VESTODUR®

Product Information

VESTODUR® 2000

MEDIUM-VISCOSITY, POLYBUTYLEN TEREPHTHALAT RESIN

VESTODUR® 2000 is a medium-viscosity, unreinforced, semi-crystalline Polybutylen terephthalat resin for injection molding and extrusion.

The resin features superior thermal and mechanical resistance.

VESTODUR® 2000 is supplied as granules in polyethylene containers.

The use of colorants may affect property values.

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.

Key Features

Industrial Sector
Automotive and Mobility

Processing
Injection molding, Extrusion, Coating

Delivery form
Pellets, Granules

Conformity
Automotive

Additives
Unfilled

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**363000**	psi	ISO 527
Tensile strength	**7980**	psi	ISO 527
Yield stress	**7980**	psi	ISO 527
Yield strain	**4**	%	ISO 527
Stress at 50% strain	**4640**	psi	ISO 527

Stress at break	**4790**	psi	ISO 527
Nominal strain at break, tB	**>50**	%	ISO 527
Charpy impact strength, +23°C	**N**	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**124**	ftlb/in²	ISO 179/1eU
Type of failure	**P(C)**	-	-
Charpy notched impact strength, +23°C	**3.33**	ftlb/in²	ISO 179/1eA
Type of failure	**C**	-	-
Charpy notched impact strength, -30°C	**2.85**	ftlb/in²	ISO 179/1eA
Type of failure	**C**	-	-
Tensile-impact strength, notched, atN +23°C	**47.6**	ftlb/in²	ISO 8256/1
Flexural modulus, 23°C	**326000**	psi	ISO 178
Flexural stress at conv. deflection, 23°C	**10700**	psi	ISO 178
Flexural strength, 23°C	**12200**	psi	ISO 178
Flexural strain at flexural strength, 23°C	**6**	%	ISO 178
Flexural stress at break, 23°C	**N**	psi	ISO 178
Flexural strain at break, 23°C	**N**	%	ISO 178
Puncture - maximum force, +23°C	**843**	lbf	ISO 6603-2
Puncture - maximum force, -30°C	**1170**	lbf	ISO 6603-2
Puncture energy, +23°C	**381**	in-lb	ISO 6603-2
Puncture energy, -30°C	**504**	in-lb	ISO 6603-2

Thermal properties	**dry**	**Unit**	**Test Standard**
Melting temperature	**433**	°F	ISO 11357-1/-3
Glass transition temperature, DSC	**113**	°F	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**131**	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**302**	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**428**	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**356**	°F	ISO 306

Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**6.11E-5**	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**6.11E-5**	in/in/°F	ISO 11359-1/-2
Melting Temperature	**433**	°F	ASTM D 3418

Physical properties	**dry**	**Unit**	**Test Standard**
Density	**1.31**	g/cm³	ISO 1183
Water absorption	**0.5**	%	Sim. to ISO 62
Humidity absorption	**0.1**	%	Sim. to ISO 62
Shore D hardness	**77**[b]	-	ISO 7619-1
Density	**1.31**	g/cm³	ASTM D 792

b: 3 seconds

Burning Behav.	**dry**	**Unit**	**Test Standard**
Burning behav. at 1.5 mm nom. thickn.	**HB**	class	IEC 60695-11-10
Thickness tested	**0.0630**	in	-
Burning behav. at thickness h	**HB**	class	IEC 60695-11-10
Thickness tested	**0.0315**	in	-

