VESTODUR®

Product Information

VESTODUR® X4621

MEDIUM VISCOSITY POLYBUTYLENE TEREPHTHALATE RESIN WITH PROCESSING AIDS

VESTODUR® X4621 is a medium viscosity, fast solidifying polybutylene terephthalate resin (PBT).

VESTODUR® X4621 can be used for the injection molding process.

The resin is supplied as cylindrical granules, ready for processing.

For information about VESTODUR® X4621, 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
Medical Devices

Delivery form
Pellets, Granules

Processing
Injection molding, Extrusion

Additives
Unfilled

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**2600**	MPa	ISO 527
Tensile strength	**58**	MPa	ISO 527
Yield stress	**58**	MPa	ISO 527
Yield strain	**10**	%	ISO 527
Stress at 50% strain	**33**	MPa	ISO 527

Stress at break	**10**	MPa	ISO 527
Nominal strain at break, tB	**40**	%	ISO 527
Charpy impact strength, +23°C	**230**	kJ/m²	ISO 179/1eU
Type of failure	**C(P)**	-	-
Charpy impact strength, -30°C	**205**	kJ/m²	ISO 179/1eU
Type of failure	**C**	-	-
Charpy notched impact strength, +23°C	**4**	kJ/m²	ISO 179/1eA
Type of failure	**C**	-	-
Charpy notched impact strength, -30°C	**4**	kJ/m²	ISO 179/1eA
Type of failure	**C**	-	-
Flexural modulus, 23°C	**2430**	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	**77**	MPa	ISO 178
Flexural strength, 23°C	**88**	MPa	ISO 178
Flexural strain at flexural strength, 23°C	**6.6**	%	ISO 178
Flexural stress at break, 23°C	**N**	MPa	ISO 178
Flexural strain at break, 23°C	**N**	%	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	**55**	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**160**	°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/m³	ISO 1183
Water absorption	**0.45**	%	Sim. to ISO 62
Humidity absorption	**0.13**	%	Sim. to ISO 62
Shore D hardness	**77**[b]	-	ISO 7619-1
Density	**1310**	kg/m³	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	-
Oxygen index	**23**	%	ISO 4589-1/-2
Limiting Oxygen Index	**23**	%	ASTM D 2863

Electrical properties	dry	Unit	Test Standard
Surface resistivity, E	**1E13**	Ohm	IEC 62631-3-2
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**	cm³/10min	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	-

Polymer analytics	dry	Unit	Test Standard
Viscosity number	**107**	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

Characteristics

Processing
Film extrusion

Color
Natural color

Special Characteristics
Medium viscosity

Additives
Nucleation agent, Processing aids

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)
✔	Sodium Hydroxide solution (1% by mass) (23°C)
✖	Ammonium Hydroxide solution (10% by mass) (23°C)

Alcohols

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

Hydrocarbons

✔	n-Hexane (23°C)
✔	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)
✔	Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (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)
✔	Sodium Carbonate solution (2% by mass) (23°C)

Other

✔	Ethyl Acetate (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	**1110**	kg/m³	-
Thermal conductivity of melt	**0.19**	W/(m K)	-
Spec. heat capacity of melt	**1700**	J/(kg K)	-
Min. mold temperature	**60**	°C	-
Max. mold temperature	**100**	°C	-
Min. melt temperature	**250**	°C	-
Max. melt temperature	**280**	°C	-