

Borotron® HM015 PE

High Molecular Weight Polyethylene

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Halbzeuge aus Borotron® HM015 HMW-PE (hochmolekulares Polyethylen) sind mit 1,5 % elementarem Bor angereichert. Dadurch ist diese Variante für Abschirmapplikationen bei nuklearen und medizinischen Anwendungen geeignet. Dank des hohen Wasserstoffgehalts von HMW-PE kann diese Variante durch den Borzusatz thermische Neutronen absorbieren. Aus diesem Grund sind Komponenten aus Borotron® HM015 HMW-PE in der Nuklear- und Medizintechnikindustrie weit verbreitet.

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Melting temperature (DSC, 10°C (50°F) / min)	ISO 11357-1/-3	°C
Glass transition temperature (DMA- Tan δ) (2)		°C
Thermal conductivity at 23°C (73°F)		W/(K.m)
Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F)		
Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)		µm/(m.K)
Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)	ISO 75-1/-2	°C
Continuous allowable service temperature in air (20.000 hrs) (3)		°C
Min. service temperature (4)		°C
Flammability: UL 94 (3 mm (1/8 in.)) (5)		
Flammability: Oxygen Index	ISO 4589-1/-2	%
Tensile strength	ISO 527-1/-2 (7)	MPa
Tensile strain (elongation) at yield	ISO 527-1/-2 (7)	%
Tensile strain (elongation) at break	ISO 527-1/-2 (7)	%
Tensile modulus of elasticity	ISO 527-1/-2 (9)	MPa
Shear Strength		
Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604 (10)	MPa
Compressive strength		
Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²
Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²
Charpy impact strength - double 14° notched	ISO 11542-2	kJ/m²
Izod Impact notched		
Flexural strength	ISO 178 (12)	MPa
Flexural modulus of elasticity	ISO 178 (12)	MPa
Relative volume loss during wear test "sand-slurry" : TIVAR® 1000=100	ISO 2039-2	
Shore Hardness D (14)	ISO 868	
Electric strength	IEC 60243-1 (15)	kV/mm
Volume resistivity	IEC 62631-3-1	Ohm.cm
Surface resistivity	ANSI/ESD STM 11.11	Ohm/sq.
Dielectric constant at 1 MHz	IEC 62631-2-1	
Dissipation factor at 1MHz	IEC 62631-2-1	
Colour		
Density	ISO 1183-1	g/cm³
Specific Gravity		
Water absorption after 24h immersion in water of 23 °C (73°F)	ISO 62 (16)	%
Water absorption at saturation in water of 23 °C (73°F)		%
Wear rate	ISO 7148-2 (18)	µm/km
Dynamic Coefficient of Friction (-)	ISO 7148-2 (18)	
Limiting PV at 100 FPM		
Limiting PV at 0.1 / 1 m/s cylindrical sleeve bearings		Mpa.m/s
Chemical Resistance		

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