

Crastin® PC164 NC010

THERMOPLASTIC POLYESTER RESIN

Crastin® PC164 NC010 is an Unreinforced, Medium Viscosity Polybutylene Terephthalate for Health Care Applications

Product information

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

Rheological properties

Melt mass-flow rate	33 g/10min	ISO 1133
Melt mass-flow rate, Temperature	250 °C	
Melt mass-flow rate, Load	2.16 kg	
Moulding shrinkage, parallel	1.6 %	ISO 294-4, 2577
Moulding shrinkage, normal	1.6 %	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	2400 MPa	ISO 527-1/-2
Yield stress, 50mm/min	55 MPa	ISO 527-1/-2
Yield strain, 50mm/min	4 %	ISO 527-1/-2
Nominal strain at break	30 %	ISO 527-1/-2
Tensile creep modulus, 1h	2600 ^[OT] MPa	ISO 899-1
Tensile creep modulus, 1000h	1800 ^[OT] MPa	ISO 899-1
Charpy impact strength, 23°C	N kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	4 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	4 kJ/m ²	ISO 179/1eA
Poisson's ratio	0.38	

[OT]: One time tested

Thermal properties

Melting temperature, 10°C/min	225 °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 10N	175 °C	ISO 306
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	2110 J/(kg K)	Internal

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Flammability

Burning Behav. at 1.5mm nom. thickn.	HB class	UL 94
Thickness tested	1.5 mm	UL 94
Oxygen index	22 %	ISO 4589-1/-2

Electrical properties

Relative permittivity, 1MHz	3.2	IEC 62631-2-1
Dissipation factor, 100Hz	20 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	200 E-4	IEC 62631-2-1
Volume resistivity	>1E13 Ohm.m	IEC 62631-3-1
Surface resistivity	1E12 Ohm	IEC 62631-3-2
Electric strength	26 kV/mm	IEC 60243-1

Other properties

Humidity absorption, 2mm	0.2 %	Sim. to ISO 62
Water absorption, 2mm	0.4 %	Sim. to ISO 62
Density	1310 kg/m ³	ISO 1183
Density of melt	1110 kg/m ³	Internal

