Celanese
The chemistry inside innovation™

FORTRON® 1141L4 - PPS

Description

40% Glass reinforced PPS, low flash, V-0
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.

Physical properties	Value	Unit	Test Standard
Density	**103**	lb/ft³	ISO 1183
Molding shrinkage, parallel (flow)	**0.2 - 0.6**	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	**0.4 - 0.6**	%	ISO 294-4, 2577
Water absorption, 23°C-sat	**0.02**	%	Sim. to ISO 62

Mechanical properties	Value	Unit	Test Standard
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, 23°C	**2.15E6**	psi	ISO 178
Flexural stress at break	**42100**	psi	ISO 178
Charpy impact strength, 23°C	**25.2**	ft-lb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**25.2**	ft-lb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	**5.71**	ft-lb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	**5.71**	ft-lb/in²	ISO 179/1eA

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	**536**	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	**194**	°F	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	**518**	°F	ISO 75-1, -2
Flammability @1.6mm nom. thickn.	**V-0**	class	UL 94
thickness tested (1.6)	**0.1**	in	UL 94
Flammability at thickness h	**V-0**	class	UL 94
thickness tested (h)	**0.0150**	in	UL 94

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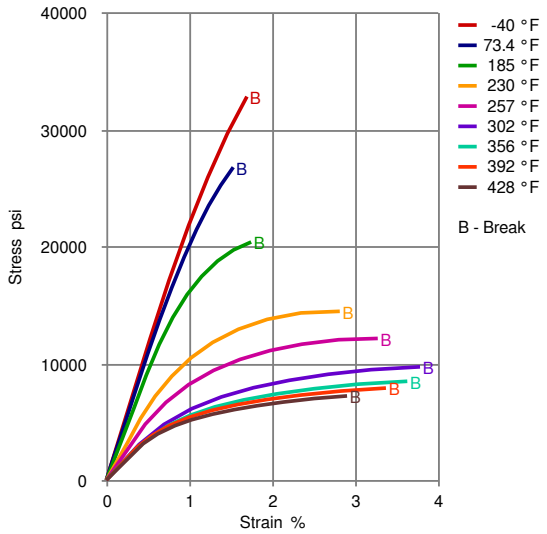
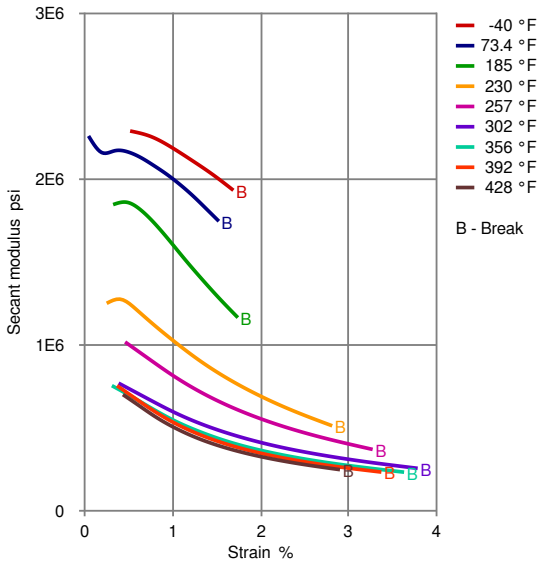
Diagrams

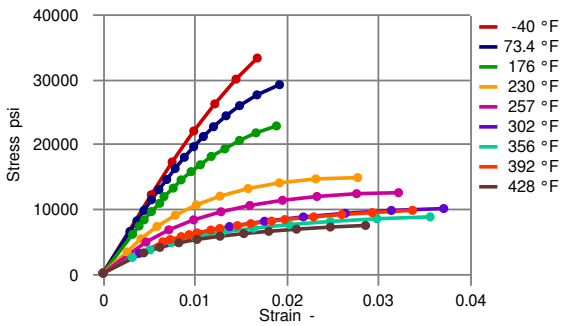
Stress-strain



Secant modulus-strain



True Stress-strain



no yield at all temperatures
Poisson's value used is 0.397

Typical injection moulding processing conditions

Pre Drying	Value	Unit
Necessary low maximum residual moisture content	**0.02**	%
Drying time	**3 - 4**	h
Drying temperature	**212 - 284**	°F

Temperature	Value	Unit
Hopper temperature	**68 - 86**	°F
Feeding zone temperature	**140 - 176**	°F
Zone1 temperature	**554 - 572**	°F
Zone2 temperature	**590 - 608**	°F

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Zone3 temperature	**626 - 644**	°F
Zone4 temperature	**626 - 644**	°F
Nozzle temperature	**590 - 626**	°F
Melt temperature	**626**	°F
Mold temperature	**284 - 320**	°F
Hot runner temperature	**626 - 644**	°F

Pressure	Value	Unit
Back pressure max.	**30**	bar

Speed	Value
Injection speed	**fast**

Screw Speed	Value	Unit
Screw speed diameter, 25mm	**120**	RPM
Screw speed diameter, 40mm	**75**	RPM
Screw speed diameter, 55mm	**50**	RPM

Other text information

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. 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.

Longer pre-drying times/storage

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

Injection molding

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.

Injection Molding Preprocessing

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

Injection Molding Postprocessing

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

Characteristics

Special Characteristics	Chemical resistant, Flame retardant, Heat resistant
Product Categories	Glass reinforced
Processing	Injection molding
Delivery Form	Pellets
Additives	Release agent