Delrin® 100ST NC010

ACETAL RESIN

Common features of Delrin® acetal resins include mechanical and physical properties such as high mechanical strength and rigidity, excellent fatigue and impact resistance, as well as resistance to moisture, gasoline, lubricants, solvents, and many other neutral chemicals. Delrin® acetal resins also have excellent dimensional stability and good electrical insulating characteristics. They are naturally resilient, self-lubricating, and available in a variety of colors and speciality grades.

Delrin® acetal resin typically is used in demanding applications in the automotive, domestic appliances, sports, industrial engineering, electronics, and consumer goods industries.

Delrin® 100ST is a super-toughened, high viscosity acetal homopolymer grade with superior impact resistance. It is designed for highly stressed parts where outstanding toughness is essential.

Product information

Resin Identification	POM-HI	ISO 1043
Part Marking Code	>POM-HI<	ISO 11469

Rheological properties

Melt volume-flow rate	1.7	cm³/10min	ISO 1133
Melt mass-flow rate	2	g/10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Melt mass-flow rate, Temperature	190	°C	ISO 1133
Melt mass-flow rate, Load	2.16	kg	ISO 1133
Moulding shrinkage, parallel	0.8	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.1	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	1400	MPa	ISO 527-1/-2
Yield stress	41	MPa	ISO 527-1/-2
Yield strain	30	%	ISO 527-1/-2
Nominal strain at break	>50	%	ISO 527-1/-2
Flexural Modulus	1100	MPa	ISO 178
Flexural Stress at 3.5%	34	MPa	ISO 178
Tensile creep modulus, 1h	1100	MPa	ISO 899-1
Tensile creep modulus, 1000h	550	MPa	ISO 899-1
Charpy impact strength, 23°C	N	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	N	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	90	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	18	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	90	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	20	kJ/m²	ISO 180/1A
Hardness, Rockwell, M-scale	58		ISO 2039-2
Hardness, Rockwell, R-scale	105		ISO 2039-2
Poisson's ratio	0.43		

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Shore D hardness, 15s	70		ISO 48-4 / ISO 868

Thermal properties

Melting temperature, 10°C/min	178	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	-35	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	60	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	100	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 10N	170	°C	ISO 306
Coeff. of linear therm. expansion, parallel	130	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	140	E-6/K	ISO 11359-1/-2
Eff. thermal diffusivity	6E-8	m²/s	
RTI, electrical, 1.5mm	105	°C	UL 746B
RTI, electrical, 3mm	105	°C	UL 746B
RTI, impact, 1.5mm	85	°C	UL 746B
RTI, impact, 3mm	85	°C	UL 746B
RTI, strength, 1.5mm	85	°C	UL 746B
RTI, strength, 3mm	85	°C	UL 746B
TGA curve	available		ISO 11359-1/-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
UL recognition	yes		UL 94
Glow Wire Flammability Index, 1mm	550	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2mm	550	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3mm	550	°C	IEC 60695-2-12
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	41	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

Relative permittivity, 100Hz	4.4		IEC 62631-2-1
Relative permittivity, 1MHz	3.8		IEC 62631-2-1
Volume resistivity	1E12	Ohm.m	IEC 62631-3-1
Surface resistivity	1E14	Ohm	IEC 62631-3-2
Comparative tracking index	600		IEC 60112

Other properties

Humidity absorption, 2mm	0.35	%	Sim. to ISO 62
Water absorption, 2mm	0.9	%	Sim. to ISO 62
Density	1340	kg/m³	ISO 1183
Density of melt	1140	kg/m³	

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VDA Properties

Emissions	<8	mg/kg	VDA 275

[1]: <5

Injection

Drying Recommended	yes	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	4 - 8	h
Processing Moisture Content	≤0.05	%
Melt Temperature Optimum	205	°C
Min. melt temperature	200	°C
Max. melt temperature	210	°C
Max. screw tangential speed	0.2	m/s
Mold Temperature Optimum	50	°C
Min. mould temperature	40	°C
Max. mould temperature	60	°C
Hold pressure range	60 - 80	MPa
Hold pressure time	7.5	s/mm
Annealing time, optional	30	min/mm
Annealing temperature	160	°C

