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Crastin® ST820 BK503

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® ST820 BK503 is an unreinforced, Super Tough polybutylene terephthalate resin for injection moulding.

Product information

Resin Identification	PBT-HI	ISO 1043
Part Marking Code	>PBT-HI<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	1.8	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.7	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	1600	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	36	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	7	%	ISO 527-1/-2
Tensile stress at break, 50mm/min	30	MPa	ISO 527-1/-2
Nominal strain at break	>50	%	ISO 527-1/-2
Tensile strain at break, 50mm/min	130	%	ISO 527-1/-2
Flexural modulus	1500	MPa	ISO 178
Flexural strength	50	MPa	ISO 178
Charpy impact strength, 23°C	N	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	N	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	85	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	10	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	60	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	10.0	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	N	kJ/m²	ISO 180/1U
Izod impact strength, -30°C	N	kJ/m²	ISO 180/1U
Poisson's ratio	0.42		

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	50	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	100	°C	ISO 75-1/-2

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Temperature of deflection under load, 0.45 MPa, annealed	145	°C	ISO 75-1/-2

Flammability

FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	38	mm/min	ISO 3795 (FMVSS 302)

Physical/Other properties

Density	1220	kg/m³	ISO 1183

VDA Properties

Fogging, G-value (condensate)	0.1	mg	ISO 6452

Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.04	%
Melt Temperature Optimum	250	°C
Min. melt temperature	240	°C
Max. melt temperature	260	°C
Mold Temperature Optimum	80	°C
Min. mould temperature	60	°C
Max. mould temperature	130	°C
Hold pressure range	≥60	MPa
Hold pressure time	3	s/mm
Back pressure	As low as possible	MPa
Ejection temperature	170	°C

Extrusion

Drying Temperature	110 - 130	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.04	%
Melt Temperature Range	240 - 260	°C

Characteristics

Processing	Injection Moulding, Extrusion, Sheet Extrusion, Other Extrusion, Coatable
Special characteristics	High impact or impact modified

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
Stellantis - Chrysler	MS.50103 / CPN-2724	Black

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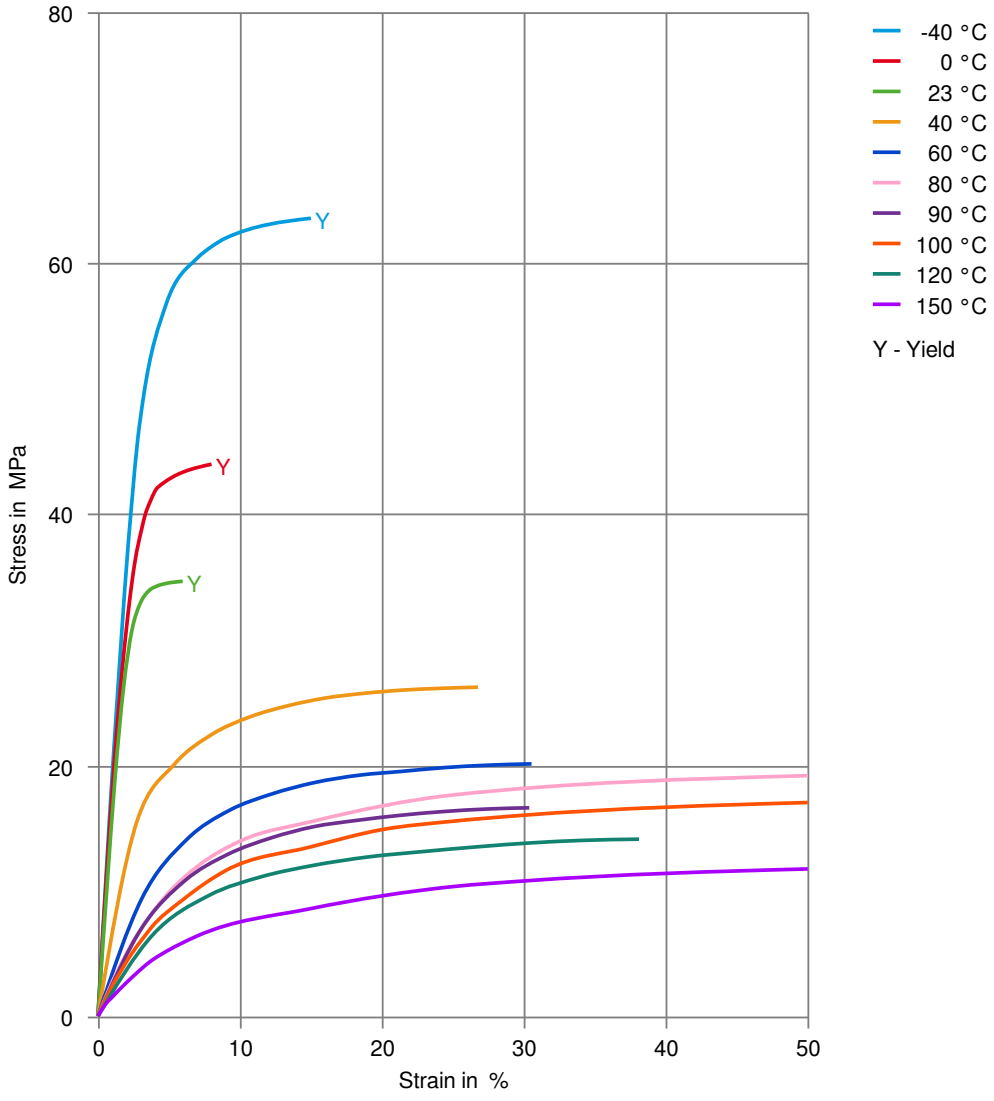
THERMOPLASTIC POLYESTER RESIN