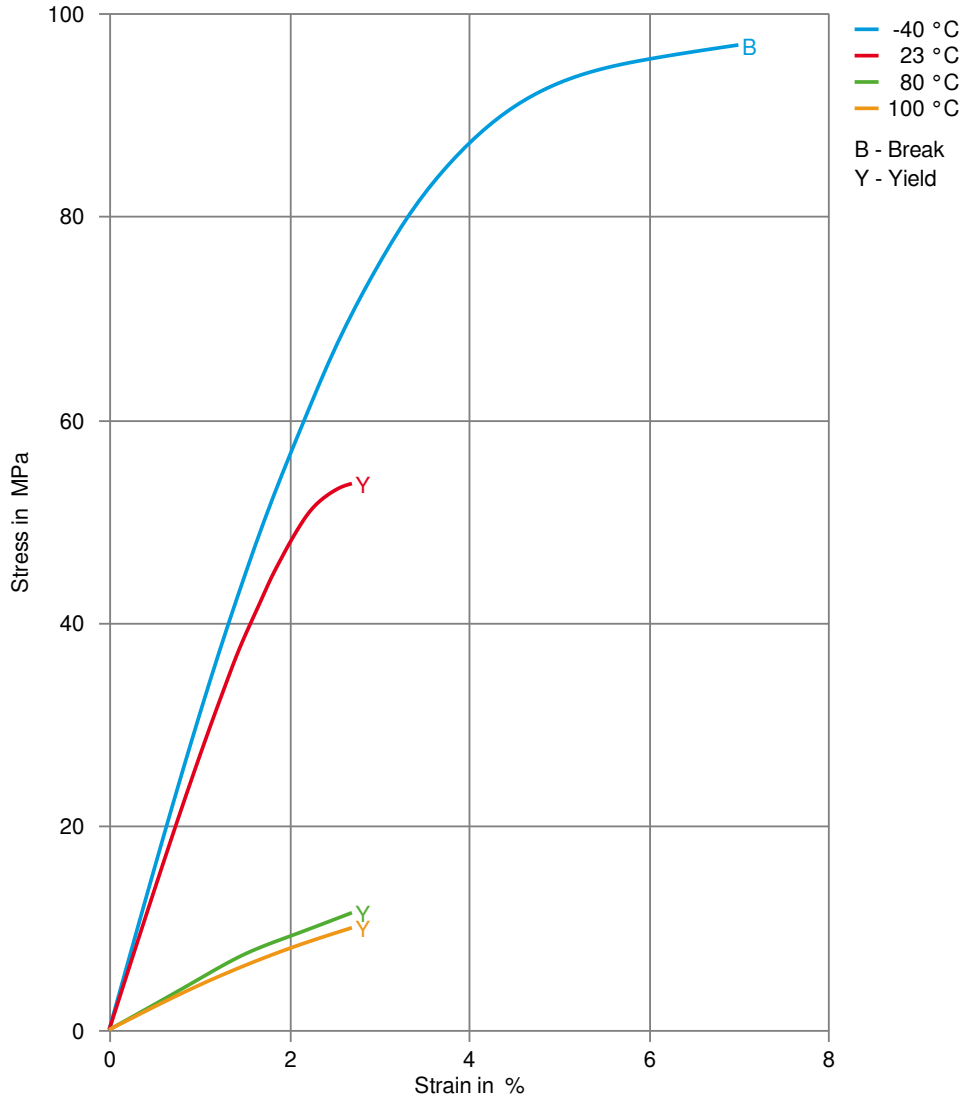
Injection

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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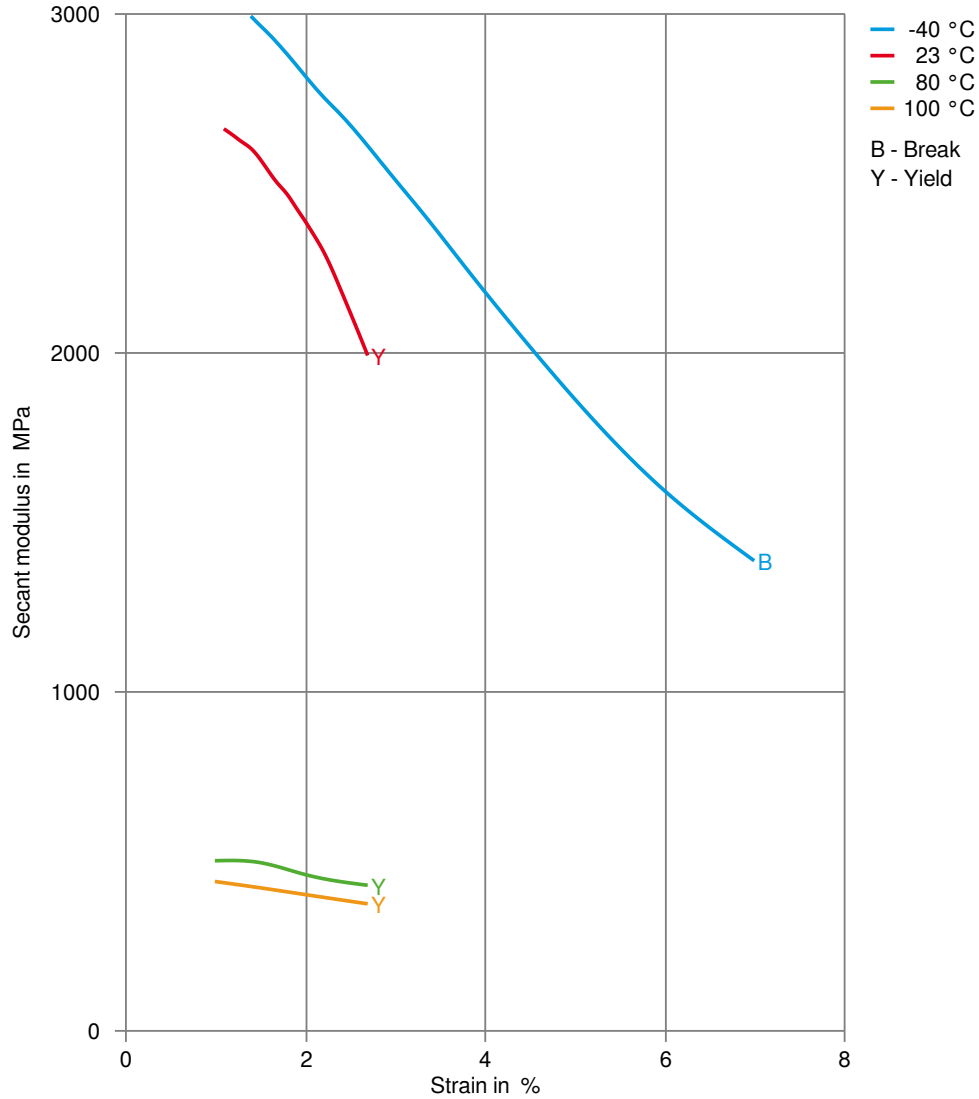
Stress-strain



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Secant modulus-strain



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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
- ✗ 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
- ✓ 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
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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

Sterilisation methods

- ✓ Ethylene Oxyde

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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