

Crastin® FR685NH1 NC010

THERMOPLASTIC POLYESTER RESIN

Crastin® FR685NH1 NC010 is a 30% Glass Reinforced, Flame Retardant, Non-Halogenated, Polybutylene Terephthalate

Product information

Resin Identification	PBT-GF30 FR(40+30)	ISO 1043
Part Marking Code	>PBT-GF30 FR(40+30)<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	0.5 %	ISO 294-4, 2577
Moulding shrinkage, normal	1.3 %	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	11100 MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	100 MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.3 %	ISO 527-1/-2
Flexural modulus	11200 MPa	ISO 178
Flexural strength	160 MPa	ISO 178
Charpy impact strength, 23°C	39 kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	46 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	7 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	7 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	7 kJ/m ²	ISO 180/1A
Izod notched impact strength, -30°C	7.0 kJ/m ²	ISO 180/1A
Poisson's ratio	0.33	

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
Temperature of deflection under load, 1.8 MPa	205 °C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	222 °C	ISO 75-1/-2
Ball pressure test	215 °C	IEC 60695-10-2
Coeff. of linear therm. expansion, parallel, -40-23°C	21 E-6/K	ISO 11359-1/-2
CLTE, Parallel, 23-55°C(73-130°F)	22 E-6/K	ASTM E 831
Coeff. of linear therm. expansion, parallel, 55-160°C	18 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	64 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	128 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, Normal,23-55°C (73-130°F)	104 E-6/K	ASTM E 831
RTI, electrical, 0.75mm	130 ^[1] °C	UL 746B
RTI, electrical, 1.5mm	130 ^[1] °C	UL 746B
RTI, electrical, 3.0mm	130 ^[1] °C	UL 746B
RTI, impact, 0.75mm	125 ^[1] °C	UL 746B
RTI, impact, 1.5mm	125 ^[1] °C	UL 746B
RTI, impact, 3.0mm	125 ^[1] °C	UL 746B
RTI, strength, 0.75mm	140 ^[1] °C	UL 746B
RTI, strength, 1.5mm	140 ^[1] °C	UL 746B
RTI, strength, 3.0mm	140 ^[1] °C	UL 746B

[1]: <https://iq.ul.com/ul/cert.aspx?ULID=104511959>

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Flammability

Burning Behav. at thickness h	V-0 class	IEC 60695-11-10
Thickness tested	0.4 mm	IEC 60695-11-10
UL recognition	yes	UL 94
Oxygen index	43 %	ISO 4589-1/-2
Glow Wire Flammability Index, 0.4mm	960 ^[1] °C	IEC 60695-2-12
Glow Wire Flammability Index, 0.75mm	960 °C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	960 °C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	960 °C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	750 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 0.4mm	750 °C	IEC 60695-2-12
Glow Wire Ignition Temperature, 1.5mm	750 °C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	800 °C	IEC 60695-2-13
FMVSS Class	SE	ISO 3795 (FMVSS 302)

[1]: <https://iq.ul.com/ul/cert.aspx?ULID=104511959>

Electrical properties

Volume resistivity	>1E13 Ohm.m	IEC 62631-3-1
Electric strength	36 kV/mm	IEC 60243-1
Comparative tracking index	600	IEC 60112

Physical/Other properties

Humidity absorption, 2mm	0.1 %	Sim. to ISO 62
Water absorption, 2mm	0.25 ^[DS] %	Sim. to ISO 62
Water absorption, 1mm	0.5 %	Sim. to ISO 62
Density	1570 kg/m ³	ISO 1183

[DS]: Derived from similar grade

Injection

Drying Recommended	yes
Drying Temperature	120 °C
Drying Time, Dehumidified Dryer	2 - 4 h
Processing Moisture Content	≤0.02 %
Melt Temperature Optimum	250 °C
Min. melt temperature	240 °C
Max. melt temperature	260 °C
Mold Temperature Optimum	80 °C
Min. mould temperature	60 °C
Max. mould temperature	130 °C
Hold pressure range	≥60 MPa
Hold pressure time	3 s/mm
Back pressure	As low as possible
Ejection temperature	170 °C

