

Polyphenylene sulfide

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Fortron LM1140L4 is a 40% glass-reinforced grade that is the strongest and toughest product available. It is laser markable. It exhibits excellent heat and chemical resistance, good electrical properties and is inherently flame-retardant. The high hardness and rigidity at elevated temperatures allows for good load bearing performance. This product has good weldability due to the modest filler level. Applications made of this grade are electronical components (i.e. bobbins, lamp housings, brush holders) and various other components requiring strength and resistance to aggressive chemicals (i.e. automotive heaters, pumps, valves, fuel rails, microwave oven rings and distillation column packings).

Product information			
Resin Identification	PPS-GF40		ISO 1043
Part Marking Code	>PPS-GF40<		ISO 11469
Rheological properties			
Moulding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6	%	ISO 294-4, 2577
Typical mechanical properties			
Tensile modulus	14700	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	200	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.9	%	ISO 527-1/-2
Flexural modulus	14500		ISO 178
Flexural strength		MPa	ISO 178
Compressive modulus	15000		ISO 604
Compressive strength		MPa	ISO 604
Charpy impact strength, 23°C		kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C		kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C		kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C		kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C		kJ/m ²	ISO 180/1A
Izod notched impact strength, -30°C		kJ/m ²	ISO 180/1A
Izod impact strength, 23°C		kJ/m² kJ/m²	ISO 180/1U ISO 180/1U
Izod impact strength, -30°C Hardness, Rockwell, M-scale	100	KJ/III	ISO 100/10 ISO 2039-2
Poisson's ratio	0.33 ^[C]		130 2039-2
[C]: Calculated	0.00		
Thermal properties			
Melting temperature, 10°C/min	280	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min		°Č	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	270		ISO 75-1/-2
Temperature of deflection under load, 8 MPa	215		ISO 75-1/-2
Coefficient of linear thermal expansion		E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coefficient of linear thermal expansion (CLTE),	42	E-6/K	ISO 11359-1/-2
normal Specific heat conscituted malt	1500	$1/(l_{1} \sim 1/2)$	
Specific heat capacity of melt	1500	J/(kg K)	ISO 22007-4



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Thickness tested1.Burning Behav. at thickness hV-Thickness tested0.3Burning Behav. 5V at thickness h5V.Thickness tested5V.	0 class IEC 60695-11-10 6 mm IEC 60695-11-10 0 class IEC 60695-11-10 8 mm IEC 60695-11-10 4 class IEC 60695-11-20 8 mm IEC 60695-11-20 7 % ISO 4589-1/-2
Electrical properties	
Relative permittivity, 1MHz4.Dissipation factor, 1MHz2Volume resistivity>1E1Surface resistivity6.6E1Electric strength2Comparative tracking index12	D E-4 IEC 62631-2-1 B Ohm.m IEC 62631-3-1 Ohm IEC 62631-3-2 B kV/mm IEC 60243-1
Physical/Other properties	
Water absorption, 2mm0.0Water absorption, Immersion 24h0.0Density160	2 % Sim. to ISO 62 2 % Sim. to ISO 62 0 kg/m³ ISO 1183 0 kg/m³ ISO 60
Injection	
Drying RecommendedyeDrying Temperature13Drying Time, Dehumidified Dryer2 -Processing Moisture Content≤0.0Melt Temperature Optimum33Min. melt temperature31Max. melt temperature34Screw tangential speed0.2 - 0.Mold Temperature Optimum15Min. mould temperature14Max. mould temperature16Hold pressure range30 - 7) °C ↓ h 2 %) °C) °C) °C

