

Physical properties PE-HMW

Properties	Test methods	Units	Values
Colour	-	-	natural (white) / green / black / colours
Average molar mass (average molecular weight)	-	10 ⁶ g/mol	0.5
Density	ISO 1183-1	g/cm ³	0.96
Water absorption: - at saturation in water of 23°C	-	%	<0.1
Thermal Properties			
Melting temperature (DSC, 10° C/min.)	ISO 11357-1/-3	°C	135
Glass transition temperature		°C	-
Thermal conductivity at 23°C	-	W/(K.m)	0.40
Coefficient of linear thermal expansion: - average value between 23 and 100°C	-	m/(m.K)	150 x 10 ⁻⁶
Temperature of deflection under load: - method A: 1.8 MPa	ISO 75-1/-2	°C	44
vicat - softening temperature – VST/B50	ISO 306	°C	80
Max. allowable service temperature in air: - for short periods - continuously: for. min. 20'000 h	- -	°C °C	120 80
Min. service temperature	-	°C	-100
Flammability: - „Oxygen Index“ - according to UL 94 (6 mm thickness)	ISO 4589-1/-2 -	% -	<20 HB
Mechanical Properties at 23°C			
Tension test: - tensile stress at yield - Tensile strength - tensile strain at break - tensile modulus of elasticity	ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2	MPa % % MPa	28 10 >50 1300
Compression test: - compressive stress at 1 / 2 / 5% nominal strain	ISO 604	MPa	12 / 18.5 / 26.5
Flexural test: - flexural strength	ISO 178	MPa	27
Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m ²	no break
Charpy impact strength - notched	ISO 179-1/1eA	kJ/m ²	105P
Charpy impact strength – notched (14° V-notch, both sides)	ISO 11542-2	kJ/m ²	25
Ball indentation hardness	ISO 2039-1	N/mm ²	48
Shore hardness D (15 s)	ISO 2039-2	-	62
Relative weight loss in an abrasion test according to the “sand-water-slurry-method”; TIVAR 1000 = 100	ISO 15527	-	350
Electrical Properties at 23°C			
Electrical strength	IEC 60243-1	kV/mm	45
Volume resistivity	IEC 60093	Ohm.cm	> 10 ¹⁴
Surface resistivity	IEC 60093	Ohm	>10 ¹²
Relative permittivity ε: - bei 100 Hz - bei 1 MHz	IEC 60250 IEC 60250	- -	2.4 2.4
Dielectric dissipation factor δ tan: - bei 100 Hz - bei 1 MHz	IEC 60250 IEC 60250	- -	0.0002 0.0002
Comparative tracking index (CTI)	IEC 60112	--	600

Note: 1 g/cm³ = 1000 kg/m³; 1 Mpa = 1 N/mm²; 1 kV/mm = 1 MV/m.

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