Crastin® FR684NH1 NC010

THERMOPLASTIC POLYESTER RESIN

Crastin® FR684NH1 is a 25% Glass Reinforced, Flame Retardant, Non-Halogenated, Polybutylene Terephthalate

Product information

Resin Identification	PBT-GF25 FR(40+30)	ISO 1043
Part Marking Code	>PBT-GF25 FR(40+30)<	ISO 11469
Infrared spectrum	available	
TGA curve	available	ISO 11358-1

Rheological properties

Melt mass-flow rate	7	g/10min	ISO 1133
Melt mass-flow rate, Temperature	482	°F	
Melt mass-flow rate, Load	4.76	lb	
Molding shrinkage, parallel	0.5	%	ISO 294-4, 2577
Molding shrinkage, normal	1.2	%	ISO 294-4, 2577
Flow length	11	in	
Flow length - pressure	16000	psi	
Flow length - width/thickness	0.0787	in	

Typical mechanical properties

Tensile modulus	1.36E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	13800	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.5	%	ISO 527-1/-2
Flexural modulus	1.16E6[1]	psi	ISO 178
Flexural strength	20700[1]	psi	ISO 178
Flexural strain at failure	2.5[1]	%	ISO 178
Charpy impact strength, 23°C	20.5	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	21.9	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	3.57	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	3.23	ftlb/in²	ISO 179/1eA

[1]: Report from SR 01650498 - EATON CORPORATION on Crastin® FR684NH1 NC010. Date ; 2024-DH-111. Lot: ACCSKZ2101; Report#: 24DEH083

Thermal properties

Melting temperature, 10°C/min	433	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	140	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	401	°F	ISO 75-1/-2
Ball pressure test	428	°F	IEC 60695-10-2
Coefficient of linear thermal expansion (CLTE), Parallel, 23-55°C(73-130°F)	0.161	E-4/°F	ASTM E 831
Coefficient of linear thermal expansion (CLTE), parallel, -40-23°C	0.128	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel, 55-160°C	0.111	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), Normal,23-55°C (73-130°F)	0.678	E-4/°F	ASTM E 831

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Coefficient of linear thermal expansion (CLTE), normal, -40-23 °C	0.367	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal, 55-160 °C	0.706	E-4/°F	ISO 11359-1/-2
RTI, electrical, 0.75mm	266	°F	UL 746B
RTI, electrical, 1.5mm	266	°F	UL 746B
RTI, electrical, 3.0mm	266	°F	UL 746B
RTI, impact, 0.75mm	257	°F	UL 746B
RTI, impact, 1.5mm	257	°F	UL 746B
RTI, impact, 3.0mm	257	°F	UL 746B
RTI, strength, 0.75mm	284	°F	UL 746B
RTI, strength, 1.5mm	284	°F	UL 746B
RTI, strength, 3.0mm	284	°F	UL 746B

Flammability

Burning Behav. at 1.5mm nom. thickn.	V-0	class	IEC 60695-11-10
Thickness tested	0.0591	in	IEC 60695-11-10
UL recognition	yes		UL 94
Burning Behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	0.0157	in	IEC 60695-11-10
UL recognition	yes		UL 94
Oxygen index	40	%	ISO 4589-1/-2
Glow Wire Flammability Index, 0.4mm	1760	°F	IEC 60695-2-12
Glow Wire Flammability Index, 0.75mm	1760	°F	IEC 60695-2-12
Glow Wire Flammability Index, 1.0mm	1760	°F	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	1760	°F	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	1760	°F	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	1380	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 0.4mm	1380	°F	IEC 60695-2-12
Glow Wire Ignition Temperature, 1.0mm	1380	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	1380	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	1470	°F	IEC 60695-2-13
Railway classification	R22		EN 45545-2
Railway classification rating	HL1		EN 45545-2

Electrical properties

Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Electric strength	1070	kV/in	IEC 60243-1
Comparative tracking index	600		IEC 60112
Comparative tracking index, 23 °C	0	PLC	UL 746A

Physical/Other properties

Humidity absorption, 2mm	0.1[DS]	%	Sim. to ISO 62
Water absorption, 2mm	0.25[DS]	%	Sim. to ISO 62
Density	0.0549	lb/in³	ISO 1183