Extrusion

Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	4 - 8	h
Processing Moisture Content	≤0.05	%
Melt Temperature Optimum	200	°C
Melt Temperature Range	195 - 205	°C

Characteristics

Additives	Release agent

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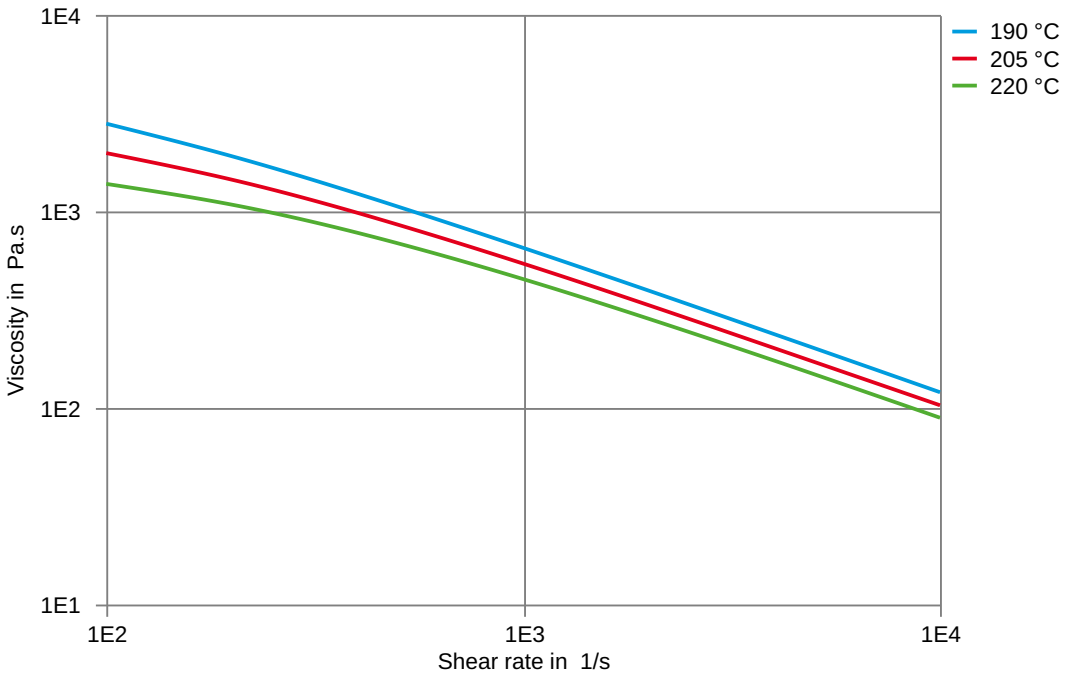
Viscosity-shear rate



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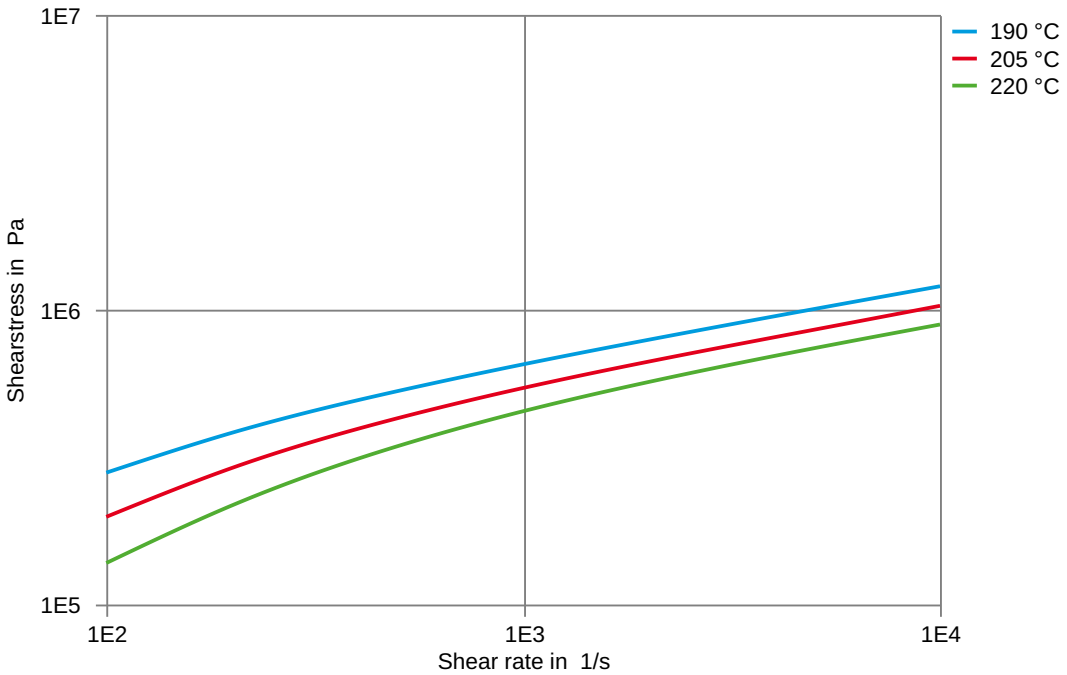
Shearstress-shear rate



