



THERMOPLASTIC POLYESTER RESIN

Common features of Crastin® thermoplastic polyester resin include mechanical and physical properties such as stiffness and toughness, heat resistance, friction and wear resistance, excellent surface finishes and good colourability. Crastin® thermoplastic polyester resin has excellent electrical insulation characteristics and high arc-resistant grades are available. Many flame retardant grades have UL recognition (class V-0). Crastin® thermoplastic polyester resin typically has high chemical and heat ageing resistance.

The good melt stability of Crastin® thermoplastic polyester resin normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-24 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Crastin® thermoplastic polyester resin typically is used in demanding applications in the electronics, electrical, automotive, mechanical engineering, chemical, domestic appliances and sporting goods industry.

Crastin® SK612SF is a 15% glass fiber reinforced, low viscosity polybutylene terephthalate for injection moulding. It has high flow characteristics and is specifically suitable for .

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Resin Identification Part Marking Code	PBT-GF15 >PBT-GF15<		ISO 1043 ISO 11469	
Rheological properties				
Intrinsic viscosity	0.8		ISO 307, 1628	
Moulding shrinkage, parallel	0.4	%	ISO 294-4, 2577	
Moulding shrinkage, normal	1.1	%	ISO 294-4, 2577	
Postmoulding shrinkage, normal, 48h at 80°C	0.3		ISO 294-4	
Postmoulding shrinkage, parallel, 48h at 80°C	0.15		ISO 294-4	
Flow length	450			
Flow length - pressure		MPa		
Flow length - width/thickness	2	mm		
Typical mechanical properties				
Tensile modulus	5800	MPa	ISO 527-1/-2	
Tensile stress at break, 5mm/min	106	MPa	ISO 527-1/-2	
Tensile strain at break, 5mm/min	3.2	%	ISO 527-1/-2	
Charpy impact strength, 23°C	30	kJ/m²	ISO 179/1eU	
Charpy impact strength, -30°C	30	kJ/m²	ISO 179/1eU	
Charpy notched impact strength, 23°C		kJ/m²	ISO 179/1eA	
Poisson's ratio	0.35			
Thermal properties				
Melting temperature, 10°C/min	224	°C	ISO 11357-1/-3	
Glass transition temperature, 10°C/min	55	°C	ISO 11357-1/-3	
Temperature of deflection under load, 1.8 MPa	200	°C	ISO 75-1/-2	
Coefficient of linear thermal expansion	50	E-6/K	ISO 11359-1/-2	
(CLTE), parallel				
Coefficient of linear thermal expansion (CLTE), normal	95	E-6/K	ISO 11359-1/-2	
Thermal conductivity of melt	0.24	W/(m K)	ISO 22007-2	

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Specific heat capacity of melt	1900	J/(kg K)	ISO 22007-4
Flammability			
Oxygen index Glow Wire Flammability Index, 3.0mm FMVSS Class Burning rate, Thickness 1 mm	19 700 B 54		ISO 4589-1/-2 IEC 60695-2-12 ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302)
Electrical properties			
Relative permittivity, 100Hz Relative permittivity, 1MHz Dissipation factor, 100Hz Dissipation factor, 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index	190 >1E13 1E15	E-4 E-4 Ohm.m Ohm kV/mm	IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 62631-3-2 IEC 60243-1 IEC 60112
Physical/Other properties			
Humidity absorption, 2mm Water absorption, 2mm Density Density of melt			Sim. to ISO 62 Sim. to ISO 62 ISO 1183
VDA Properties			
Odour Fogging, G-value (condensate)	3 0.1	class mg	VDA 270 ISO 6452
Injection			
Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Mold Temperature Optimum Min. mould temperature Max. mould temperature Hold pressure range Hold pressure time Back pressure Ejection temperature	60 130 ≥60	h % °C °C °C °C °C MPa s/mm MPa	

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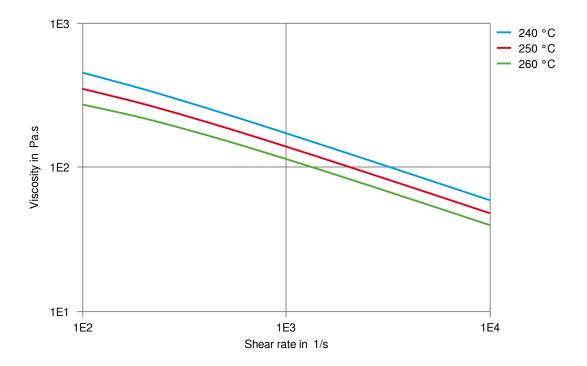
Characteristics

