# Zytel® 73G40T NC010 (PRELIMINARY)

## 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, DuPont recommends, as the preferred option, incineration with energy recovery (-31kJ/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® 73G40T NC010 is a 40% Glass Reinforced, Heat stabilized,Toughened, Polyamide 6 for injection molding

## Rheological properties

| | dry/cond. | | |
|---|---|---|---|
| Molding shrinkage, parallel | 0.1/-[DS] | % | ISO 294-4, 2577 |
| Molding shrinkage, normal | 0.5/-[DS] | % | ISO 294-4, 2577 |

DS: Derived from similar grade

## Typical mechanical properties

| | dry/cond. | | |
|---|---|---|---|
| Tensile Modulus | 12000/8500 | MPa | ISO 527-1/-2 |
| Stress at break | 200/140 | MPa | ISO 527-1/-2 |
| Strain at break | 3.5/6.5 | % | ISO 527-1/-2 |
| Flexural Modulus | 11000/8000 | MPa | ISO 178 |
| Flexural Strength | 300/190 | MPa | ISO 178 |
| Charpy impact strength, 73°F | 100/100 | kJ/m² | ISO 179/1eU |
| Charpy impact strength, -22°F | 100/100[DS] | kJ/m² | ISO 179/1eU |
| Charpy impact strength, -40°F | 100/95 | kJ/m² | ISO 179/1eU |
| Charpy notched impact strength, 73°F | 20/23 | kJ/m² | ISO 179/1eA |
| Charpy notched impact strength, -22°F | 15/14 | kJ/m² | ISO 179/1eA |
| Charpy notched impact strength, -40°F | 14/14 | kJ/m² | ISO 179/1eA |
| Poisson's ratio | 0.33/0.34 | - | |

DS: Derived from similar grade

## Thermal properties

| | dry/cond. | | |
|---|---|---|---|
| Melting temperature, 18°F/min | 220/* | °C | ISO 11357-1/-3 |
| Temp. of deflection under load, 260 psi | 210/* | °C | ISO 75-1/-2 |
| CLTE, Parallel, -40-23°C | 15/* | E-6/K | ISO 11359-1/-2 |
| CLTE, Parallel, 55-160°C | 17/* | E-6/K | ISO 11359-1/-2 |
| CLTE, Normal, -40-23°C | 52/* | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, Normal, 55-160°C | 125/* | E-6/K | ISO 11359-1/-2 |

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## Flammability

| | | | |
|---|---|---|---|
| FMVSS Class | B | - | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm | <80 | mm/min | ISO 3795 (FMVSS 302) |

## Other properties

| | dry/cond. | | |
|---|---|---|---|
| Humidity absorption, 80mil | 1.7/* | % | Sim. to ISO 62 |
| Water absorption, 80mil | 5.3/* | % | Sim. to ISO 62 |
| Density | 1440/- | kg/m³ | ISO 1183 |
| Water Absorption, Immersion 24h | 1.2/*[1] | % | Sim. to ISO 62 |

1: 2mm thickness

## Injection

| | | |
|---|---|---|
| Drying Recommended | yes | |
| Drying Temperature | 80 | °C |
| Drying Time, Dehumidified Dryer | 2 - 4 | h |
| Processing Moisture Content | ≤0.2 | % |
| Melt Temperature Optimum | 270 | °C |
| Min. melt temperature | 260 | °C |
| Max. melt temperature | 280 | °C |
| Max. screw tangential speed | 0.2 | m/s |
| Mold Temperature Optimum | 100 | °C |
| Min. mold temperature | 70 | °C |
| Max. mold temperature | 120 | °C |
| Hold pressure range | 50 - 100 | MPa |
| Hold pressure time | 3 | s/mm |

