VESTODUR®

Product Information

VESTODUR® HI19

UNREINFORCED POLYBUTYLENE TEREPHTHALATE COMPOUND WITH INCREASED FLEXIBILITY AND TOUGHNESS

VESTODUR® HI19 is an unreinforced, semicrystalline resin, based on polybutylene terephthalate with increased flexibility and toughness for the injection molding and extrusion process.

VESTODUR® HI19 is suitable for the manufacture of parts with high mechanical and thermal resistance. The product contains antioxidant agents and processing aids.

VESTODUR® HI19 is supplied as cylindrical pellets in polyethylene packaging.

For information about VESTODUR® HI19, please follow the general recommendations in our flyer "VESTODUR® Polybutylene terephthalate - Compounds".

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

Resistance to
Heat (thermal stability)

Conformity
Automotive

Additives
Release agent, Unfilled

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	**66700 / -**	psi	ISO 527
Tensile strength	**3920 / -**	psi	ISO 527
Yield stress	**3920 / -**	psi	ISO 527
Yield strain	**23 / -**	%	ISO 527
Stress at break	**5800 / -**	psi	ISO 527
Nominal strain at break, tB	**>50 / -**	%	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	*** / 65300**	psi	ISO 899-1
Tensile creep modulus, 0,5% Strain, 1000h	*** / 49300**	psi	ISO 899-1
Charpy impact strength, +23°C	**N / -**	ftlb/in^2	ISO 179/1eU
Charpy impact strength, -30°C	**N / -**	ftlb/in^2	ISO 179/1eU
Charpy notched impact strength, +23°C	**8.09 / -**	ftlb/in^2	ISO 179/1eA
Type of failure	**C / -**	-	-
Charpy notched impact strength, -30°C	**3.81 / -**	ftlb/in^2	ISO 179/1eA
Type of failure	**C / -**	-	-
Tensile-impact strength, notched, atN +23°C	**119 / -**	ftlb/in^2	ISO 8256/1
Flexural modulus, 23°C	**65300 / -**	psi	ISO 178
Flexural stress at conv. deflection, 23°C	**2180 / -**	psi	ISO 178
Flexural strength, 23°C	**3410 / -**	psi	ISO 178
Flexural strain at flexural strength, 23°C	**9 / -**	%	ISO 178
Flexural stress at break, 23°C	**N / -**	psi	ISO 178
Flexural strain at break, 23°C	**N / -**	%	ISO 178

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	**387 / ***	°F	ISO 11357-1/-3
Glass transition temperature, DSC	**35.6 / ***	°F	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**122 / ***	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**230 / ***	°F	ISO 75-1/-2

Vicat softening temperature A, 10 N, 50 K/h	**374 / ***	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**257 / ***	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**8.33E-5 / ***	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**8.33E-5 / ***	in/in/°F	ISO 11359-1/-2
Melting Temperature	**387**	°F	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	**1.26 / -**	g/cm³	ISO 1183
Water absorption	**0.4 / ***	%	Sim. to ISO 62
Humidity absorption	**0.1 / ***	%	Sim. to ISO 62
Shore D hardness	**65**[b] **/ -**	-	ISO 7619-1
Density	**1.26**	g/cm³	ASTM D 792

b: 3 seconds

Burning Behav.	dry / cond	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	-
Glow Wire Flammability Index (GWFI)	**1380**	°F	IEC 60695-2-12
Glow Wire Ignition Temperature (GWIT)	**1380**	°F	IEC 60695-2-13

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	**>1E13 / -**	Ohm*m	IEC 62631-3-1
Surface resistivity, E	*** / 1E14**	Ohm	IEC 62631-3-2
Surface resistance, RSD	**1E13 / -**	Ohm	IEC 62631-3-2
Relative permittivity, 100Hz	**4 / -**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3.6 / -**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**220 / -**	E-4	IEC 62631-2-1

Dissipation factor, 1MHz	**330 / -**	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

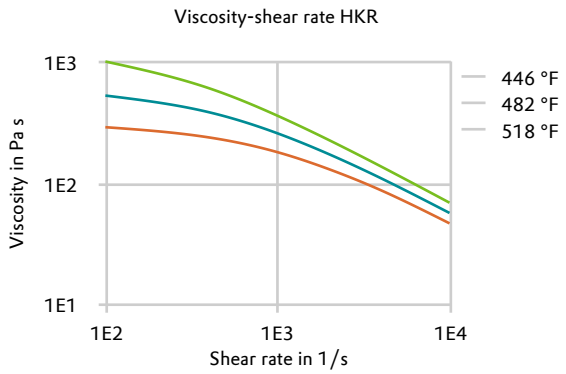
Rheological properties	**dry / cond**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**12 / ***	cm^3/10min	ISO 1133
Temperature	**250 / ***	°C	-
Load	**2.16 / ***	kg	-
Molding shrinkage, parallel	**1.4 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.4 / ***	%	ISO 294-4, 2577

Polymer analytics	**dry / cond**	**Unit**	**Test Standard**
Viscosity number	**4710 / ***	in^3/lb	ISO 307, 1157, 1628