[DS]: Derived from similar grade

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Emissions

Emission of organic compounds	39	µgC/g	VDA 277

Injection

Drying Recommended	yes	
Drying Temperature	248	°F
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	482	°F
Min. melt temperature	464	°F
Max. melt temperature	500	°F
Mold Temperature Optimum	176	°F
Min. mold temperature	140	°F
Max. mold temperature	266	°F
Hold pressure range	≥8700	psi
Hold pressure time	0.0762	s/mil
Hold Pressure Time (h is the max. wall thickness of the part in mm)	h^2+2	s
Back pressure	as low as possible	psi
Ejection temperature	338	°F

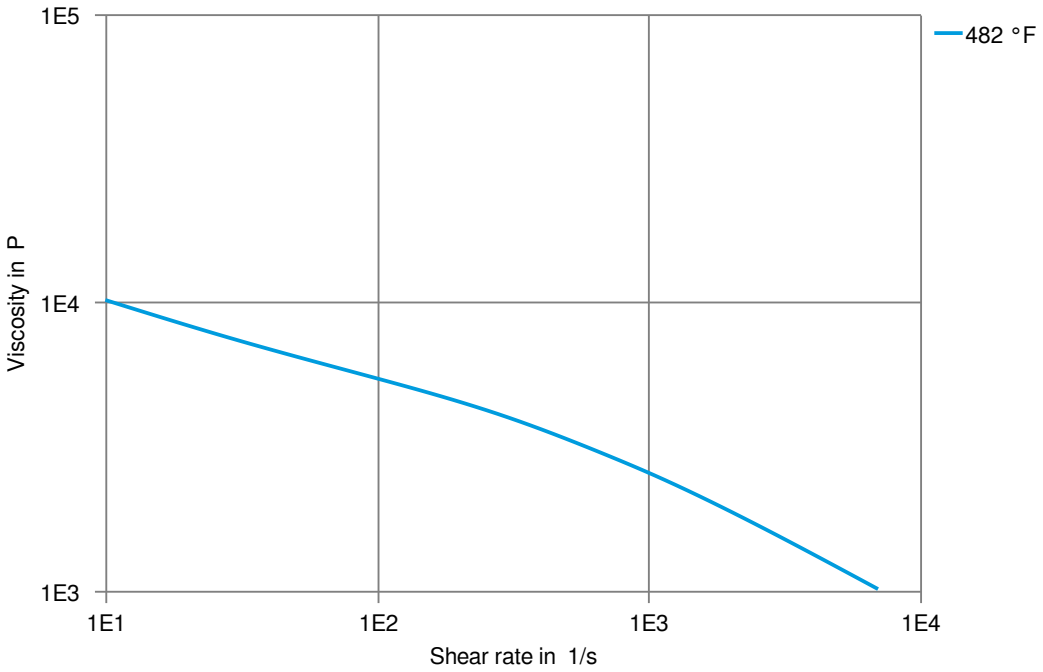
Characteristics

Processing	Injection Molding
Additives	Release agent, Flame retardant, Non-halogenated/Red phosphorus free flame retardant
Special characteristics	Flame retardant

