TUFLIN™ HS-7046 NT 7

The Dow Chemical Company - Linear Low Density Polyethylene Resin

Tuesday, November 5, 2019

General Information

Product Description

- Hexene Linear Low Density Resin
- Slot Cast Extrusion
- Outstanding Drawdown Capability
- Complies with U.S. FDA 21 CFR 177.1520 (c) 3.1a
- Consult the regulations for complete details.

TUFLIN™ HS-7046 NT 7 Linear Low Density Polyethylene Resin is an ethylene-hexene copolymer, linear low density (LLDPE) resin designed for slot cast extrusion. This product is recommended for slot cast thin film applications requiring both clarity and superior toughness as the core layer in coextruded structures.

General			
Material Status	• Commercial: Active		
Availability	• North America		
Additive	• Antiblock: No	• Processing Aid: No	• Slip: No
Agency Ratings	• FDA 21 CFR 177.1520(c) 3.1a		
Forms	• Pellets		
Processing Method	• Blown Film	• Cast Film	

ASTM & ISO Properties [1]

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	0.921		ASTM D792
Melt Mass-Flow Rate (190°C/2.16 kg)	1.0	g/10 min	ASTM D1238
Films	**Nominal Value**	**Unit**	**Test Method**
Film Puncture Energy			Internal Method
0.80 mil	41.0	in·lb	
2.0 mil	60.0	in·lb	
Film Puncture Force			Internal Method
0.80 mil	12.0	lbf	
2.0 mil	19.0	lbf	
Film Puncture Resistance			Internal Method
0.80 mil	305	ft·lb/in³	
2.0 mil	216	ft·lb/in³	
Film Toughness - MD			ASTM D882
0.80 mil	3670	ft·lb/in³	
2.0 mil	4000	ft·lb/in³	
Film Toughness - TD			ASTM D882
0.80 mil	4270	ft·lb/in³	
2.0 mil	4360	ft·lb/in³	
Secant Modulus - 2% Secant, MD			ASTM D882
0.80 mil	28400	psi	
2.0 mil	28400	psi	
Secant Modulus - 2% Secant, TD			ASTM D882
0.80 mil	32000	psi	
2.0 mil	31700	psi	

TUFLIN™ HS-7046 NT 7

The Dow Chemical Company - Linear Low Density Polyethylene Resin

Films	Nominal Value	Unit	Test Method
Tensile Strength - MD			ASTM D882
Yield, 0.80 mil	1790	psi	
Yield, 2.0 mil	1710	psi	
Tensile Strength - TD			ASTM D882
Yield, 0.80 mil	1880	psi	
Yield, 2.0 mil	2090	psi	
Tensile Strength - MD			ASTM D882
Break, 0.80 mil	9400	psi	
Break, 2.0 mil	7870	psi	
Tensile Strength - TD			ASTM D882
Break, 0.80 mil	7600	psi	
Break, 2.0 mil	7780	psi	
Tensile Elongation - MD			ASTM D882
Break, 0.80 mil	610	%	
Break, 2.0 mil	800	%	
Tensile Elongation - TD			ASTM D882
Break, 0.80 mil	860	%	
Break, 2.0 mil	820	%	
Dart Drop Impact			
0.80 mil	110	g	ASTM D1709A
0.80 mil	< 100	g	ASTM D1709B
2.0 mil	350	g	ASTM D1709A
2.0 mil	200	g	ASTM D1709B
Elmendorf Tear Strength - MD [2]			ASTM D1922
0.80 mil	370	g	
2.0 mil	950	g	
Elmendorf Tear Strength - TD [2]			ASTM D1922
0.80 mil	700	g	
2.0 mil	1300	g	
Seal Initiation Temperature [3]			Internal Method
0.80 mil	230	°F	
2.0 mil	248	°F	

Thermal	Nominal Value	Unit	Test Method
Vicat Softening Temperature	219	°F	ASTM D1525
Melting Temperature (DSC)	255	°F	Internal Method

Optical	Nominal Value	Unit	Test Method
Gloss			ASTM D2457
20°, 0.800 mil	87		
20°, 2.00 mil	64		
45°, 0.800 mil	70		
45°, 2.00 mil	59		
Haze			ASTM D1003
0.800 mil	7.00	%	
2.00 mil	14.0	%	

Additional Information	Nominal Value	Unit	Test Method
Seal Strength [4]			Internal Method
266°F, 0.8 mil	1000	g	
302°F, 2.0 mil	2100	g	

TUFLIN™ HS-7046 NT 7

The Dow Chemical Company - Linear Low Density Polyethylene Resin

Processing Information

Extrusion	Nominal Value	Unit
Melt Temperature	451	°F

Extrusion Notes

Fabrication Conditions For Blown Film:

- Screw Size: 2.5 in. (63.5 mm) 30:1 L/D
- Screw Type: DSBII
- Die Gap: 70 mil (1.8 mm)
- Melt Temperature: 451 °F (233 °C)
- Output: 6.6 lb/hr/in. of die circumference
- Die Diameter: 6 in.
- Blow-Up Ratio: 2.5 to 1
- Screw Speed: 48.1 rpm
- Frost Line Height: 25 in. (635 mm)

Notes

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

[2] Method B

[3] Temperature at which 1 lb/in. (4.4 N/25.4 mm) heat seal strength is achieved.
Heat Seal Strengths, Topwave HT Tester 0.5 S dwell, 40 psi bar pressure, pull speed 10 (in./min.).

[4] Heat Seal Strengths, Topwave HT Tester 0.5 S dwell, 40 psi bar pressure, pull speed 10 (in./min.).