

Lupolen UHM 5000

Ultra High Molecular Weight Polyethylene

LyondellBasell Industries

Message:

Lupolen UHM 5000 is an ultra high molecular weight polyethylene (UHMWPE) with an average molecular weight of 5 million. The long molecular chains leed to unique properties: Highest abrasion resistance of any thermoplastic materials, excellent impact strength, low friction, good chemical resistance and stress crack resistance.

Lupolen UHM 5000 is used in compression moulding and ram extrusion processes.

The material is supplied in form of coarse natural powder. The larger particle size and the very low fines content result in good free flowing property and less dust generation during handling and processing.

For regulatory compliance information see Lupolen UHM 5000 Regulatory Affairs Product Stewardship Information/Certification Data Sheet (RAPIDS).

The material is not intended for medical and pharmaceutical applications.

General Information			
Features	Good Abrasion Resistance		
	Good Chemical Resistance		
	High ESCR (Stress Crack Resist.)		
	Low Friction		
	Ultra High Impact Resistance		
	Ultra High Molecular Weight		
Uses	Construction Applications		
	Industrial Applications		
	Profiles		
Processing Method	Compression Molding		
Physical	Nominal Value	Unit	Test Method
Density	0.931	g/cm ³	ISO 1183
Apparent Density	0.45	g/cm ³	ISO 60
Viscosity Number (Reduced Viscosity)	2200.0 to 2500.0	ml/g	ISO 1628
Hardness	Nominal Value	Unit	Test Method
Shore Hardness			ISO 868
Shore D, 3 sec	65		
Shore D, 15 sec	63		
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus - Secant (23°C)	800	MPa	ISO 527-2/1
Tensile Stress (Yield, 23°C)	20.0	MPa	ISO 527-2/50
Tensile Strain (Yield, 23°C)	12	%	ISO 527-2/50
Tensile Creep Modulus ¹			ISO 899-1
1 hr	550	MPa	
1000 hr	300	MPa	
Abrasion Resistance ²	90 to 110	%	ISO 15527

Medium Particle Size	800.0	μm	
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179
23°C	No Break		
23°C ³	190	kJ/m ²	
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Unannealed	68.0	°C	ASTM D648, ISO 75-2/B
1.8 MPa, Unannealed	45.0	°C	ASTM D648, ISO 75-2/A
Vicat Softening Temperature	82.0	°C	ISO 306/B50
Melting Temperature	135	°C	DSC
Extrusion	Nominal Value	Unit	
Melt Temperature	190 to 220	°C	
NOTE			
1.	2.0 MPa		
2.	Annex B		
3.	Double Notch according to ISO 11542-2 Annex B.		

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