Celanese
The chemistry inside innovation™

FORTRON® 4184L6 DW

Polyphenylene sulfide

Fortron 4184L6 is an easier flow version of Fortron 4184L4. for drinking water applications. It offers similar characteristics to the 4184L4. This grade is especially used for thin walled parts requiring long flow lengths, stiffness and dimensional control. Applications made of this grade are typically electronic components.

Product information

Resin Identification	PPS-(GF+MD)53	ISO 1043
Part Marking Code	>PPS-(GF+MD)53<	ISO 11469

Rheological properties

Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Molding shrinkage, normal	0.6	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	2.41E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	23900	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.4	%	ISO 527-1/-2
Flexural modulus	2.35E6	psi	ISO 178
Flexural strength	36300	psi	ISO 178
Compressive modulus	2.35E6	psi	ISO 604
Compressive strength	35500	psi	ISO 604
Charpy impact strength, 23°C	13.8	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	13.8	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	3.33	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	3.33	ftlb/in²	ISO 179/1eA
Izod notched impact strength, 23°C	3.33	ftlb/in²	ISO 180/1A
Izod notched impact strength, -30°C	3.33	ftlb/in²	ISO 180/1A
Izod impact strength, 23°C	12.8	ftlb/in²	ISO 180/1U
Izod impact strength, -30°C	12.8	ftlb/in²	ISO 180/1U
Hardness, Rockwell, M-scale	100		ISO 2039-2

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
Temperature of deflection under load, 8 MPa	419	°F	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	0.13	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.178	E-4/°F	ISO 11359-1/-2
Specific heat capacity of melt	1500	J/(kg K)	ISO 22007-4

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	0.0295	in	IEC 60695-11-10

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Electrical properties

Relative permittivity, 1MHz	4.7		IEC 62631-2-1
Dissipation factor, 1MHz	20	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Electric strength	686	kV/in	IEC 60243-1
Comparative tracking index	150		IEC 60112
Arc Resistance	156	s	UL 746B

Physical/Other properties

Water absorption, 2mm	0.02	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.03	%	Sim. to ISO 62
Density	0.065	lb/in^3	ISO 1183

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, Light stabilized or stable to light, Heat stabilized or stable to heat, High Flow, Improved creep

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.

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Processing Notes

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.

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.

