

Zytel® PLS95G35DH1 BK549

ZYTEL® PLUS & XT NYLON RESIN

Common features of Zytel® nylon resin include mechanical and physical properties such as high mechanical strength, excellent balance of stiffness and toughness, good high temperature performance, good electrical and flammability properties, good abrasion and chemical resistance. In addition, Zytel® nylon resins are available in different modified and reinforced grades to create a wide range of products with tailored properties for specific processes and end-uses. Zytel® nylon resin, including most flame retardant grades, offer the ability to be coloured.

The good melt stability of Zytel® nylon resin normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-31 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Zytel® nylon resin typically is used in demanding applications in the automotive, furniture, domestic appliances, sporting goods and construction industry.

Zytel® PLS95G35DH1 is a high flow, 35% glass fibre reinforced, SHIELD protected polyamide resin for injection moulding. It provides excellent surface appearance, excellent welding, excellent fatigue retention and exceptional resistance to hot air and hot oil.

Product information

| | | |
|----------------------|---------------------------------------|-----------|
| Resin Identification | PA66/6T-GF35 | ISO 1043 |
| Part Marking Code | >PA66/6T-GF35< | ISO 11469 |
| ISO designation | ISO 16396-PA66/6T,GF35,M1CGHR,S12-110 | |

Rheological properties

| | | | |
|------------------------------|-----------------------|--------------------|-----------------|
| | dry/cond. | | |
| Viscosity number | 110 ^[1] /* | cm ³ /g | ISO 307, 1628 |
| Moulding shrinkage, parallel | 0.2/- | % | ISO 294-4, 2577 |
| Moulding shrinkage, normal | 0.7/- | % | ISO 294-4, 2577 |
| [1]: sulphuric acid 96% | | | |

Typical mechanical properties

| | | | |
|---------------------------------------|------------|-------------------|--------------|
| | dry/cond. | | |
| Tensile modulus | 11000/8000 | MPa | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min | 200/140 | MPa | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min | 3.2/6 | % | ISO 527-1/-2 |
| Charpy impact strength, 23°C | 75/90 | kJ/m ² | ISO 179/1eU |
| Charpy impact strength, -30°C | 70/70 | kJ/m ² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 12/14 | kJ/m ² | ISO 179/1eA |
| Charpy notched impact strength, -40°C | 12/- | kJ/m ² | ISO 179/1eA |
| Hardness, Rockwell, M-scale | 110/- | | ISO 2039-2 |
| Hardness, Rockwell, R-scale | 125/115 | | ISO 2039-2 |
| Ball indentation hardness, H 961/30 | 285/- | MPa | ISO 2039-1 |
| Poisson's ratio | 0.34/0.34 | | |

Thermal properties

| | | | |
|--|-----------|----|----------------|
| | dry/cond. | | |
| Melting temperature, 10°C/min | 267/* | °C | ISO 11357-1/-3 |
| Glass transition temperature, 10°C/min | 80/40 | °C | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa | 242/* | °C | ISO 75-1/-2 |
| Temperature of deflection under load, 0.45 MPa | 261/* | °C | ISO 75-1/-2 |

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| | | | |
|--|--------|----------|----------------|
| Coefficient of linear thermal expansion (CLTE), parallel | 18 / * | E-6/K | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal | 72 / * | E-6/K | ISO 11359-1/-2 |
| Thermal conductivity of melt | 0.22 | W/(m K) | ISO 22007-2 |
| Specific heat capacity of melt | 2300 | J/(kg K) | ISO 22007-4 |

Flammability

| | | | |
|--------------------------------------|-----------|--------|----------------------|
| | dry/cond. | | |
| Burning Behav. at 1.5mm nom. thickn. | HB / * | class | IEC 60695-11-10 |
| Thickness tested | 1.5 / * | mm | IEC 60695-11-10 |
| FMVSS Class | B | | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm | 44 | mm/min | ISO 3795 (FMVSS 302) |

Electrical properties

| | | | |
|------------------------------------|-----------|-------|-------------|
| | dry/cond. | | |
| Electric strength | 43 / 42 | kV/mm | IEC 60243-1 |
| Electric Strength, Short Time, 1mm | 28 / 22 | kV/mm | IEC 60243-1 |
| Electric Strength, Short Time, 2mm | 20 / 14 | kV/mm | IEC 60243-1 |

Physical/Other properties

| | | | |
|--------------------------|-----------|-------------------|----------------|
| | dry/cond. | | |
| Humidity absorption, 2mm | 1.8 / * | % | Sim. to ISO 62 |
| Water absorption, 2mm | 6 / * | % | Sim. to ISO 62 |
| Density | 1430 / - | kg/m ³ | ISO 1183 |
| Density of melt | 1260 | kg/m ³ | |

Injection

| | |
|---------------------------------|--------------|
| Drying Recommended | yes |
| Drying Temperature | 80 °C |
| Drying Time, Dehumidified Dryer | 2 - 4 h |
| Processing Moisture Content | ≤0.2 % |
| Melt Temperature Optimum | 285 °C |
| Min. melt temperature | 280 °C |
| Max. melt temperature | 290 °C |
| Screw tangential speed | ≤0.2 m/s |
| Mold Temperature Optimum | 100 °C |
| Min. mould temperature | 70 °C |
| Max. mould temperature | 120 °C |
| Hold pressure range | 50 - 100 MPa |
| Hold pressure time | 3 s/mm |
| Ejection temperature | 210 °C |

Characteristics

| | |
|-------------------------|-----------------------------------|
| Processing | Injection Moulding |
| Delivery form | Pellets |
| Additives | Release agent |
| Special characteristics | Heat stabilised or stable to heat |

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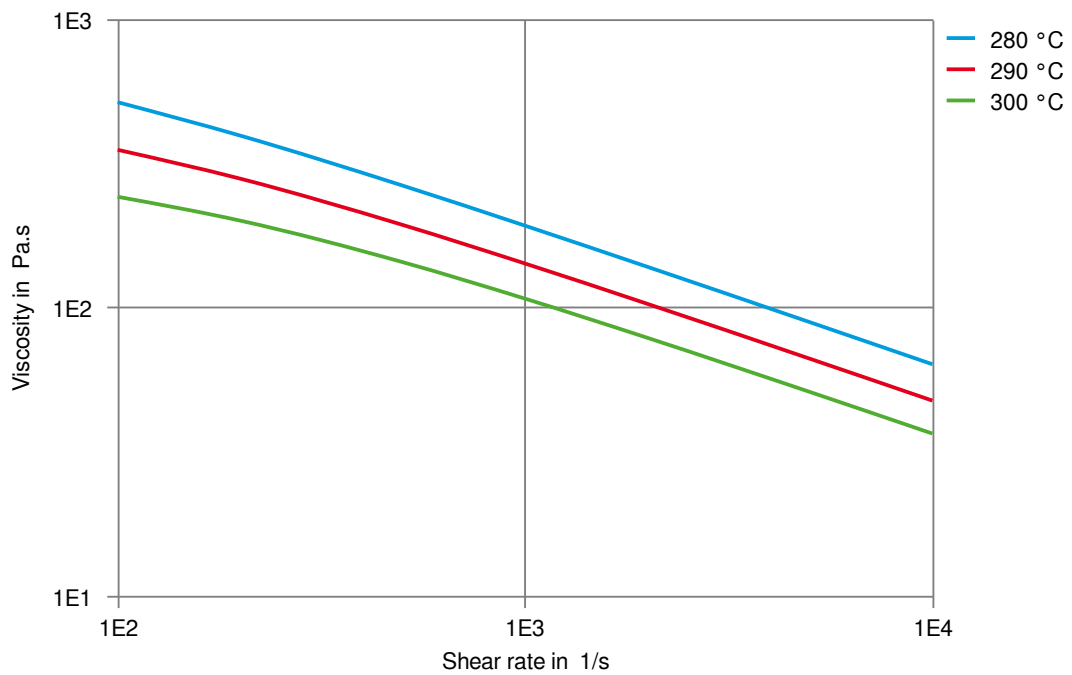
Automotive

| OEM | STANDARD | ADDITIONAL INFORMATION |
|----------------|--|------------------------|
| General Motors | GMW17961P-PA-GF35-T3 | Black |
| Mercedes-Benz | DBL5408.50 PA66 GF35 | |
| Mercedes-Benz | DBL5408.52 PA66 GF35 | |
| Renault-Nissan | AS24-b, No Spec, Special Part Approval, See Your CE Account Manager. | |
| Renault-Nissan | UB02a, No Spec, Special Part Approval, See Your CE Account Manager. | |
| Renault-Nissan | UB02d, No Spec, Special Part Approval, See Your CE Account Manager. | |
| Stellantis | B62 0300 / 61/219M-223E/H115/13 + S62 | 01994_15_00079 |
| VW Group | 0001 (3000h/190°C) TL 520 62 PA-GF35 | |
| VW Group | VW 50133 PA66-7-A | |
| Valeo | PDTNVC15006 RevE | PA66/6T-GF35 Class 6 |

