Product Information

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 molding. It contains a UV light stabilizer and is recognized as UL94V-0 at 0.85mm (0.033in).

General information	Value	Unit	Test Standard
Resin Identification	PBT-HIFR(17)	-	ISO 1043
Part Marking Code	PBT-HIFR(17)	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
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
Molding shrinkage, parallel	2.0	%	ISO 294-4, 2577
Molding shrinkage, normal	1.6	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
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			ISO 179/1eU
73°F	N	kJ/m²	
-22°F	350	kJ/m²	
-40° F	350	kJ/m²	
Charpy notched impact strength			ISO 179/1eA
73°F	65	kJ/m²	
-22°F	10	kJ/m²	
-40° F	10	kJ/m²	
Izod notched impact strength			ISO 180/1A
73°F	70		
-22°F	10	kJ/m²	
-40° F	10	kJ/m²	
Izod impact strength			ISO 180/1U
73°F		kJ/m²	
-22°F	220		
-40°F	220		
Thermal properties	Value	Unit	Test Standard
Melting temperature, 18°F/min	225	°C	ISO 11357-1/-3

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Temp. of deflection under load			ISO 75-1/-2
260 psi	55	°C	
65 psi	125	°C	
Coeff. of linear therm. expansion, parallel		E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal		E-6/K	ISO 11359-1/-2
RTI, electrical			UL 746B
30mil	130	°C	
60mil	130	°Č	
120mil	130	°Č	
RTI, impact		•	UL 746B
30mil	130	°C	UI 1 100
60mil	130	°Č	
120mil	130	°C	
RTI, strength	150	<u> </u>	UL 746B
30mil	130	°C	
60mil	130	°C	
120mil	130	°C	
Flammability	Value		Test Standard
Burning Behav. at 60mil nom. thickn.	Value V-0		IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
		-	UL 94
UL recognition	yes		IEC 60695-11-10
Burning Behav. at thickness h	V-0		
Thickness tested	0.85		IEC 60695-11-10
UL recognition	,	-	UL 94
Oxygen index	27		ISO 4589-1/-2
Glow Wire Flammability Index, 120mil	960	°C	IEC 60695-2-1/2
FMVSS Class	210	-	ISO 3795 (FMVSS 302)
Electrical properties	Value	Unit	Test Standard
Relative permittivity			IEC 60250
100Hz	515	-	
1MHz		-	
1MHz Dissipation factor	3.4	-	IEC 60250
1MHz Dissipation factor 100Hz	3.4	- E-4	IEC 60250
1MHz Dissipation factor 100Hz 1MHz	3.4 10.9 240	- E-4 E-4	
1MHz Dissipation factor 100Hz 1MHz Volume resistivity	3.4 10.9 240 >1E13	- E-4 E-4 Ohm*m	IEC 60093
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity	3.4 10.9 240 >1E13 1E14	- E-4 E-4 Ohm*m Ohm	IEC 60093 IEC 60093
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength	3.4 10.9 240 >1E13 1E14 36	- E-4 Ohm*m Ohm kV/mm	IEC 60093 IEC 60093 IEC 60243-1
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index	3.4 10.9 240 >1E13 1E14 36 600	- E-4 Ohm*m Ohm kV/mm	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties	3.4 10.9 240 >1E13 1E14 36 600 Value	- E-4 E-4 Ohm*m Ohm kV/mm - Unit	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density	3.4 10.9 240 >1E13 1E14 36 600 Value 1370	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection	3.4 10.9 240 >1E13 1E14 36 600 Value 1370	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³ Unit - °C	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³ Unit - °C	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³ Unit - °C h	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04 250	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³ Unit - °C h % °C	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard - -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³ Unit - °C h % °C	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard - - - -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04 250	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ Unit - °C h % °C °C	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard - - - - - -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04 250 240	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³ Unit - °C h % °C °C	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard - - - - - -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04 250 240 260	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ Unit - °C h % °C °C	IEC 60093 IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard - - - - - - - - - - -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Mold Temperature Optimum	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04 250 240 260 80	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³ Unit - °C h % °C °C	IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Max. melt temperature Max. mold temperature Max. mold temperature	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04 250 240 260 80 30 130	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ kg/m ³ Unit - °C h % °C °C °C	IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Max. mold temperature Max. mold temperature Max. mold temperature Hold pressure range	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04 250 240 260 80 30 130	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ Unit - °C h % °C °C °C °C °C °C °C	IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Mold Temperature Max. mold temperature Max. mold temperature Hold pressure range Hold pressure time	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04 250 240 260 80 30 130 ≥60	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ Unit - °C h % °C °C °C °C °C °C % °C %	IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard -
1MHz Dissipation factor 100Hz 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index Other properties Density Density of melt Injection Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Max. mold temperature Max. mold temperature Max. mold temperature Hold pressure range	3.4 10.9 240 >1E13 1E14 36 600 Value 1370 1170 Value yes 120 2 - 4 ≤0.04 250 240 260 80 30 130 ≥60 3	- E-4 E-4 Ohm*m Ohm kV/mm - Unit kg/m ³ Unit - °C h % °C °C °C °C °C MPa s/mm	IEC 60093 IEC 60243-1 IEC 60112 Test Standard ISO 1183 - Test Standard -

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Characteristics

Processing

Special characteristics

Regional Availability

- Injection Molding
- Light stabilized or stable
- to light • North America
- Europe

- U.V. stabilized or stable to
- weather
- Asia Pacific
- South and Central America
- Near East/Africa
- Global

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Diagrams

Stress-strain



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Secant modulus-strain



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Chemical Media Resistance Acids Acetic Acid (5% by mass) (23°C) 1 1 Citric Acid solution (10% by mass) (23°C) Lactic Acid (10% by mass) (23°C) 1 XXXXX 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 Х 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 1 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 1 SAE 10W40 multigrade motor oil (23°C) Ŷ 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) XXXX 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) Revised: 2017-02-02 Page: 6 of 7

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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)
- 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).

Xnot 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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F unless otherwise stated.

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