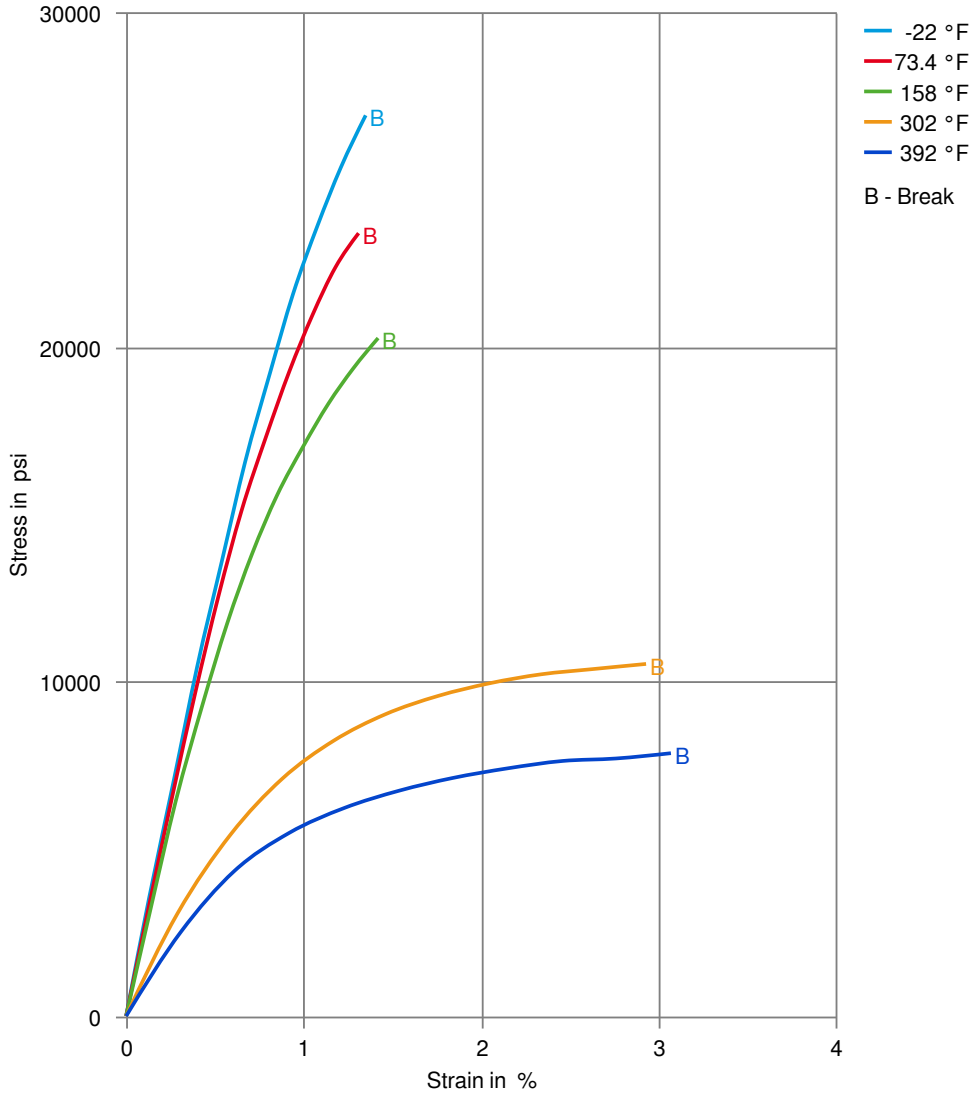
Storage

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

