

DOWLEX™ HMS 8018

Polyethylene Resin

The Dow Chemical Company

Message:

DOWLEX HMS 8018 Polyethylene Resin is designed for uses in Heavy Duty Shipping Sack application, both in industrial and consumer segments. Films made from this resin exhibit a combination of excellent toughness and tear resistance. This product also delivers good processability.

Application:

Heavy Duty Industrial and Consumer Shipping Sacks

General Information			
Forms	Particle		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	0.920	g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	0.90	g/10 min	ASTM D1238
Films	Nominal Value	Unit	Test Method
Film Thickness - Tested	25	µm	
Film Puncture Energy (25 µm)	4.97	J	Internal method
Film Puncture Force (25 µm)	53.4	N	Internal method
Film Puncture Resistance (25 µm)	25.2	J/cm ³	Internal method
Film strength			ASTM D882
MD : 25 µm	113	J/cm ³	ASTM D882
TD : 25 µm	131	J/cm ³	ASTM D882
secant modulus			ASTM D882
1% secant, MD: 25 µm	235	MPa	ASTM D882
2% secant, MD: 25 µm	207	MPa	ASTM D882
2% secant, MD: 51 µm	173	MPa	ASTM D882
1% secant, TD: 25 µm	265	MPa	ASTM D882
2% secant, TD: 25 µm	225	MPa	ASTM D882
2% secant, TD: 51 µm	181	MPa	ASTM D882
Tensile Strength			ASTM D882
MD: Yield, 25 µm	10.8	MPa	ASTM D882
MD: Yield, 51 µm	11.0	MPa	ASTM D882
TD: Yield, 25 µm	11.6	MPa	ASTM D882
TD: Yield, 51 µm	10.9	MPa	ASTM D882
MD: Break, 25 µm	45.4	MPa	ASTM D882
MD: Fracture, 51 µm	37.7	MPa	ASTM D882
TD: Break, 25 µm	41.6	MPa	ASTM D882
TD: Fracture, 51 µm	41.9	MPa	ASTM D882
Tensile Elongation			ASTM D882
MD: Break, 25 µm	570	%	ASTM D882

MD: Fracture, 51 µm	580	%	ASTM D882
TD: Break, 25 µm	750	%	ASTM D882
TD: Fracture, 51 µm	720	%	ASTM D882
Dart Drop Impact			ASTM D1709A
25 µm	210	g	ASTM D1709A
51 µm	340	g	ASTM D1709A
Elmendorf Tear Strength			ASTM D1922
MD : 25 µm	360	g	ASTM D1922
MD : 51 µm	850	g	ASTM D1922
TD : 25 µm	640	g	ASTM D1922
TD : 51 µm	1100	g	ASTM D1922
Thermal	Nominal Value	Unit	Test Method
Vicat Softening Temperature	107	°C	ASTM D1525
Melting Temperature (DSC)	119	°C	Internal method
Optical	Nominal Value	Unit	Test Method
Gloss			ASTM D2457
45°, 25.4 µm	41		ASTM D2457
45°, 50.8 µm	81		ASTM D2457
Haze			ASTM D1003
25.4 µm	16	%	ASTM D1003
50.8 µm	8.8	%	ASTM D1003
Extrusion instructions			

Fabrication Conditions for 1 mil monolayer blown film at 100%

Die Diameter: 8 in.

Screw Type: DSB II

Die Gap: 70 mil

Melt Temperature: 416°F

Output: 12 lb/hr/in. of die circumference

Screw Size: 3.5 in.

Blow-Up Ratio: 2.5 to 1

Screw Speed: 39 rpm

Frost Line Height: 46 in.

Fabrication Conditions for 2 mil monolayer blown film at 100%

Die Diameter: 5.9 in.

Die Gap: 70 mil

Melt Temperature: 428°F

Output: 50 kg/h

Screw Size: 2.3 in.

Blow-Up Ratio: 2.5 to 1

Screw Speed: 60 rpm

Frost Line Height: 19.7 in

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