



# Crastin® ST830FRUV NC010

## THERMOPLASTIC POLYESTER RESIN

### ISO 1043: PBT-HIFR(17)

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, DuPont recommends, 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® ST830FRUV NC010 is an unreinforced, Super Tough, flame retardant polybutylene terephthalate resin for injection moulding. It contains a UV light stabilizer and is recognized as UL94V-0 at 0.85mm (0.033in).

### Product information

Resin Identification	PBT-HIFR(17)	ISO 1043
Part Marking Code	>PBT-HIFR(17)<	ISO 11469

### Rheological properties

Melt mass-flow rate	3 g/10min	ISO 1133
Melt mass-flow rate, Temperature	250 °C	ISO 1133
Melt mass-flow rate, Load	5 kg	ISO 1133
Moulding shrinkage, parallel	2.0 %	ISO 294-4, 2577
Moulding shrinkage, normal	1.6 %	ISO 294-4, 2577

### Typical mechanical properties

Tensile Modulus	2200 MPa	ISO 527-1/-2
Yield stress	41 MPa	ISO 527-1/-2
Yield strain	9 %	ISO 527-1/-2
Nominal strain at break	45 %	ISO 527-1/-2
Flexural Modulus	2100 MPa	ISO 178
Charpy impact strength, 23°C	N kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	350 kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -40°C	350 kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	65 kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30°C	10 kJ/m <sup>2</sup>	ISO 179/1eA



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Charpy notched impact strength, -40°C	10 kJ/m <sup>2</sup>	ISO 179/1eA
Izod notched impact strength, 23°C	70 kJ/m <sup>2</sup>	ISO 180/1A
Izod notched impact strength, -30°C	10 kJ/m <sup>2</sup>	ISO 180/1A
Izod notched impact strength, -40°C	10 kJ/m <sup>2</sup>	ISO 180/1A
Izod impact strength, 23°C	N kJ/m <sup>2</sup>	ISO 180/1U
Izod impact strength, -30°C	220 kJ/m <sup>2</sup>	ISO 180/1U
Izod impact strength, -40°C	220 kJ/m <sup>2</sup>	ISO 180/1U
Poisson's ratio	0.39 -	

### Thermal properties

Melting temperature, 10°C/min	225 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	55 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	125 °C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel	190 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	190 E-6/K	ISO 11359-1/-2
RTI, electrical, 0.75mm	130 °C	UL 746B
RTI, electrical, 1.5mm	130 °C	UL 746B
RTI, electrical, 3mm	130 °C	UL 746B
RTI, impact, 0.75mm	130 °C	UL 746B
RTI, impact, 1.5mm	130 °C	UL 746B
RTI, impact, 3mm	130 °C	UL 746B
RTI, strength, 0.75mm	130 °C	UL 746B
RTI, strength, 1.5mm	130 °C	UL 746B
RTI, strength, 3mm	130 °C	UL 746B

### Flammability

Burning Behav. at 1.5mm nom. thickn.	V-0 class	IEC 60695-11-10
Thickness tested	1.5 mm	IEC 60695-11-10
UL recognition	yes -	UL 94
Burning Behav. at thickness h	V-0 class	IEC 60695-11-10
Thickness tested	0.85 mm	IEC 60695-11-10
UL recognition	yes -	UL 94
Oxygen index	27 %	ISO 4589-1/-2
Glow Wire Flammability Index, 3mm	960 °C	IEC 60695-2-12
FMVSS Class	DNI -	ISO 3795 (FMVSS 302)

### Electrical properties

Relative permittivity, 100Hz	3.5 -	IEC 62631-2-1
Relative permittivity, 1MHz	3.4 -	IEC 62631-2-1
Dissipation factor, 100Hz	10.9 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	240 E-4	IEC 62631-2-1
Volume resistivity	>1E13 Ohm*m	IEC 62631-3-1
Surface resistivity	1E14 Ohm	IEC 62631-3-2
Electric strength	36 kV/mm	IEC 60243-1



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Comparative tracking index 600 - IEC 60112

### Other properties

Density 1370 kg/m<sup>3</sup> ISO 1183  
Density of melt 1170 kg/m<sup>3</sup>

### 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 30 °C  
Max. mould temperature 130 °C  
Hold pressure range ≥60 MPa  
Hold pressure time 3 s/mm  
Back pressure As low as MPa possible  
Ejection temperature 170 °C

