Product Information

VESTAKEEP® 5000 G

HIGH VISCOSITY, UNREINFORCED POLYETHER ETHER KETONE

VESTAKEEP® 5000 G is a high viscosity, unreinforced polyether ether ketone for injection molding and extrusion.

The semi-crystalline polymer features superior, thermal and chemical resistance. Parts made from VESTAKEEP® 5000 G are of low flammability.

VESTAKEEP® 5000 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® 5000 G is supplied as granules in 25 kg 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.

The results shown have been generated from a low number of production lots. Therefore, they are preliminary and not yet the result of a statistical evaluation. Therefore they must not be used to establish specifications.

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

Resistance to
Heat (thermal stability), Fire / burn

Additives
Unfilled

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**3500**	MPa	ISO 527
Tensile strength	**95**	MPa	ISO 527

Yield stress	**95**	MPa	ISO 527
Yield strain	**5**	%	ISO 527
Stress at break	**85**	MPa	ISO 527
Nominal strain at break, tB	**35**	%	ISO 527
Poisson's ratio, 23°C	**0.41**	-	ISO 527
Poisson's ratio, var. temp.	**0.47**	-	ISO 527
Temperature	**200**	°C	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	**9**	kJ/m^2	ISO 179/1eA
Type of failure	**C**	-	-
Charpy notched impact strength, -30°C	**8**	kJ/m^2	ISO 179/1eA
Type of failure	**C**	-	-

Mechanical properties ASTM	**dry**	**Unit**	**Test Standard**
Tensile Modulus, var. test speed	**4100**	MPa	ASTM D 638
Yield stress, var. test speed	**100**	MPa	ASTM D 638
Yield strain, var. test speed	**6.5**	%	ASTM D 638
Nominal strain at break, var. test speed	**70**	%	ASTM D 638
tensile modulus, annealed	**4102.37**	MPa	ASTM D 638
Yield strain, 23°C, annealed	**6.5**	%	ASTM D 638
Yield stress, 23°C, annealed	**100**	MPa	ASTM D 638
Nominal strain at break, 23°C, annealed	**46**	%	ASTM D 638
Flexural Strength	**179**	MPa	ASTM D 790
Flexural Modulus, 23°C, annealed	**3700**	MPa	ASTM D 790
Flexural stress at 5% fiber strain, 23°C, annealed	**165**	MPa	ASTM D 790

Thermal properties	dry	Unit	Test Standard
Melting temperature	**340**	°C	ISO 11357-1/-3
Glass transition temperature, DSC	**152**	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**150**	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**205**	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**335**	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**305**	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**60**	E-6/K	ISO 11359-1/-2
Melting Temperature	**340**	°C	ASTM D 3418

Physical properties	dry	Unit	Test Standard
Density	**1300**	kg/m³	ISO 1183
Water absorption	**0.5**	%	Sim. to ISO 62
Humidity absorption	**0.12**	%	Sim. to ISO 62
Density	**1300**	kg/m³	ASTM D 792

Burning Behav.	dry	Unit	Test Standard
Burnin behav. at thickness h	**V-0**	class	IEC 60695-11-10
Thickness tested	**3.2**	mm	-
Oxygen index	**36**	%	ISO 4589-1/-2
Limiting Oxygen Index	**36**	%	ASTM D 2863
Glow Wire Flammability Index (GWFI)	**960**	°C	IEC 60695-2-12
Glow Wire Ignition Temperature (GWIT)	**850**	°C	IEC 60695-2-13

Electrical properties	dry	Unit	Test Standard
Volume resistivity, V	**>1E13**	Ohm*m	IEC 62631-3-1
Surface resistance, RSD	**1E14**	Ohm	IEC 62631-3-2
Relative permittivity, 1MHz	**2.8**	-	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	**32.9**	kV/mm	IEC 60243-1

Dielectric strength, AC, S20/P50	**16**	kV/mm	Sim. to IEC 60243-1
CTI, test solution A, 50 drops value	**200**	-	IEC 60112
Assessment of the insulation group	**III a**	-	DIN EN 60664-1

Rheological properties	**dry**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**7**	cm^3/10min	ISO 1133
Temperature	**380**	°C	-
Load	**5**	kg	-
Molding shrinkage, parallel	**0.9**	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.1**	%	ISO 294-4, 2577
Mold temperature	**180**	°C	-
Melt 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
Injection Molding, injection velocity	**200**	mm/s	ISO 294

Characteristics

Applications
Encapsulation, Tube and hose

Special Characteristics
Semi-crystalline, High viscosity

Color
Natural color

Chemical Resistance
General chemical resistance

Evonik Operations GmbH
Smart Materials
High Performance Polymers
45772 Marl / Germany
Tel: +49 2365 49-9878
evonik-hp@evonik.com

www.plastics-database.com

Leading Beyond Chemistry