

DEXFLEX® 1010

Thermoplastic Polyolefin Elastomer

LyondellBasell Advanced Polyolefins USA, Inc.

Product Description

DEXFLEX® 1010 is an engineered thermoplastic polyolefin (TPO) designed for automotive side and roof rail bag covers. This material has been designed for low temperature air bag deployment with a balance of stiffness and ductility. The material is typically black for non-visible applications.

Applications:

DEXFLEX® 1010 engineered thermoplastic polyolefin is intended for use in automotive airbag cover applications, specifically for thorax, side, head, and roof rail airbag applications. The typical service temperature range is from -40 to 100°C.

General

Filler / Reinforcement	• Unspecified Filler\Reinfor., 1.0% Filler by Weight
Features	• Ductile • Good Stiffness
Uses	• Automotive Applications • Automotive Interior Parts
Appearance	• Black
Processing Method	• Injection Molding

Physical	Nominal Value	Unit	Test Method
Density	0.890	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (230°C/2.16 kg)	4.0	g/10 min	ISO 1133
Molding Shrinkage			
Flow ²	0.90 to 1.1	%	ASTM D955
Flow: 80°C, 48 hr ³	1.1 to 1.2	%	ASTM D955
-- ⁴	0.90 to 1.1	%	ISO 294-4
80°C, 48 hr ³	1.1 to 1.2	%	ISO 294-4

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	750	MPa	ISO 527-2/50
Tensile Stress (Yield)	14.0	MPa	ISO 527-2/50
Tensile Strain			ISO 527-2/50
Yield	15	%	
Break	> 450	%	
Flexural Modulus ⁵ (23°C, 4.00 mm)	600	MPa	ISO 178
Flexural Strength ⁵ (23°C, 4.00 mm)	20.0	MPa	ISO 178
Scratch Resistance ⁶	3 to 7	N	FLTM BN108-13

Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-40°C ⁷	No Break		
23°C	No Break		
Notched Izod Impact Strength			ISO 180/1A
-40°C	15.0	kJ/m ²	
23°C	No Break		
Instrumented Dart Impact ^{8, 9}			ASTM D3763
-40°C, Max load	22.0	J	
0°C, Max load	25.0	J	
23°C, Max load	21.0	J	

Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore D, 15 sec)	51		ISO 868

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Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, Unannealed	80.0	°C	ISO 75-2/B
1.8 MPa, Unannealed	45.0	°C	ISO 75-2/A
Melting Temperature	165	°C	ISO 3146 ASTM D3418

Service Temperature -40 to 100 °C

Flammability	Nominal Value	Unit	Test Method
Burning Rate			
--	< 100	mm/min	FMVSS 302
--	< 100	mm/min	SAE J369
--	< 100	mm/min	ISO 3795
Fogging (95°C, 6 hr)	90	%	SAE J1756

Injection	Nominal Value	Unit
Drying Temperature	50.0 to 80.0	°C
Drying Time	2.0 to 6.0	hr
Suggested Max Moisture	0.050	%
Rear Temperature	205	°C
Middle Temperature	210	°C
Front Temperature	215	°C
Nozzle Temperature	215	°C
Processing (Melt) Temp	190 to 240	°C
Mold Temperature	30.0	°C
Back Pressure	0.350 to 2.00	MPa
Screw Speed	50 to 100	rpm
Cushion	6.00 to 13.0	mm

Injection Notes

Hot Runner, Manifold & Tips: 215°C
Mold Temp, Cavity: 30 °C
Mold Temp, Core: 24 °C
Injection Pressure, First Stage: 35 to 105 bar
Injection Pressure, Seconds Stage: 25 to 70 bar
Injection Velocity: 10 to 80 mm/sec

Notes

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

² As Molded

³ After bake

⁴ As molded

⁵ 2.0 mm/min

⁶ GMN3943, FLTM BN 108-13 DCX LP-463DD-18-1

⁷ Partial Break

⁸ 6.70 m/sec

⁹ Ductile