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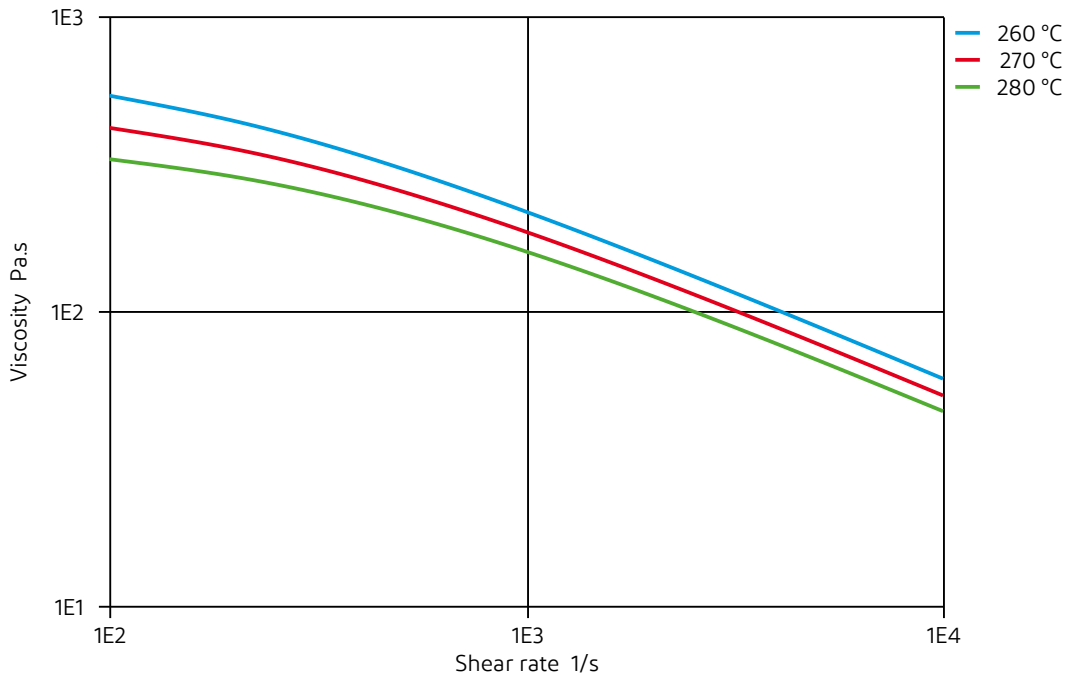
## Viscosity-shear rate



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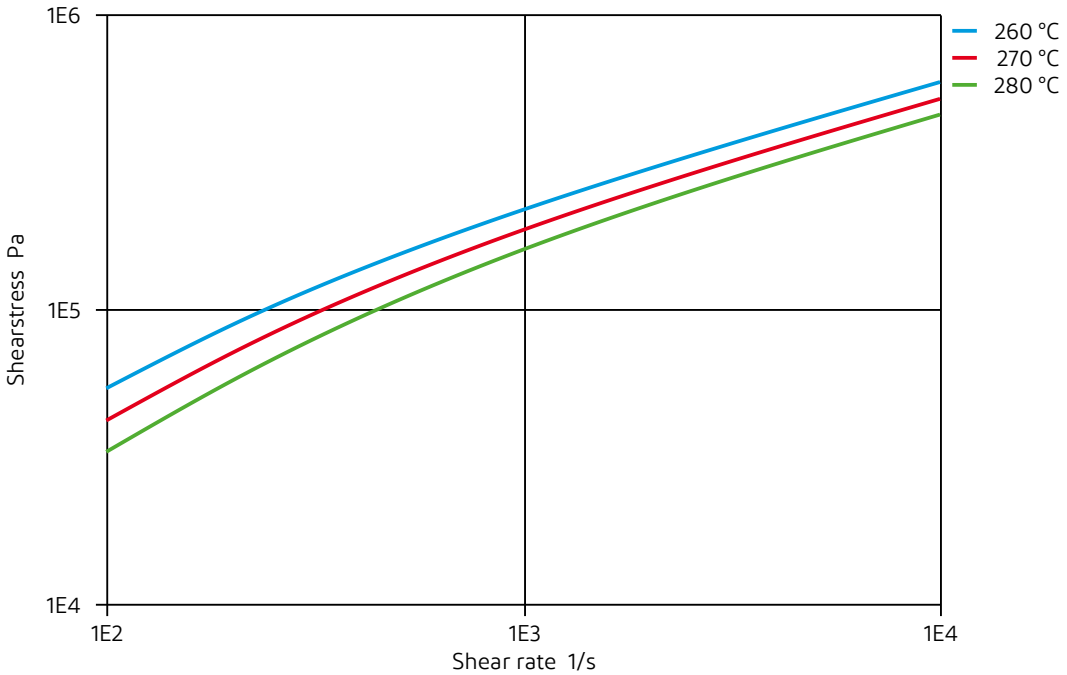
## Shearstress-shear rate