Characteristics

Additives

Release agent

Additional information

Injection molding

Preprocessing

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

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

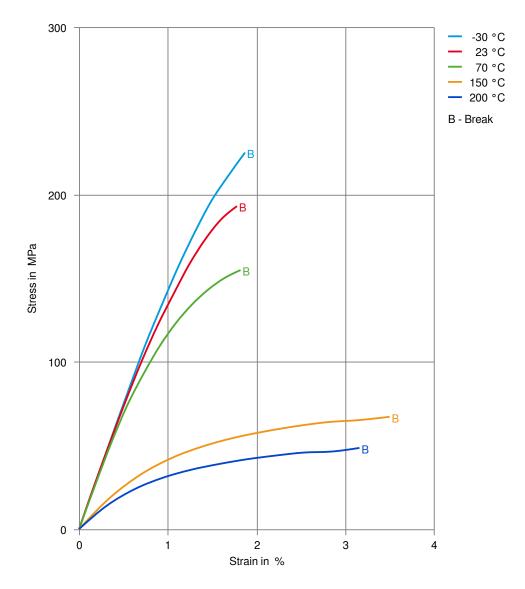
Storage

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



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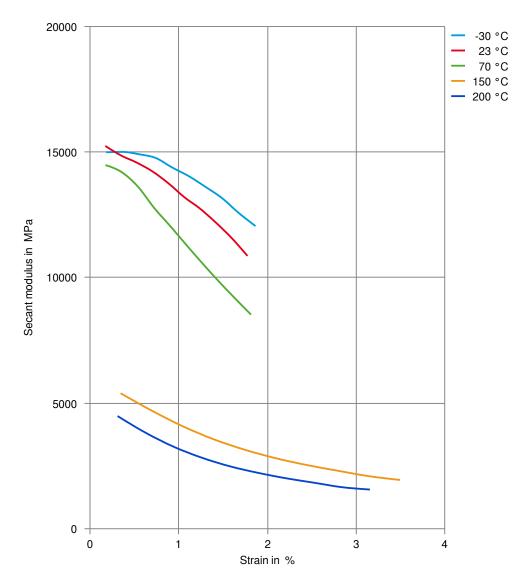
Stress-strain