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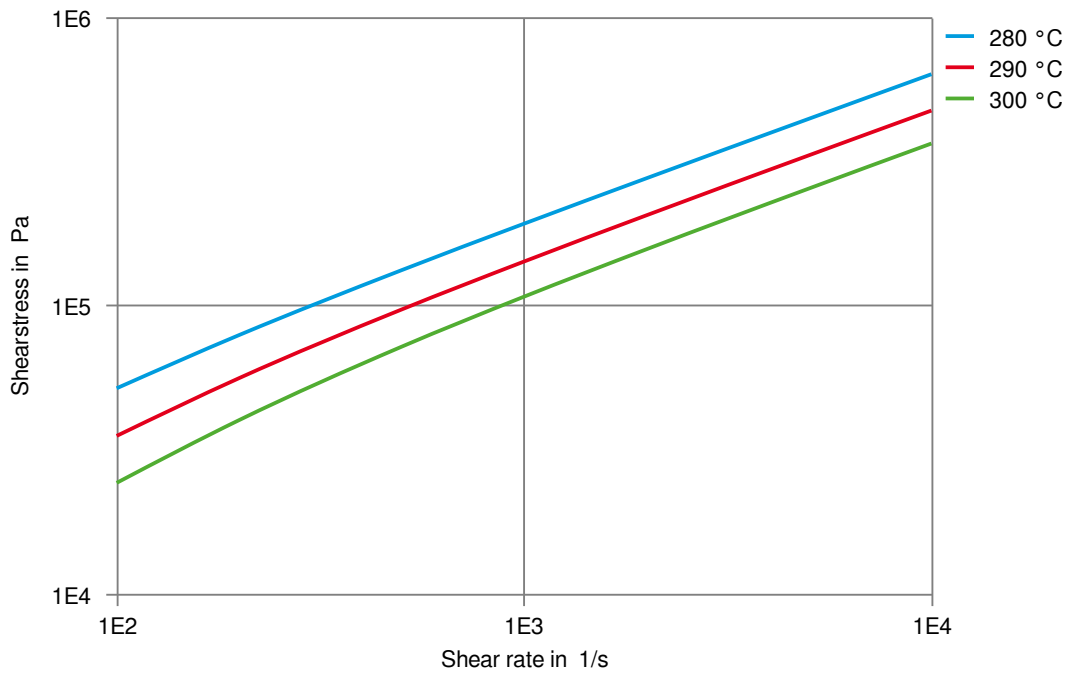
Viscosity-shear rate



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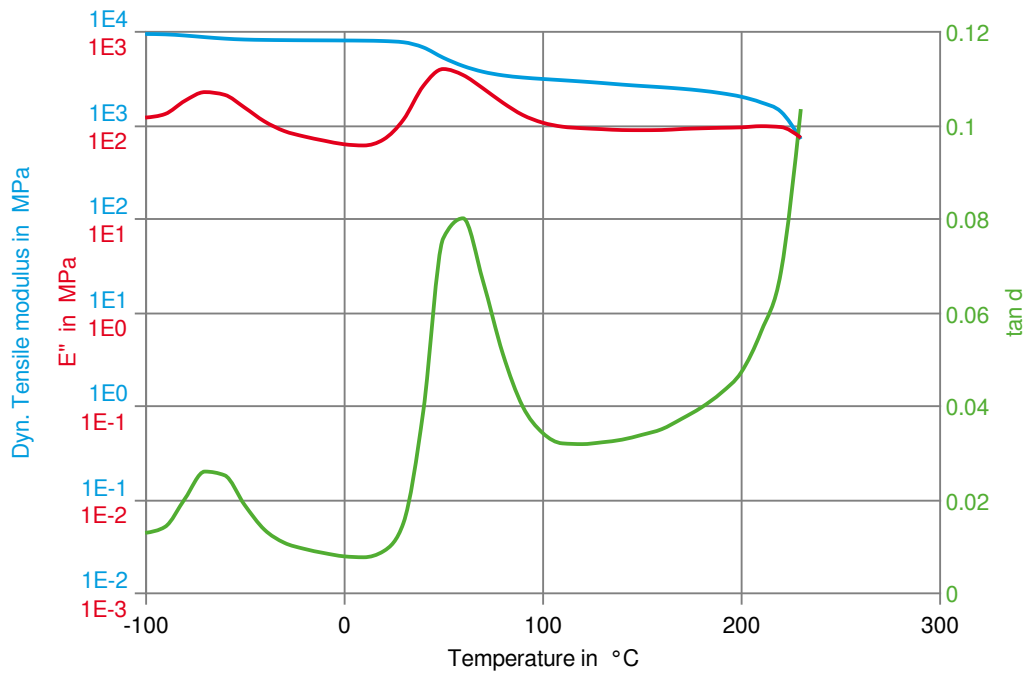
Shearstress-shear rate



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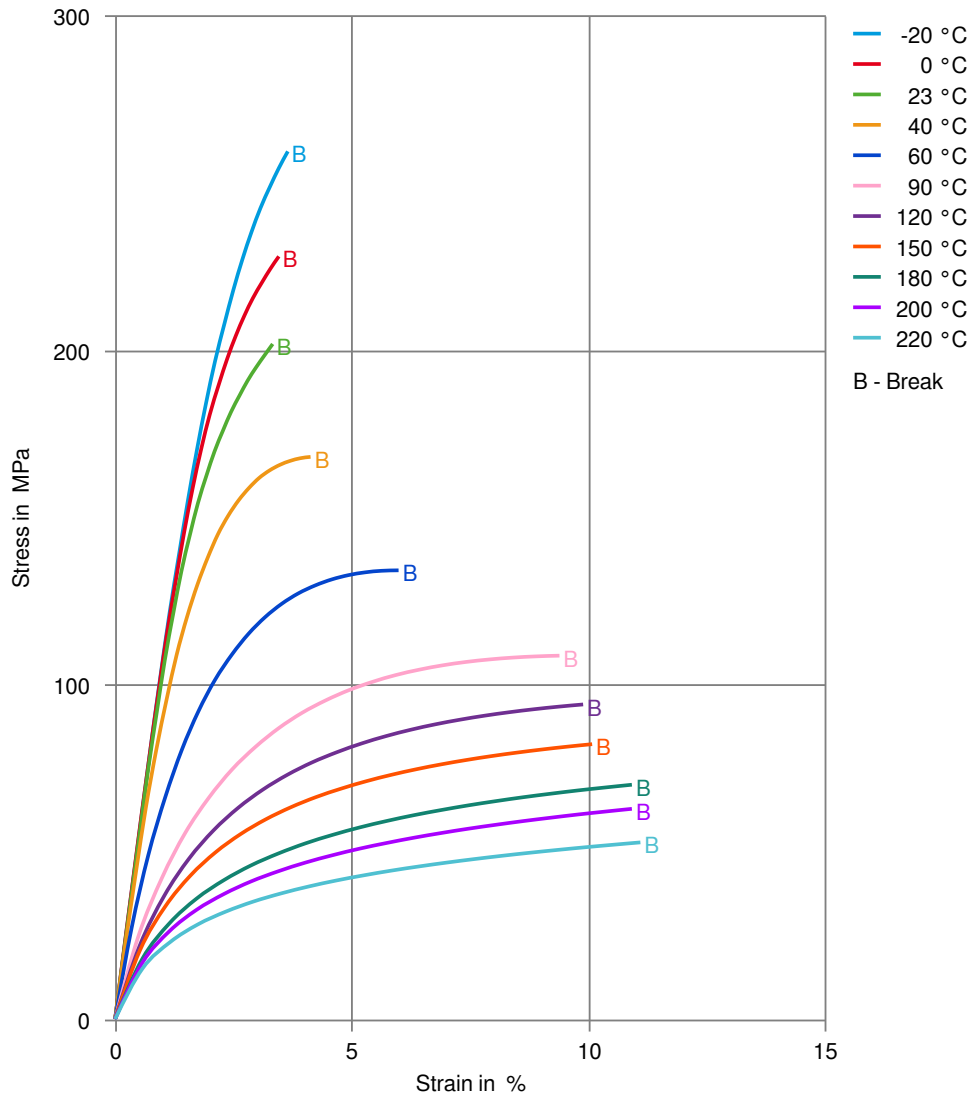
Dynamic Tensile modulus-temperature (dry)



