

Crastin® FGS600F10 NC010

THERMOPLASTIC POLYESTER RESIN

Crastin® FGS600F10 NC010 is an unreinforced lubricated, high viscosity polybutylene terephthalate resin for extrusion and injection moulding. It has been developed for consideration into applications such as parts for the food industry.

FOOD CONTACT

This product is manufactured according to Good Manufacturing Practice (GMP) principles and generally accepted in food contact applications in Europe and the USA when meeting applicable use conditions. For details, individual compliance statements are available from our representative.

Product information

Resin Identification	PBT	ISO 1043
Part Marking Code	>PBT<	ISO 11469

Rheological properties

Melt mass-flow rate	10 g/10min	ISO 1133
Melt mass-flow rate, Temperature	250 °C	
Melt mass-flow rate, Load	2.16 kg	
Moulding shrinkage, parallel	1.7 %	ISO 294-4, 2577
Moulding shrinkage, normal	1.7 %	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	2600 MPa	ISO 527-1/-2
Yield stress, 50mm/min	57 MPa	ISO 527-1/-2
Yield strain, 50mm/min	4 %	ISO 527-1/-2
Nominal strain at break	>50 %	ISO 527-1/-2
Flexural Modulus	2400 MPa	ISO 178
Flexural Strength	85 MPa	ISO 178
Tensile creep modulus, 1h	2600 MPa	ISO 899-1
Tensile creep modulus, 1000h	1800 MPa	ISO 899-1
Charpy impact strength, 23°C	N kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	N kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	5 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	4 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	5 kJ/m ²	ISO 180/1A
Izod notched impact strength, -30°C	5 kJ/m ²	ISO 180/1A
Izod impact strength, 23°C	N kJ/m ²	ISO 180/1U
Izod impact strength, -30°C	130 kJ/m ²	ISO 180/1U
Ball indentation hardness, H 358/30	139 MPa	ISO 2039-1
Poisson's ratio	0.38	



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Thermal properties

Melting temperature, 10°C/min	223 °C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	55 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	50 °C	ISO 75-1/-2
Temp. of deflection under load, 1.8 MPa, annealed	60 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	115 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa, annealed	180 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	175 °C	ISO 306
Ball pressure test	190 °C	IEC 60695-10-2
Coeff. of linear therm. expansion, parallel	110 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	120 E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.21 W/(m K)	Internal
Spec. heat capacity of melt	2100 J/(kg K)	Internal

Flammability

Glow Wire Flammability Index, 3mm	750 °C	IEC 60695-2-12
FMVSS Class	SE/NBR	ISO 3795 (FMVSS 302)

Other properties

Humidity absorption, 2mm	0.2 %	Sim. to ISO 62
Water absorption, 2mm	0.5 %	Sim. to ISO 62
Density	1300 kg/m³	ISO 1183
Density of melt	1110 kg/m³	Internal

VDA Properties

Odour	3 class	VDA 270
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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	Internal
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	4 s/mm	
Back pressure	As low as possible	
Ejection temperature	170 °C	Internal



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Extrusion

Drying Temperature	110 - 130 °C
Drying Time, Dehumidified Dryer	2 - 4 h
Processing Moisture Content	≤0.04 %
Melt Temperature Range	240 - 260 °C

Characteristics

Additives	Release agent
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Additional information

Profile extrusion

PREPROCESSING

Drying recommended = Yes
Drying temperature = 110-130°C
Drying time, dehumidified dryer = 2-4 h
Processing moisture content = <0.04 %

PROCESSING

Melt temperature optimum = 250°C
Melt temperature range = 240-260°C

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



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- ✓ 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

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



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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).

