

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

Resistance to

Heat (thermal stability)

Processing

Injection molding, Extrusion, Coating

Conformity

Automotive

Delivery form

Pellets, Granules

Additives

Release agent, Unfilled

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	460 / -	MPa	ISO 527
Tensile strength	27 / -	MPa	ISO 527
Yield stress	27 / -	MPa	ISO 527
Yield strain	23 / -	%	ISO 527
Stress at break	40 / -	MPa	ISO 527
Nominal strain at break, tB	>50 / -	%	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	* / 450	MPa	ISO 899-1
Tensile creep modulus, 0,5% Strain, 1000h	* / 340	MPa	ISO 899-1
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	17 / -	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 / -	-	-
Tensile-impact strength, notched, atN +23°C	250 / -	kJ/m ²	ISO 8256/1
Flexural modulus, 23°C	450 / -	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	15 / -	MPa	ISO 178
Flexural strength, 23°C	23.5 / -	MPa	ISO 178
Flexural strain at flexural strength, 23°C	9 / -	%	ISO 178
Flexural stress at break, 23°C	N / -	MPa	ISO 178
Flexural strain at break, 23°C	N / -	%	ISO 178

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	197 / *	°C	ISO 11357-1/-3
Glass transition temperature, DSC	2 / *	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	50 / *	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	110 / *	°C	ISO 75-1/-2

Vicat softening temperature A, 10 N, 50 K/h	190 / *	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	125 / *	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	150 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	150 / *	E-6/K	ISO 11359-1/-2
Melting Temperature	197	°C	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1260 / -	kg/m ³	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	1260	kg/m ³	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	1.6 / *	mm	-
Burning behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.8 / *	mm	-
Glow Wire Flammability Index (GWFI)	750	°C	IEC 60695-2-12
Glow Wire Ignition Temperature (GWIT)	750	°C	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	27 / -	kV/mm	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

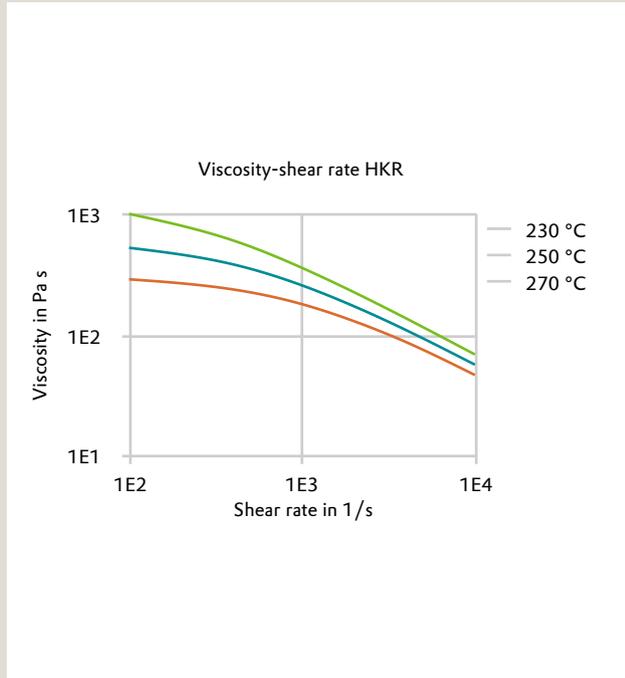
Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	12 / *	cm ³ /10min	ISO 1133
Temperature	250 / *	°C	-
Load	2.16 / *	kg	-
Molding shrinkage, parallel	1.4 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.4 / *	%	ISO 294-4, 2577

Polymer analytics	dry / cond	Unit	Test Standard
Viscosity number	170 / *	cm ³ /g	ISO 307, 1157, 1628

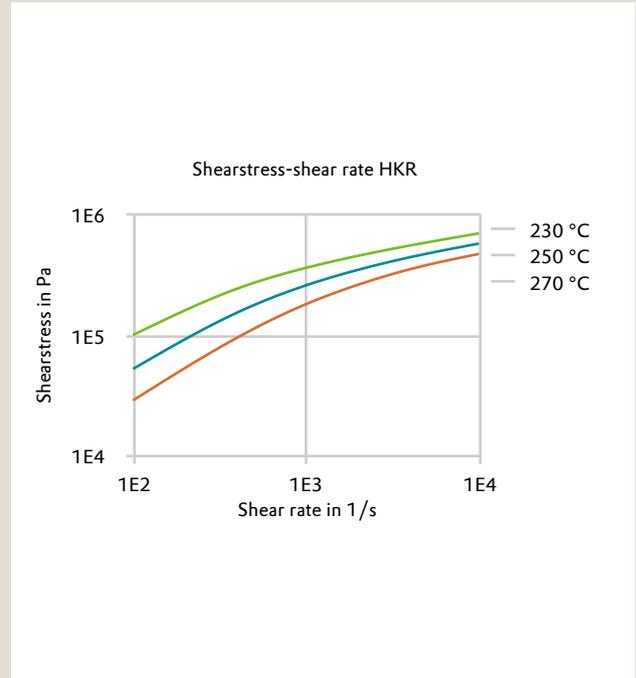
Test specimen production	dry	Unit	Test Standard
Processing conditions acc. ISO	7792	-	ISO-2
Injection Molding, melt temperature	260	°C	ISO 294
Injection Molding, mold temperature	80	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294
Injection Molding, pressure at hold	70	MPa	ISO 294

