

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® S620F20 BK851 is an unreinforced, nucleated, lubricated, medium viscosity polybutylene terephthalate resin for fast injection moulding.

Product information			100 1040
Resin Identification Part Marking Code	PBT >PBT<		ISO 1043 ISO 11469
Rheological properties			
Melt mass-flow rate Melt mass-flow rate, Temperature Melt mass-flow rate, Load	19 250 2.16	-	ISO 1133
Intrinsic viscosity	1.03		ISO 307, 1628
Typical mechanical properties			
Tensile modulus	2600		ISO 527-1/-2
Tensile stress at yield, 50mm/min		MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min		%	ISO 527-1/-2
Nominal strain at break	30 >50		ISO 527-1/-2 ISO 527-1/-2
Tensile strain at break, 50mm/min Flexural strength		⁷ ° MPa	ISO 527-17-2 ISO 178
Charpy notched impact strength, 23°C		kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C		kJ/m ²	ISO 180/1A
Poisson's ratio	0.38		
Thermal properties			
Melting temperature, 10°C/min	225	°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, annealed	60	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	145	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa, annealed	180	°C	ISO 75-1/-2
RTI, electrical, 0.75mm	130		UL 746B
RTI, electrical, 1.5mm	130	-	UL 746B
RTI, electrical, 3.0mm	130	°C	UL 746B

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RTI, electrical, 6mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, impact, 6mm RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm RTI, strength, 6mm	130 115 115 115 115 120 120 120 120	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B
Flammability			
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition Glow Wire Flammability Index, 3.0mm FMVSS Class Burning rate, Thickness 1 mm	1.5 yes HB 3 yes 750 B	class mm class mm °C mm/min	IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-2-12 ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302)
	27		
Electrical properties	050		
Comparative tracking index	250		IEC 60112
Physical/Other properties			
Density Density of melt		kg/m³ kg/m³	ISO 1183
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	60 130 ≥60	h % °C °C °C °C °C MPa s/mm MPa	



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Characteristics

Processing

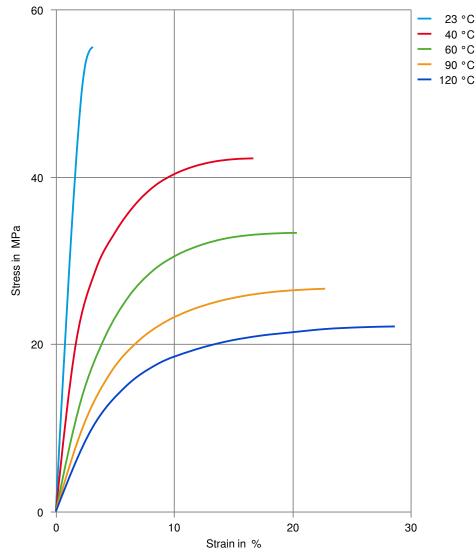
Injection Moulding

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
BMW	GS93016-PBT	(Impact Resistant)
VW Group	VW 50136-PBT-1-A	

Stress-strain

(measured on Crastin® S620F20 NC010)



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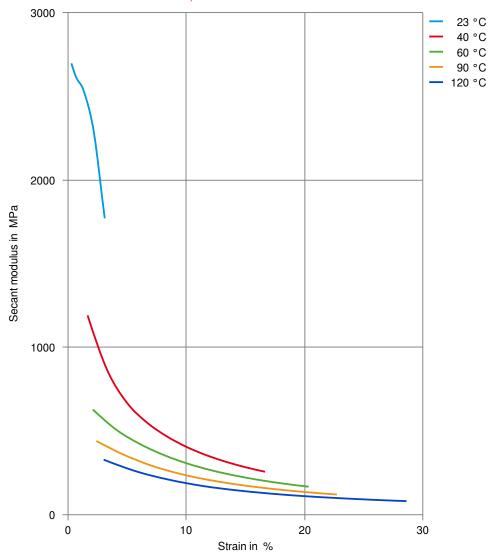




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Secant modulus-strain

(measured on Crastin® S620F20 NC010)







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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
- ★ 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

- ✗ 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
- X 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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Crastin[®] S620F20 BK851

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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
- X 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
- ★ 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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