

Styrolution® PS 454N

PS-I

INEOS Styrolution

Styrolution PS 454N is an impact resistant polystyrene with a good balance of toughness, high flow, heat resistance and high gloss.

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	14	cm³/10min	ISO 1133
Temperature	200	°C	-
Load	5	kg	-

Mechanical Properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	2200	MPa	ISO 527
Yield stress	27	MPa	ISO 527
Yield strain	1.4	%	ISO 527
Nominal strain at break	25	%	ISO 527
Notched Impact Strength (Charpy), +23°C	8	kJ/m²	ISO 179/1eA

Thermal Properties	Value	Unit	Test Standard
ISO Data			
Temp. of deflection under load (1.80 MPa)	78	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	82	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	82	°C	ISO 306
Coeff. of Linear Therm. Expansion, parallel	80	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	HB	class	UL 94
Thickness tested	1.5	mm	-
UL recognition	yes	-	-
Burning Behav. at thickness h	HB	class	UL 94
Thickness tested	3.0	mm	-
UL recognition	yes	-	-

Other Properties	Value	Unit	Test Standard
ISO Data			
Density	1040	kg/m³	ISO 1183

Rheological calculation properties	Value	Unit	Test Standard
ISO Data			
Thermal Conductivity of Melt	0.165	W/(m K)	-
Spec. heat capacity of melt	1990	J/(kg K)	-
Ejection temperature	81	°C	-

Processing Recommendation Injection Molding	Value	Unit	Test Standard
Melt temperature	180 - 260	°C	-
Mold temperature	10 - 60	°C	-

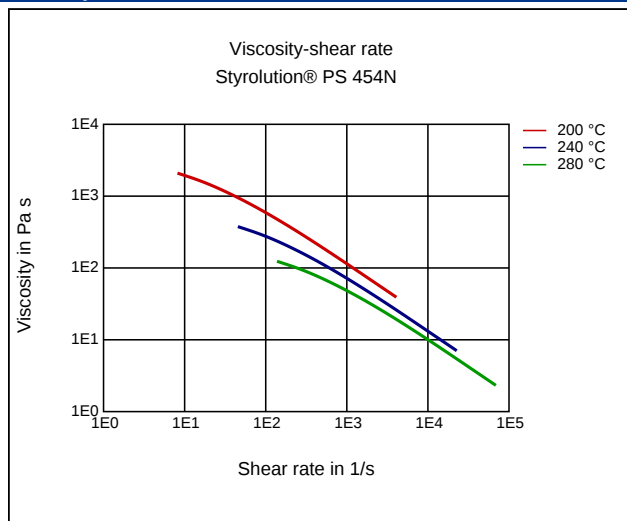
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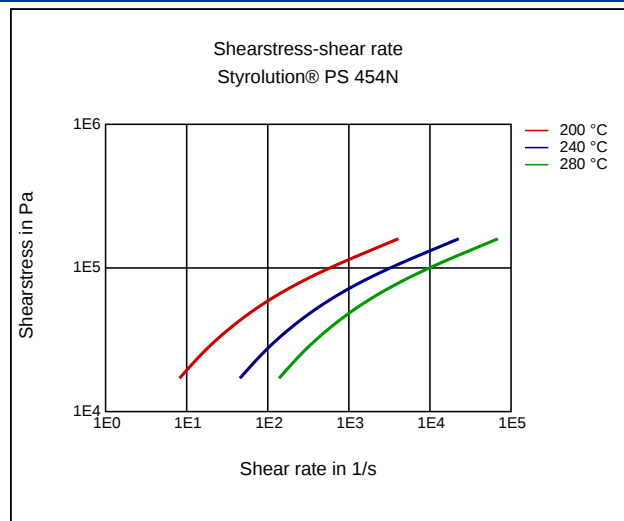
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Diagrams

