VESTODUR®

Product Information

VESTODUR® GF10 NC

GLASS FIBER-REINFORCED POLYBUTYLENE TEREPHTHALATE COMPOUND

VESTODUR® GF10 NC is a glass fiber-reinforced (10%), semicrystalline, thermoplastic resin based on polybutylene terephthalate (PBT).

VESTODUR® GF10 NC is suitable for the injection molding of parts with high mechanical and thermal resistance.

The compound is supplied as cylindrical pellets in polyethylene packaging.

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

Delivery form
Pellets, Granules

Resistance to
Heat (thermal stability)

Conformity
Automotive

Additives
Glass fibers, Release agent

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**4900**	MPa	ISO 527
Stress at break	**100**	MPa	ISO 527
Nominal strain at break, tB	**4.2**	%	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	**4600**	MPa	ISO 899-1

Tensile creep modulus, 0,5% Strain, 1000h	**3100**	MPa	ISO 899-1
Charpy impact strength, +23°C	**30**	kJ/m²	ISO 179/1eU
Type of failure	**C**	-	-
Charpy impact strength, -30°C	**30**	kJ/m²	ISO 179/1eU
Type of failure	**C**	-	-
Charpy notched impact strength, +23°C	**5.5**	kJ/m²	ISO 179/1eA
Type of failure	**C**	-	-
Charpy notched impact strength, -30°C	**5**	kJ/m²	ISO 179/1eA
Type of failure	**C**	-	-
Tensile-impact strength, notched, atN +23°C	**40**	kJ/m²	ISO 8256/1
Flexural modulus, 23°C	**4450**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**145**	MPa	ISO 178
Flexural strength, 23°C	**160**	MPa	ISO 178
Flexural strain at flexural strength, 23°C	**4.5**	%	ISO 178
Flexural stress at break, 23°C	**158**	MPa	ISO 178
Flexural strain at break, 23°C	**4.6**	%	ISO 178

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	**190**	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**215**	°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	**205**	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**70**	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	**1380**	kg/m³	ISO 1183
Water absorption	**0.5**	%	Sim. to ISO 62
Humidity absorption	**0.1**	%	Sim. to ISO 62
Shore D hardness	**81**[b]	-	ISO 7619-1
Ball indentation hardness	**170**	MPa	ISO 2039-1
Density	**1380**	kg/m³	ASTM D 792

b: 3 seconds

Burning Behav.	dry	Unit	Test Standard
UL Yellow Card available	yes	-	-
Burning behav. at 1.5 mm nom. thickn.	**HB**	class	IEC 60695-11-10
Thickness tested	**1.5**	mm	-
Burnin behav. at thickness h	**HB**	class	IEC 60695-11-10
Thickness tested	**3.0**	mm	-
Burning behav. at thickness h	**HB**	class	IEC 60695-11-10
Thickness tested	**0.8**	mm	-
GWFI - thickness tested	**750**	mm	-
GWIT - thickness tested	**750**	mm	-
Hot Wire Ignition (HWI)	**4**	PL-Klasse	IEC 60695-2-20
HWI - thickness tested	**0.8**	mm	-
Hot Wire Ignition (HWI)	**3**	PL-Klasse	IEC 60695-2-20
HWI - thickness tested	**1.5**	mm	-
Hot Wire Ignition (HWI)	**1**	PL-Klasse	IEC 60695-2-20
HWI - thickness tested	**3.0**	mm	-

Electrical properties	dry	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	**3.6**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**3.9**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**20**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**190**	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	**325**	-	IEC 60112
Assessment of the insulation group	**III a**	-	DIN EN 60664-1

Rheological properties	**dry**	**Unit**	**Test Standard**
Melt volume-flow rate, MVR	**23**	cm^3/10min	ISO 1133
Temperature	**250**	°C	-
Load	**2.16**	kg	-
Molding shrinkage, parallel	**0.4**	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.6**	%	ISO 294-4, 2577
Mold temperature	**80**	°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

Characteristics

VESTODUR®

Applications
Electrical and Electronical, Encapsulation, General purpose

Color
Natural color

Special Characteristics
Semi-crystalline, High heat resistant

Additives
Release agent

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)

✔ 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)
✔ Water (23°C)

Rheological calculation properties	dry	Unit	Test Standard
Ejection temperature	**220**	°C	-
Min. mold temperature	**50**	°C	-
Max. mold temperature	**120**	°C	-
Min. melt temperature	**240**	°C	-
Max. melt temperature	**280**	°C	-