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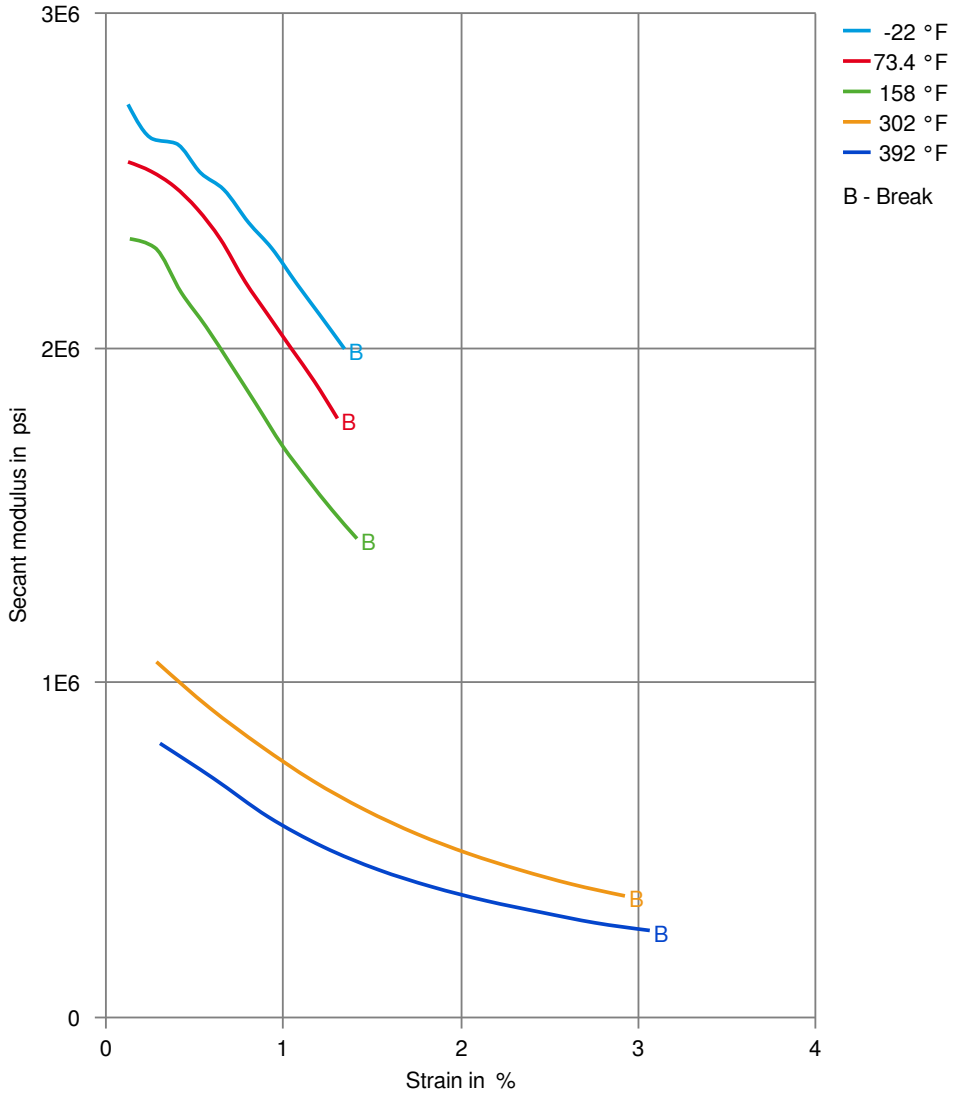
Stress-strain



