Technical Data Sheet

Lupolen UHM 5000

Ultra High Molecular Weight Polyethylene

Product Description

Lupolen UHM 5000 is an ultra high molecular weight polyethylene (UHMW PE) 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 molding 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.

This grade is not intended for medical and pharmaceutical applications.

Application	Industrial; Panels & Profiles
Market	Industrial, Building & Construction
Processing Method	Compression Molding
Attribute	Good Abrasion Resistance; Good Chemical Resistance; High ESCR (Environmental Stress Cracking Resistance); Low Friction; Ultra High Impact Resistance; Ultra High Molecular Weight

Typical Properties	Nominal Value	Units	Test Method
Physical			
Melt Flow Rate, (190 °C/21.6 kg)	not measurable	g/10 min	ISO 1133-1
Density	0.931	g/cm³	ISO 1183-1
Bulk Density, (23 °C)	0.450	g/cm³	ISO 60
Viscosity Number	2500	ml/g	ISO 1628-3
Intrinsic Viscosity	2200	ml/g	ISO 1628-3
Mechanical			
Tensile Modulus, (23 °C)	800	MPa	ISO 527-1, -2
Tensile Creep Modulus			
(1 hr / 2 MPa)	550	MPa	ISO 899-1
(1000 hr / 2 MPa)	300	MPa	ISO 899-1
Tensile Stress at Yield, (23 °C, 50 mm/min)	20	MPa	ISO 527-1, -2
Tensile Strain at Yield, (23 °C, 50 mm/min)	12	%	ISO 527-1, -2
Impact			
Charpy Impact Strength - Notched			
(23 °C)	No Break	kJ/m²	ISO 179-1/1eA
(23 °C)	190	kJ/m²	ISO 179
Double Notch according ISO 11542-2 Annex B			

Hardness			
Shore Hardness			
(Shore D, 3 sec)	65		ISO 868
(Shore D, 15 sec)	63		ISO 868
Thermal			
Vicat Softening Temperature, (B50)	82	°C	ISO 306
Heat Deflection Temperature A, (1.80 MPa, Unannealed)	45	°C	ISO 75A-1, -2
Heat Deflection Temperature B, (0.45 MPa, Unannealed)	68	°C	ISO 75B-1, -2
Peak Melting Point	135	°C	ISO 11357-3
Additional Information			
Abrasion Resistance	90-110 %		ISO 15527, Annex B
Average Particle Size	750	micron	LYB Method