



AMPLIFY™ TY 1353

The Dow Chemical Company - Functional Polymer

Sunday, November 3, 2019

General Information

Product Description

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

Material Status	• Commercial: Active		
Availability	• Asia Pacific • Europe	• Latin America • North America	
Additive	• Antiblock: No	• Processing Aid: No	• Slip: No
Agency Ratings	• EU No 10/2011	• FDA 21 CFR 175.105	
Forms	• Pellets		

ASTM & ISO Properties ¹

Physical	Nominal Value	Unit	Test Method
Density	0.921	g/cm ³	ASTM D792
Melt Mass-Flow Rate (190°C/2.16 kg)	2.0	g/10 min	ASTM D1238
MAH Graft Level ²	Low		Internal Method
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength (Yield)	1600	psi	ASTM D638
Tensile Strength (Break)	4010	psi	ASTM D638
Tensile Elongation (Break)	1700	%	ASTM D638
Flexural Modulus - 2% Secant	49000	psi	ASTM D790
Films	Nominal Value	Unit	Test Method
Film Puncture Resistance (2.0 mil)	190	ft·lb/in ³	Internal Method
Secant Modulus - 2% Secant, MD (2.0 mil)	32600	psi	ASTM D882
Secant Modulus - 2% Secant, TD (2.0 mil)	39000	psi	ASTM D882
Tensile Strength - MD (Yield, 2.0 mil)	1680	psi	ASTM D882
Tensile Strength - TD (Yield, 2.0 mil)	1830	psi	ASTM D882
Tensile Strength - MD (Break, 2.0 mil)	5500	psi	ASTM D882
Tensile Strength - TD (Break, 2.0 mil)	4800	psi	ASTM D882
Tensile Elongation - MD (Break, 2.0 mil)	690	%	ASTM D882
Tensile Elongation - TD (Break, 2.0 mil)	660	%	ASTM D882
Dart Drop Impact (2.0 mil)	360	g	ASTM D1709

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Films	Nominal Value	Unit	Test Method
Elmendorf Tear Strength - MD ³ (2.0 mil)	700	g	ASTM D1922
Elmendorf Tear Strength - TD ³ (2.0 mil)	1200	g	ASTM D1922
Thermal	Nominal Value	Unit	Test Method
Vicat Softening Temperature	214	°F	ASTM D1525
Melting Temperature (DSC)	255	°F	Internal Method
Optical	Nominal Value	Unit	Test Method
Gloss (45°, 2.00 mil)	70		ASTM D2457

Processing Information

Extrusion	Nominal Value	Unit
Melt Temperature	410 to 446	°F

Extrusion Notes

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

Notes

¹ Typical properties: these are not to be construed as specifications.

² Low: <0.25 wt%, Medium 0.25-0.5, High >0.5 wt%

³ Method B