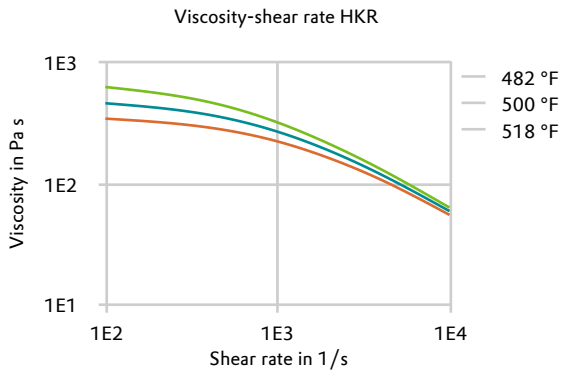
Electrical properties	**dry**	**Unit**	**Test Standard**
Volume resistivity, V	**>1E13**	Ohm*m	IEC 62631-3-1
Surface resistance, RSD	**1E13**	Ohm	IEC 62631-3-2
Relative permittivity, 100Hz	**3.3**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3.5**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**20**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**230**	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/P50	**686**	V/mil	Sim. to IEC 60243-1
CTI, test solution A, 50 drops value	**600**	-	IEC 60112
Assessment of the insulation group	**I**	-	DIN EN 60664-1

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	**14**	cm^3/10min	ISO 1133
Temperature	**250**	°C	-
Load	**2.16**	kg	-
Molding shrinkage, parallel	**1.6**	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.6**	%	ISO 294-4, 2577
Mold temperature	**176**	°F	-
Melt temperature	**500**	°F	-

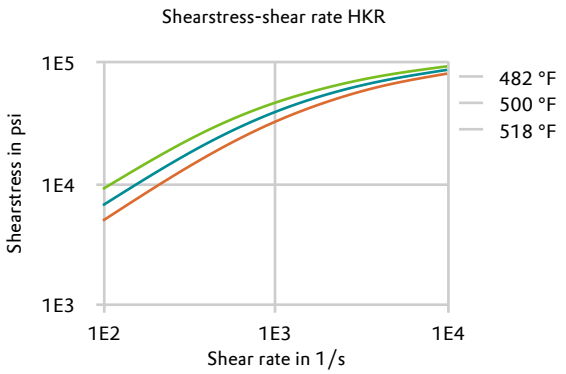
Test specimen production	dry	Unit	Test Standard
Processing conditions acc. ISO	**7792**	-	ISO ....-2
Injection Molding, melt temperature	**500**	°F	ISO 294
Injection Molding, mold temperature	**176**	°F	ISO 294
Injection Molding, injection velocity	**7.87**	in/s	ISO 294
Injection Molding, pressure at hold	**10200**	psi	ISO 294

