PRODUCT INFORMATION

DuPont[™] Crastin[®] LW9020FR NC010 THERMOPLASTIC POLYESTER RESIN

Product Information

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® LW9020FR NC010 is a 20% glass fiber reinforced, flame retardant polybutylene terephthalate blend for injection molding. It has improved surface aesthetics, excellent dimensional stability and low warpage characteristics.

			T . C
General information	Value		Test Standard
Resin Identification	1 BT (ASI)	-	ISO 1043
	GF20FR(17)		
Part Marking Code	PBT+ASA-	-	ISO 11469
	GF20FR(17)		
Rheological properties	Value		Test Standard
Molding shrinkage, parallel	0.4		ISO 294-4, 2577
Molding shrinkage, normal	0.8		ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	8500	MPa	ISO 527-1/-2
Stress at break	110	MPa	ISO 527-1/-2
Strain at break	2	%	ISO 527-1/-2
Flexural Strength	155	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	7500	MPa	
1000h	6000	MPa	
Charpy impact strength			ISO 179/1eU
73°F	40	kJ/m²	
-22°F	35	kJ/m²	
Charpy notched impact strength			ISO 179/1eA
73°F	7	kJ/m²	
-22°F	6.5	kJ/m²	
Izod notched impact strength		-	ISO 180/1A
73°F	6	kJ/m²	
-22°F	6	kJ/m ²	
Izod impact strength			ISO 180/1U
73°F	33	kJ/m²	
-22°F		kJ/m ²	
Thermal properties	Value	-	Test Standard
Melting temperature, 18°F/min	225	°C	ISO 11357-1/-3
Temp. of deflection under load		-	ISO 75-1/-2
260 psi	175	°C	
65 psi	215	°Č	
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
Thermal conductivity of melt		W/(m K)	-
Spec. heat capacity of melt		J/(kg K)	
spee. near capacity of mere	1700	J/ (Ng N)	

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RTI, electrical			UL 746B
30mil	140	°C	
60mil	140	°C	
120mil	140	°Č	
RTI, impact		-	UL 746B
30mil	115	°C	
60mil	115	°C	
120mil	120	°Č	
RTI, strength	120	~	UL 746B
30mil	130	°C	
60mil	130	°Č	
120mil	130	°C	
Flammability	Value	-	Test Standard
Burning Behav. at 60mil nom. thickn.	Value V-0	class	IEC 60695-11-10
	1.5		IEC 60695-11-10
Thickness tested		mm	
UL recognition	yes	-	UL 94
Burning Behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	3	mm	IEC 60695-11-10
UL recognition	yes	-	UL 94
Oxygen index	27	%	ISO 4589-1/-2
Glow Wire Flammability Index, 120mil	960	°C	IEC 60695-2-1/2
FMVSS Class	DNI		ISO 3795 (FMVSS 302)
Electrical properties	Value	Unit	Test Standard
Relative permittivity			IEC 60250
100Hz	3.7	-	
1MHz	3.5	-	
Dissipation factor			IEC 60250
100Hz	17.5	E-4	
1MHz	150		
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	1E14		IEC 60093
Electric strength	29	kV/mm	IEC 60243-1
Comparative tracking index	300	-	IEC 60112
Electric Strength, Short Time	500		IEC 60243-1
1mm	29	kV/mm	ILC 00243-1
	29	kV/mm	
2mm			
2mm		kV/mm	The Constant
Other properties	Value		Test Standard
Humidity absorption, 80mil	0.23	%	Sim. to ISO 62
Water absorption, 80mil	0.78	%	Sim. to ISO 62
Density	1520		ISO 1183
Density of melt	1360	kg/m³	
Injection	Value	Unit	Test Standard
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. mold temperature	30	°C	
Max. mold temperature	130	°C	
Hold pressure range		MPa	-
Hold pressure time	3	s/mm	
Back pressure	As low as possible	5/11111	<u> </u>
שמנה אובאטוב	As low as possible		-

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Ejection temperature

170 °C

Characteristics			
Processing	 Injection Molding 		
Delivery form	 Pellets 		
Additives	 Release agent 		
Regional Availability	North America	Asia Pacific	 Near East/Africa
	 Europo 	South and Control Amorica	 Clobal

• Europe

- South and Central America
- Global

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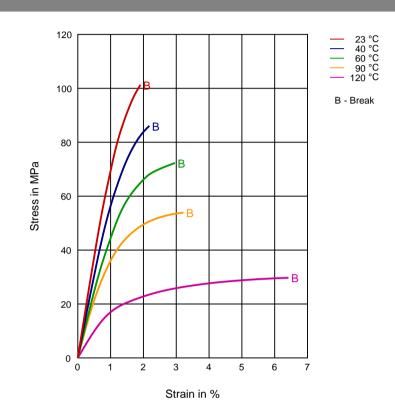
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Diagrams

Stress-strain



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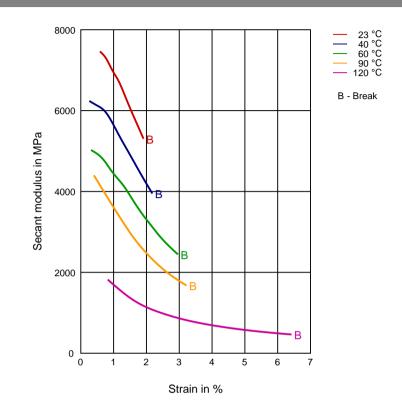
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Secant modulus-strain



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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 1 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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