Processing Injection Moulding

Delivery form Pellets

Additives Release agent

Viscosity-shear rate



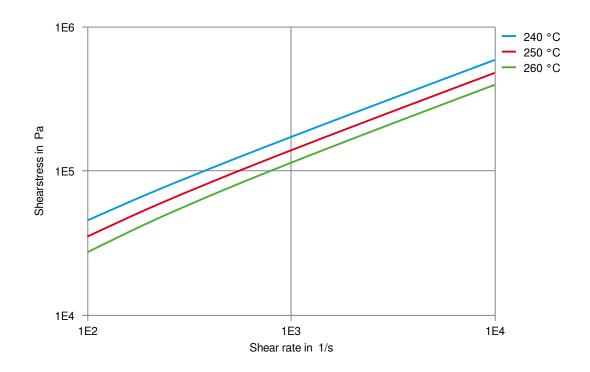
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Shearstress-shear rate



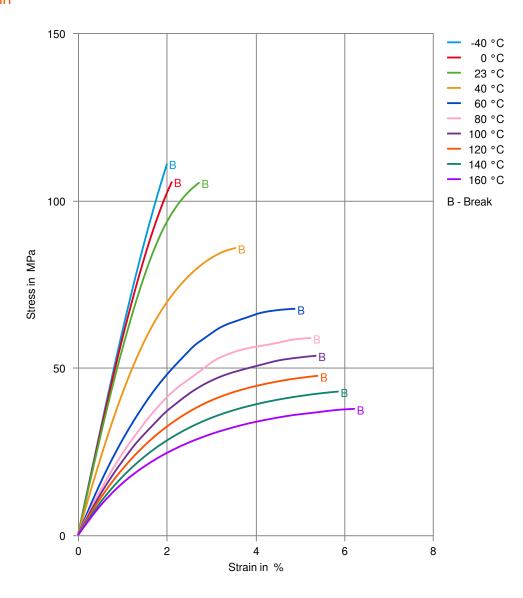
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Stress-strain



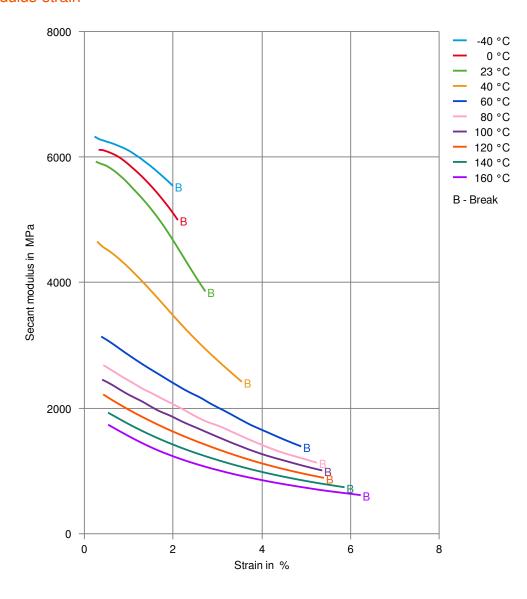
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Secant modulus-strain



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Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass), 23°C
- ✓ Citric Acid solution (10% by mass), 23°C
- ✓ Lactic Acid (10% by mass), 23°C
- X Hydrochloric Acid (36% by mass), 23°C
- X Nitric Acid (40% by mass), 23°C
- X Sulfuric Acid (38% by mass), 23°C
- X Sulfuric Acid (5% by mass), 23°C
- X Chromic Acid solution (40% by mass), 23°C

Bases

- X 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
- ✓ Toluene, 23°C
- ✓ iso-Octane, 23°C

Ketones

✓ Acetone, 23°C

Ethers

✓ Diethyl ether, 23°C

Mineral oils

- ✓ SAE 10W40 multigrade motor oil, 23°C
- X SAE 10W40 multigrade motor oil, 130°C
- X SAE 80/90 hypoid-gear oil, 130°C
- ✓ Insulating Oil, 23°C

Standard Fuels

- X ISO 1817 Liquid 1 E5, 60°C
- ★ ISO 1817 Liquid 2 M15E4, 60°C
- X ISO 1817 Liquid 3 M3E7, 60°C
- X ISO 1817 Liquid 4 M15, 60°C
- ✓ 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
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 90°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

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- ✓ Sodium Carbonate solution (20% by mass), 23°C
- ✓ Sodium Carbonate solution (2% by mass), 23°C
- ✓ Zinc Chloride solution (50% by mass), 23°C

Other

- ✓ Ethyl Acetate, 23°C
- X Hydrogen peroxide, 23°C
- ➤ DOT No. 4 Brake fluid, 130°C
- ➤ Ethylene Glycol (50% by mass) in water, 108°C
- √ 1% nonylphenoxy-polyethyleneoxy ethanol in water, 23°C
- ✓ 50% Oleic acid + 50% Olive Oil, 23°C
- ✓ Water. 23°C
- X Water, 90°C
- ✓ Phenol solution (5% by mass), 23°C

Symbols used:

✓ possibly resistant

Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

x not recommended - see explanation

Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

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NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufac

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