### Characteristics

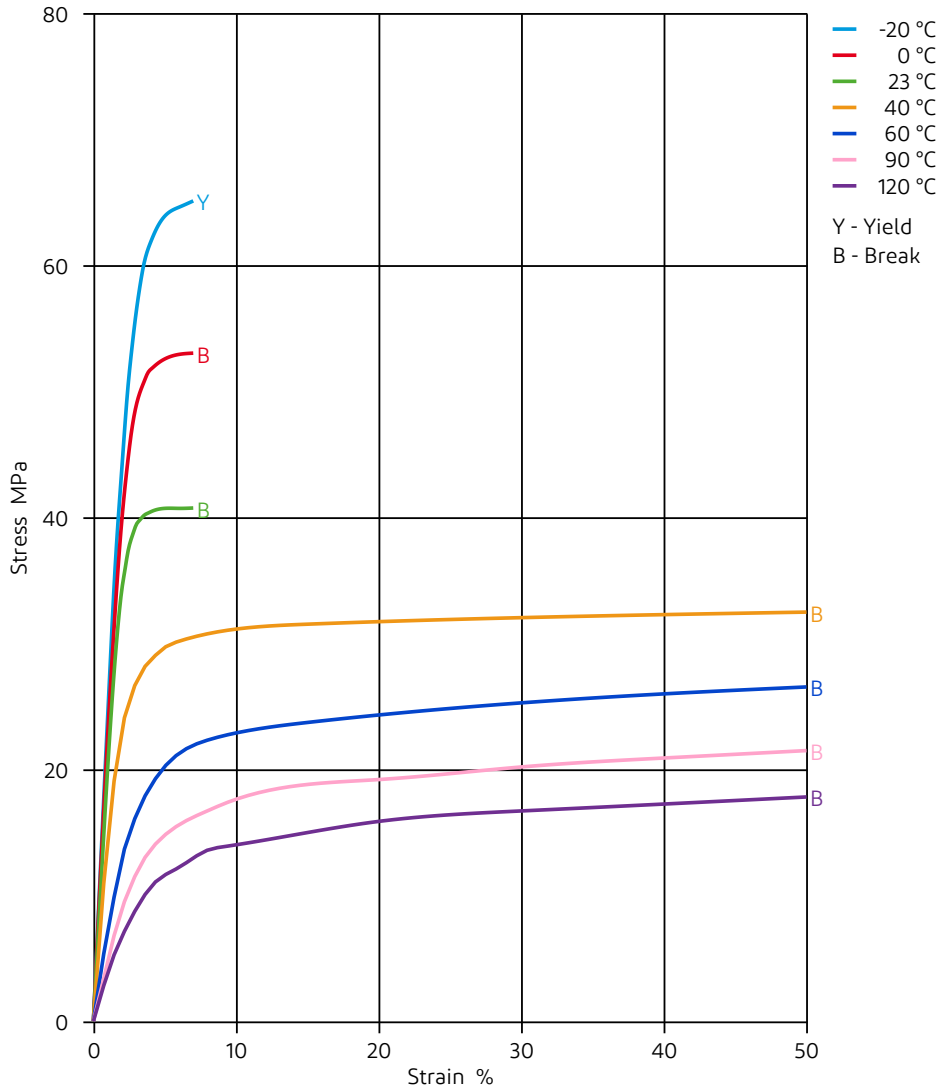
Additives Flame retardant



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## Stress-strain

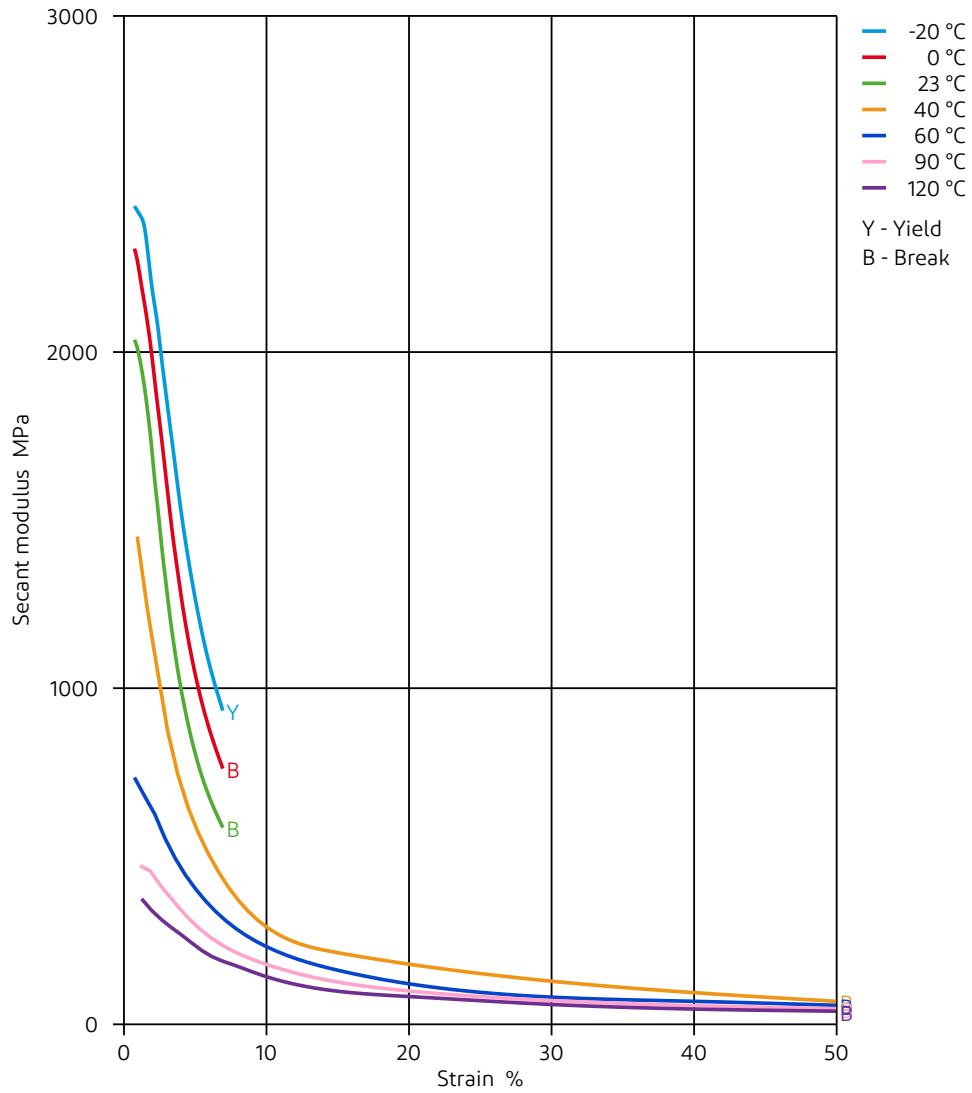




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## Secant modulus-strain



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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
- ✗ 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



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### Salt solutions

- ✓ Sodium Chloride solution (10% by mass), 23°C
- ✓ Sodium Hypochlorite solution (10% by mass), 23°C
- ✓ 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).

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