

Product Information

VESTODUR® 3013

HIGH VISCOSITY POLYBUTYLENE TEREPHTHALATE WITH IMPROVED HYDROLYSIS RESISTANCE



VESTODUR® 3013 is a high viscosity polybutylene terephthalate (PBT) resin for the extrusion, with an improved resistance to hydrolysis.

The resin is especially suitable for the manufacture of stiff, small-diameter tubing, e. g. for loose fiber optic buffer tubes.

VESTODUR® 3013 is supplied as cylindrical pellets in polyethylene packaging, ready for processing.

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, Industry and Engineering

Resistance to

Hydrolysis / hot water

Processing

Extrusion

Conformity

Automotive

Delivery form

Pellets, Granules

Additives

Unfilled

Mechanical properties ISO

Tensile modulus

dry / cond

2500 / 2450

Unit

MPa

Test Standard

ISO 527

Tensile strength

57 / 57

MPa

ISO 527

Yield stress

57 / 57

MPa

ISO 527

Yield strain

11 / 12

%

ISO 527

Stress at 50% strain	33 / 33	MPa	ISO 527
Stress at break	38 / 33	MPa	ISO 527
Nominal strain at break, tB	>50 / >50	%	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	* / 2600	MPa	ISO 899-1
Tensile creep modulus, 0,5% Strain, 1000h	* / 1500	MPa	ISO 899-1
Charpy impact strength, +23°C	N / N	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	250 / 250	kJ/m ²	ISO 179/1eU
Type of failure	C(P) / C	-	-
Charpy notched impact strength, +23°C	5 / 5	kJ/m ²	ISO 179/1eA
Type of failure	C / C	-	-
Charpy notched impact strength, -30°C	4 / 4	kJ/m ²	ISO 179/1eA
Type of failure	C / C	-	-
Tensile-impact strength, notched, atN +23°C	110 / -	kJ/m ²	ISO 8256/1
Flexural modulus, 23°C	2380 / 2350	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	78 / 72	MPa	ISO 178
Flexural strength, 23°C	89 / 83	MPa	ISO 178
Flexural strain at flexural strength, 23°C	7 / 7	%	ISO 178
Flexural stress at break, 23°C	N / N	MPa	ISO 178
Flexural strain at break, 23°C	N / N	%	ISO 178

Thermal properties	dry / cond	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 / cond	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 / 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	-
Oxygen index	23 / *	%	ISO 4589-1/-2
Limiting Oxygen Index	23	%	ASTM D 2863

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	1E11 / -	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	3.3 / -	-	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 / cond	Unit	Test Standard
Melt volume-flow rate, MVR	9 / *	cm ³ /10min	ISO 1133
Temperature	250 / *	°C	-
Load	2.16 / *	kg	-
Molding shrinkage, parallel	1.7 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.7 / *	%	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

Applications

Electrical and Electronical, Tube and hose

Color

Natural color

Processing

Film extrusion, Profile extrusion, Sheet extrusion

Chemical Resistance

Hydrolytically stable

Special Characteristics

High viscosity

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)

VESTODUR®

- ✓ Water (23°C)
- ✗ Deionized water (90°C)