



# AMPLIFY™ TY 1353 Functional Polymer

## Overview

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-Directive 2002/72/EC

Consult the regulations for complete details.

## Additive

- Antiblock: No
- Slip: No
- Processing Aid: No

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	0.921 g/cm <sup>3</sup>	0.921 g/cm <sup>3</sup>	ASTM D792
Melt Index (190°C/2.16 kg)	2.0 g/10 min	2.0 g/10 min	ASTM D1238
MAH Graft Level	Low	Low	Dow Method <sup>1</sup>
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength			ASTM D638
Yield	1600 psi	11.0 MPa	
Break	4010 psi	27.6 MPa	
Tensile Elongation (Break)	1700 %	1700 %	ASTM D638
Flexural Modulus - 2% Secant	49000 psi	338 MPa	ASTM D790
Films	Nominal Value (English)	Nominal Value (SI)	Test Method
Film Puncture Resistance (2.0 mil (51 µm))	190 ft-lb/in <sup>3</sup>	15.7 J/cm <sup>3</sup>	Dow Method
Secant Modulus			ASTM D882
2% Secant, MD: 2.0 mil (51 µm)	32600 psi	225 MPa	
2% Secant, TD: 2.0 mil (51 µm)	39000 psi	269 MPa	
Tensile Strength			ASTM D882
MD: Yield, 2.0 mil (51 µm)	1680 psi	11.6 MPa	
TD: Yield, 2.0 mil (51 µm)	1830 psi	12.6 MPa	
MD: Break, 2.0 mil (51 µm)	5500 psi	37.9 MPa	
TD: Break, 2.0 mil (51 µm)	4800 psi	33.1 MPa	
Tensile Elongation			ASTM D882
MD: Break, 2.0 mil (51 µm)	690 %	690 %	
TD: Break, 2.0 mil (51 µm)	660 %	660 %	
Dart Drop Impact (2.0 mil (51 µm))	360 g	360 g	ASTM D1709
Elmendorf Tear Strength			ASTM D1922 <sup>2</sup>
MD: 2.0 mil (51 µm)	700 g	700 g	
TD: 2.0 mil (51 µm)	1200 g	1200 g	
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Vicat Softening Temperature	214 °F	101 °C	ASTM D1525
Melting Temperature (DSC)	255 °F	124 °C	Dow Method
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Gloss (45°, 2.00 mil (50.8 µm))	70	70	ASTM D2457
Extrusion	Nominal Value (English)	Nominal Value (SI)	
Melt Temperature	410 to 446 °F	210 to 230 °C	

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**Extrusion Notes**

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## 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**

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

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<sup>1</sup> Low: <0.25 wt%, Medium 0.25-0.5, High >0.5 wt%

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<sup>2</sup> Method B

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