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Polyphenylene sulfide

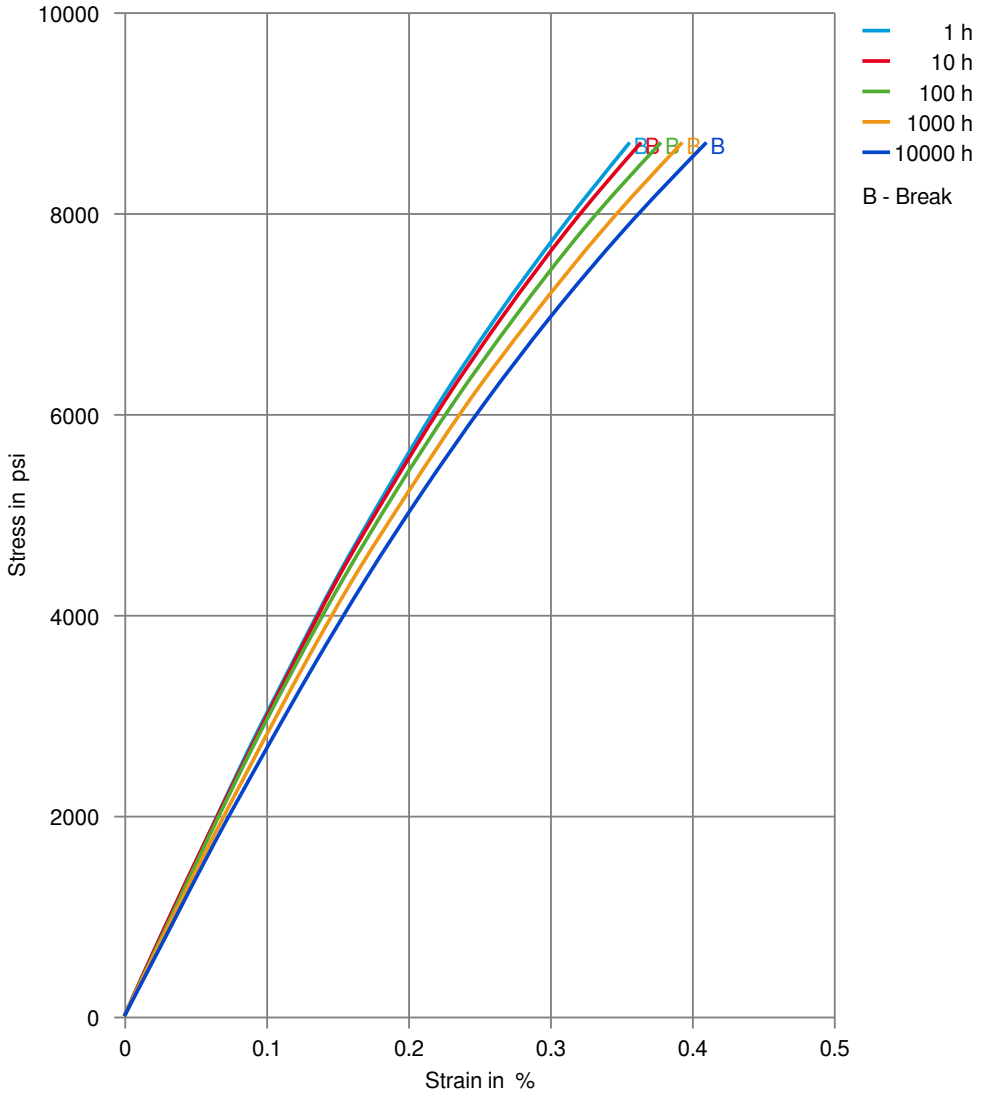
Secant modulus-strain



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Polyphenylene sulfide

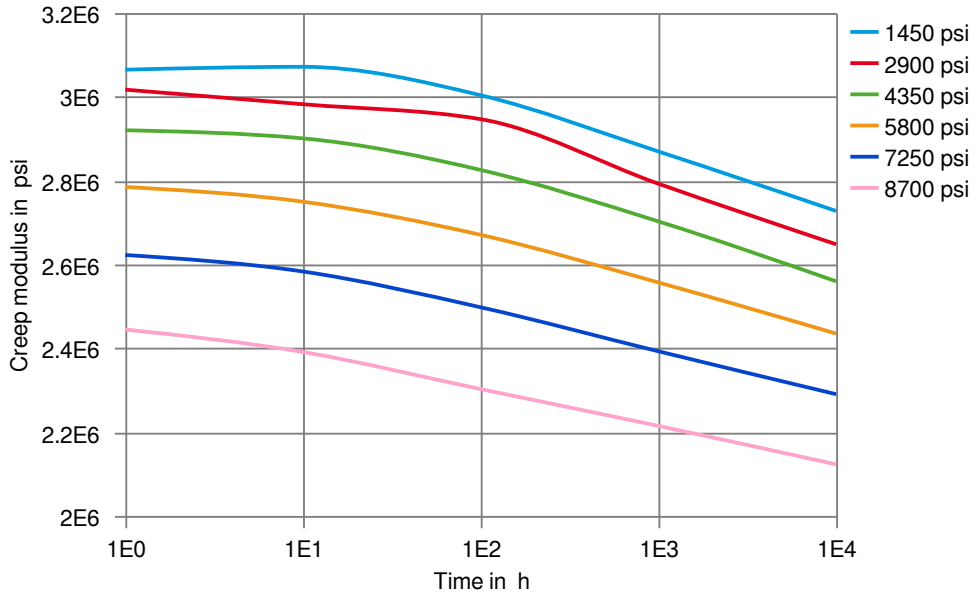