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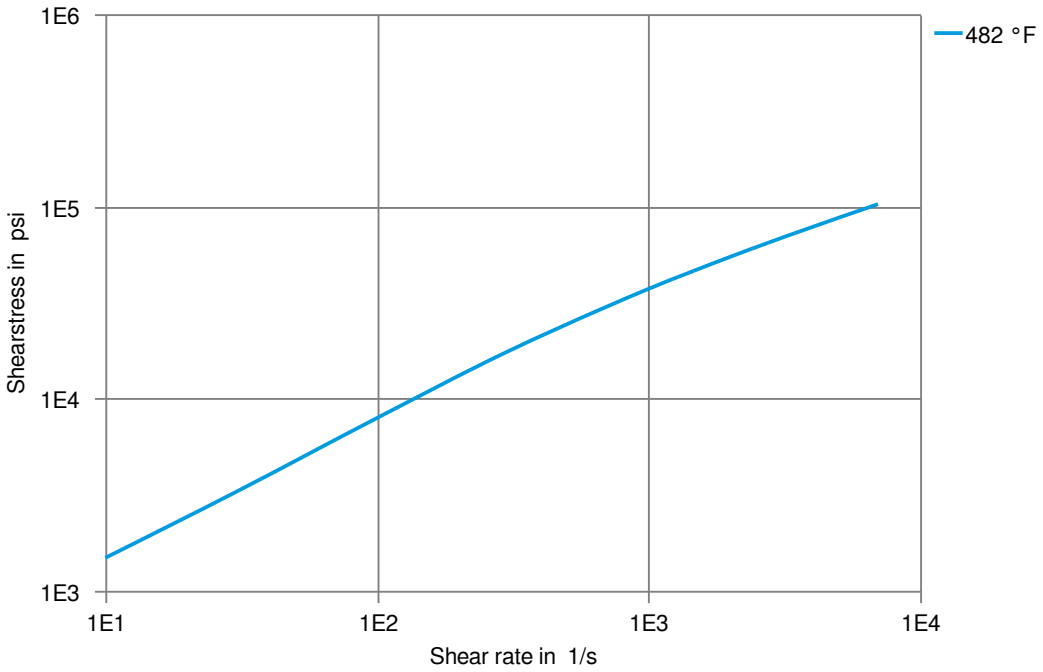
Viscosity-shear rate



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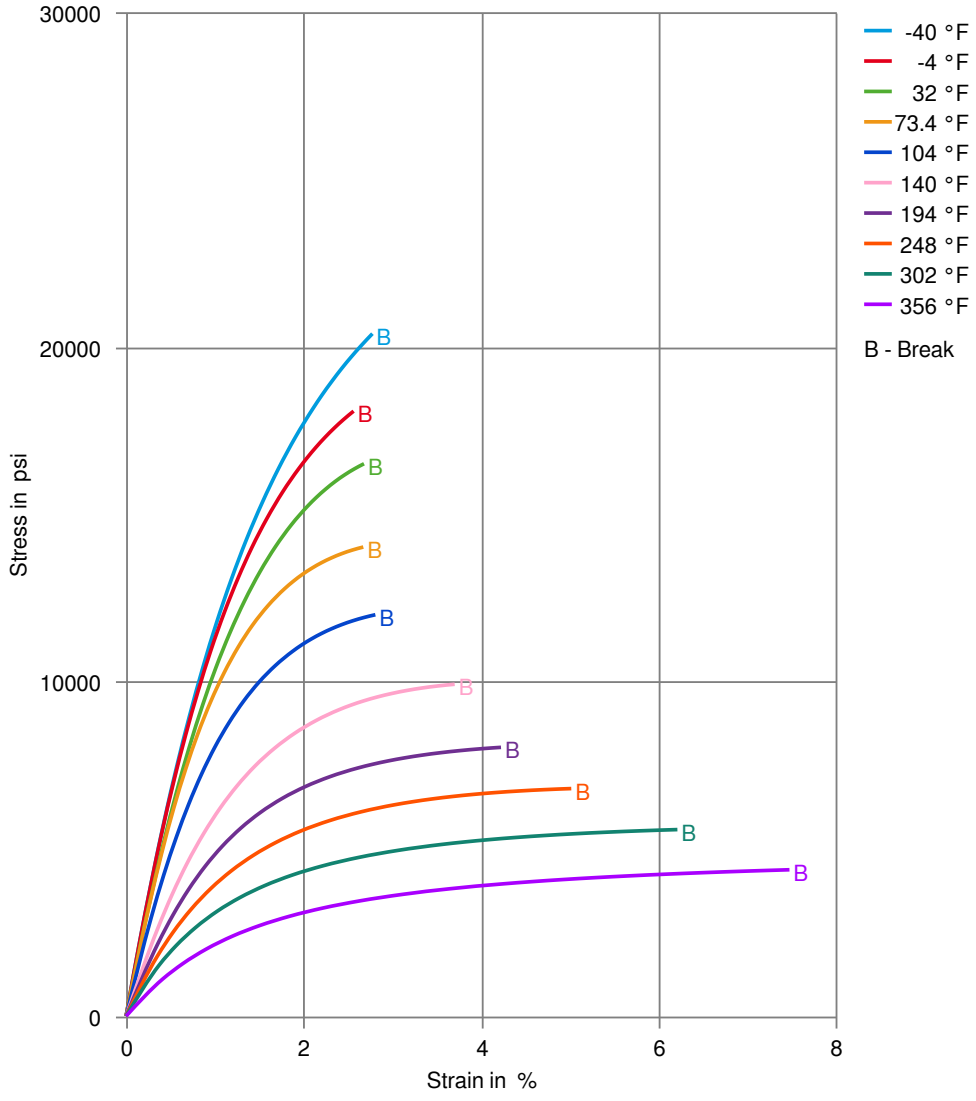
Shearstress-shear rate