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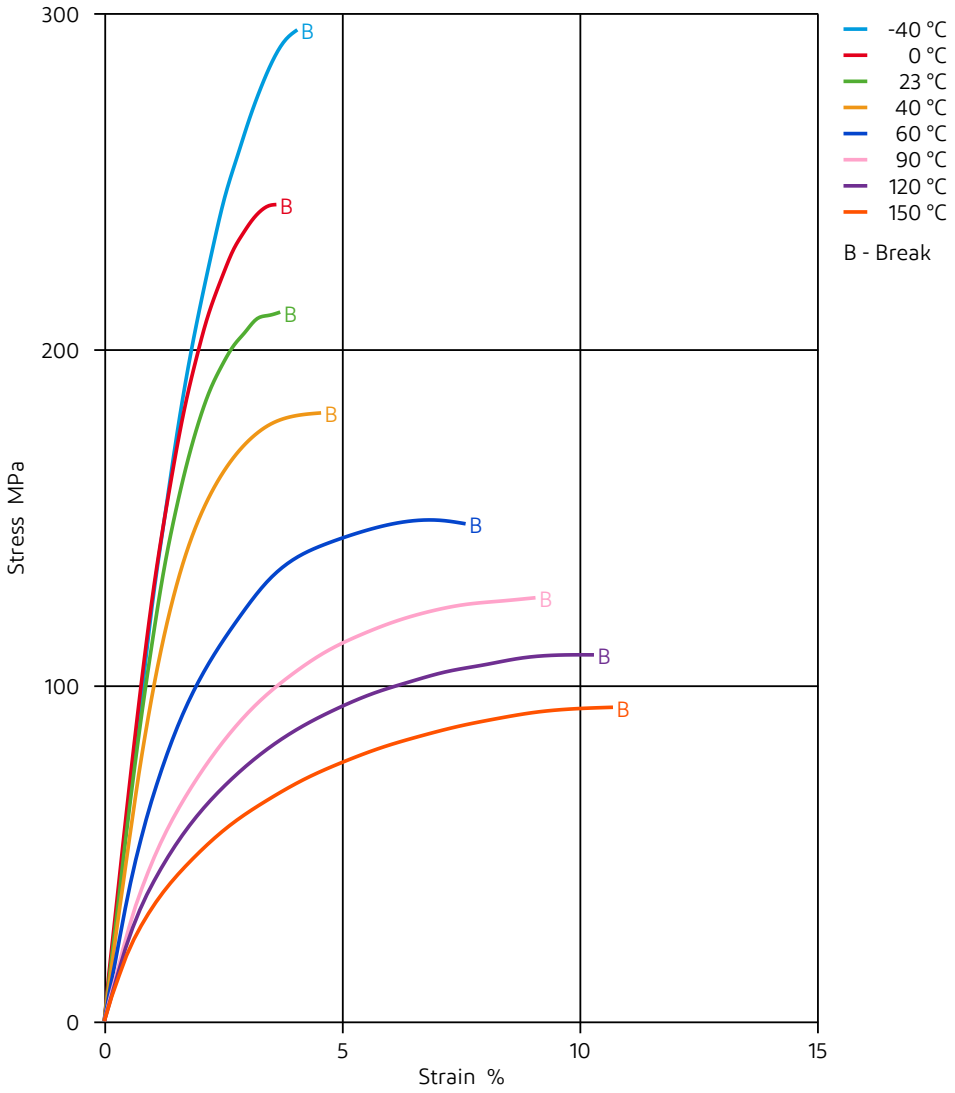
## Stress-strain (dry)



