Celanese
The chemistry inside innovation™

FORTRON® 1141L4

Polyphenylene sulfide

Fortron 1141L4 is a 40% glass-reinforced PPS that has excellent heat and chemical resistance, inherently flame-retardant, high hardness and a good balance of strength and stiffness. This grade exhibits low flash and is typically used in applications with thicker walls and shorter flow lengths.

Product information

Resin Identification	PPS-GF40		ISO 1043
Part Marking Code	>PPS-GF40<		ISO 11469

Rheological properties

Molding shrinkage range, parallel	0.2 - 0.6	%	ISO 294-4, 2577
Molding shrinkage range, normal	0.4 - 0.6	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	2.25E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	28300	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.9	%	ISO 527-1/-2
Flexural modulus	2.15E6	psi	ISO 178
Flexural strength	42100	psi	ISO 178
Charpy impact strength, 23°C	25.2	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	25.2	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	5.71	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	5.71	ftlb/in²	ISO 179/1eA
Poisson's ratio	0.397[OT]		

[OT]: One time tested

Thermal properties

Melting temperature, 10°C/min	536	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	194	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	518	°F	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	0.08	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.261	E-4/°F	ISO 11359-1/-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	V-0	class	IEC 60695-11-10
Thickness tested	0.0591	in	IEC 60695-11-10
Burning Behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	0.0150	in	IEC 60695-11-10

Physical/Other properties

Water absorption, 2mm	0.02	%	Sim. to ISO 62
Density	0.0596	lb/in³	ISO 1183

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Injection

Drying Recommended	yes	
Drying Temperature	266	°F
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	626	°F
Min. melt temperature	590	°F
Max. melt temperature	644	°F
Max. screw tangential speed	0.2 - 0.3	m/s
Mold Temperature Optimum	302	°F
Min. mold temperature	284	°F
Max. mold temperature	320	°F
Hold pressure range	4350 - 10200	psi
Back pressure	435	psi

Characteristics

Processing	Injection Molding
Additives	Release agent
Special characteristics	Flame retardant, Heat stabilized or stable to heat, Chemical resistant

Additional information

Injection molding

Preprocessing

Predrying in a dehumidified air dryer at 130 - 140 degC/3-4 hours is recommended.

Processing

On injection molding machines with 15-25 D long three-section screws, as are usual in the trade, the FORTRON is processable. A shut-off nozzle is preferred to a free-flow nozzle.

Melt temperature 320-340 degC
Mold wall temperature at least 140 degC

A medium injection rate is normally preferred. All mold cavities must be effectively vented.

Postprocessing

Tool temperature of at least 135 degC is recommended for parts to achieve maximum crystallizable potential.

Processing Notes

Pre-Drying

FORTRON should in principle be predried. Because of the necessary low maximum residual moisture content the use of dry air dryers is recommended.

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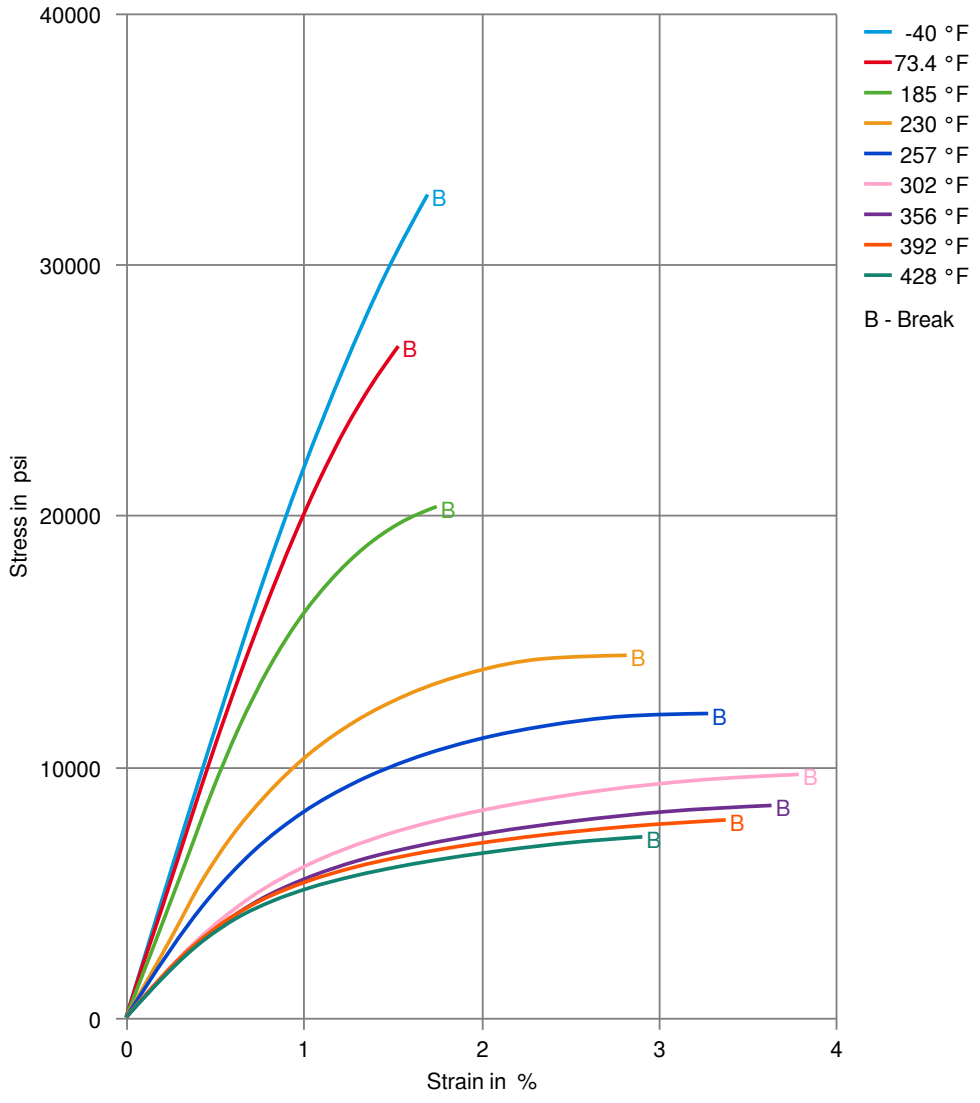
The dew point should be =< - 30° C. The time between drying and processing should be as short as possible.

