

# Ingeo™ 4044D

Polylactic Acid

NatureWorks® LLC

## Message:

Ingeo 4044D is a NatureWorks LLC production grade that is formulated to meet the needs of reactive extrusion processes. When extruded with epoxy functional additives such as BASF Joncryl® ADR 4368C, this grade reacts and chain extends / branches consistently resulting in higher shear viscosity and improved melt strength. Typical addition rates of Joncryl® materials are less than 0.5% by weight. Consultation with your NatureWorks technical representative is recommended before embarking on any reactive extrusion program with this grade.

General Information			
Features	Comstable		
	Updatable resources		
	Biodegradable		
	Compliance of Food Exposure		
Agency Ratings	ASTM D 6400		
	EEC 94/62/EC Article 11		
	EN 13432		
	FDA Food Exposure, Not Rated		
	Europe 10/1/2011 12:00:00 AM		
Forms	Particle		
Processing Method	Film extrusion		
	Extrusion		
Physical	Nominal Value	Unit	Test Method
Density	1.24	g/cm <sup>3</sup>	ASTM D1505
Films	Nominal Value	Unit	Test Method
Film Thickness - Tested	25	µm	
Carbon Dioxide Transmission Rate (25 µm)	2850	cm <sup>3</sup> /m <sup>2</sup> /24 hr	Internal method
Oxygen Transmission Rate (25 µm)	680	cm <sup>3</sup> /m <sup>2</sup> /24 hr	ASTM D1434
Water Vapor Transmission Rate (25 µm)	380	g · mm/m <sup>2</sup> /atm/24 hr	ASTM F1249
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 rpmL/D ratios from 24:1 to 30:1 Compression ratio of 2.5:1 to 3:1

The information and data on this page are provided by manufacturers and document providers. SHANGHAI SUSHENG assumes no legal liability. It is strongly recommended to verify all technical data with material suppliers before final material selection. All rights belong to the original authors. If any infringement occurs, please contact us immediately.

#### Recommended distributors for this material

### Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