Stress-strain
(measured on Crastin® ST820 NC010)



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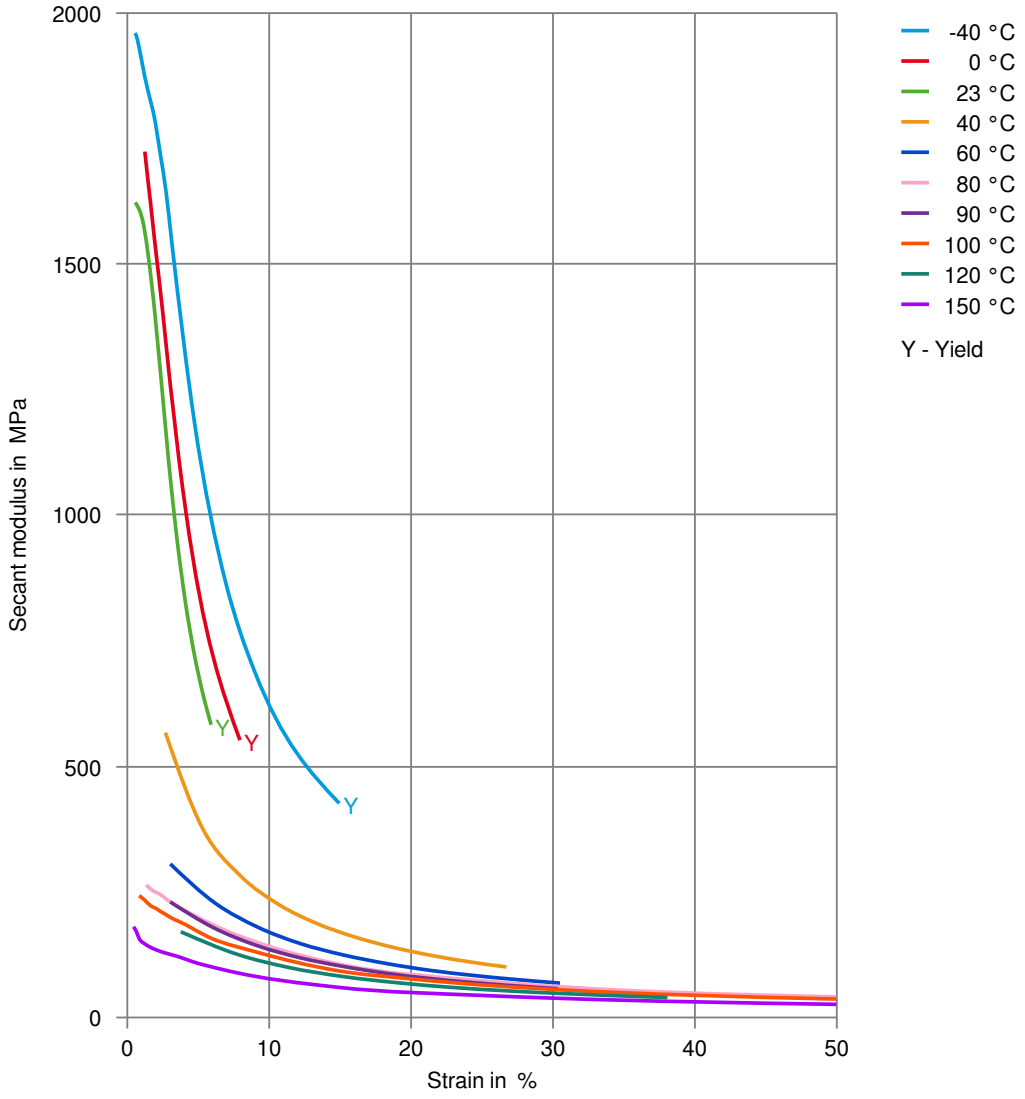
THERMOPLASTIC POLYESTER RESIN

Secant modulus-strain
(measured on Crastin® ST820 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
- ✘ Nitric Acid (40% by mass), 23°C
- ✘ Sulfuric Acid (38% by mass), 23°C
- ✘ Sulfuric Acid (5% by mass), 23°C
- ✘ 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
- ✘ SAE 10W40 multigrade motor oil, 130°C
- ✘ SAE 80/90 hypoid-gear oil, 130°C
- ✔ Insulating Oil, 23°C

Standard Fuels

- ✘ ISO 1817 Liquid 1 - E5, 60°C
- ✘ ISO 1817 Liquid 2 - M15E4, 60°C
- ✘ ISO 1817 Liquid 3 - M3E7, 60°C
- ✘ 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
- ✘ 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
- ✘ 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).

✘ 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).

Revised: 2025-04-21 Source: Celanese Materials Database

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, processing 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. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been 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 manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.
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