

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.

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

Tensile modulus

dry

3500

Unit

MPa

Test Standard

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/m ³	ISO 1183
Water absorption	0.5	%	Sim. to ISO 62
Humidity absorption	0.12	%	Sim. to ISO 62
Density	1300	kg/m ³	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