

THERMOPLASTIC POLYESTER RESIN

Crastin® FG6130 NC010 is an unreinforced, medium 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 Part Marking Code	PBT >PBT<		ISO 1043 ISO 11469
Rheological properties			
	45	/4 O !	100 1100
Melt mass-flow rate	250	g/10min	ISO 1133
Melt mass-flow rate, Temperature Melt mass-flow rate, Load		-	
· · · · · · · · · · · · · · · · · · ·	2.16	•	ISO 307, 1628
Viscosity number Intrinsic viscosity	1.1	cm ³ /g	ISO 307, 1628
Moulding shrinkage, parallel	1.7	0/	ISO 294-4, 2577
Moulding shrinkage, parallel Moulding shrinkage, normal	1.7		ISO 294-4, 2577
Modium Shirinkaye, normai	1.7	70	130 294-4, 237 7
Typical mechanical properties			
Tensile modulus	2600	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	59	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	8	%	ISO 527-1/-2
Nominal strain at break	50	%	ISO 527-1/-2
Tensile strain at break, 50mm/min	110	%	ISO 527-1/-2
Tensile creep modulus, 1h	2500	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/m²	ISO 179/1eA
Charpy notched impact strength, -30°C		kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	4	kJ/m²	ISO 180/1A
Poisson's ratio	0.38		
Thermal properties			
Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min		°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa		°C	ISO 75-1/-2
Temperature of deflection under load, 1.8 MPa,		°C	ISO 75-1/-2
annealed			
Temperature of deflection under load, 0.45 MPa	115	°C	ISO 75-1/-2
Temperature 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

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Coefficient of linear thermal expansion (CLTE), parallel	108	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE),	144	E-6/K	ISO 11359-1/-2
normal Thermal conductivity of melt Specific heat capacity of melt RTI, electrical, 0.75mm RTI, electrical, 1.5mm RTI, electrical, 3.0mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 1.5mm	2050 75 75 75 75 75 75	W/(m K) J/(kg K) °C °C °C °C	ISO 22007-2 ISO 22007-4 UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B
RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm	75	°C °C	UL 746B UL 746B UL 746B
Flammability			
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested	1.5 yes HB 0.81	class mm class mm	IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10
UL recognition Oxygen index FMVSS Class Burning rate, Thickness 1 mm	yes 22 B <80	% mm/min	UL 94 ISO 4589-1/-2 ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302)
Electrical properties			
Relative permittivity, 1MHz Dissipation factor, 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index	1E12	Ohm.m	IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 62631-3-2 IEC 60243-1 IEC 60112
Physical/Other properties			
Humidity absorption, 2mm Water absorption, 2mm Density Density of melt			Sim. to ISO 62 Sim. to ISO 62 ISO 1183
VDA Properties			
Fogging, G-value (condensate)	0.1	mg	ISO 6452

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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
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	MPa
	possible	
Ejection temperature	170	°C

Extrusion

Drying Temperature	110 - 130 °C
Drying Time, Dehumidified Dryer	2-4 h
Processing Moisture Content	≤0.04 %
Melt Temperature Optimum	250 °C
Melt Temperature Range	240 - 260 °C

Additional information

Other extrusion

PREPROCESSING

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

PROCESSING

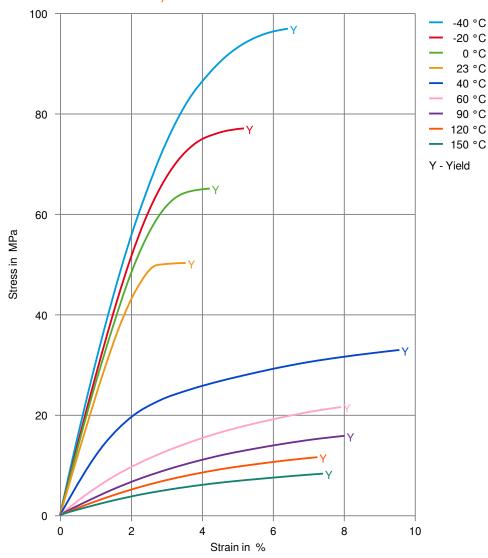
Melt temperature optimum = 250 °C Melt temperature range = 240-260 °C

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Stress-strain (measured on Crastin® 6129 NC010)

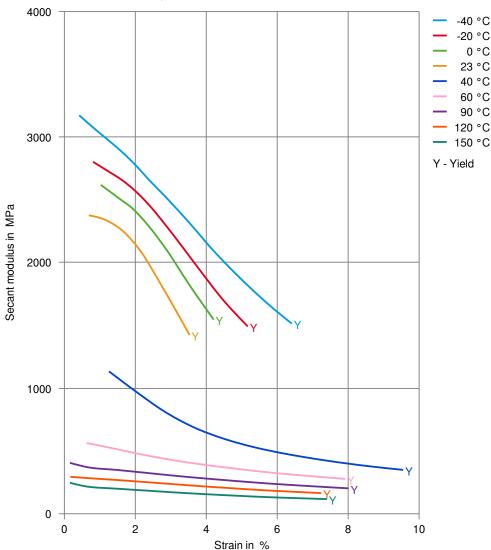


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Secant modulus-strain (measured on Crastin® 6129 NC010)



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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
- X 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
- X 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
- X ISO 1817 Liquid 4 M15, 60°C
- X Standard fuel without alcohol (pref. ISO 1817 Liquid C), 23°C
- X 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

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- ✓ 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).

x 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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NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any e

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