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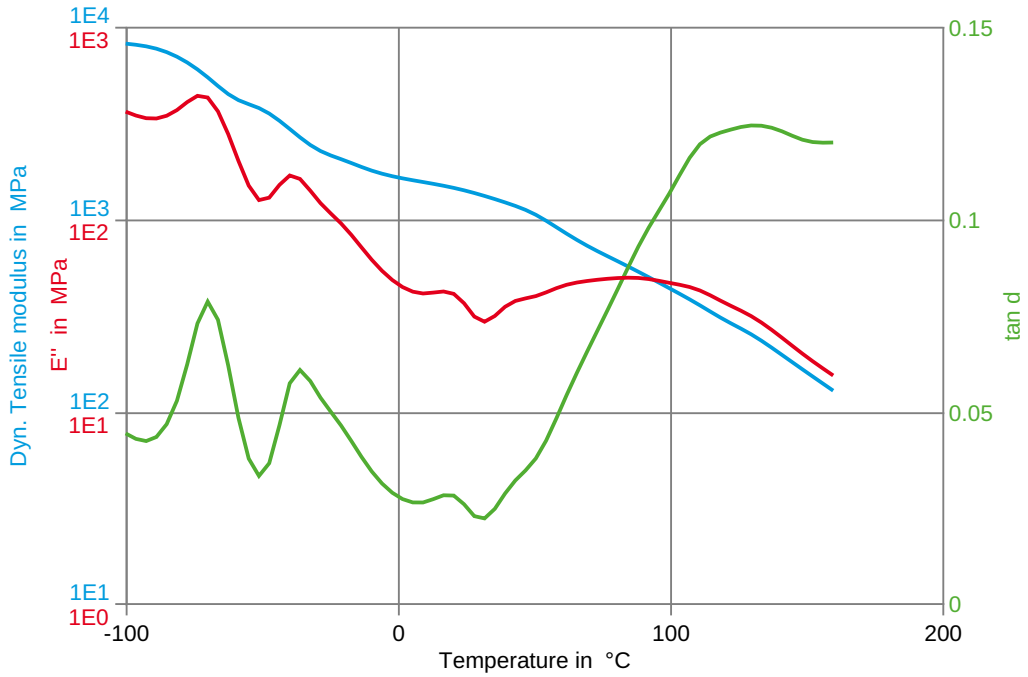
Dynamic Tensile modulus-temperature



