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PE **(POLYETHYLENE)** 500

MATERIAL DATA SHEET

This grade exhibits a good combination of stiffness, toughness, mechanical damping ability with abrasion resistance, and it can easly be walded. PE 500 is a versatile polyethylene grade used mainly in the food industry (meat and fish processing) but is also employed in all kinds of mechanical, chemical and electrical applications.

PROPERTIES	Test methods	Units	VALUES
Colour	-	-	Natural/green/black/colours
Density	DIN EN ISO 1183-1	g/cm³	0.96
Molecular weight	-	10^6 g/mol	0.5
Water absorption	DIN EN ISO 62	%	0.01
Thermal Properties			
Melting temperature (DSC, 10°C/min)	ISO 11357-1/-3	°C	135
Thermal conductivity at 23°C	ISO 52612	W/(K.m)	0.40
Coefficient of linear thermal expansion (between 23-100°C)	-	m/(K.m)	150 x 10^{-6}
Max service temperature (dependent on mechanical stress)			
- for short periods	-	°C	120
- continuously	-	°C	80
Min. service temperature	-	°C	-100
Temperature of deflection under load	ISO 75-1/-2	°C	44
Flammability (6 mm thickness)	UL 94	-	HB
Oxygen index	ISO 4589-1/-2	%	<20
Vicat-softening temperature	ISO 306	°C	80
Mechanical Properties at 23°C			
Tension test:			
- tensile stress at yield	ISO 527	MPa	28
- tensile strain at yield	ISO 527	%	10
- nomilnal tensile strain at break	ISO 527	%	> 50
- tensile modulus of elasticity	ISO 527	MPa	1300
Charpy impact strength – unnotched	ISO 179	kJ/m²	NO BREAK
Charpy impact strength – notched	ISO 179	kJ/m²	105P
Charpy impact strength – notched (double 14° notch)	ISO 11542-2	kJ/m^2	25
Ball indentation hardness	ISO 2039-1	MPa	48
Shore hardness (15 s)	ISO 2039-2	Scale D	62
Relative weight loss during a wear test in “sand/water-slurry”	ISO 15527	-	350
Compression test at 1 / 2 / 5 % nominal strain	ISO 604	MPa	12 / 18.5 / 26.5
Electrical Properties at 23 °C			
Surface resistivity	IEC 60093	Ω	> 10^{12}
Volume resistivity	IEC 60093	Ω*cm	> 10^{14}
Electric strength	IEC 60243-1	kV/mm	45
Relative permittivity ε_r	IEC 60250	-	2.4
Dielectric dissipation factor tan δ	IEC 60250	-	0.0002
Comparative tracking index	IEC 60112	-	600

Note: 1 g/cm³ = 1,000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m.