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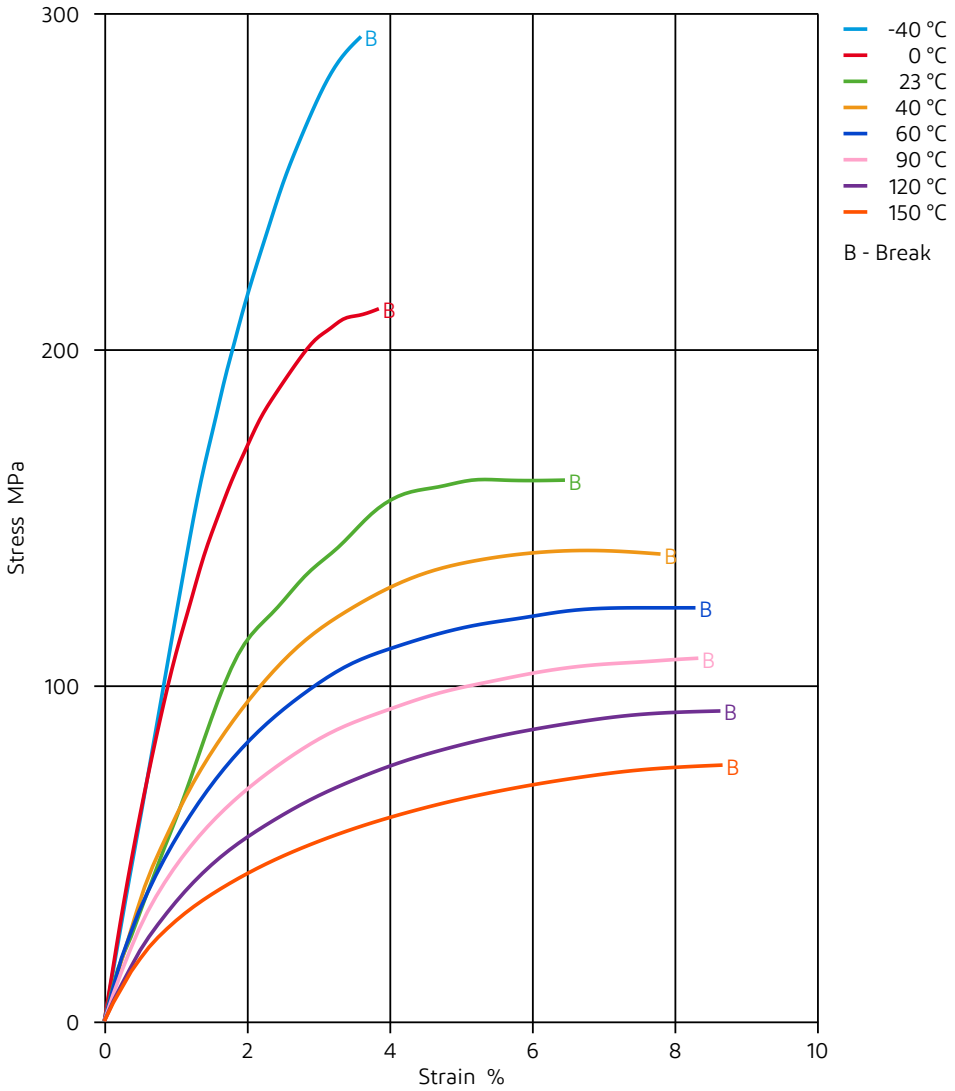
## Stress-strain (cond.)