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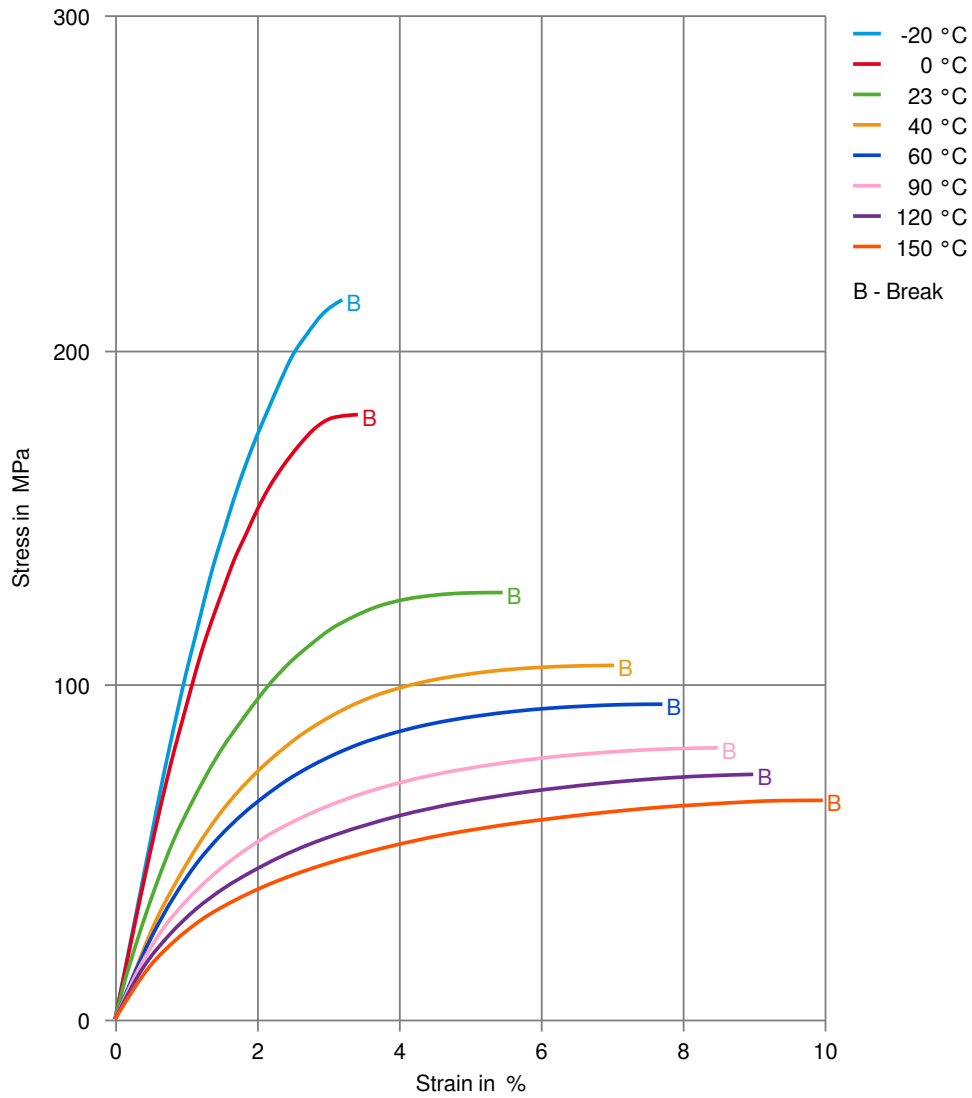
Stress-strain (dry)



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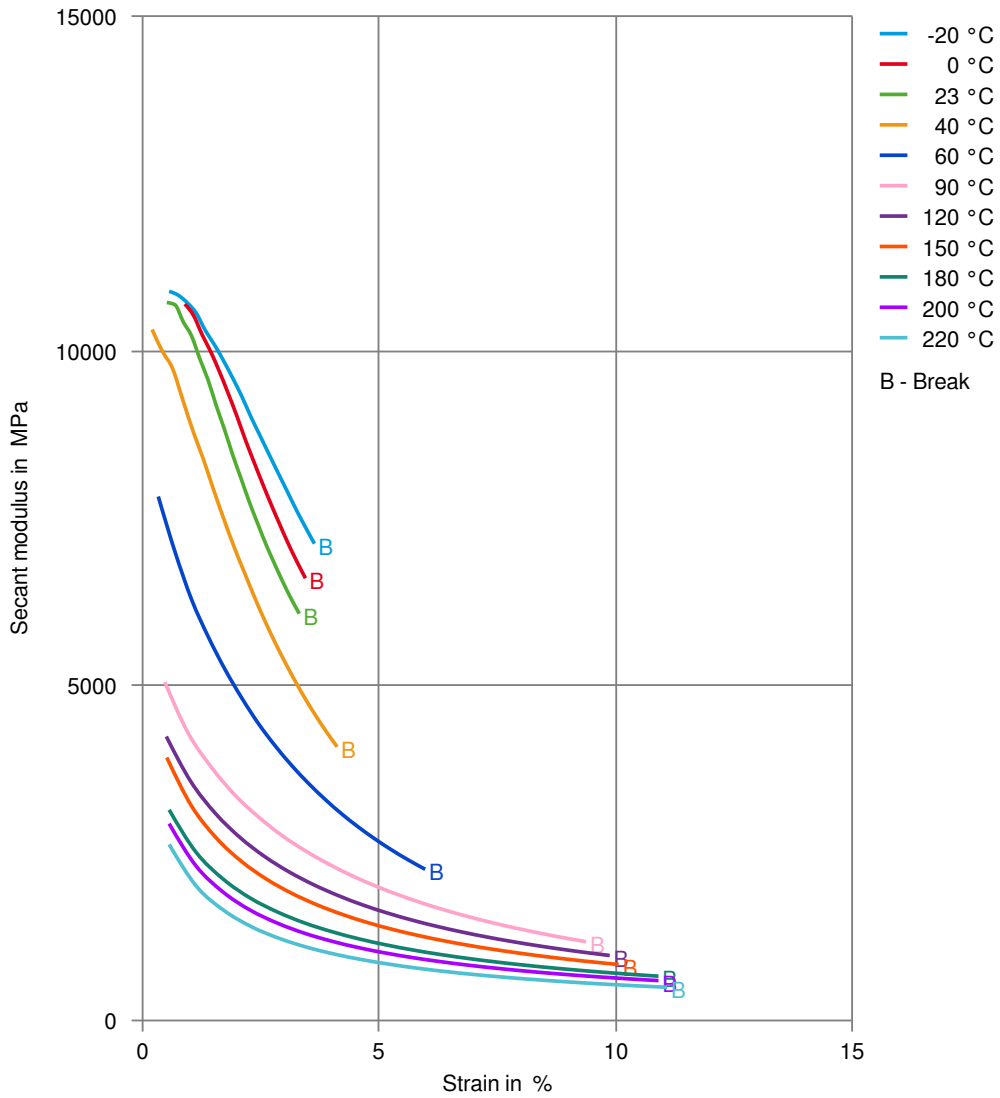
Stress-strain (cond.)