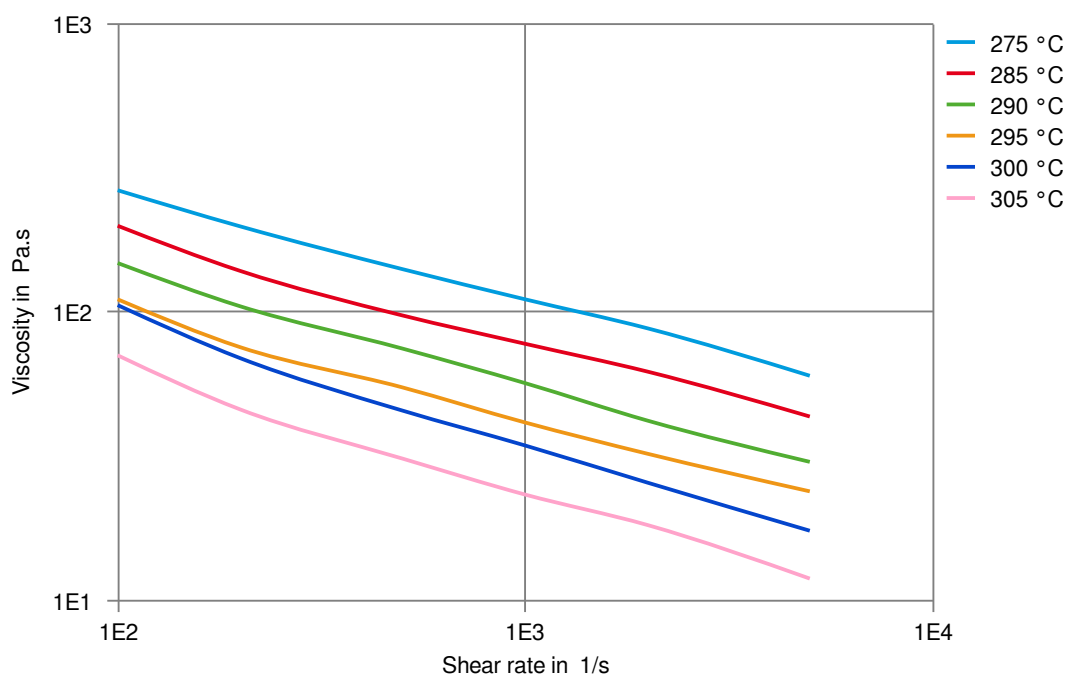
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Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent, Flame retardant, Non-halogenated/Red phosphorous free flame retardant
Special characteristics	Flame retardant