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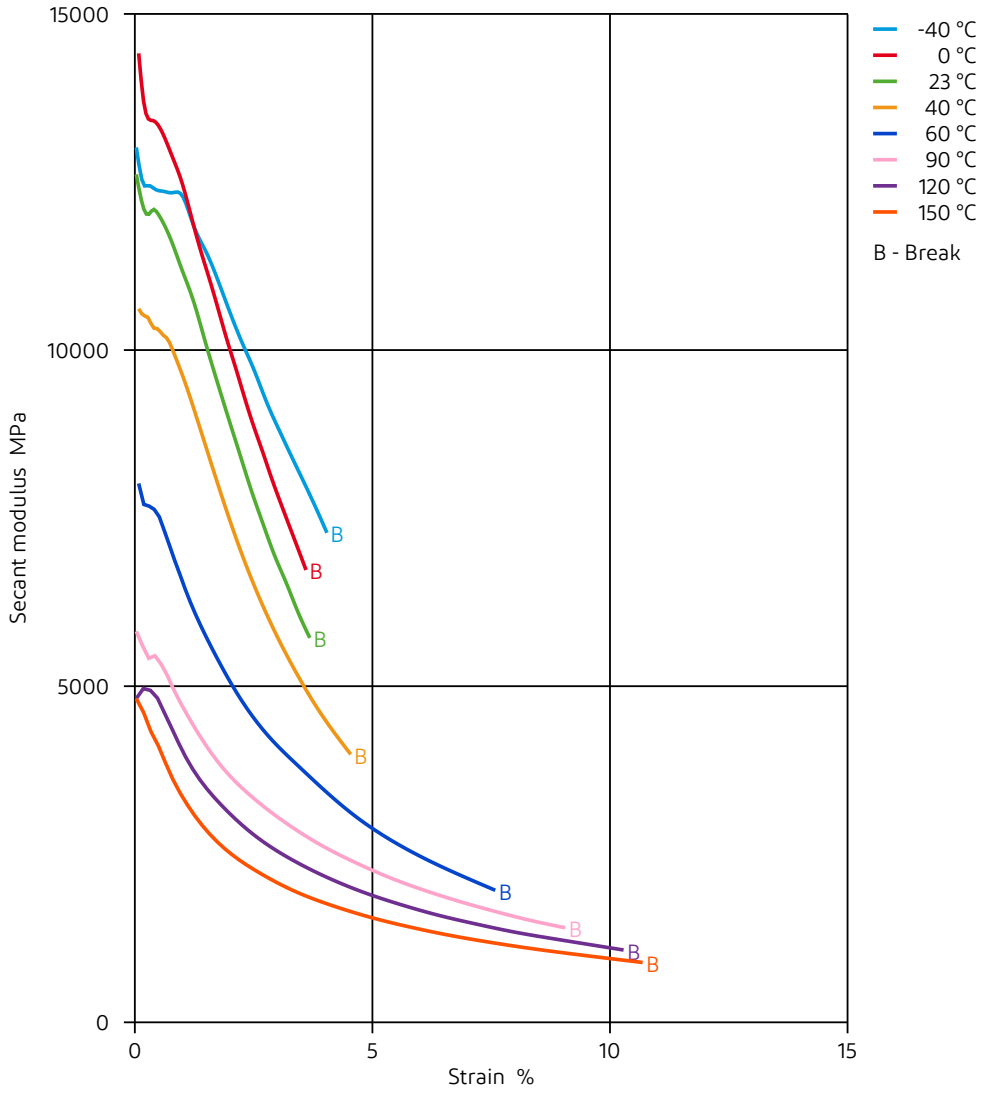
## Secant modulus-strain (dry)