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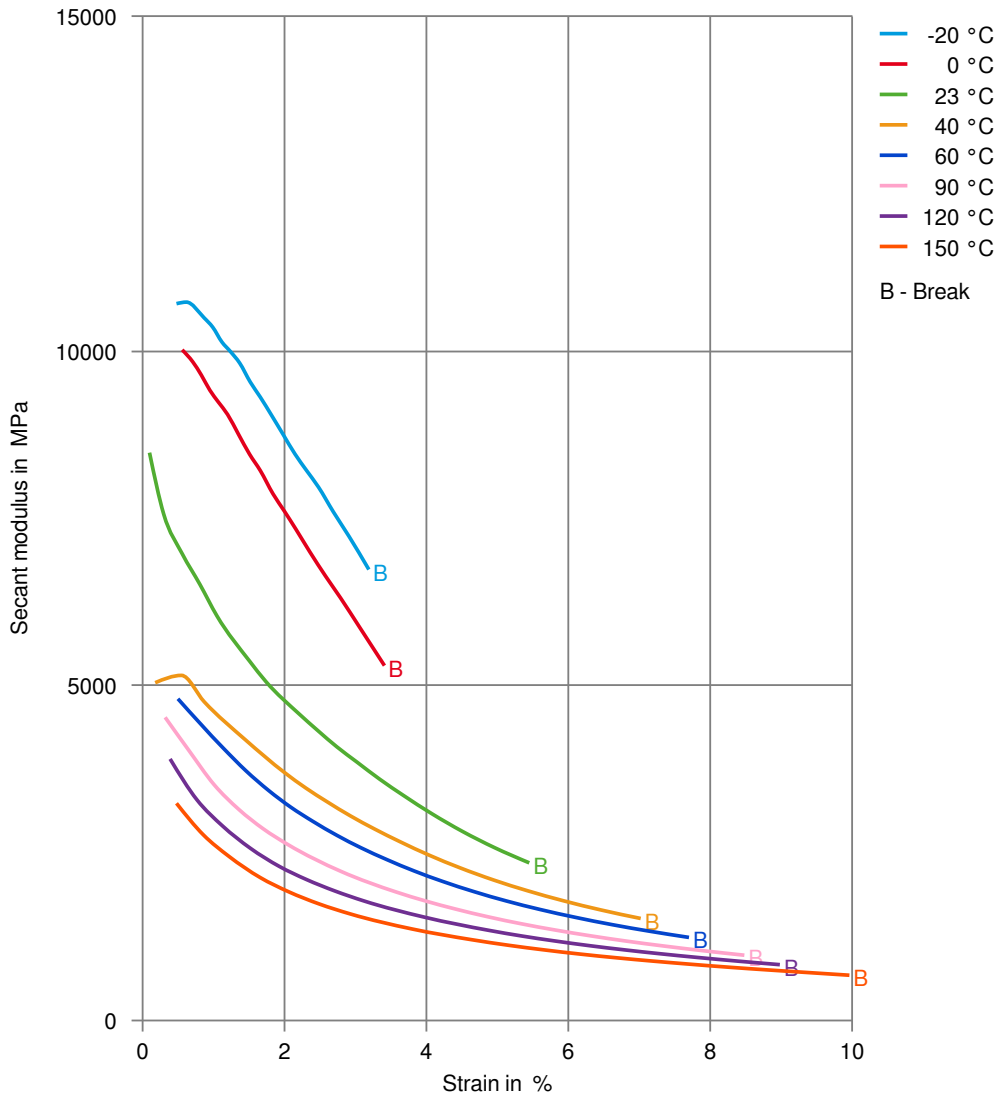
Secant modulus-strain (dry)



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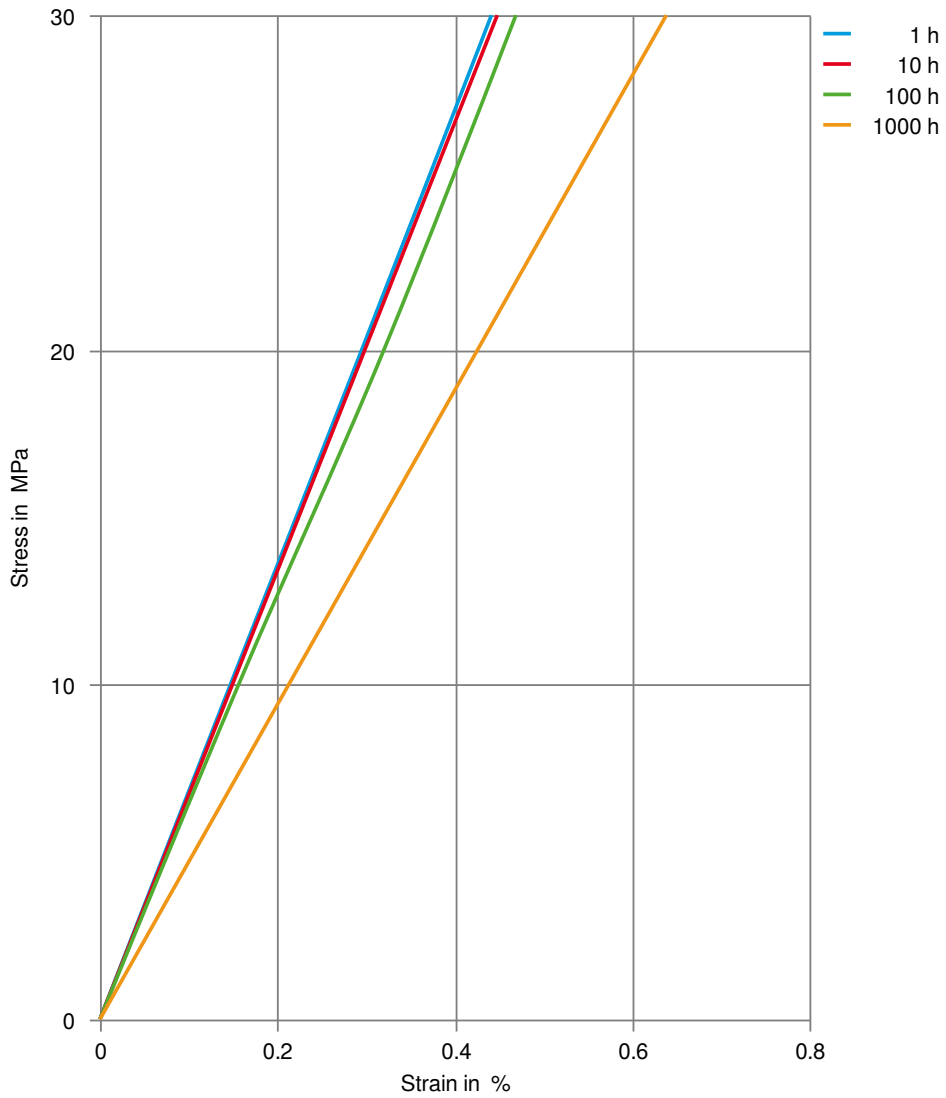
Secant modulus-strain (cond.)



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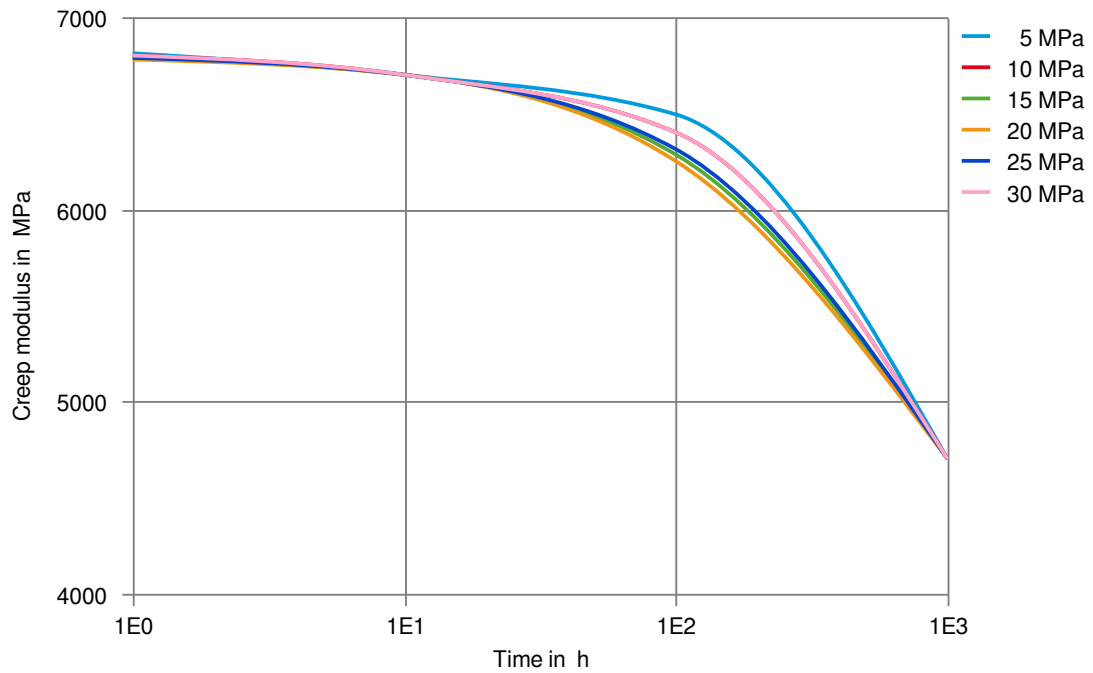
Stress-strain (isochronous) 23°C (cond.)



