VESTODUR®

Product Information

VESTODUR® X7190

LOW-SHRINKAGE, POLYMER-MODIFIED POLYBUTYLENE TEREPHTHALATE COMPOUND

VESTODUR® X7190 is an unreinforced, heat-stabilized and polymer-modified polybutylene terephthalate (PBT) compound with low shrinkage for extrusion.

The compound is especially suitable for the manufacture of stiff, small diameter tubing, e.g., loose buffering for fiber optics.

Compared with standard PBT compounds, VESTODUR® X7190 is harder and can also be used to protect as outer sheaths to protect electrical cables from the chewing of rodents.

This compound contains a processing aid which facilitates feeding in the extrusion process.

VESTODUR® X7190 is supplied as cylindrical pellets in polyethylene packaging.

For information about processing of VESTODUR, please follow the general recommendations in our brochure "VESTODUR Handling and Processing".

In the brochure "Engineering thermoplastics for secondary fibre optic jacketing" instructions are given on the extrusion of loose or tight bufferings for fiber optics.

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 templeratures not exceeding 30°C.

Key Features

Processing
Injection molding, Extrusion

Delivery form
Pellets, Granules

Resistance to
Heat (thermal stability), Hydrolysis / hot water

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**348000**	psi	ISO 527
Tensile strength	**8850**	psi	ISO 527
Yield stress	**8850**	psi	ISO 527
Yield strain	**6.5**	%	ISO 527
Nominal strain at break, tB	**>50**	%	ISO 527
Charpy impact strength, +23°C	**N**	ftlb/in^2	ISO 179/1eU
Charpy impact strength, -30°C	**N**	ftlb/in^2	ISO 179/1eU
Charpy impact strength, -40°C	**N**	ftlb/in^2	ISO 179/1eU
Charpy notched impact strength, +23°C	**3.09**	ftlb/in^2	ISO 179/1eA
Type of failure	**C**	-	-
Charpy notched impact strength, -40°C	**2.62**	ftlb/in^2	ISO 179/1eA
Type of failure	**C**	-	-

Thermal properties	dry	Unit	Test Standard
Temp. of deflection under load A, 1.80 MPa	**154**	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**234**	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**410**	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**302**	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**3.89E-5**	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**3.89E-5**	in/in/°F	ISO 11359-1/-2

Physical properties	dry	Unit	Test Standard
Density	**1.28**	g/cm^3	ISO 1183
Moisture content	**0.01**	wt.-%	ISO 15512
Shore D hardness	**87**[b]	-	ISO 7619-1
Density	**1.28**	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	-

Optical properties	dry	Unit	Test Standard
Color L	**88.5**	-	CIE
Color a	**1.62**	-	CIE
Color b	**12.8**	-	CIE

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	**8**	cm^3/10min	ISO 1133
Temperature	**250**	°C	-
Load	**2.16**	kg	-
Molding shrinkage, parallel	**1.3**	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.3**	%	ISO 294-4, 2577
Mold temperature	**176**	°F	-
Melt temperature	**500**	°F	-

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

VESTODUR®

Characteristics

Applications
Electrical and Electronical, Fiber optic cable

Features
Termite and rodent resistance

Processing
Profile extrusion, Sheet extrusion

Color
Natural color

Special Characteristics
High heat resistant, Low warpage / Low shrinkage

Additives
Heat stabilizer, 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 (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	dry	Unit	Test Standard
Min. mold temperature	**122**	°F	-
Max. mold temperature	**248**	°F	-
Min. melt temperature	**464**	°F	-
Max. melt temperature	**536**	°F	-