Stress-strain (isochronous) 73.4 °F



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Polyphenylene sulfide

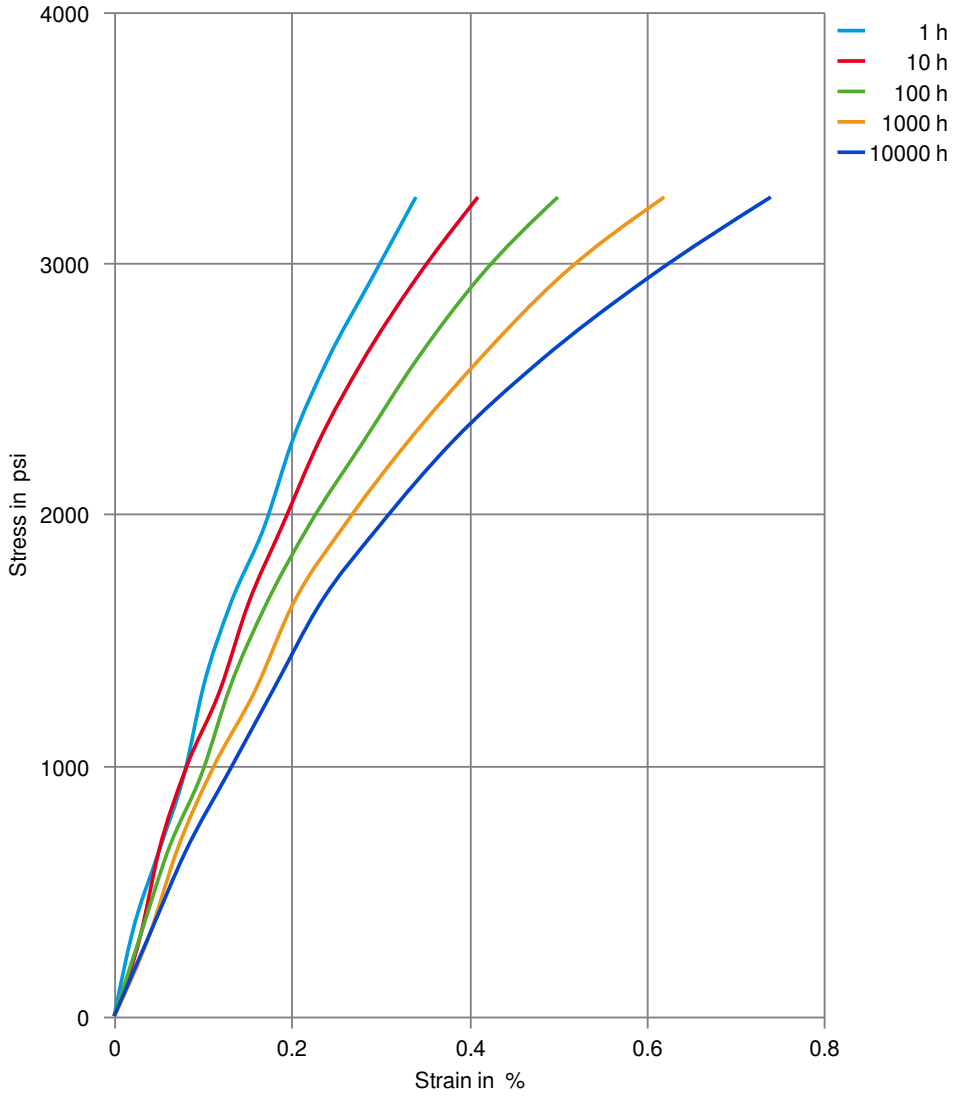
Creep modulus-time 73.4 °F



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Polyphenylene