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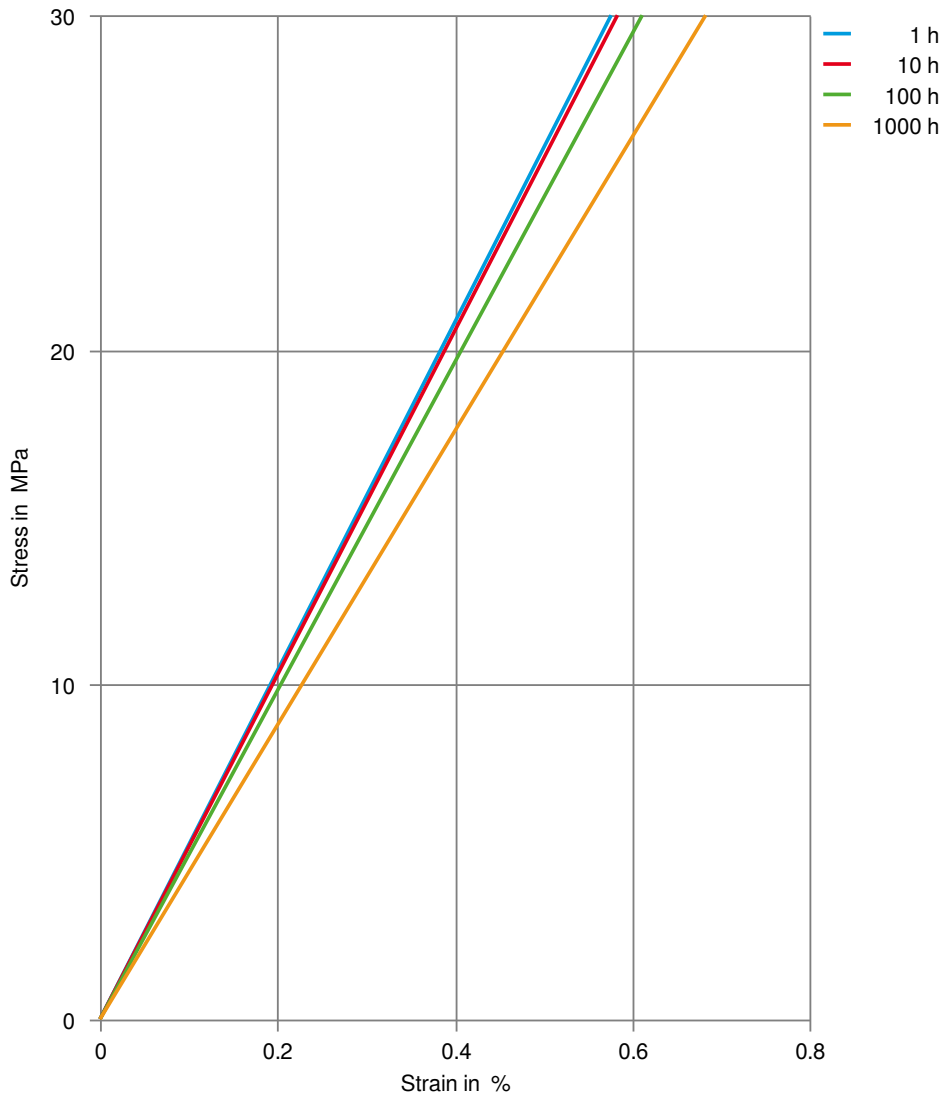
Creep modulus-time 23°C (cond.)



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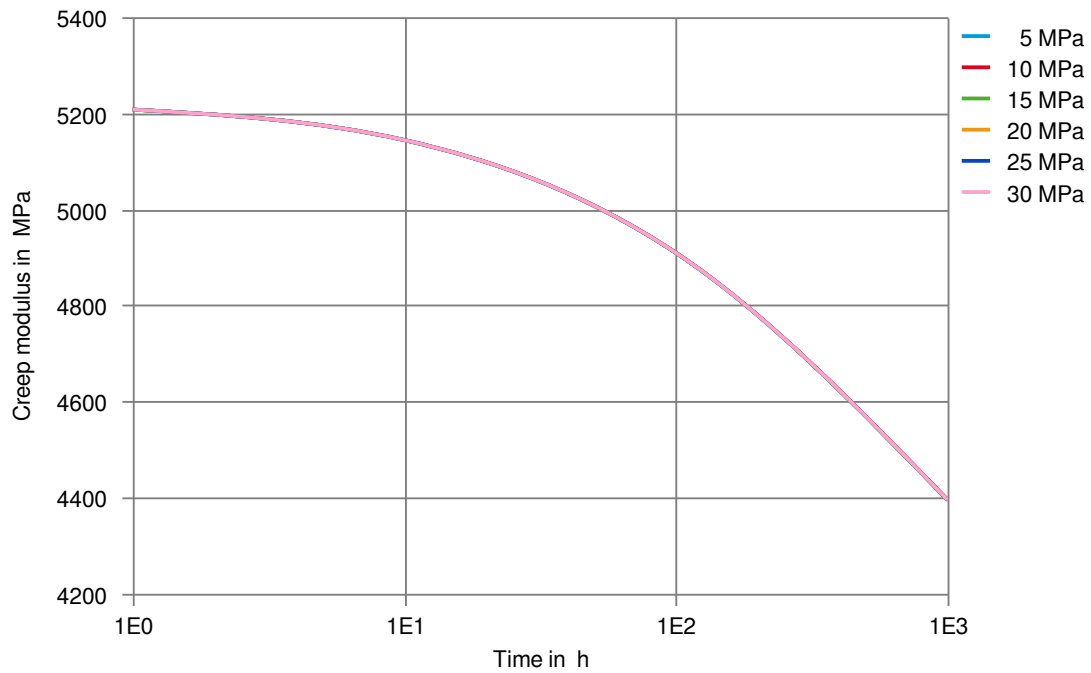
Stress-strain (isochronous) 100°C (dry)