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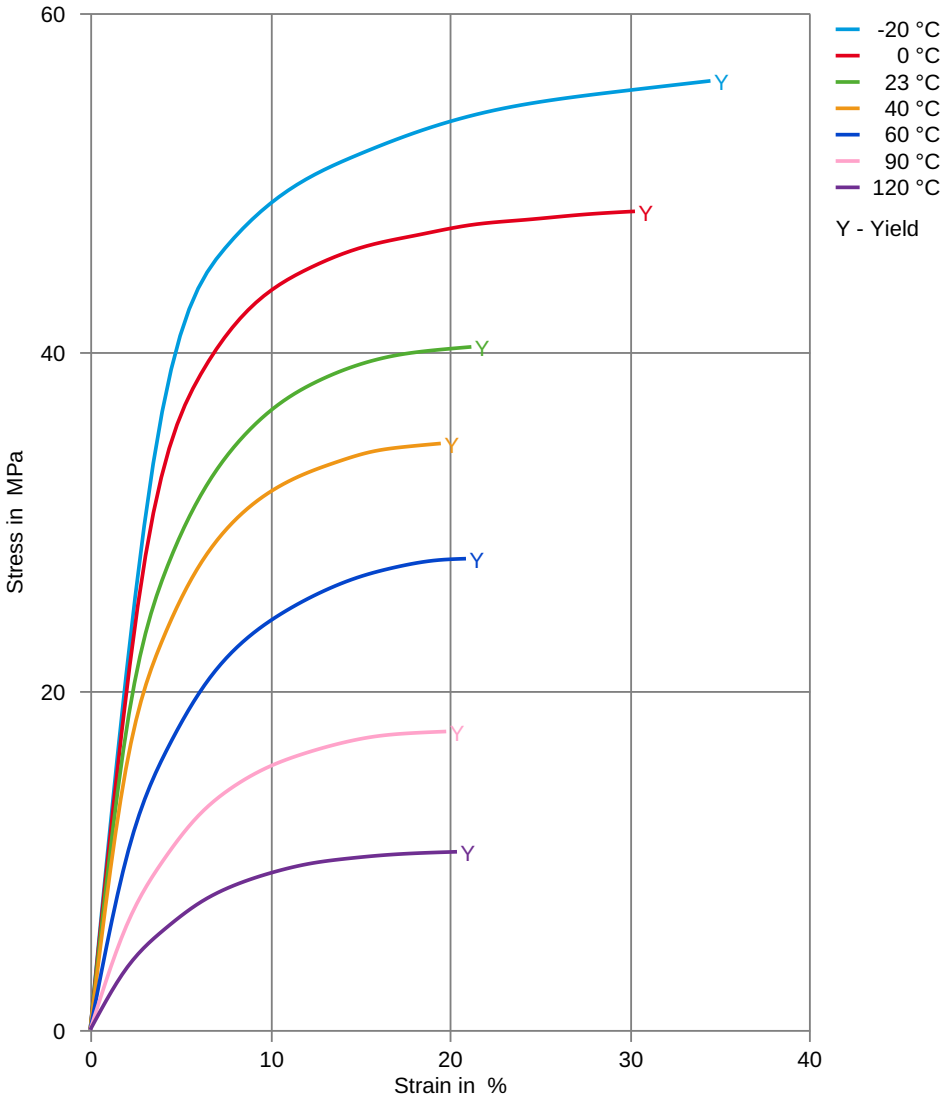
Stress-strain