Diagrams

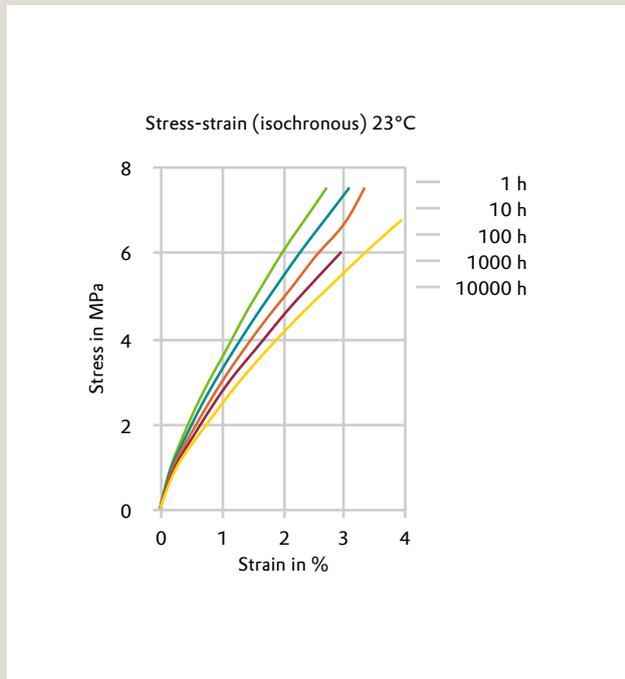
Viscosity-shear rate HKR



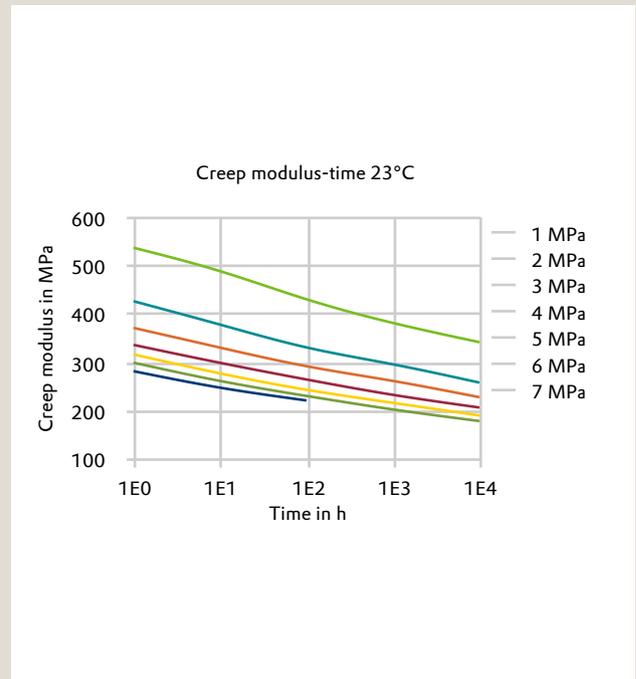
Shearstress-shear rate HKR



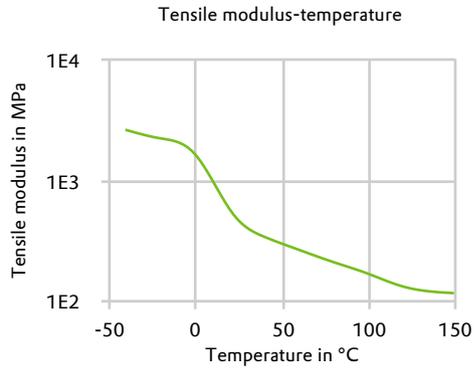
Stress-strain (isochronous) 23°C



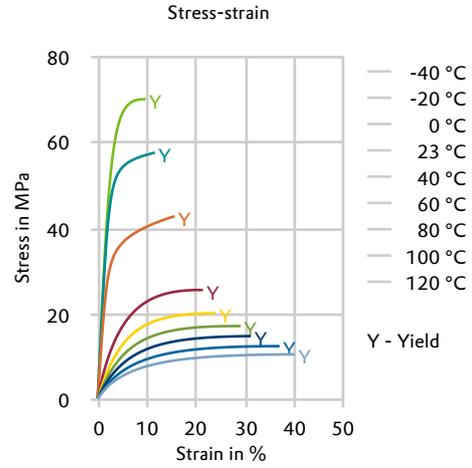
Creep modulus-time 23°C



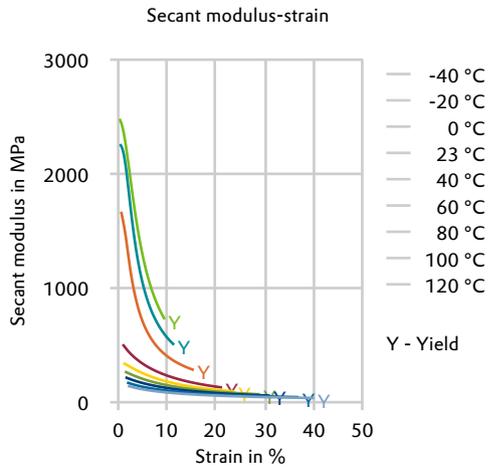
Tensile modulus-temperature



Stress-strain



Secant modulus-strain



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 resistant, 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	1100	kg/m ³	-
Thermal conductivity of melt	0.1	W/(m K)	-
Spec. heat capacity of melt	1900	J/(kg K)	-
Ejection temperature	190	°C	-
Min. mold temperature	50	°C	-
Max. mold temperature	120	°C	-
Min. melt temperature	240	°C	-
Max. melt temperature	270	°C	-