Diagrams

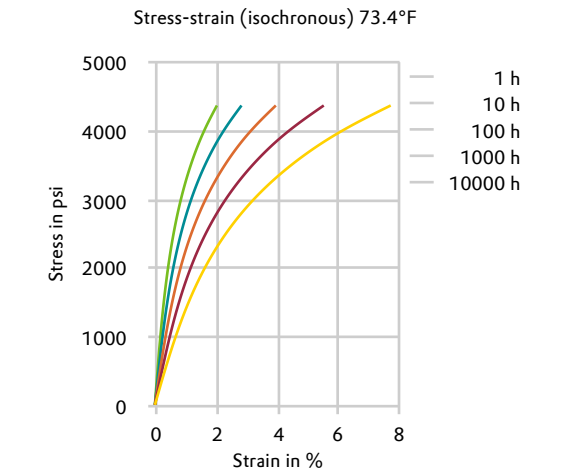
Viscosity-shear rate HKR



Shearstress-shear rate HKR

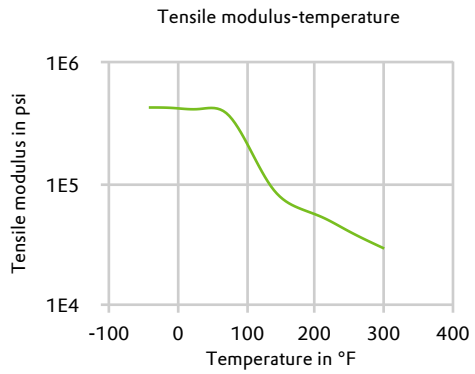


Stress-strain (isochronous) 73°F

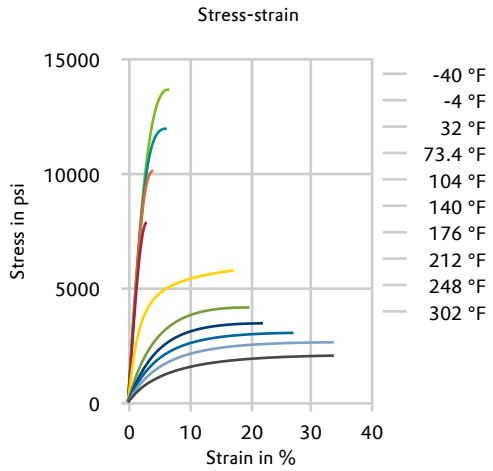


Creep modulus-time 73°F

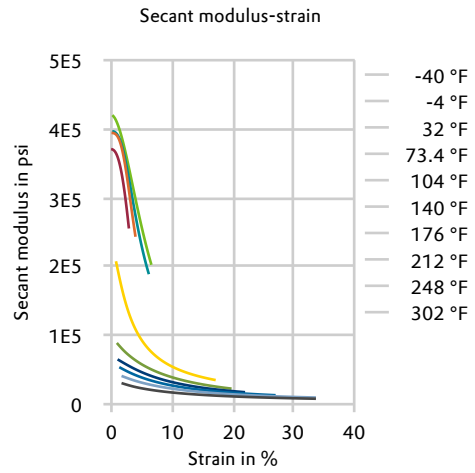
Tensile modulus-temperature



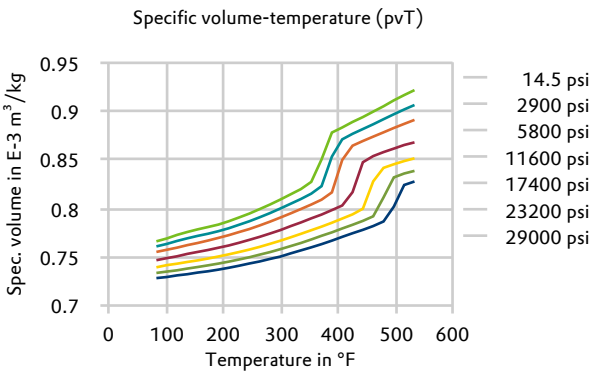
Stress-strain



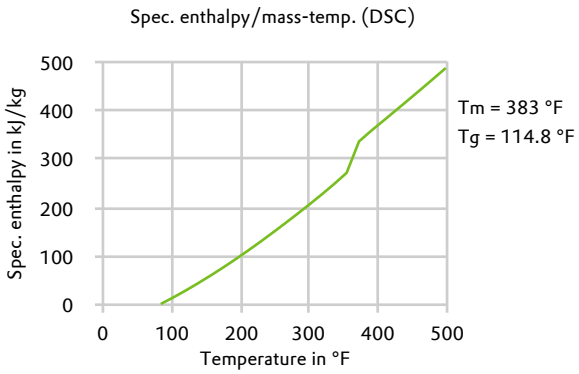
Secant modulus-strain



Specific volume-temperature (pvT)



Spec. enthalpy/mass-temp. (DSC)



Characteristics

Processing
Film extrusion, Sheet extrusion

Color
Natural color

Special Characteristics
Light-stabilized

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)

Bases

- ✖ Sodium Hydroxide solution (35% by mass) (23°C)

✖	Ammonium Hydroxide solution (10% by mass) (23°C)

Alcohols

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

Hydrocarbons

✔	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)
✔	Diesel fuel (pref. ISO 1817 Liquid F) (23°C)
✔	Diesel fuel (pref. ISO 1817 Liquid F) (90°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)

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
Density of melt	**69.3**	lb/ft^3	-

Thermal conductivity of melt	**1.32**	BTU in/(hr ft^2 °F)	-
Spec. heat capacity of melt	**0.639**	BTU/(lb·F)	-
Ejection temperature	**428**	°F	-
Min. mold temperature	**122**	°F	-
Max. mold temperature	**248**	°F	-
Min. melt temperature	**464**	°F	-
Max. melt temperature	**536**	°F	-