

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	377000	psi	ISO 527
Tensile strength	8410	psi	ISO 527
Yield stress	8410	psi	ISO 527
Yield strain	10	%	ISO 527
Stress at 50% strain	4790	psi	ISO 527

Stress at break	1450	psi	ISO 527
Nominal strain at break, tB	40	%	ISO 527
Charpy impact strength, +23°C	109	ftlb/in ²	ISO 179/1eU
Type of failure	C(P)	-	-
Charpy impact strength, -30°C	97.5	ftlb/in ²	ISO 179/1eU
Type of failure	C	-	-
Charpy notched impact strength, +23°C	1.9	ftlb/in ²	ISO 179/1eA
Type of failure	C	-	-
Charpy notched impact strength, -30°C	1.9	ftlb/in ²	ISO 179/1eA
Type of failure	C	-	-
Flexural modulus, 23°C	352000	psi	ISO 178
Flexural stress at conv. deflection, 23°C	11200	psi	ISO 178
Flexural strength, 23°C	12800	psi	ISO 178
Flexural strain at flexural strength, 23°C	6.6	%	ISO 178
Flexural stress at break, 23°C	N	psi	ISO 178
Flexural strain at break, 23°C	N	%	ISO 178

Thermal properties	dry	Unit	Test Standard
Melting temperature	433	°F	ISO 11357-1/-3
Glass transition temperature, DSC	113	°F	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	131	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	320	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	428	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	356	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	6.11E-5	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	6.11E-5	in/in/°F	ISO 11359-1/-2
Melting Temperature	433	°F	ASTM D 3418

Physical properties	dry	Unit	Test Standard
Density	1.31	g/cm ³	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	1.31	g/cm 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	0.0630	in	-
Burning behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.0315	in	-
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	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	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	176	°F	-
Melt temperature	500	°F	-

Polymer analytics	dry	Unit	Test Standard
Viscosity number	2960	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

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	69.3	lb/ft ³	-
Thermal conductivity of melt	1.32	BTU in/(hr ft ² °F)	-
Spec. heat capacity of melt	0.639	BTU/(lb·F)	-
Min. mold temperature	140	°F	-
Max. mold temperature	212	°F	-
Min. melt temperature	482	°F	-
Max. melt temperature	536	°F	-