sulfide

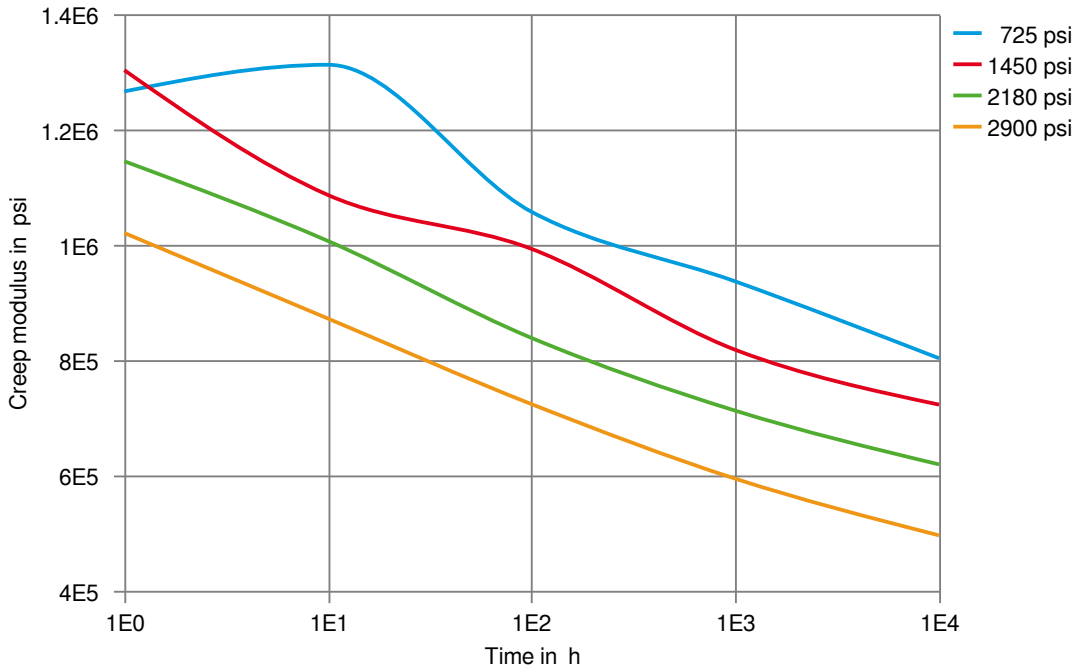
Stress-strain (isochronous) 248 °F



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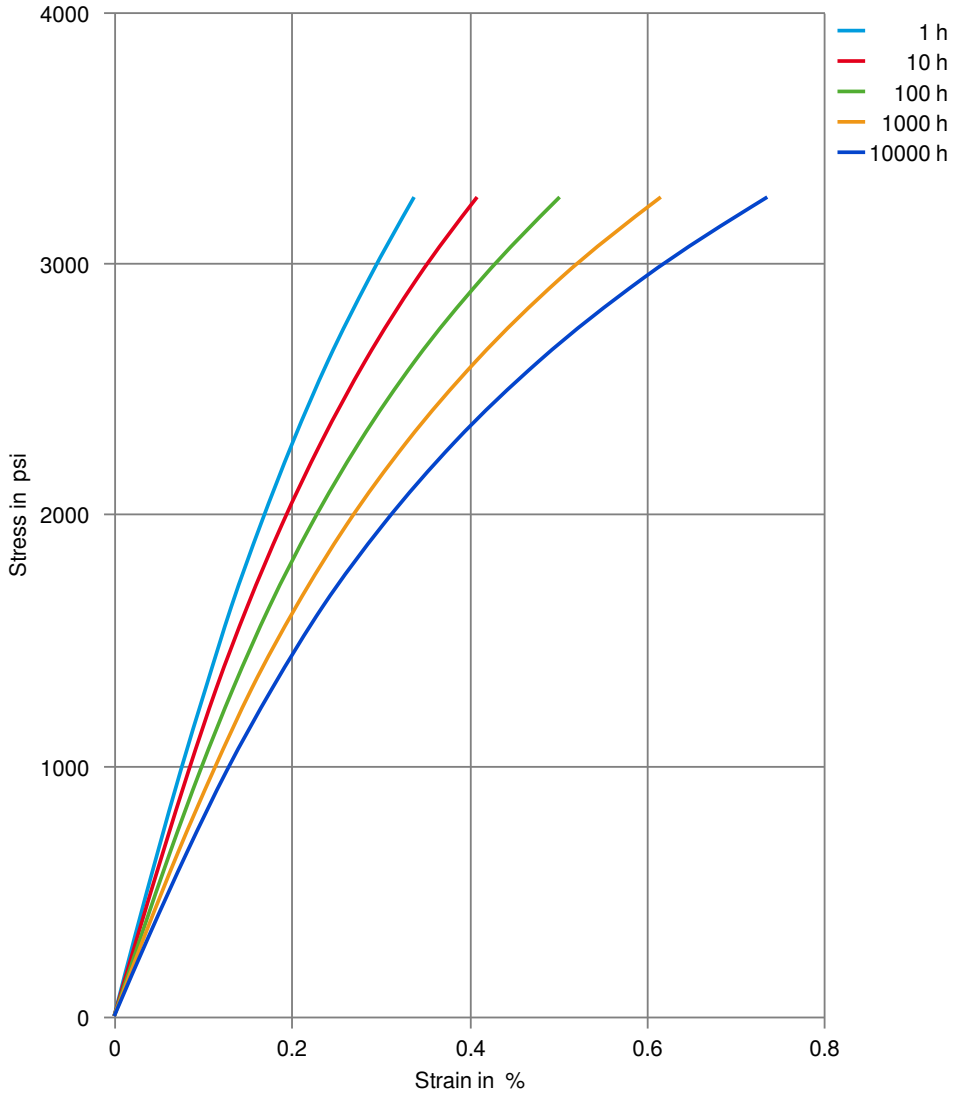
Creep modulus-time 248 °F



