

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

Conformity

Automotive

Processing

Injection molding, Extrusion, Coating

Additives

Unfilled

Delivery form

Pellets, Granules

Mechanical properties ISO

	dry	Unit	Test Standard
Tensile modulus	2500	MPa	ISO 527
Tensile strength	55	MPa	ISO 527
Yield stress	55	MPa	ISO 527
Yield strain	4	%	ISO 527
Stress at 50% strain	32	MPa	ISO 527

Stress at break	33	MPa	ISO 527
Nominal strain at break, tB	>50	%	ISO 527
Charpy impact strength, +23°C	N	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	260	kJ/m ²	ISO 179/1eU
Type of failure	P(C)	-	-
Charpy notched impact strength, +23°C	7	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	-	-
Tensile-impact strength, notched, atN +23°C	100	kJ/m ²	ISO 8256/1
Flexural modulus, 23°C	2250	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	74	MPa	ISO 178
Flexural strength, 23°C	84	MPa	ISO 178
Flexural strain at flexural strength, 23°C	6	%	ISO 178
Flexural stress at break, 23°C	N	MPa	ISO 178
Flexural strain at break, 23°C	N	%	ISO 178
Puncture - maximum force, +23°C	3750	N	ISO 6603-2
Puncture - maximum force, -30°C	5220	N	ISO 6603-2
Puncture energy, +23°C	43	J	ISO 6603-2
Puncture energy, -30°C	57	J	ISO 6603-2

Thermal properties	dry	Unit	Test Standard
Melting temperature	223	°C	ISO 11357-1/-3
Glass transition temperature, DSC	45	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	55	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	150	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	220	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	180	°C	ISO 306

Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	110	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	110	E-6/K	ISO 11359-1/-2
Melting Temperature	223	°C	ASTM D 3418

Physical properties	dry	Unit	Test Standard
Density	1310	kg/m ³	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	1310	kg/m ³	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	1.6	mm	-
Burning behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.8	mm	-

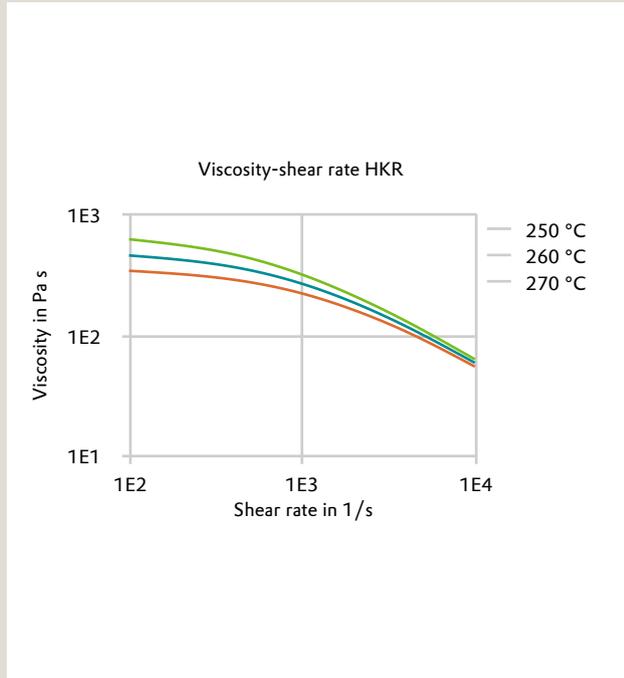
Electrical properties	dry	Unit	Test Standard
Volume resistivity, V	>1E13	Ohm*m	IEC 62631-3-1
Surface resistance, RSD	1E13	Ohm	IEC 62631-3-2
Relative permittivity, 100Hz	3.3	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.5	-	IEC 62631-2-1
Dissipation factor, 100Hz	20	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	230	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/P50	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	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	80	°C	-
Melt temperature	260	°C	-