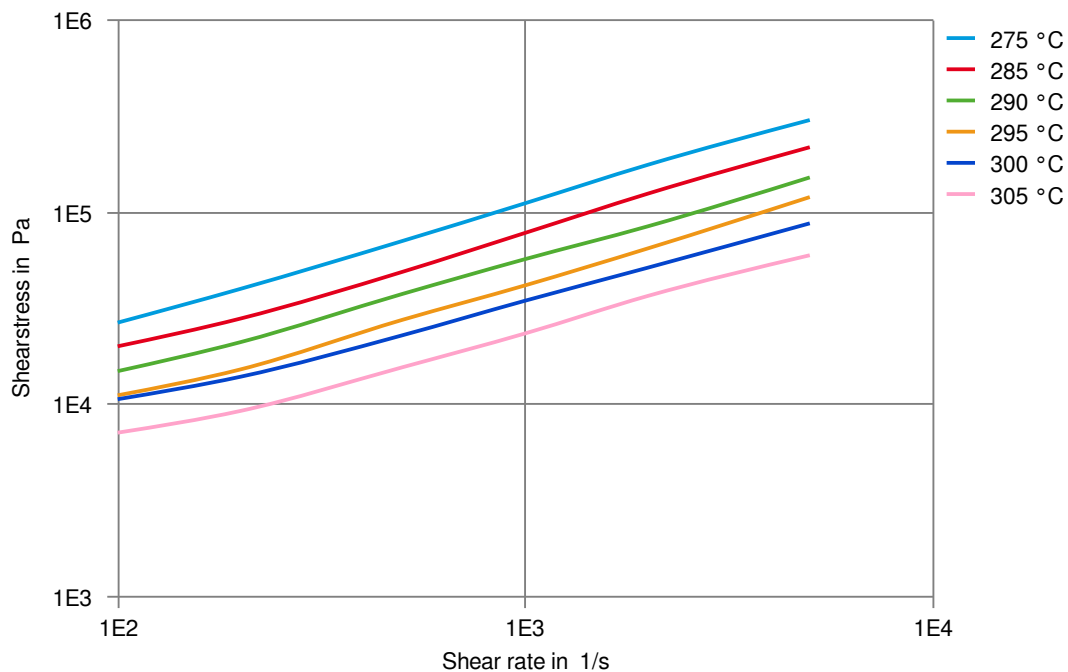
Viscosity-shear rate



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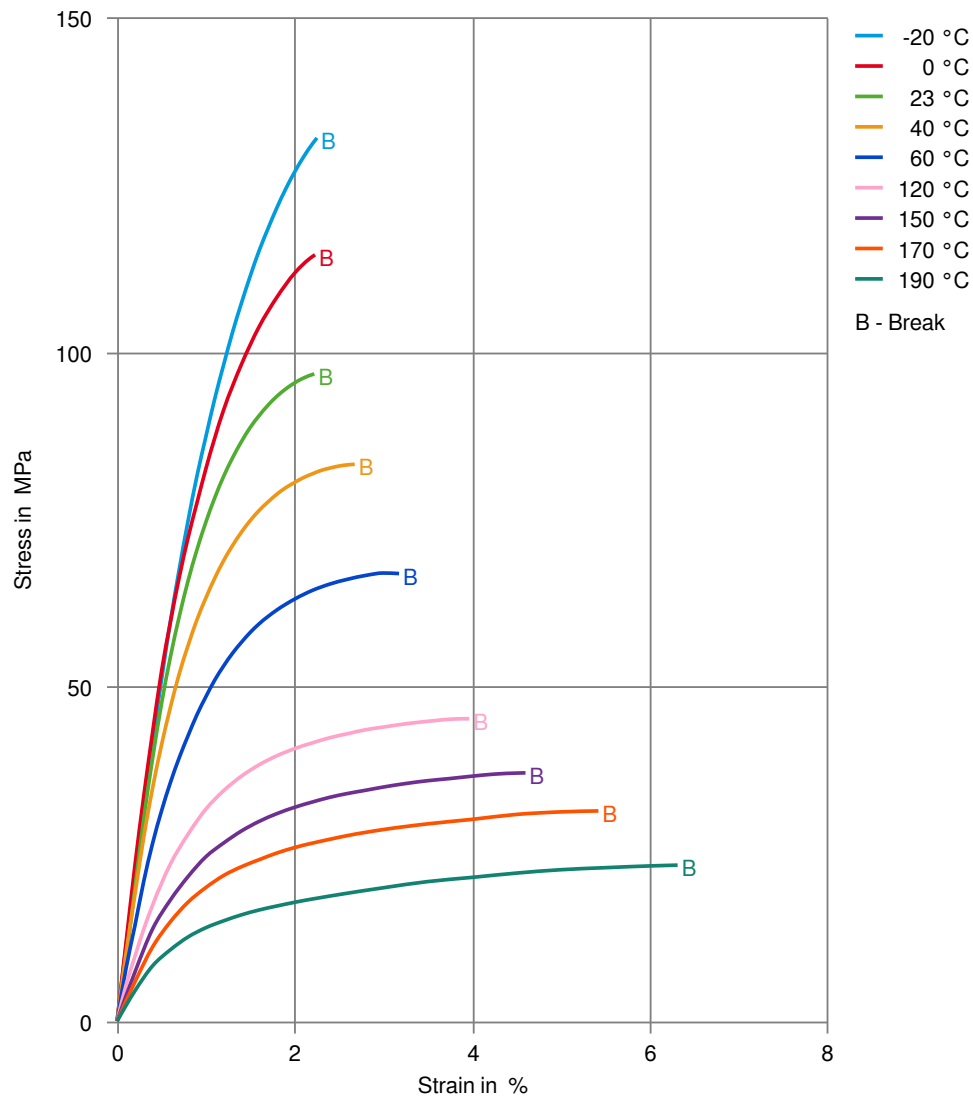
Shearstress-shear rate