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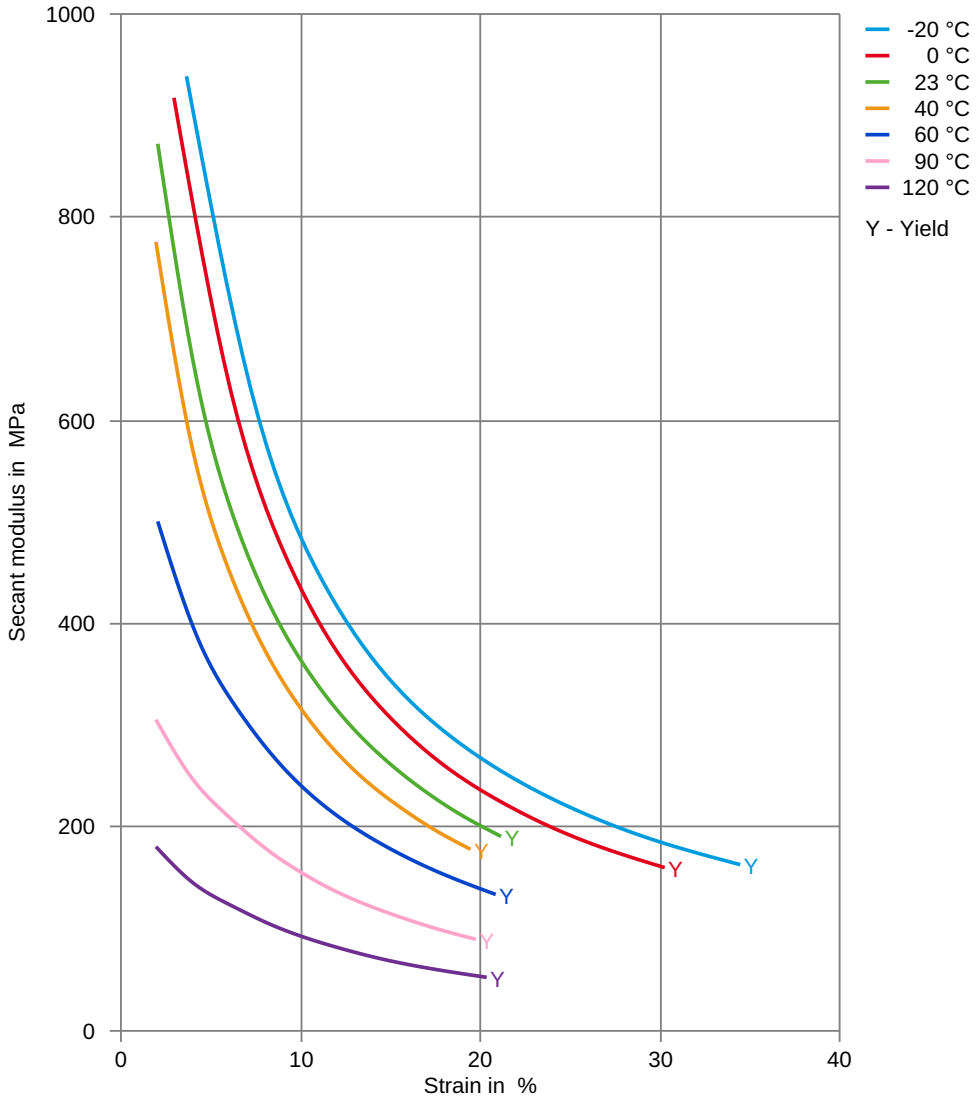
Secant modulus-strain



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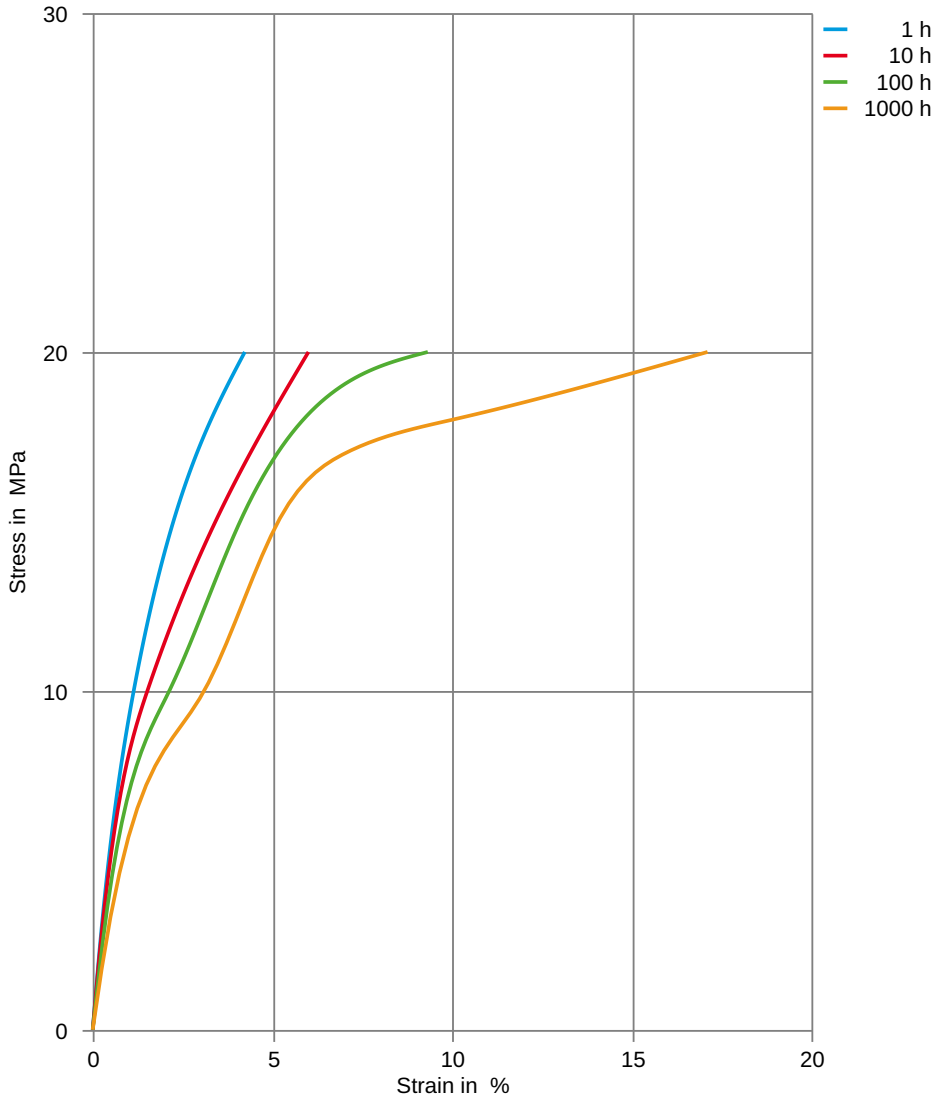
Stress-strain (isochronous) 23°C