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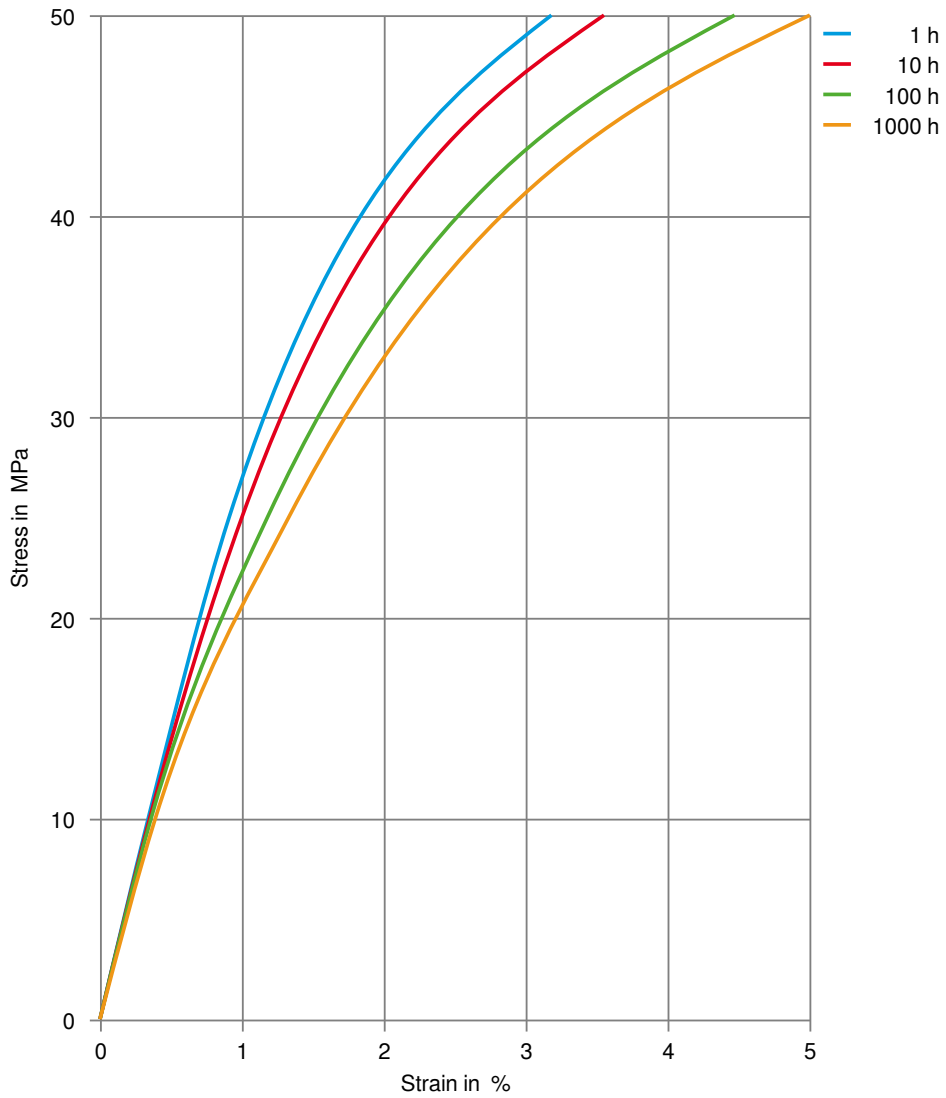
Creep modulus-time 100°C (dry)



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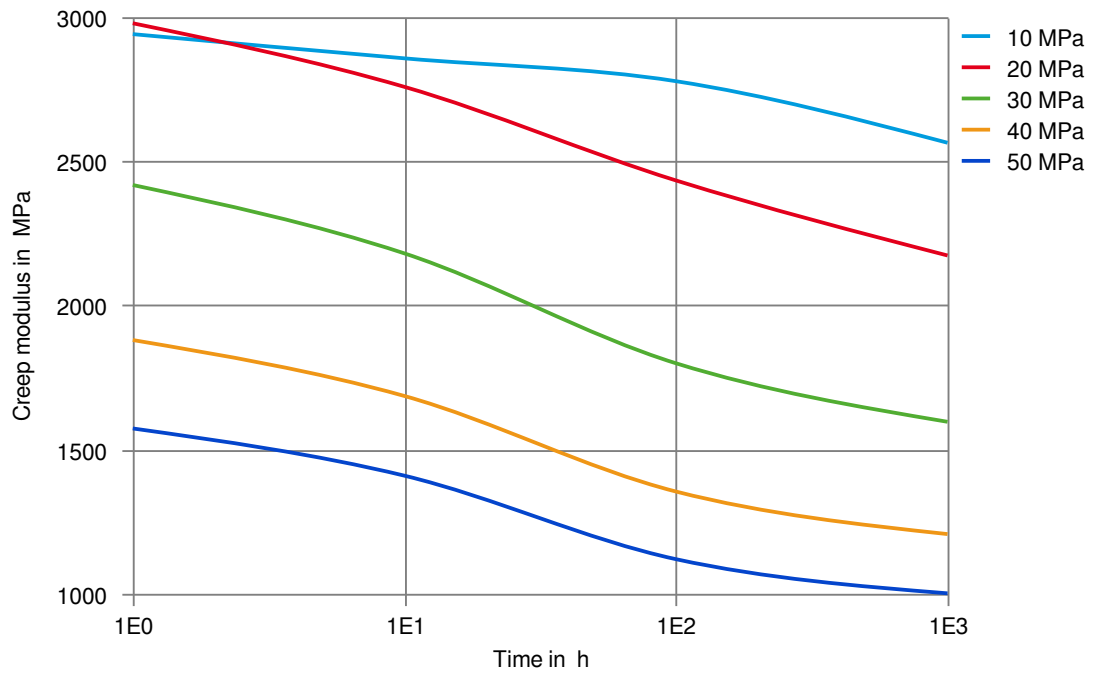
Stress-strain (isochronous) 180°C (dry)



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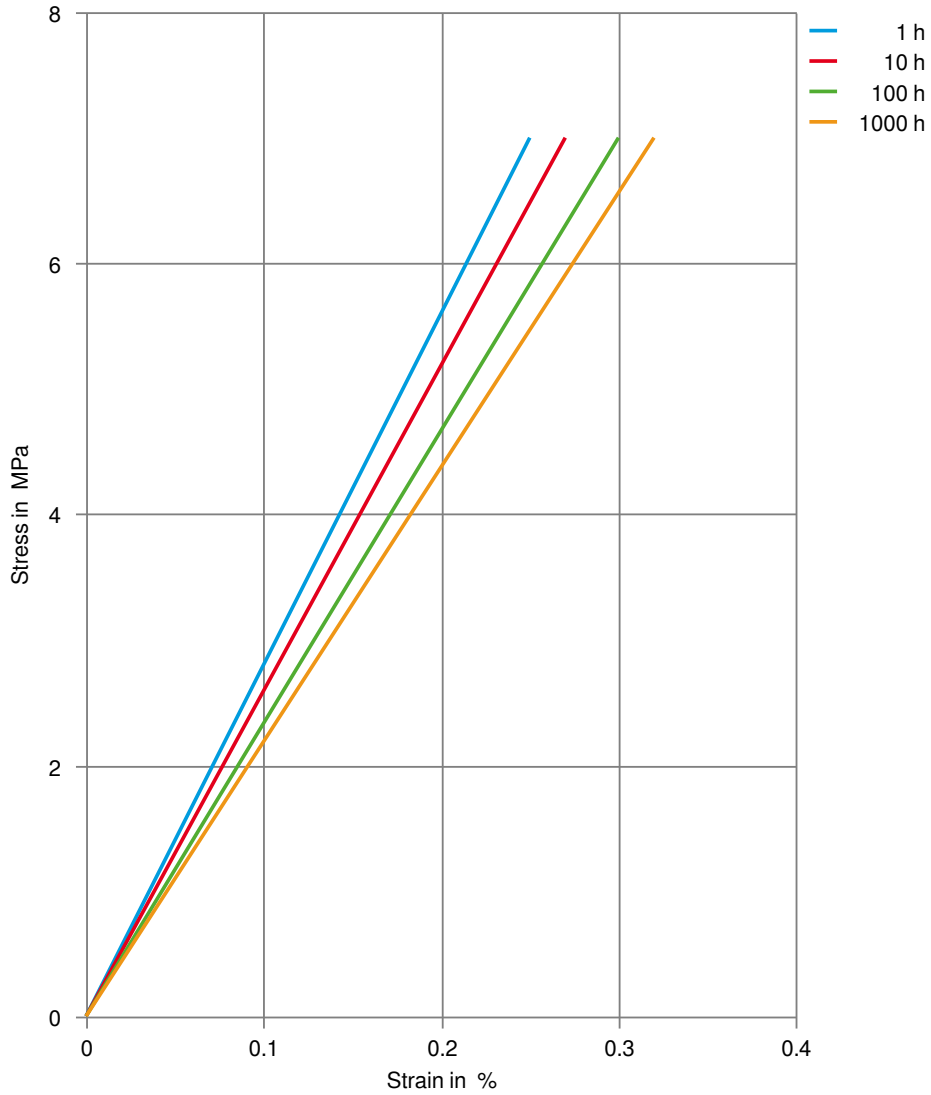
Creep modulus-time 180°C (dry)