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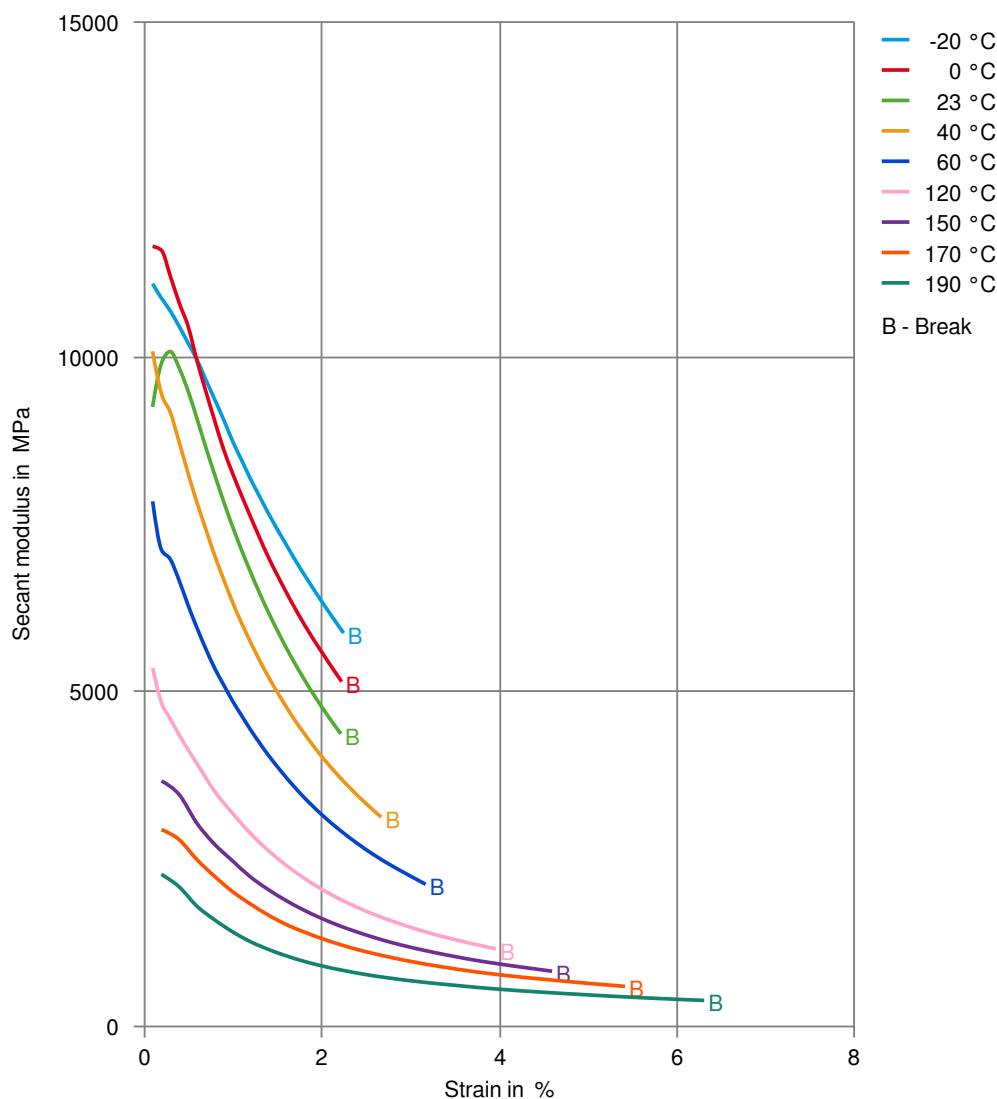
Stress-strain



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Secant modulus-strain



Printed: 2025-05-30

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Revised: 2025-04-22 Source: Celanese Materials Database

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