

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® SK601 BK851 is a 10% glass fiber reinforced, lubricated polybutylene terephthalate resin for injection moulding.

| Product information Resin Identification Part Marking Code | PBT-GF10 >PBT-GF10< | | ISO 1043 ISO 11469 |
|--|--|--|---|
| Rheological properties Moulding shrinkage, parallel Moulding shrinkage, normal | 0.7 1.2 | | ISO 294-4, 2577 ISO 294-4, 2577 |
| Typical mechanical properties Tensile modulus Tensile stress at break, 5mm/min Tensile strain at break, 5mm/min Flexural modulus Flexural strength Charpy impact strength, 23°C Charpy impact strength, -30°C Charpy notched impact strength, 23°C Izod notched impact strength, 23°C Poisson's ratio | 4.2 4100 130 35 35 5 | MPa % | ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2 ISO 178 ISO 178 ISO 179/1eU ISO 179/1eU ISO 179/1eA ISO 180/1A |
| Thermal properties Melting temperature, 10°C/min Glass transition temperature, 10°C/min Temperature of deflection under load, 1.8 MPa RTI, electrical, 0.75mm RTI, electrical, 1.5mm RTI, electrical, 3.0mm RTI, electrical, 6mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, impact, 3.0mm RTI, impact, 6mm | 225 55 180 130 130 130 130 115 115 115 115 | ဝံ ဝံ ဝံ ဝံ ဝံ ဝံ ဝံ ဝံ ဝံ ဝံ ဝံ ဝံ ဝံ ဝံ | ISO 11357-1/-3 ISO 11357-1/-3 ISO 75-1/-2 UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B |

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THERMOPLASTIC POLYESTER RESIN

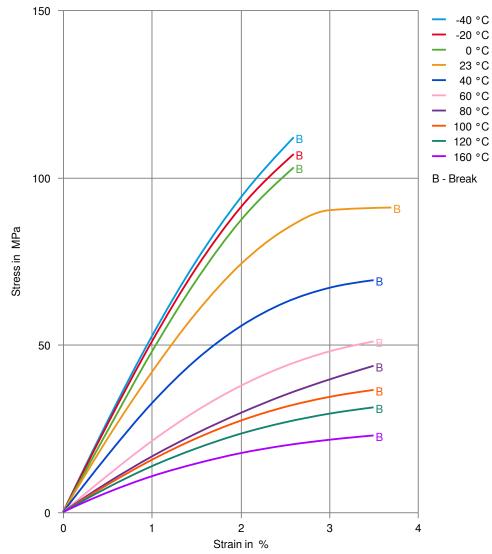
| RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm RTI, strength, 6mm | 120 120 120 120 | °C °C | UL 746B UL 746B UL 746B UL 746B |
|---|--------------------------|-------------|--|
| Flammability | | | |
| Burning Behav. at 1.5mm nom. thickn. | HB | class | IEC 60695-11-10 |
| Thickness tested | 1.5 | mm | IEC 60695-11-10 |
| UL recognition | yes | | UL 94 |
| Burning Behav. at thickness h Thickness tested | | class mm | IEC 60695-11-10 IEC 60695-11-10 |
| UL recognition | yes | | UL 94 |
| Oxygen index | 20 | % | ISO 4589-1/-2 |
| FMVSS Class | В | | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm | 36 | mm/min | ISO 3795 (FMVSS 302) |
| Electrical properties | | | |
| Comparative tracking index | 250 | | IEC 60112 |
| Physical/Other properties | | | |
| Density | 1370 | kg/m³ | ISO 1183 |
| VDA Properties | | | |
| Emission of organic compounds | 70 | µgC/g | VDA 277 |
| Odour | | class | VDA 270 |
| Fogging, G-value (condensate) | 0.1 | mg | ISO 6452 |
| Injection | | | |
| Drying Recommended | yes | | |
| Drying Temperature | 120 | | |
| Drying Time, Dehumidified Dryer | 2 - 4 | | |
| Processing Moisture Content Melt Temperature Optimum | ≤0.04 250 | | |
| Min. melt temperature | 230 | | |
| Max. melt temperature | 260 | | |
| Mold Temperature Optimum | | °C | |
| Min. mould temperature | 30 | °C | |
| Max. mould temperature | 130 | | |
| Hold pressure range | | MPa | |
| Hold pressure time | | s/mm | |
| Back pressure | As low as | wPa | |
| Ejection temperature | possible 183 | °C | |



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Stress-strain

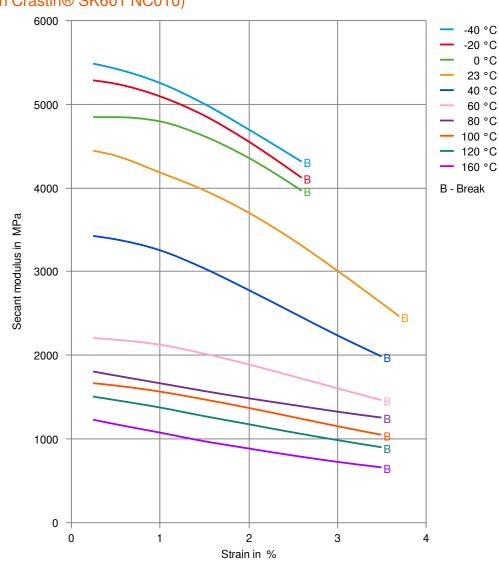
(measured on Crastin® SK601 NC010)





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Secant modulus-strain (measured on Crastin® SK601 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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- 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
- 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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