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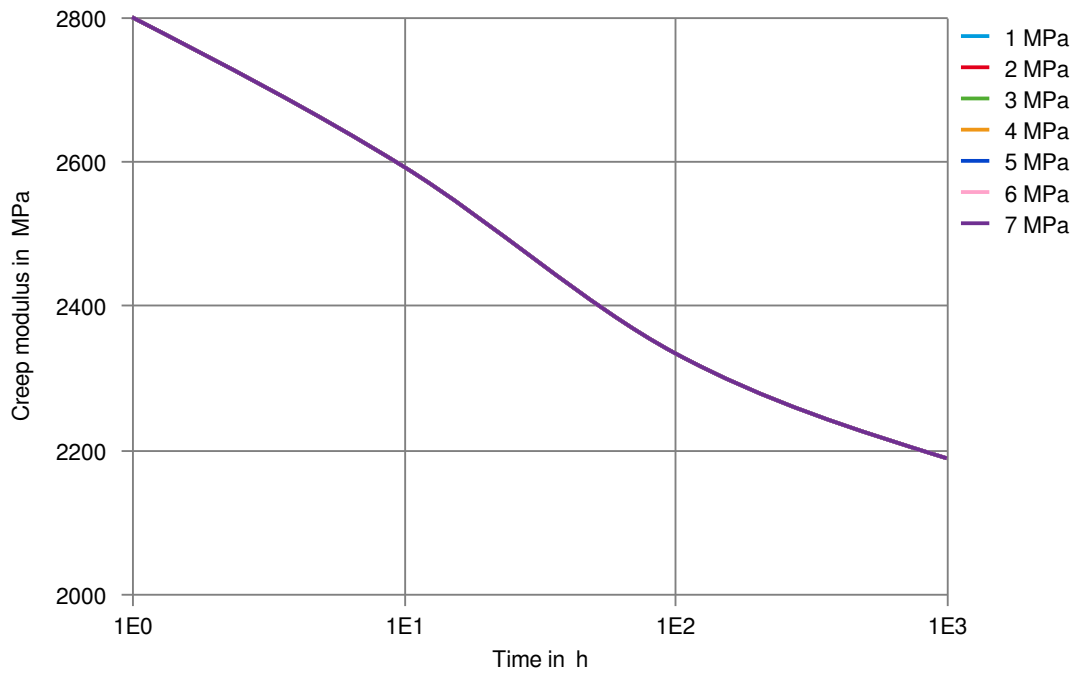
Stress-strain (isochronous) 200°C (dry)



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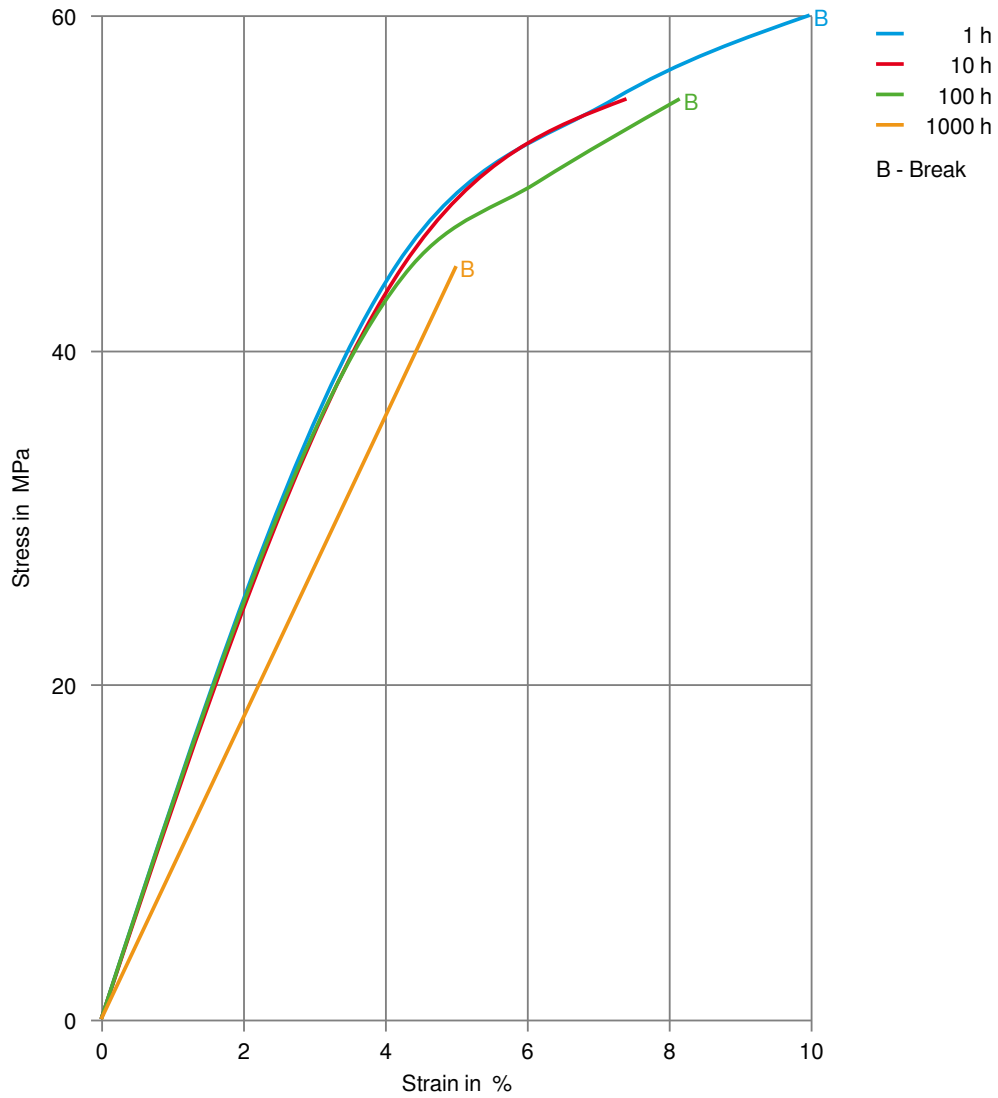
Creep modulus-time 200°C (dry)



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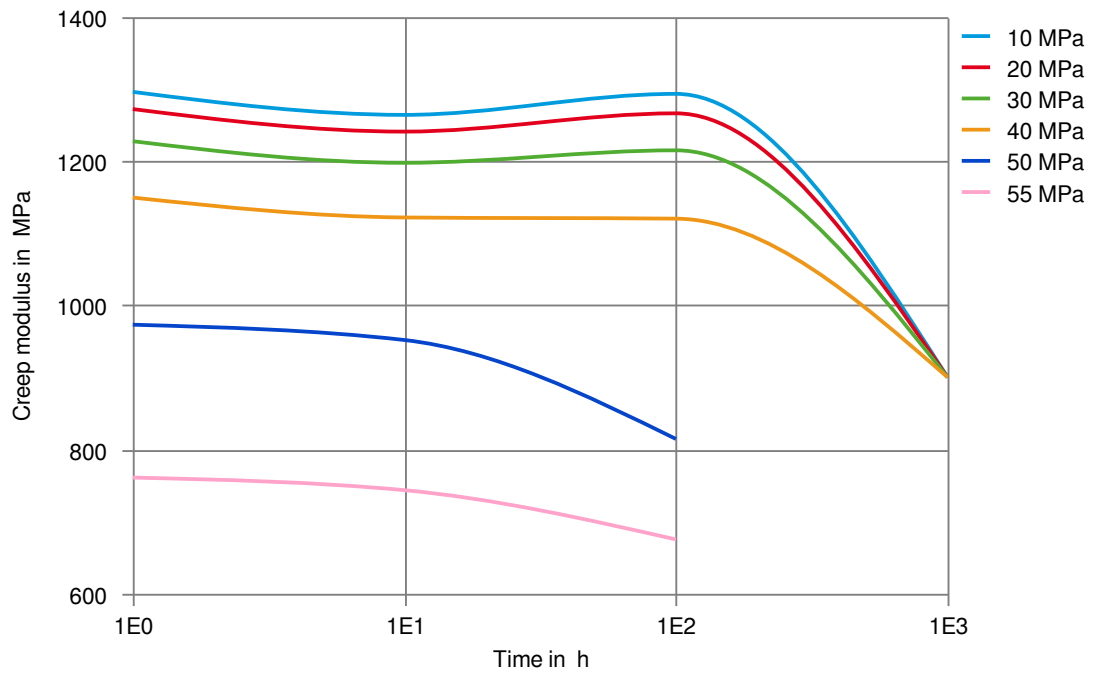
Stress-strain (isochronous) 190°C (dry)