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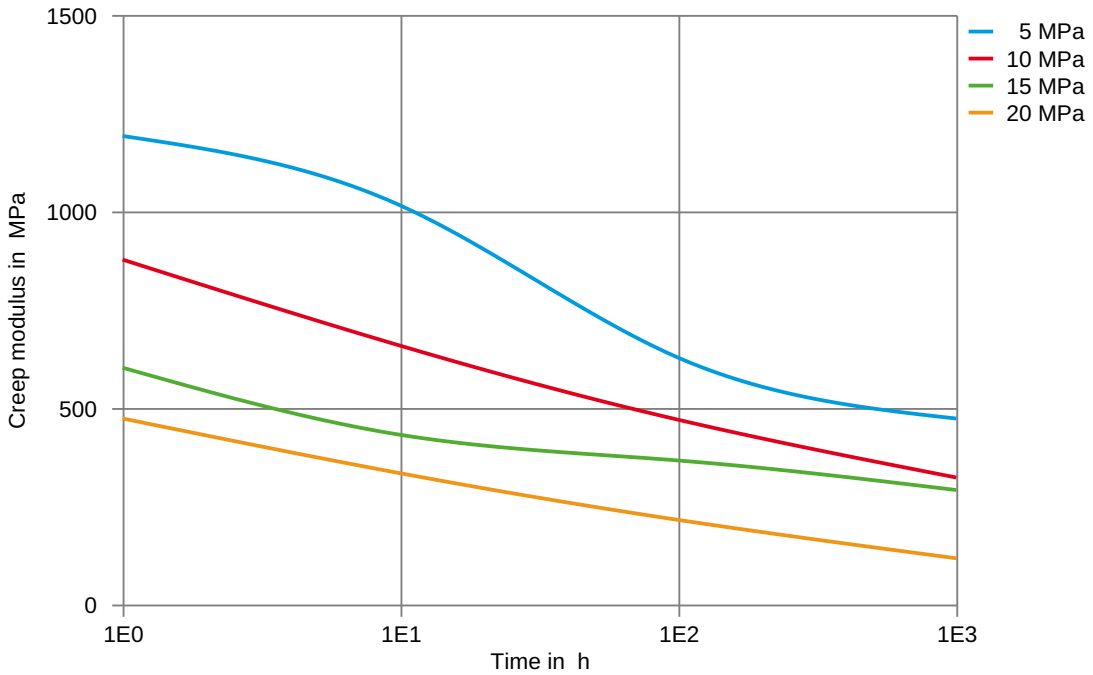
Creep modulus-time 23°C



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Specific volume-temperature (pvT)