Product Information

VESTAKEEP® 2000 G

MEDIUM VISCOSITY, UNREINFORCED POLYETHER ETHER KETONE

VESTAKEEP® 2000 G is a medium viscosity, unreinforced polyether ether ketone for injection molding.

The semi-crystalline polymer features superior, thermal and chemical resistance. Parts made from VESTAKEEP® 2000 G are of low flammability.

VESTAKEEP® 2000 G can be processed on common injection molding machines for thermoplastics.

We recommend a melt temperature between 360°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® 2000 G is supplied as granules in 25 kg boxes with moisture-proof polyethylene inliners.

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® 2000 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, Aircraft and Aerospace, Industry and Engineering, Energy, Oil and Gas, Optics, Sports and Lifestyle

Processing
Injection molding, Extrusion

Optics
X-ray transparent

Resistance to
Heat (thermal stability), Fire / burn, Fatigue resistance

Conformity
Food contact

Additives
Unfilled

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**3700**	MPa	ISO 527

Tensile strength	**100**	MPa	ISO 527
Yield stress	**100**	MPa	ISO 527
Yield strain	**5**	%	ISO 527
Stress at break	**70**	MPa	ISO 527
Nominal strain at break, tB	**20**	%	ISO 527
Poisson's ratio, 23°C	**0.40**	-	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	**6**	kJ/m^2	ISO 179/1eA
Type of failure	**C**	-	-
Charpy notched impact strength, -30°C	**6**	kJ/m^2	ISO 179/1eA
Type of failure	**C**	-	-
Flexural modulus, 23°C	**3600**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**117**	MPa	ISO 178

Thermal properties	**dry**	**Unit**	**Test Standard**
Melting temperature	**340**	°C	ISO 11357-1/-3
Glass transition temperature, DSC	**150**	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**155**	°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	**310**	°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/m³	ASTM D 792

Burning Behav.	**dry**	**Unit**	**Test Standard**
UL Yellow Card available	yes	-	-
Burnin behav. at thickness h	**V-0**	class	IEC 60695-11-10
Thickness tested	**3.2**	mm	-
Yellow Card available	yes	-	-
Oxygen index	**38**	%	ISO 4589-1/-2
Limiting Oxygen Index	**38**	%	ASTM D 2863
Glow Wire Flammability Index (GWFI)	**960**	°C	IEC 60695-2-12
GWFI - thickness tested	**2**	mm	-
Glow Wire Ignition Temperature (GWIT)	**800**	°C	IEC 60695-2-13
GWIT - thickness tested	**2**	mm	-
Hot Wire Ignition (HWI)	**1**	PL-Klasse	IEC 60695-2-20
HWI - thickness tested	**3.2**	mm	-

Electrical properties	**dry**	**Unit**	**Test Standard**
Volume resistivity, V	**>1E13**	Ohm*m	IEC 62631-3-1
Surface resistivity, E	**1E15**	Ohm	IEC 62631-3-2
Surface resistivity, C, circular electrodes	**9E14**	Ohm per square	IEC 62631-3-2
Relative permittivity, 100Hz	**2.8**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**2.8**	-	IEC 62631-2-1
Dissipation factor, 1MHz	**50**	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	**32.6**	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

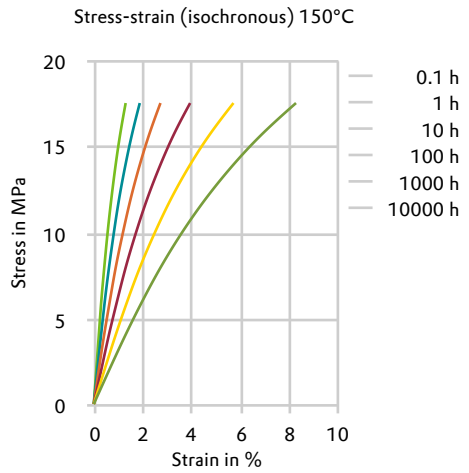
CTI, Performance Level Categories, PLC	**3**	class	ASTM D 3638

Rheological properties	**dry**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**70**	cm^3/10min	ISO 1133
Temperature	**380**	°C	-
Load	**5**	kg	-
Molding shrinkage, parallel	**1.1**	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.1**	%	ISO 294-4, 2577
Mold temperature	**180**	°C	-
Melt temperature	**360**	°C	-