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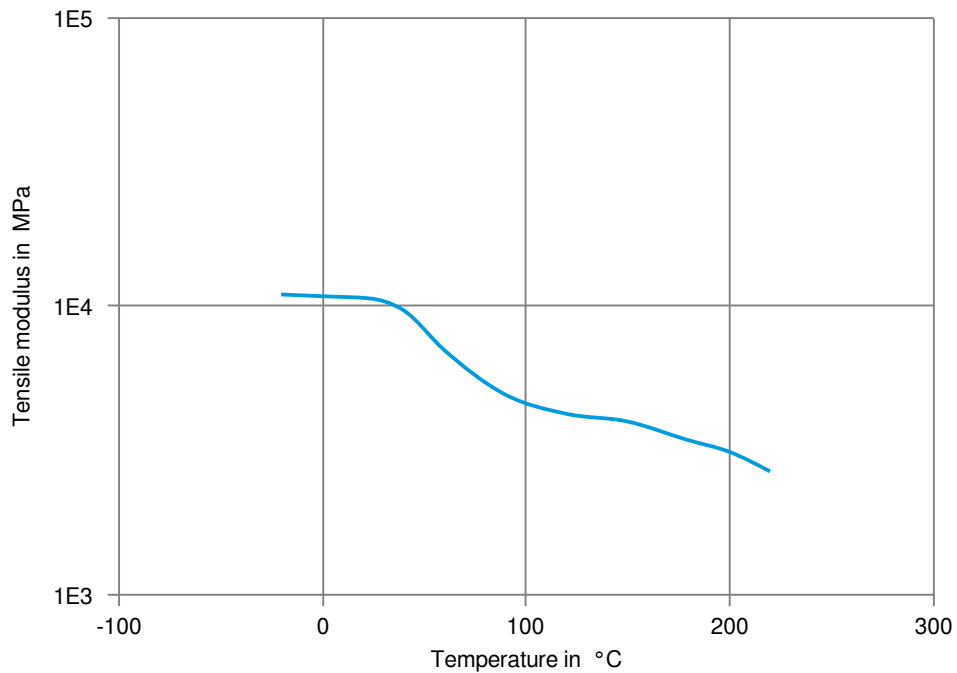
Creep modulus-time 190°C (dry)



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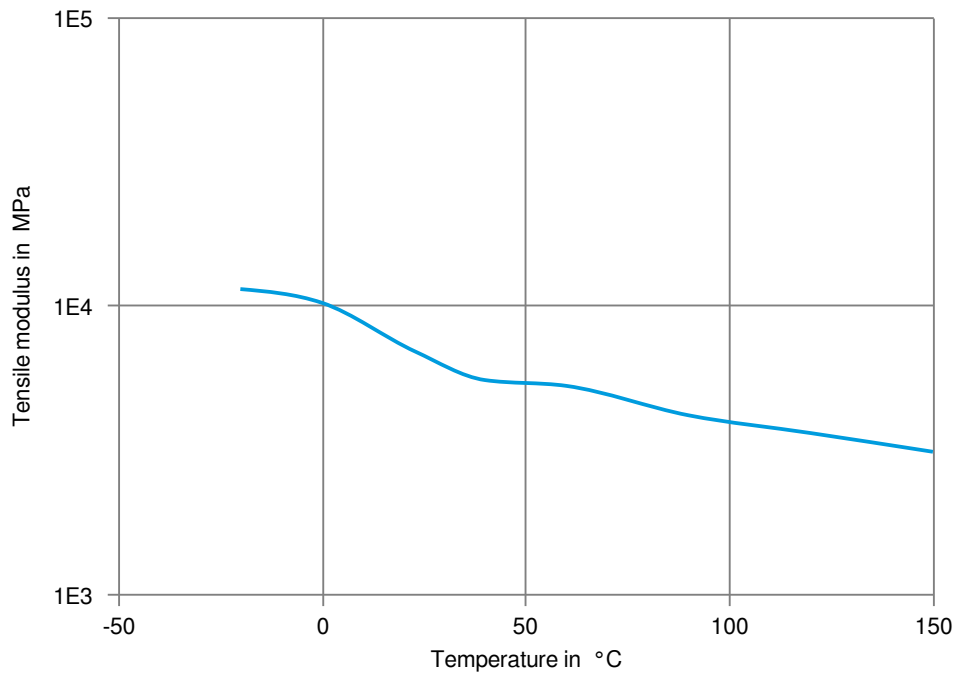
Tensile modulus-temperature (dry)



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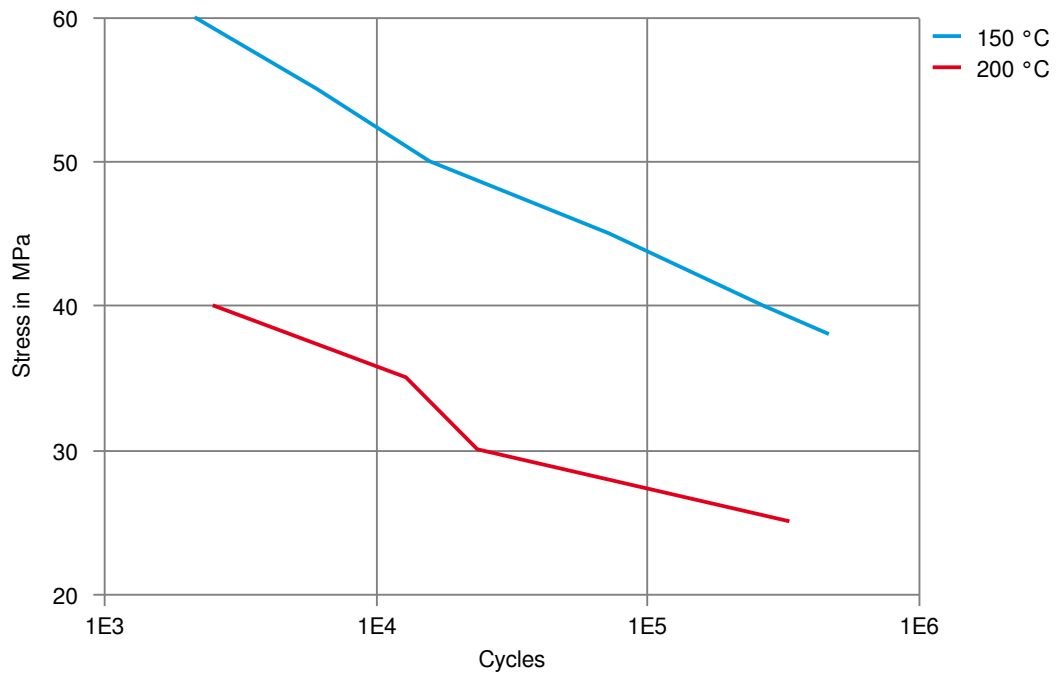
Tensile modulus-temperature (cond.)



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Tensile Fatigue, 10Hz, R=0.1 @ mm (dry)



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Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass), 23°C
- ✓ Citric Acid solution (10% by mass), 23°C
- ✓ Lactic Acid (10% by mass), 23°C

Mineral oils

- ✓ SAE 10W40 multigrade motor oil, 130°C

Standard Fuels

- ✓ ISO 1817 Liquid 1 - E5, 60°C
- ✓ ISO 1817 Liquid 2 - M15E4, 60°C
- ✓ ISO 1817 Liquid 3 - M3E7, 60°C
- ✓ ISO 1817 Liquid 4 - M15, 60°C
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C), 23°C
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4), 23°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 23°C
- ✗ Diesel fuel (pref. ISO 1817 Liquid F), 90°C
- ✗ Diesel fuel (pref. ISO 1817 Liquid F), >90°C

Salt solutions

- ✗ Zinc Chloride solution (50% by mass), 23°C

Other

- ✓ Ethylene Glycol (50% by mass) in water, 108°C
- ✓ Water, 23°C
- ✗ Water, 90°C
- ✗ Coolant Glysantin G48, 1:1 in water, 125°C

Symbols used:

- ✓ possibly resistant
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).
- ✗ not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).