

Crastin[®] LW9030FR BK851 THERMOPLASTIC POLYESTER RESIN

Common features of 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® LW9030FR BK851 is a 30% glass fiber reinforced, flame retardant polybutylene terephthalate blend for injection moulding. It has improved surface aesthetics, excellent dimensional stability and low warpage characteristics.

Product information

Resin Identification Part Marking Code	PBT+ASA-GF30FR(17) >PBT+ASA-GF30FR(17)<		ISO 1043 ISO 11469
Rheological properties			
Melt volume-flow rate Melt mass-flow rate		cm ³ /10min g/10min	ISO 1133 ISO 1133
Temperature	250	-	150 1155
Load		kg	
Melt mass-flow rate, Temperature	250		
Melt mass-flow rate, Load		0	
Intrinsic viscosity	0.93		ISO 307, 1628
Typical mechanical properties			
Tensile modulus	10200	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	120	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.7	%	ISO 527-1/-2
Flexural strength		MPa	ISO 178
Charpy impact strength, 23°C		kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C		kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C Poisson's ratio	0.34	kJ/m²	ISO 180/1A
	0.04		
Thermal properties			
Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	120	-	ISO 11357-1/-3
RTI, electrical, 0.75mm	140		UL 746B
RTI, electrical, 1.5mm	140		UL 746B
RTI, electrical, 3.0mm	140		UL 746B
RTI, electrical, 6mm	140		UL 746B
RTI, impact, 0.75mm	125		UL 746B

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RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, impact, 6mm RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm RTI, strength, 6mm	125 130 130 130 130 140 140	°C °C °C °C °C	UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B
Flammability			
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition		class mm	IEC 60695-11-10 IEC 60695-11-10 UL 94
Burning Behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	0.75	mm	IEC 60695-11-10 UL 94
UL recognition Burning Behav. 5V at thickness h	yes 5VA	class	IEC 60695-11-20
Thickness tested		mm	IEC 60695-11-20
UL recognition	yes		UL 94
Oxygen index	27		ISO 4589-1/-2
Glow Wire Flammability Index, 3.0mm Glow Wire Ignition Temperature, 3.0mm	960 960		IEC 60695-2-12 IEC 60695-2-13
FMVSS Class	DNI	0	ISO 3795 (FMVSS 302)
Electrical properties			
Relative permittivity, 100Hz	4.7		IEC 62631-2-1
Relative permittivity, 1MHz	4.4		IEC 62631-2-1
Dissipation factor, 100Hz		E-4	IEC 62631-2-1
Dissipation factor, 1MHz		E-4 Ohm.m	IEC 62631-2-1 IEC 62631-3-1
Volume resistivity Surface resistivity	>TE13 1E14		IEC 62631-3-1
Electric strength		kV/mm	IEC 60243-1
Comparative tracking index	325		IEC 60112
Physical/Other properties			
Density	1550	kg/m³	ISO 1183
Density of melt	1420	kg/m ³	
Injection			
Drying Recommended	yes		
Drying Temperature	120		
Drying Time, Dehumidified Dryer Processing Moisture Content	2 - 4 ≤0.04		
Melt Temperature Optimum	250		
Min. melt temperature	240		
Max. melt temperature	260		
Mold Temperature Optimum		°C	
Min. mould temperature	30 130	°C	
Max. mould temperature	130	U	

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Hold pressure range Hold pressure time Back pressure

Ejection temperature

Characteristics

Additives

Flame retardant

≥60 MPa

As low as MPa possible

170 °C

3 s/mm

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
- X Nitric Acid (40% by mass), 23°C
- X Sulfuric Acid (38% by mass), 23°C
- X Sulfuric Acid (5% by mass), 23°C
- ★ 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

- X ISO 1817 Liquid 1 E5, 60°C
- X ISO 1817 Liquid 2 M15E4, 60°C
- X ISO 1817 Liquid 3 M3E7, 60°C

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- 🗙 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
- X 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
- 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).
- 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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