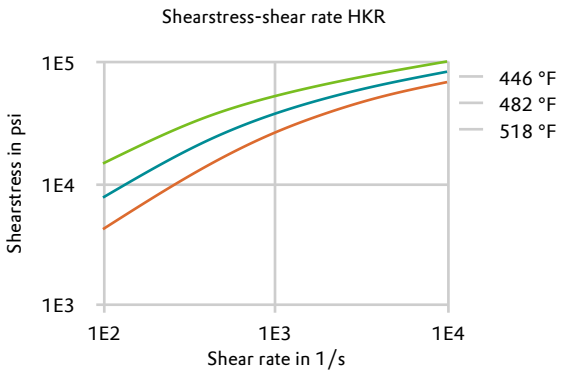
Test specimen production	**dry**	**Unit**	**Test Standard**
Processing conditions acc. ISO	**7792**	-	ISO ....-2
Injection Molding, melt temperature	**500**	°F	ISO 294
Injection Molding, mold temperature	**176**	°F	ISO 294
Injection Molding, injection velocity	**7.87**	in/s	ISO 294
Injection Molding,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

Diagrams

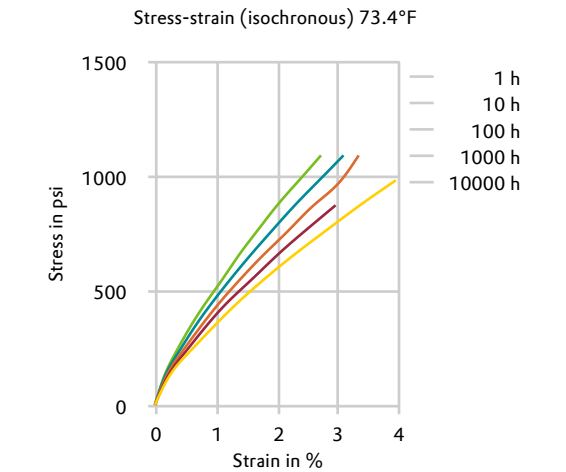
Viscosity-shear rate HKR



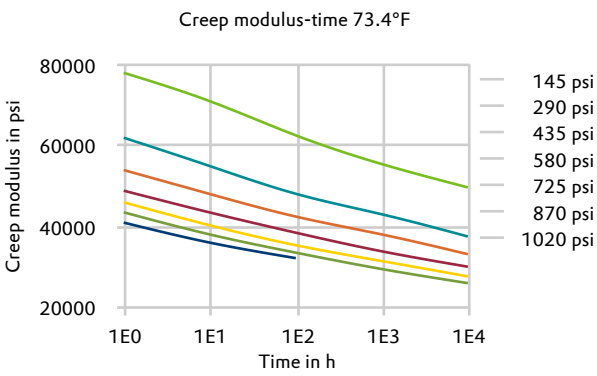
Shearstress-shear rate HKR



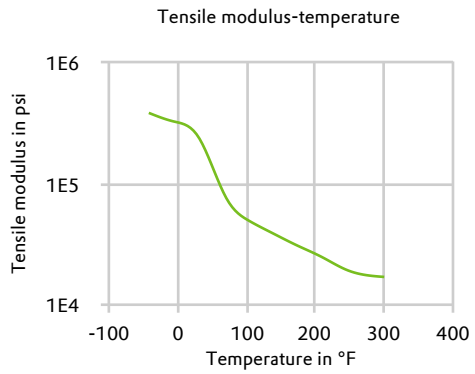
Stress-strain (isochronous) 73°F



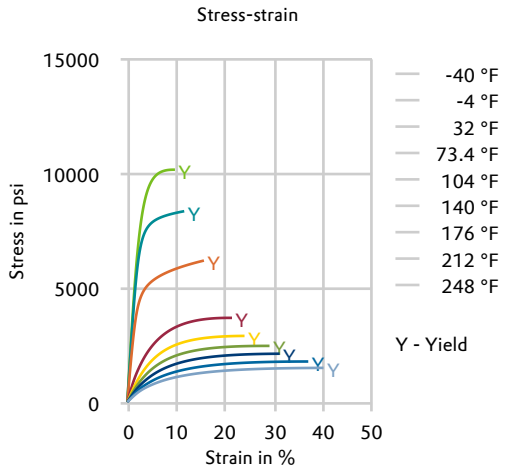
Creep modulus-time 73°F



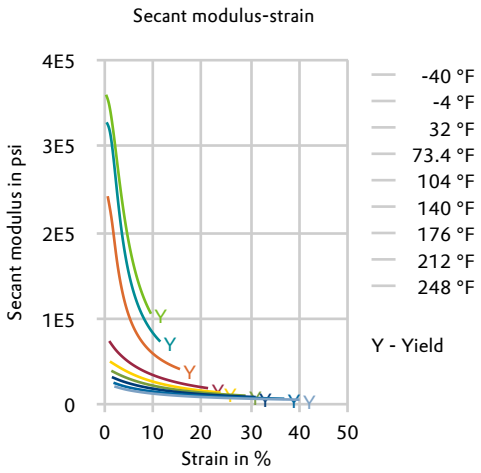
Tensile modulus-temperature



Stress-strain



Secant modulus-strain



VESTODUR®

Characteristics

Processing
Film extrusion, Profile extrusion

Special Characteristics
High impact strength, U.V. stabilized, High heat resistant

Color
Natural color

Additives
Antioxidant agent, Release agent, Impact restistant, Heat stabilizer, Processing aids

Chemical 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)

Bases

- ✖ 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)

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)
- ✔ Water (23°C)

Rheological calculation properties	dry	Unit	Test Standard
Density of melt	**68.7**	lb/ft^3	-
Thermal conductivity of melt	**0.694**	BTU in/(hr ft^2 °F)	-
Spec. heat capacity of melt	**0.714**	BTU/(lb·F)	-
Ejection temperature	**374**	°F	-
Min. mold temperature	**122**	°F	-
Max. mold temperature	**248**	°F	-
Min. melt temperature	**464**	°F	-
Max. melt temperature	**518**	°F	-