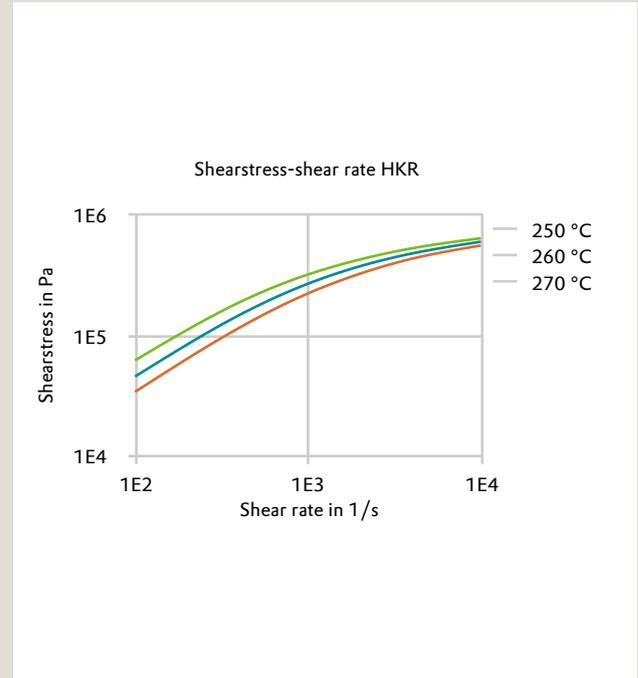
Test specimen production	dry	Unit	Test Standard
Processing conditions acc. ISO	7792	-	ISO-2
Injection Molding, melt temperature	260	°C	ISO 294
Injection Molding, mold temperature	80	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294
Injection Molding, pressure at hold	70	MPa	ISO 294