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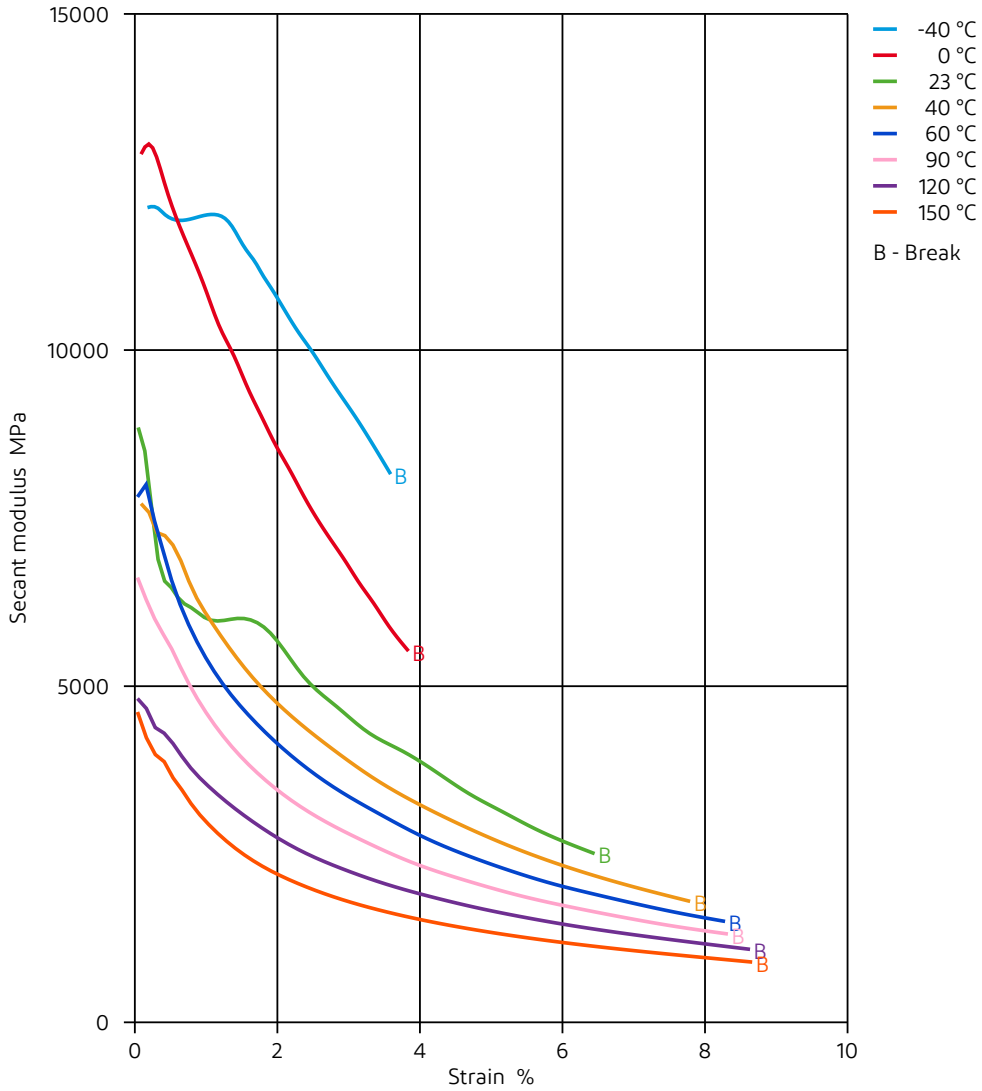
## Secant modulus-strain (cond.)



