

AMPLIFY™ TY 1353

Functional Polymer
The Dow Chemical Company

Message:

AMPLIFY™ TY 1353 Functional Polymer is a maleic anhydride grafted (MAH) polymer. In tie layers for flexible packaging, AMPLIFY TY 1353 Functional Polymer promotes adhesion of Polyethylene to barrier polymers such as polyamide and ethylene vinyl alcohol (EVOH) and other polar substrates.

Main Characteristics:

- Excellent adhesion to polyamide and EVOH
- Excellent physical properties
- Wide range of process and service temperature
- For blown and cast film

Complies with:

- US FDA 21 CFR 175.105
- EU, No 10/2011

Consult the regulations for complete details.

General Information			
Agency Ratings		FDA 21 CFR 175.105	
		Europe No 10/2011	
Forms		Particle	
Physical	Nominal Value	Unit	Test Method
Density	0.921	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	2.0	g/10 min	ASTM D1238
MAH Graft Level ¹	Low		Internal method
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength			ASTM D638
Yield	11.0	MPa	ASTM D638
Fracture	27.6	MPa	ASTM D638
Tensile Elongation (Break)	1700	%	ASTM D638
Flexural Modulus - 2% Secant	338	MPa	ASTM D790
Films	Nominal Value	Unit	Test Method
Film Puncture Resistance (51 µm)	15.7	J/cm³	Internal method
secant modulus			ASTM D882
2% secant, MD: 51 µm	225	MPa	ASTM D882
2% secant, TD: 51 µm	269	MPa	ASTM D882
Tensile Strength			ASTM D882
MD: Yield, 51 µm	11.6	MPa	ASTM D882
TD: Yield, 51 µm	12.6	MPa	ASTM D882
MD: Fracture, 51 µm	37.9	MPa	ASTM D882
TD: Fracture, 51 µm	33.1	MPa	ASTM D882
Tensile Elongation			ASTM D882
MD: Fracture, 51 µm	690	%	ASTM D882

TD: Fracture, 51 μm	660	%	ASTM D882
Dart Drop Impact (51 μm)	360	g	ASTM D1709
Elmendorf Tear Strength ²			ASTM D1922
MD : 51 μm	700	g	ASTM D1922
TD : 51 μm	1200	g	ASTM D1922
Thermal	Nominal Value	Unit	Test Method
Vicat Softening Temperature	101	°C	ASTM D1525
Melting Temperature (DSC)	124	°C	Internal method
Optical	Nominal Value		Test Method
Gloss (45°, 50.8 μm)	70		ASTM D2457
Extrusion	Nominal Value	Unit	
Melt Temperature	210 - 230	°C	
Extrusion instructions			
Fabrication Conditions for Blown Film Screw Size: 2.5 in. (63.5 mm); 24:1 L/D Screw Type: Barrier screw Die Gap: 70 mil (1.8 mm) Melt Temperature: 430°F (221°C) Output: 6 lb/hr/in of die circumference Die diameter: 6 in Blow-Up Ratio: 2.5:1 Screw Speed: 70 rpm			
NOTE			
1.	Low: 0.5 wt%		
2.	Method B		

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