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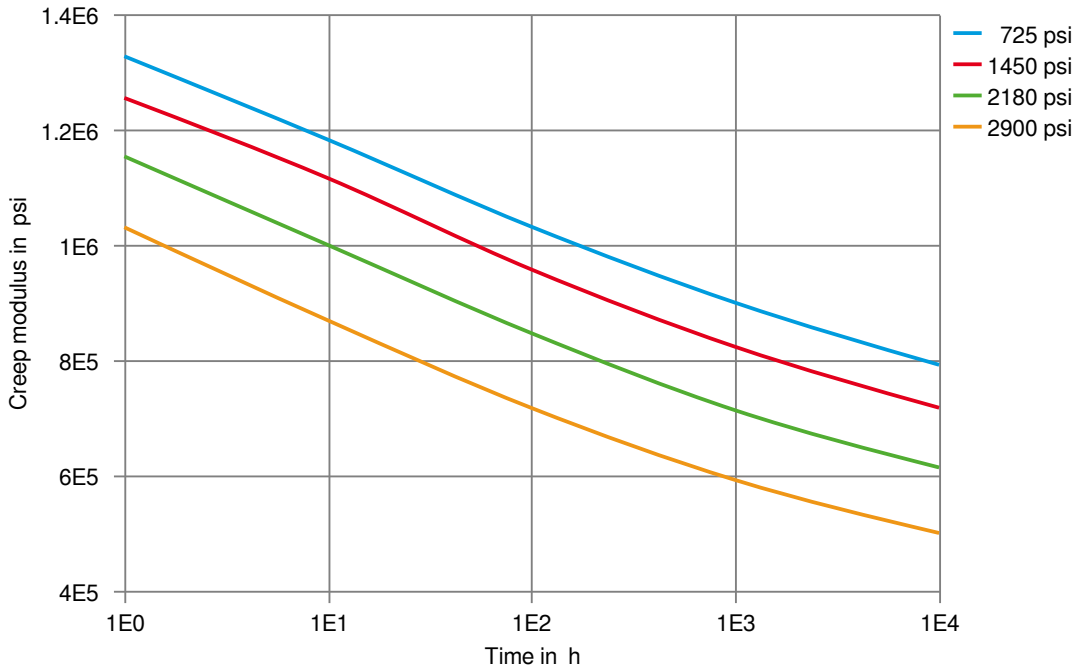
Stress-strain (isochronous) 302 °F



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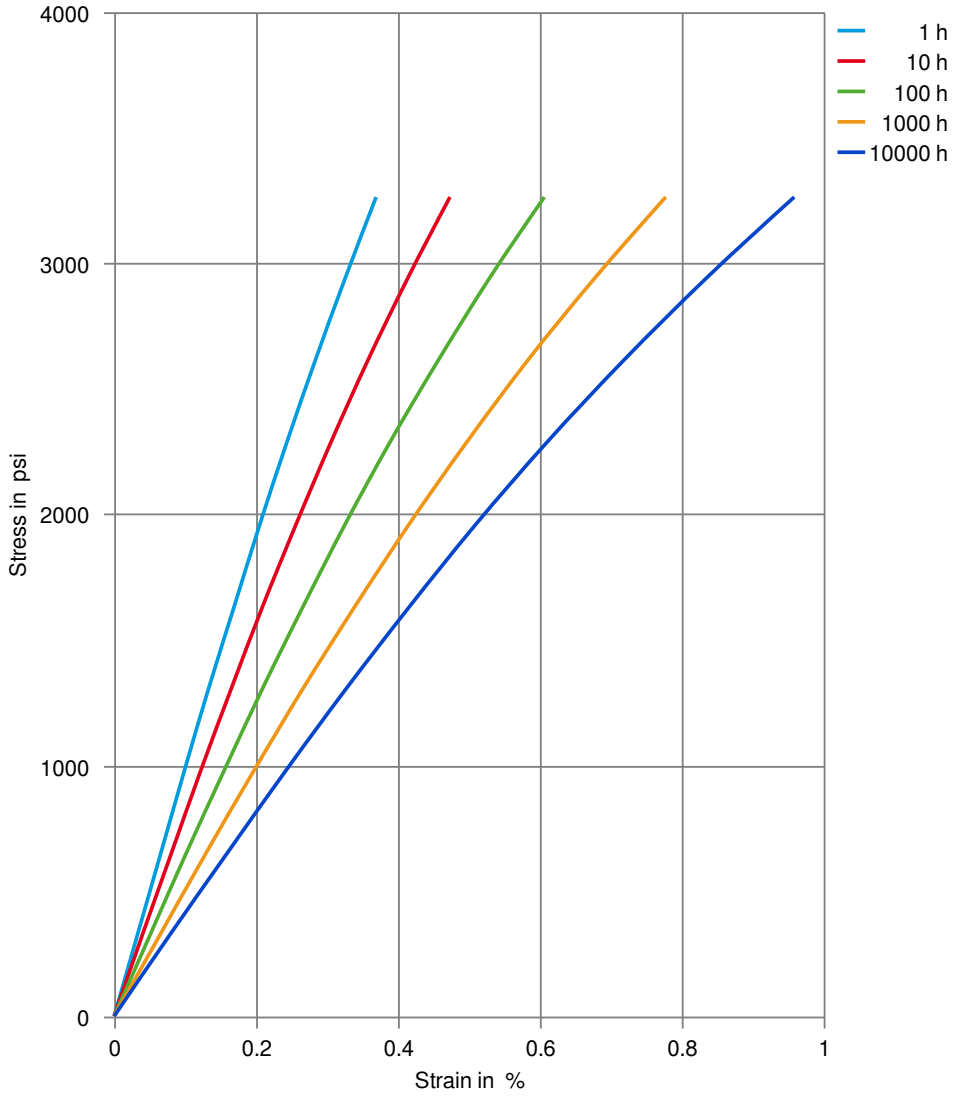
Creep modulus-time 302 °F