The pre-drying conditions can influence the flow (melt viscosity) of the material significantly. The drying temperature can be subject of optimization for flow of the material depending on the injection molding process and the tool- or part design.

Storage

For subsequent storage the material should be stored dry in the dryer until processed (<= 60 h).

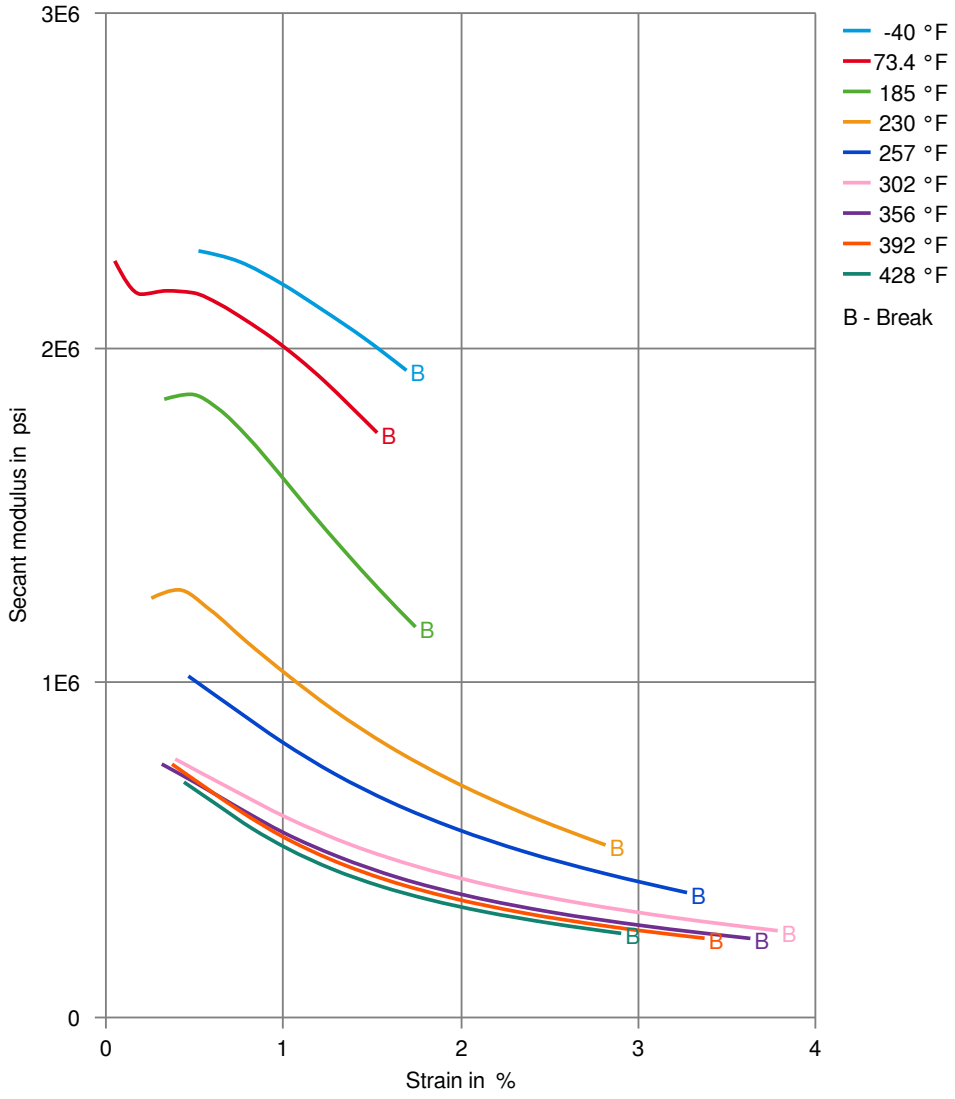
Stress-strain



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Secant modulus-strain



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