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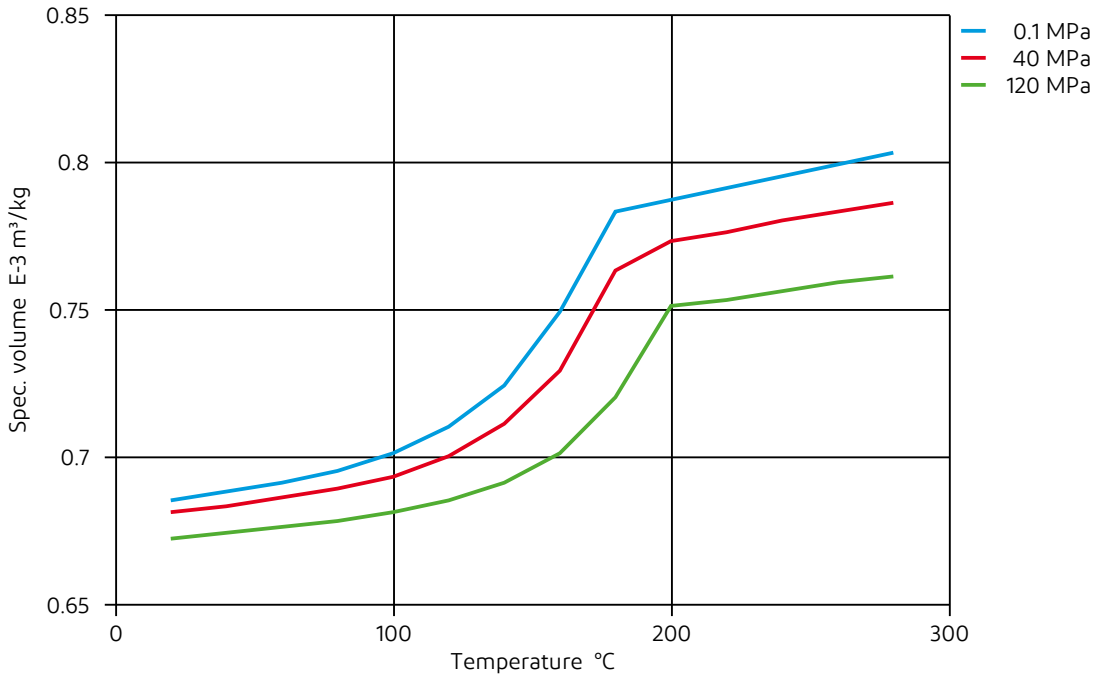
## Specific volume-temperature (pvT)



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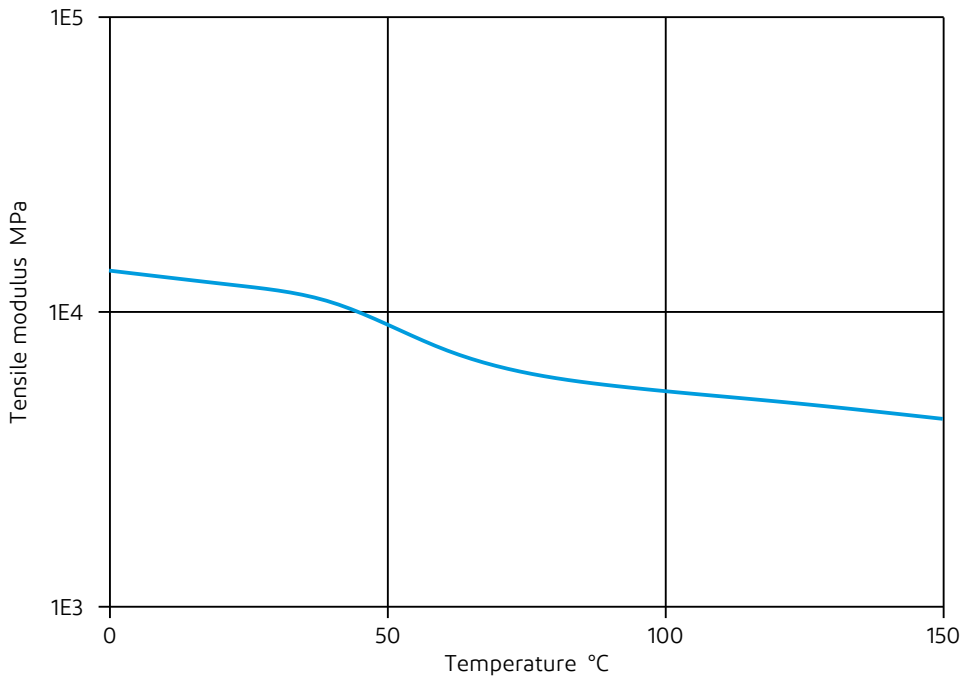
## Tensile modulus-temperature (dry)



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## Tensile modulus-temperature (cond.)