Polyphenylene sulfide

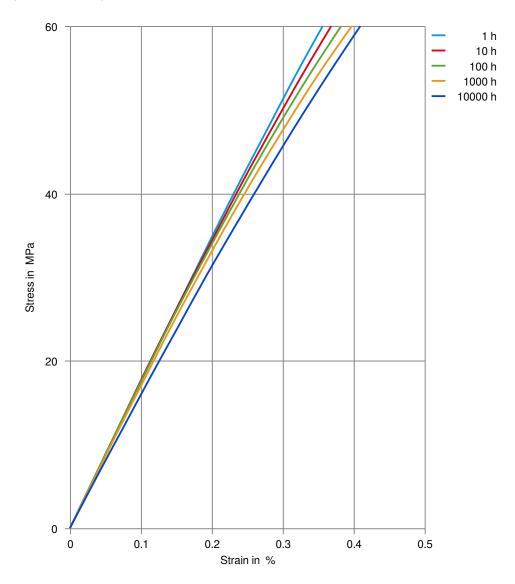
Secant modulus-strain





Polyphenylene sulfide

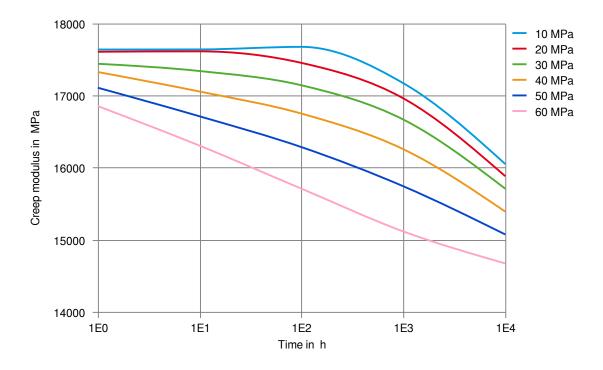
Stress-strain (isochronous) 23°C





Polyphenylene sulfide

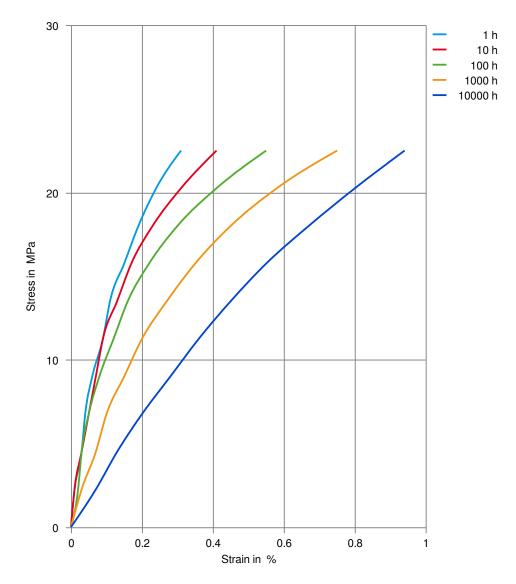
Creep modulus-time 23°C





Polyphenylene sulfide

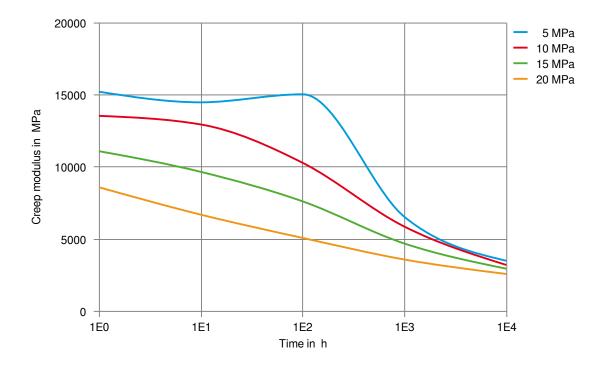
Stress-strain (isochronous) 120°C





Polyphenylene sulfide

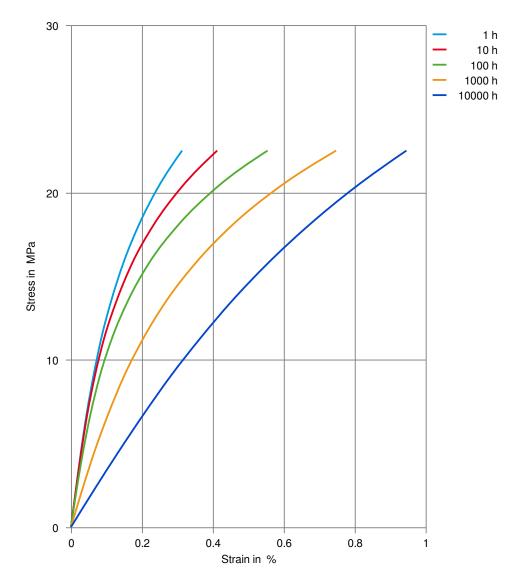
Creep modulus-time 120°C





Polyphenylene sulfide

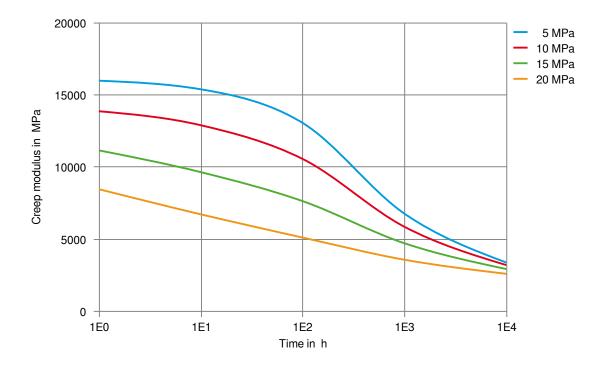
Stress-strain (isochronous) 150°C





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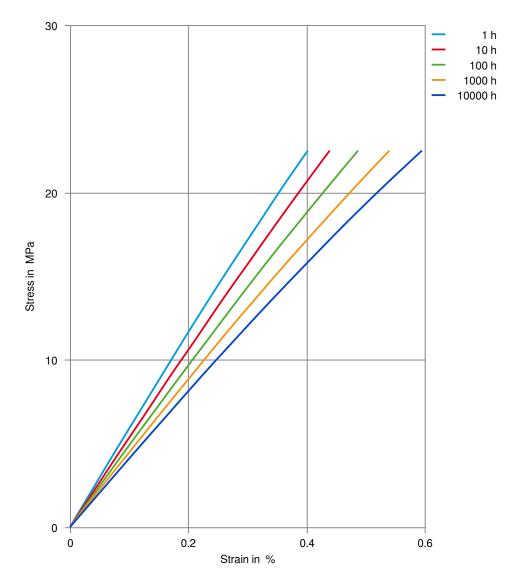
Creep modulus-time 150°C





Polyphenylene sulfide

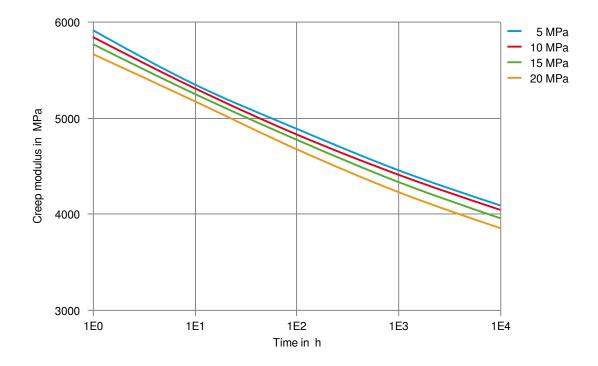
Stress-strain (isochronous) 200°C





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Creep modulus-time 200°C



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