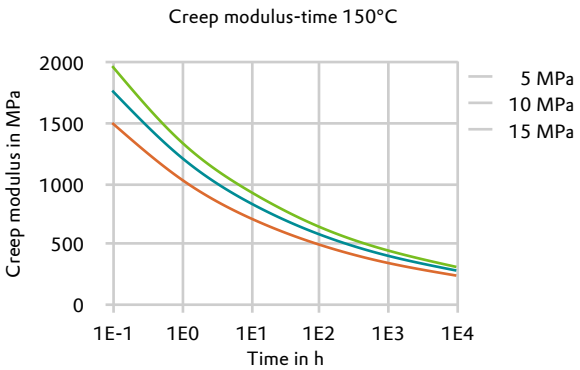
Test specimen production	**dry**	**Unit**	**Test Standard**
Injection Molding, melt temperature	**380**	°C	ISO 294
Injection Molding, mold temperature	**180**	°C	ISO 294
Injection Molding, injection velocity	**200**	mm/s	ISO 294
Injection Molding, pressure at hold	**120**	MPa	ISO 294

Diagrams

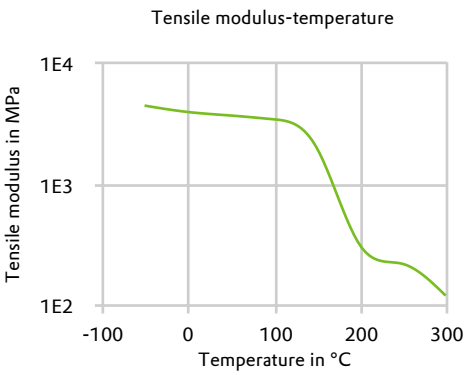
Stress-strain (isochronous) 150°C



Creep modulus-time 150°C



Tensile modulus-temperature



Characteristics

Applications
Electrical and Electronical, Encapsulation, (Sun-) glasses, Monofilament

Special Characteristics
Halogen-free, Phosphorus-free, PTFE-free, High impact strength, High crystallinity, Environmental stress crack resistance, High heat resistant, Low viscosity, Self-extinguishing

Features
Creep resistance, Foamable, Low coefficient of friction, Good adhesion, Weldable, Low smoke, Non-corrosive, Dishwasher detergents resistant, Non-migrating ingredients

Regulatory
Water contact KTW-BWGL, Water contact DIN EN 16421

Color
Natural color

Delivery form
Cylindrical pellets

Chemical Resistance
Acid resistance, Alkali resistance, Solvent resistance, Grease resistance, Hydrolytically stable, Oil resistance, Oxidation resistance, Radiation resistance, Stain resistance, Aging resistance, General chemical resistance

Chemical Media Resistance

Acids

- ✔ Acetic Acid (5% by mass) (23°C)
- ✔ Citric Acid solution (10% by mass) (23°C)
- ✔ Hydrochloric Acid (36% by mass) (23°C)
- ✖ Nitric Acid (40% by mass) (23°C)
- ✔ Sulfuric Acid (38% by mass) (23°C)
- ✔ Sulfuric Acid (5% by mass) (23°C)
- ✔ Chromic Acid solution (40% by mass) (23°C)

Bases

- ✔ Sodium Hydroxide solution (35% by mass) (23°C)
- ✔ Sodium Hydroxide solution (1% by mass) (23°C)
- ✔ Ammonium Hydroxide solution (10% by mass) (23°C)

Alcohols

- ✔ Isopropyl alcohol (23°C)
- ✔ Methanol (23°C)
- ✔ Ethanol (23°C)

Hydrocarbons

- ✔ n-Hexane (23°C)
- ✔ Toluene (23°C)
- ✔ iso-Octane (23°C)

Ketones

- ✔ Acetone (23°C)

Ethers

- ✔ Diethyl ether (23°C)

Mineral oils

- ✔ SAE 10W40 multigrade motor oil (23°C)
- ✔ Insulating Oil (23°C)

Standard Fuels

- ✔ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ✔ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)
- ✔ Diesel fuel (pref. ISO 1817 Liquid F) (23°C)

Salt solutions

- ✔ Sodium Chloride solution (10% by mass) (23°C)
- ✔ Sodium Hypochlorite solution (10% by mass) (23°C)
- ✔ Sodium Carbonate solution (20% by mass) (23°C)
- ✔ Sodium Carbonate solution (2% by mass) (23°C)
- ✔ Zinc Chloride solution (50% by mass) (23°C)

Other

- ✔ Ethyl Acetate (23°C)
- ✔ Hydrogen peroxide (23°C)
- ✔ Ethylene Glycol (50% by mass) in water (108°C)
- ✔ Water (23°C)
- ✔ Deionized water (90°C)

Rheological calculation properties	dry	Unit	Test Standard
Min. mold temperature	**160**	°C	-
Max. mold temperature	**200**	°C	-
Min. melt temperature	**360**	°C	-
Max. melt temperature	**380**	°C	-

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