Symbios 4102 is a medium melt flow rate terpolymer, designed for use as a heat sealing layer on biorented films (BOPP), with heat seal temperature below 120°C on treated face. This product does not have slip and anti-blocking agents so its indicated for customized formularization. This product is appropriate for metallizing processes.

General Information			
Features	Medium Flow		
	Terpolymer		
Uses	Bi-axially Oriented Film		
	Laminates		
Agency Ratings	FDA 21 CFR 177.1520		
Processing Method	Coextruded Film		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	0.902	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/2.16 kg)	5.5	g/10 min	ASTM D1238
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	79		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength (Yield)	25.0	MPa	ASTM D638
Tensile Elongation (Yield)	13	%	ASTM D638
Flexural Modulus	700	MPa	ASTM D790
Films	Nominal Value	Unit	Test Method
Film Thickness - Tested	30	μm	
Secant Modulus			ASTM D882
1% Secant, MD : 30 μm, Blown Film	395	MPa	
1% Secant, TD : 30 μm, Blown Film	395	MPa	
Tensile Strength			ASTM D882
MD : Yield,30 μm, Blown Film	18.0	MPa	
TD : Yield,30 µm, Blown Film	16.0	MPa	
Tensile Elongation			ASTM D882
MD : Yield, 30 μm, Blown Film	16	%	
TD : Yield, 30 µm, Blown Film	13	%	
Seal Initiation Temperature (30 µm, Blown Film)	99.0	°C	
Impact	Nominal Value	Unit	Test Method

Notched Izod Impact			ASTM D256
-20°C	20	J/m	
23°C	50	J/m	
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed	48.0	°C	
1.8 MPa, Unannealed	74.0	°C	
Vicat Softening Temperature	121	°C	ASTM D1525 <sup>1</sup>
Optical	Nominal Value	Unit	Test Method
Gloss (45°, 30.0 µm, Blown Film)	96		ASTM D2457
Haze (30.0 µm, Blown Film)	0.40	%	ASTM D1003
NOTE			

1. Loading 1 (10 N)

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