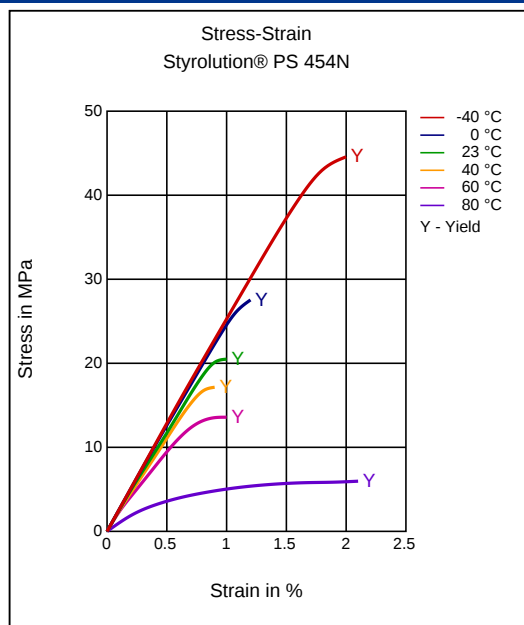
Viscosity-shear rate



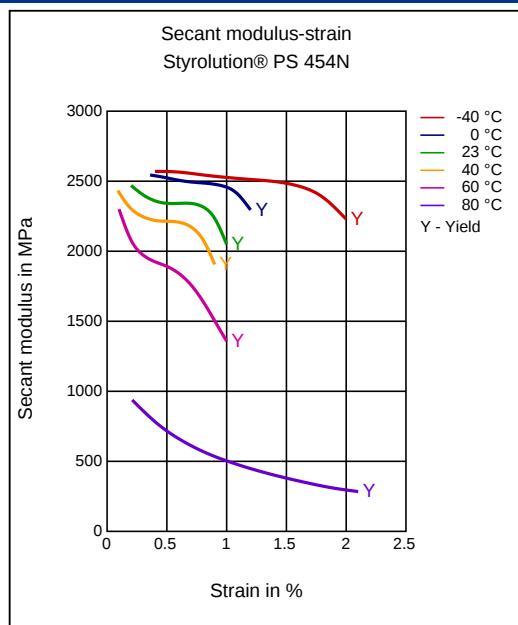
Shearstress-shear rate



Stress-strain



Secant modulus-strain

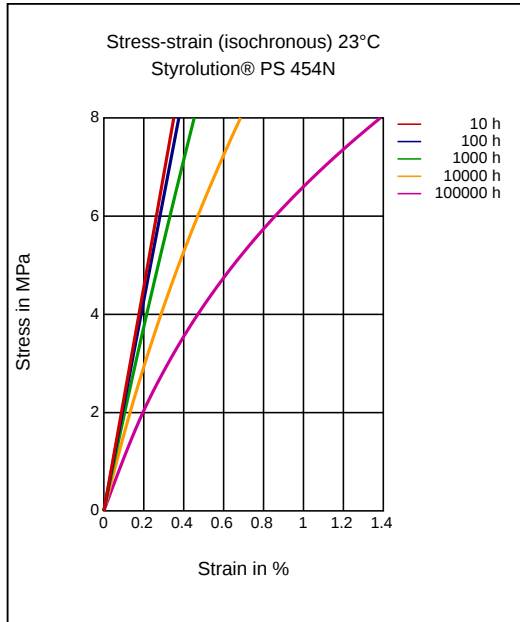


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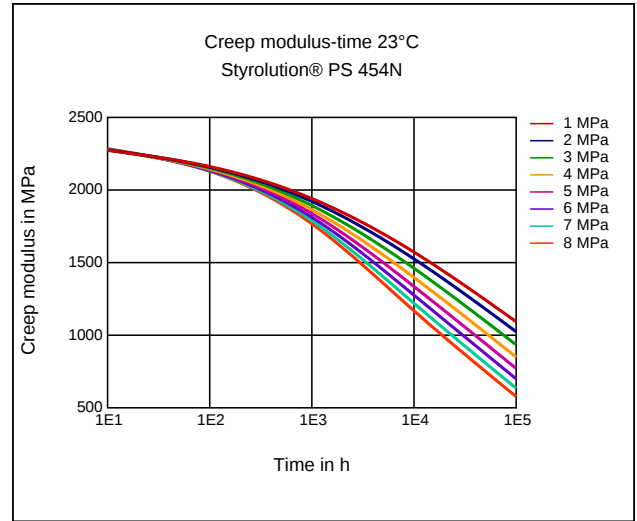
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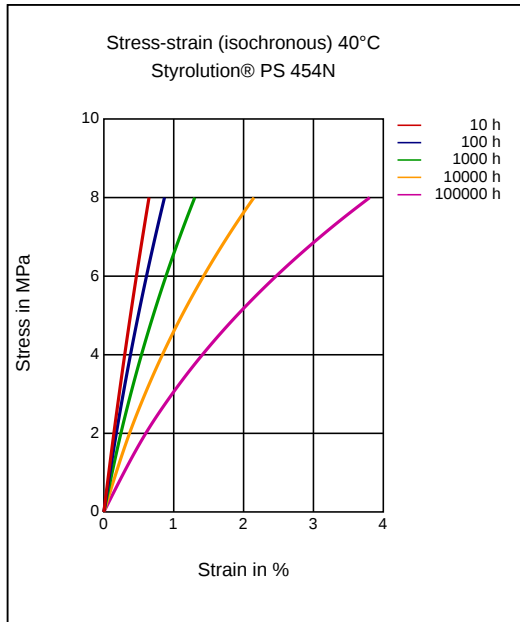
Stress-strain (isochronous) 23°C