Diagrams

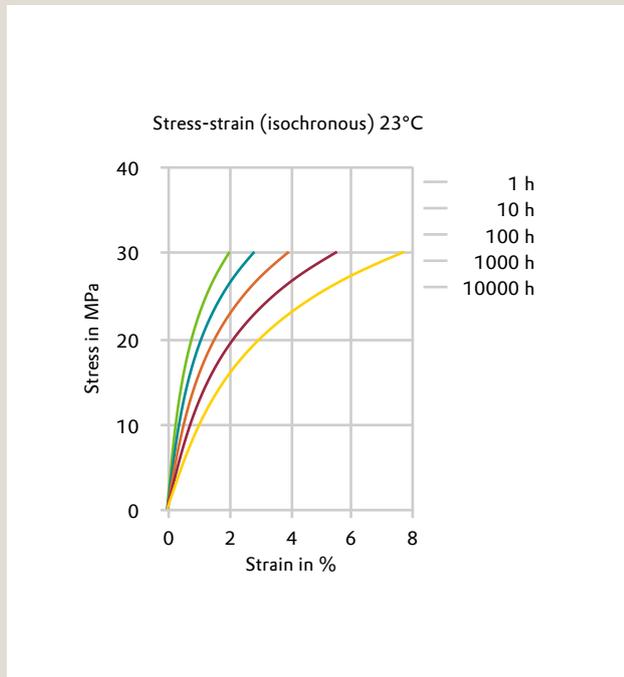
Viscosity-shear rate HKR



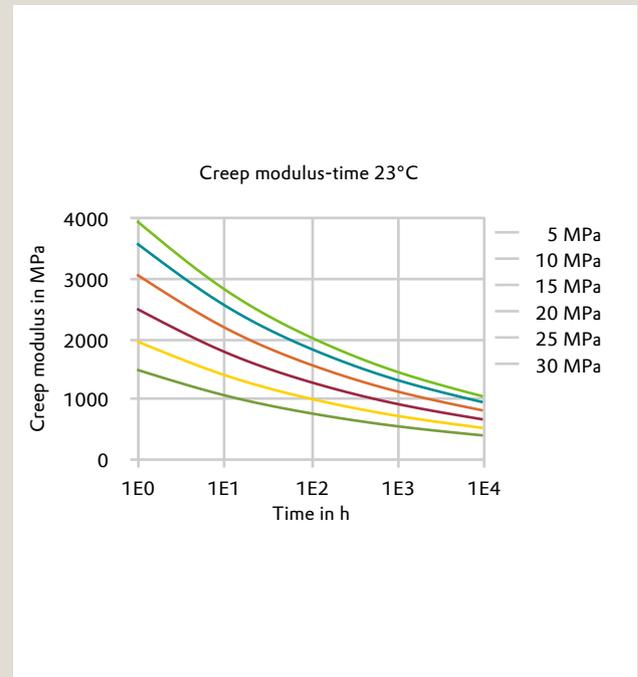
Shearstress-shear rate HKR



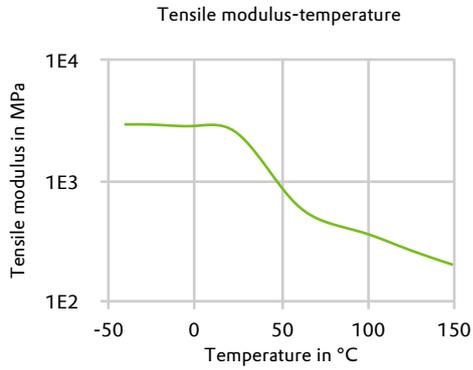
Stress-strain (isochronous) 23°C



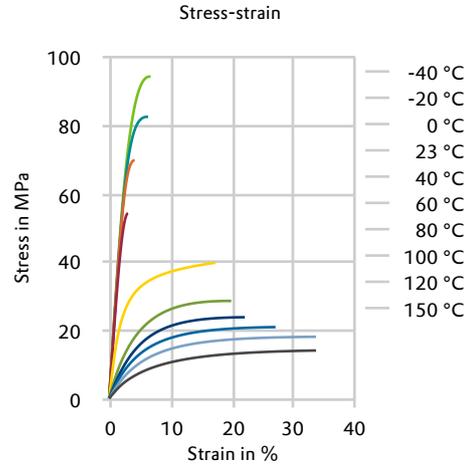
Creep modulus-time 23°C



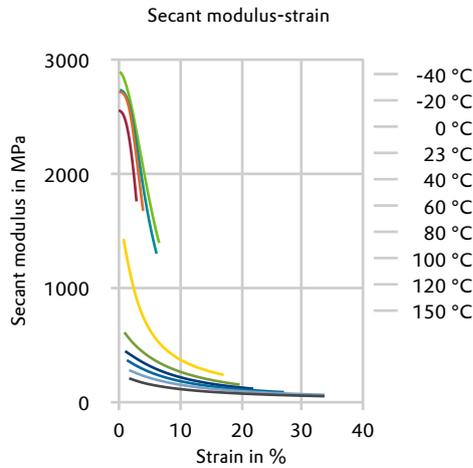
Tensile modulus-temperature



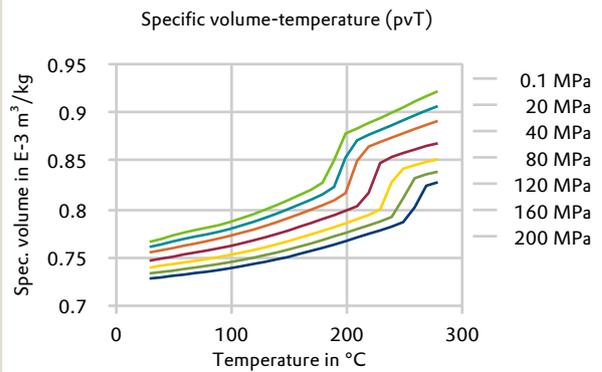
Stress-strain



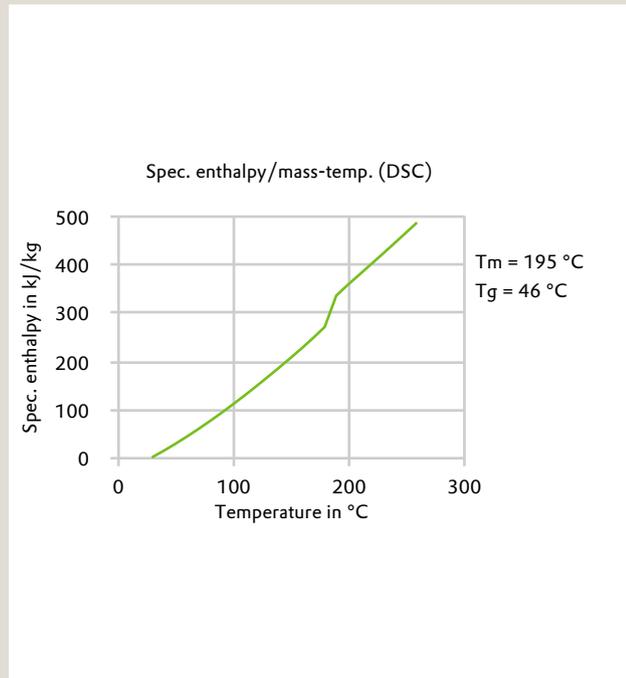
Secant modulus-strain



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

Density of melt

dry

1110

Unit

kg/m³

Test Standard

-

Thermal conductivity of melt	0.19	W/(m K)	-
Spec. heat capacity of melt	1700	J/(kg K)	-
Ejection temperature	220	°C	-
Min. mold temperature	50	°C	-
Max. mold temperature	120	°C	-
Min. melt temperature	240	°C	-
Max. melt temperature	280	°C	-