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.

Pigmentation may affect values.

For information about processing VESTAKEEP® 2000 G, please follow the general recommendations in our brochure "VESTAKEEP® PEEK Processing Guidelines".

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.

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

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, εtB	**20**	%	ISO 527
Charpy impact strength, +23°C	**N**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**N**	kJ/m²	ISO 179/1eU

Charpy notched impact strength, +23°C	**6**	kJ/m²	ISO 179/1eA
Type of failure	**C**	-	-
Charpy notched impact strength, -30°C	**6**	kJ/m²	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	**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

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

Burning Behav.	**dry**	**Unit**	**Test Standard**
Burnin behav. at thickness h	**V-0**	class	IEC 60695-11-10
Thickness tested	**3.2**	mm	-
YellowCard available	yes	-	-
Yellow Card available	yes	-	-
Oxygen index	**38**	%	ISO 4589-1/-2
Glow Wire Flammability Index (GWFI)	**960**	°C	IEC 60695-2-12
GWFI - thickness tested (1)	**1**	mm	-

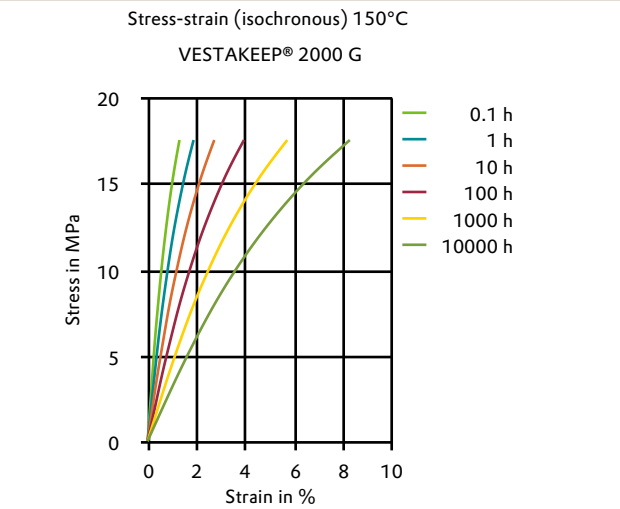
Glow Wire Ignition Temperature (GWIT)	**800**	°C	IEC 60695-2-13
GWIT - thickness tested (1)	**1**	mm	-
Limiting Oxygen Index	**38**	%	ASTM D 2863

Electrical properties	**dry**	**Unit**	**Test Standard**
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
Volume resistivity, ρV	**>1E13**	Ohm*m	IEC 62631-3-1
Surface resistivity, σE	**1E15**	Ohm	IEC 62631-3-2
Electric strength, AC, S20/S20	**19**	kV/mm	IEC 60243-1
Electric strength, AC, S20/P50	**16**	kV/mm	Sim. to IEC 60243-1
CTI, test solution A, 50 drops value	**200**	-	IEC 60112

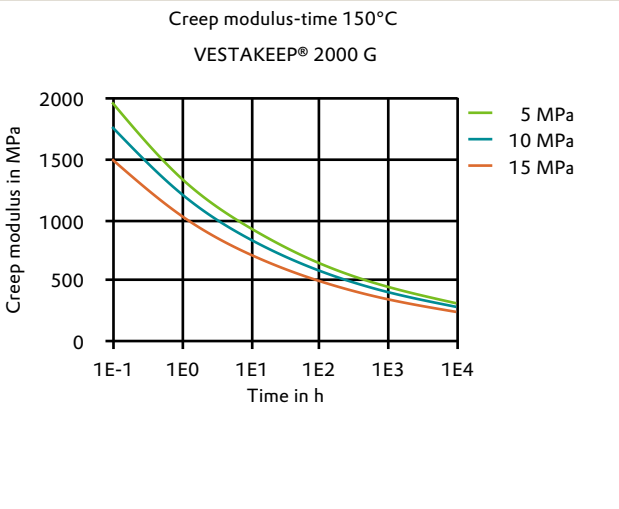
Rheological properties	**dry**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**70**	cm^3/10min	ISO 1133
Temperature	**380**	°C	-
Load	**5**	kg	-
Molding shrinkage, parallel	**1.1**	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.1**	%	ISO 294-4, 2577
Mold temperature	**180**	°C	-
Melt temperature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

Diagrams

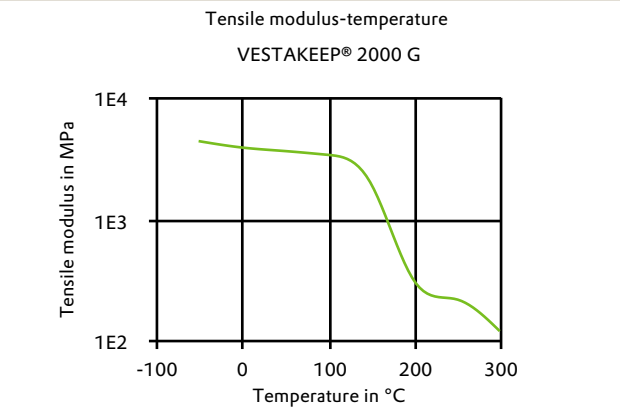
Stress-strain (isochronous) 150°C



Creep modulus-time 150°C



Tensile modulus-temperature



Characteristics

Key Feature, Industrial Sector
Automotive, Aircraft and Aerospace, Electrical and Electronical, Instustry and Building Construction, Oil and Gas, Optics, Sports and Lifestyle

Key Feature, Processing
Injection Molding, Extrusion

Special Characteristics
halogen-free, phosphorus-free, PTFE-free, High impact strength, High Crystallinity, Environmental Stress Crack Resistance, Heat-stabilized, Low viscosity, Self-extinguishing

Features
Creep Resistance, Foamable, General Chemical Resistance, Low Coefficient of Friction, Good Adhesion, Weldable, Low Smoke, Non-corrosive, Dishwasher detergents resistant, Non-migrating Ingredients

Key Feature, Optics
X-ray opaque

Key Feature, Resistance to
Heat (Thermal Stability), Fire / Burn, Fatigue Resistance

Key Feature, Certificate / Licence
Food contact

Applications
Encapsulation, (Sun-) glasses, Monofilament

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

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)

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

www.plastics-database.com

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