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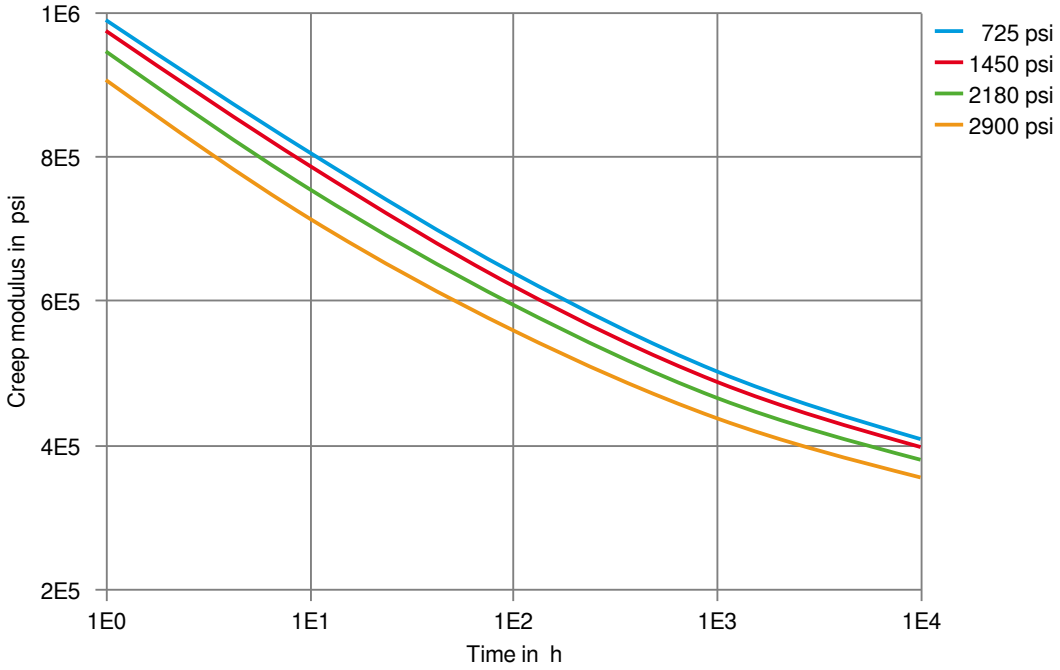
Stress-strain (isochronous) 392 °F



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Creep modulus-time 392 °F



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