Product Information

VESTAKEEP® 4500 G

HIGH VISCOSITY, UNREINFORCED POLYETHER ETHER KETONE

VESTAKEEP® 4500 G is a high viscosity, fast cristallization, unreinforced polyether ether ketone for injection molding and extrusion.

The semi-crystalline polymer features superior, thermal and chemical resistance. Parts made from VESTAKEEP® 4500 G are of low flammability.

VESTAKEEP® 4500 G can be processed by common machines for thermoplastics.

We recommend a melt temperature between 370°C and 380°C during the injection molding process. The mold temperature should be within a range of 160°C to 200°C, preferably 180°C.

VESTAKEEP® 4500 G is supplied as granules in 25kg boxes with moisture-proof polyethylene liners.

Inside the original and undamaged packaging, the product has a shelf life of at least 2 years when stored in dry rooms at temperatures not exceeding 30°C.

Pigmentation may affect values.

For information about processing VESTAKEEP® 4500 G, please follow the general recommendations in our brochure “VESTAKEEP® PEEK Processing Guidelines“ .

The values presented are typical or average values, they do not constitute a specification.

FOR FURTHER INFORMATION PLEASE CONTACT US AT EVONIK-HP@EVONIK.COM OR VISIT OUR PRODUCT AT WWW.INDUSTRIAL.VESTAKEEP.COM

Key Features

Industrial Sector
Automotive and Mobility, Industry and Engineering, Energy, Oil and Gas

Processing
Injection molding, Extrusion

Delivery form
Pellets, Granules

Optics
Opaque

Resistance to
Heat (thermal stability), Fire / burn

Electrical
Insulating

Conformity
Food contact

Additives
Unfilled

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**3800**	MPa	ISO 527
Tensile strength	**96**	MPa	ISO 527
Yield stress	**96**	MPa	ISO 527
Yield strain	**5**	%	ISO 527
Strain at break, B	**30**	%	ISO 527
Nominal strain at break, tB	**30**	%	ISO 527
Poisson's ratio, 23°C	**0.41**	-	ISO 527
Charpy impact strength, +23°C	**N**	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	**N**	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, +23°C	**7**	kJ/m^2	ISO 179/1eA
Type of failure	**C**	-	-

Thermal properties	dry	Unit	Test Standard
Melting temperature	**340**	°C	ISO 11357-1/-3
Glass transition temperature, 2 nd heating, midpoint	**153**	°C	ISO 11357
Temp. of deflection under load A, 1.80 MPa	**156**	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**232**	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**69**	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**64**	E-6/K	ISO 11359-1/-2

Physical properties	dry	Unit	Test Standard
Density	**1300**	kg/m^3	ISO 1183
Shore D hardness	**86**	-	ISO 7619-1

Burning Behav.	dry	Unit	Test Standard
Burnin behav. at thickness h	**V-0**	class	IEC 60695-11-10
Thickness tested	**3.2**	mm	-
Glow Wire Flammability Index (GWFI)	**960**	°C	IEC 60695-2-12

GWFI - thickness tested	**2**	mm	-
Glow Wire Ignition Temperature (GWIT)	**875**	°C	IEC 60695-2-13
GWIT - thickness tested	**2**	mm	-

Electrical properties	**dry**	**Unit**	**Test Standard**
Volume resistivity, V	**>1E13**	Ohm*m	IEC 62631-3-1
Relative permittivity, 1MHz	**3.3**[g]	-	IEC 62631-2-1
Dissipation factor, 1MHz	**56**[g]	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	**35.2**	kV/mm	IEC 60243-1
Dielectric strength, AC, S20/P25	**24.3**[f]	kV/mm	IEC 60243-1
Dielectric strength, AC, P25/P25	**29.2**[f]	kV/mm	IEC 60243-1
Dielectric strength, Short Time	**29.4**[f]	kV/mm	ASTM D 149
Thickness tested	**0.99**	mm	-

f: 1 mm thickness
g: 2 mm thickness

Rheological properties	**dry**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**9**	cm^3/10min	ISO 1133
Temperature	**380**	°C	-
Load	**5**	kg	-
Molding shrinkage, parallel	**0.9**	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.2**	%	ISO 294-4, 2577
Mold temperature	**180**	°C	-
Melt temperature	**380**	°C	-
Melt viscosity, at 100 1/s	**1120**	Pa s	-
Temperature	**380**	°C	-

Test specimen production	**dry**	**Unit**	**Test Standard**
Injection Molding, melt temperature	**380**	°C	ISO 294

Injection Molding, mold temperature	**180**	°C	ISO 294

Characteristics

Applications
General purpose

Color
Natural color

Processing
Profile extrusion, Sheet extrusion

Chemical Resistance
General chemical resistance

Special Characteristics
Semi-crystalline, High viscosity

Processing Recommendation Injection Molding	dry	Unit	Test Standard
Pre-drying - Temperature	**<150**	°C	-
Pre-drying - Time	**4 - 6**	h	-
Processing humidity	**⩽0.02**	%	-
Melt temperature	**380**	°C	-
Mold temperature	**180**	°C	-
Feed temperature	**60**	°C	-

Processing Recommendation Extrusion	dry	Unit	Test Standard
Type of extrusion			
Type of extrusion	**profile**	-	-
Pretreatment			
Pre-drying - Temperature	**170 - 180**	°C	-
Pre-drying - Time	**8 - 12**	h	-
Processing humidity	**⩽0.02**	%	-
Plastification			
Feed temperature	**60**	°C	-
Heating zone 1	**350 - 360**	°C	-
Heating zone 2	**350 - 360**	°C	-

Heating zone 3	**360 - 370**	°C	-
Heating zone 4	**360 - 370**	°C	-
Heating zone 5	**370 - 380**	°C	-
Melt temperature	**380 - 390**	°C	-

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