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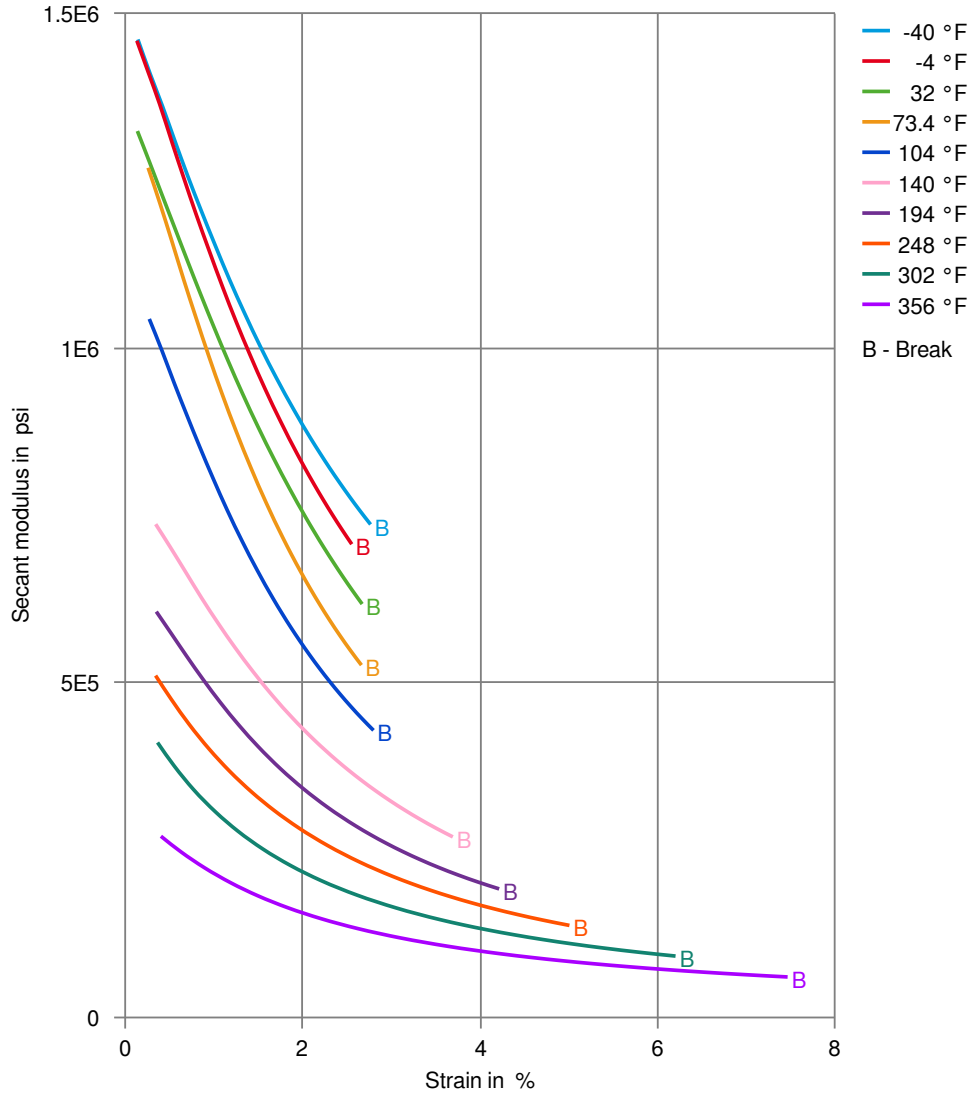
Stress-strain



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Secant modulus-strain



Revised: 2025-10-20 Source: Celanese Materials Database

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