

ISO 75-1/-2

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.

				4.0
Н	'noc	TOLIC	intor	mation

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
Nominal strain at break	>50	%	ISO 527-1/-2
Tensile strain at break, 50mm/min	130	%	ISO 527-1/-2
Flexural modulus	1500		ISO 178
Flexural strength		MPa	ISO 178
Charpy impact strength, 23°C		kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C		kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C		kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C		kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C		kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C		kJ/m²	ISO 180/1A
Izod impact strength, 23°C		kJ/m²	ISO 180/1U
Izod impact strength, -30°C		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

Printed: 2024-09-04 Page: 1 of 6

145 °C

Revised: 2024-07-16 Source: Celanese Materials Database

Temperature of deflection under load, 0.45 MPa,

annealed



THERMOPLASTIC POLYESTER RESIN

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 120 °C **Drying Temperature** Drying Time, Dehumidified Dryer 2-4 h **Processing Moisture Content** ≤0.04 % Melt Temperature Optimum 250 °C 240 °C Min. melt temperature 260 °C Max. melt temperature 80 °C Mold Temperature Optimum 30 °C Min. mould temperature Max. mould temperature 130 °C Hold pressure range ≥60 MPa Hold pressure time 3 s/mm As low as MPa Back pressure possible

Ejection temperature 170 °C

Extrusion

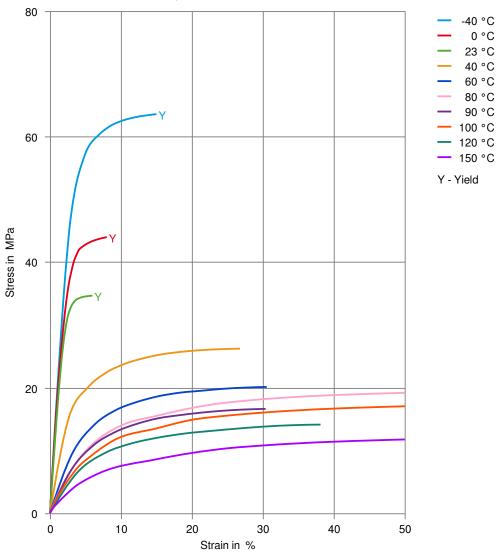
Printed: 2024-09-04 Page: 2 of 6

Revised: 2024-07-16 Source: Celanese Materials Database



THERMOPLASTIC POLYESTER RESIN

Stress-strain (measured on Crastin® ST820 NC010)

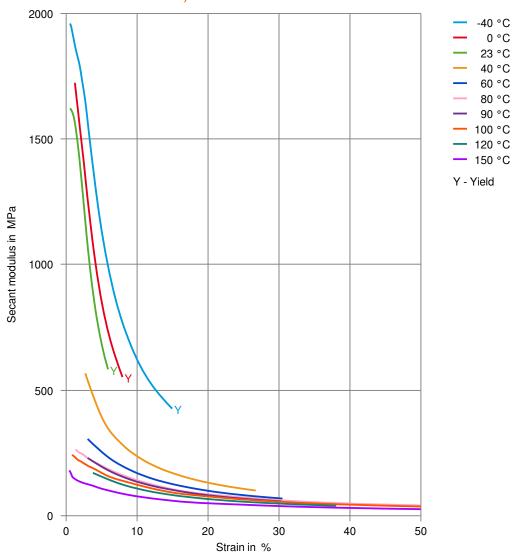


Printed: 2024-09-04 Page: 3 of 6



THERMOPLASTIC POLYESTER RESIN

Secant modulus-strain (measured on Crastin® ST820 NC010)



Printed: 2024-09-04 Page: 4 of 6

Revised: 2024-07-16 Source: Celanese Materials Database



THERMOPLASTIC POLYESTER RESIN

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

- ★ ISO 1817 Liquid 1 E5, 60°C
- X 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

Printed: 2024-09-04 Page: 5 of 6



THERMOPLASTIC POLYESTER RESIN

- ✓ 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).

Printed: 2024-09-04 Page: 6 of 6

Revised: 2024-07-16 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 e

© 2024 Celanese or its affiliates. All rights reserved. Celanese®, registered C-ball design and all other trademarks identified herein with ®, TM, SM, unless otherwise noted, are trademarks of Celanese or its affiliates. Fortron is a registered trademark of Fortron Industries LLC. KEPITAL is a registered trademark of Korea Engineering Plastics Company, Ltd.