

Ingeo™ 4043D

Poly(lactic Acid)

NatureWorks® LLC

Message:

Ingeo 4043D - a product from NatureWorks LLC - can be converted into a biaxially oriented film with use temperatures up to 265°F (130°C). This film has excellent optics, good machinability and excellent twist and deadfold. These properties make 4043D film an ideal candidate for candy twist wrap and other packaging applications. Additional properties include advantageous barrier to flavor and grease and superior oil resistance.

General Information			
Features	Baoxiang		
	Optical		
	Comstable		
	Updatable resources		
	Machinable		
	Oil resistance		
	Grease resistance		
	Biodegradable		
	Compliance of Food Exposure		
	General		
	Bending and Twist Persistence		
Uses	Bi-axially Oriented Film		
Agency Ratings	ASTM D 6400		
	EN 13432		
	FDA Food Exposure, Not Rated		
	Europe 10/1/2011 12:00:00 AM		
Forms	Particle		
Processing Method	Film extrusion		
Physical	Nominal Value	Unit	Test Method
Density	1.24	g/cm ³	ASTM D1505
Films	Nominal Value	Unit	Test Method
Film Thickness - Tested	25	µm	
secant modulus			ASTM D882
MD : 25 µm	3310	MPa	ASTM D882
TD : 25 µm	3860	MPa	ASTM D882
Tensile Strength			ASTM D882
MD: Yield, 25 µm	110	MPa	ASTM D882
TD: Yield, 25 µm	145	MPa	ASTM D882
Tensile Elongation			ASTM D882
MD: Break, 25 µm	160	%	ASTM D882

TD: Break, 25 µm	100	%	ASTM D882
Elmendorf Tear Strength			ASTM D1922
MD : 25 µm	15	g	ASTM D1922
TD : 25 µm	13	g	ASTM D1922
Carbon Dioxide Transmission Rate	2850	cm ³ /m ² /24 hr	Internal method
Oxygen Transmission Rate	680	cm ³ /m ² /24 hr	ASTM D1434
Water Vapor Transmission Rate	380	g·mm/m ² /atm/24 hr	ASTM F1249
Spencer Impact	2.50	J	
Thermal	Nominal Value	Unit	Test Method
Melting Temperature	145 - 160	°C	ASTM D3418
Optical	Nominal Value	Unit	Test Method
Gloss (20°)	90		ASTM D1003
Haze	2.1	%	ASTM D1003
Extrusion	Nominal Value	Unit	
Drying Temperature	79.4	°C	
Drying Time	4.0	hr	
Suggested Max Moisture	0.025	%	
Hopper Temperature	45.0	°C	
Cylinder Zone 1 Temp.	179	°C	
Cylinder Zone 2 Temp.	191	°C	
Cylinder Zone 3 Temp.	199	°C	
Adapter Temperature	199	°C	
Melt Temperature	202 - 218	°C	
Die Temperature	199	°C	
Extrusion instructions			

Screw Speed: 20-100 rpm MD Draw Temp: 140-160°F TD Draw Temp : 160-175°F Heat Set Oven: 205-285°F

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