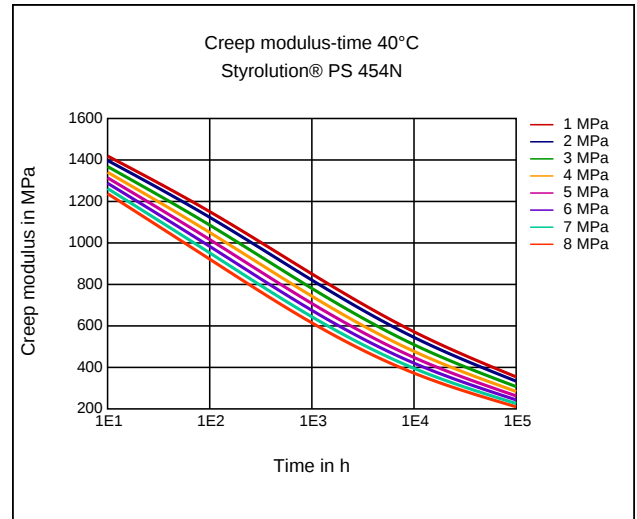
Creep modulus-time 23°C



Stress-strain (isochronous) 40°C



Creep modulus-time 40°C

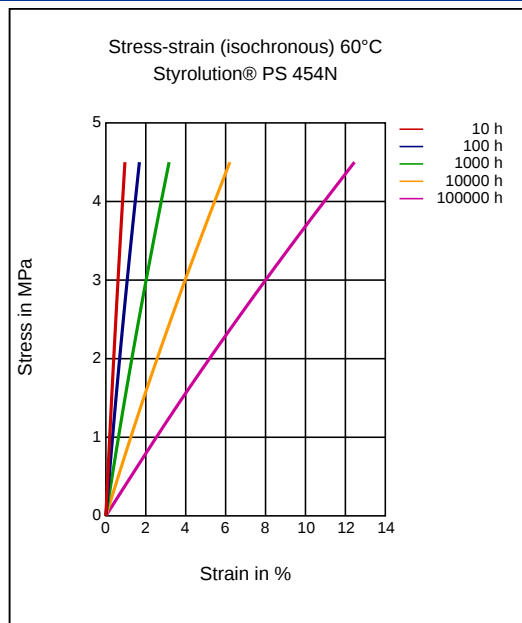


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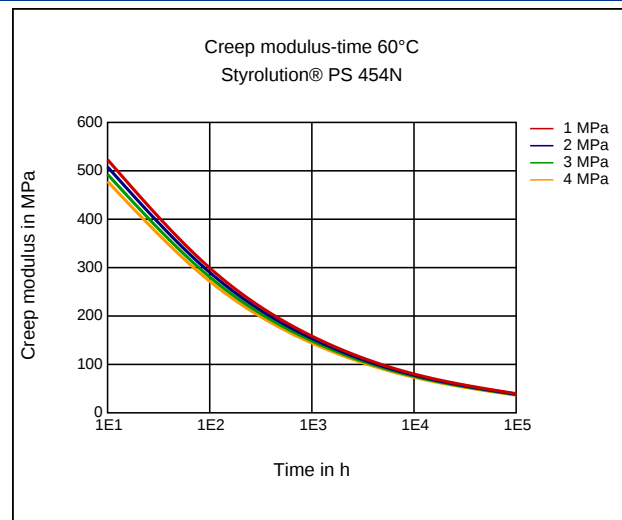
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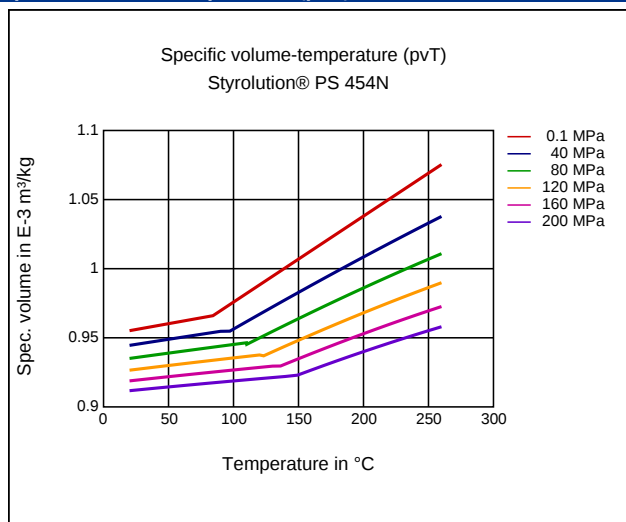
Stress-strain (isochronous) 60 °C



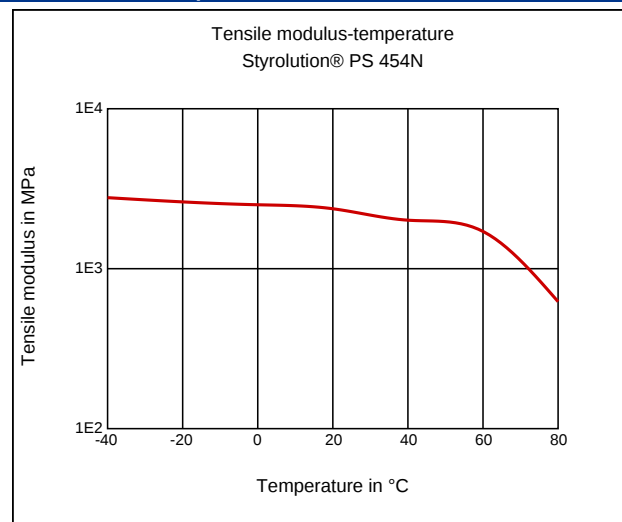
Creep modulus-time 60 °C



Specific volume-temperature (pvT)



Tensile Modulus-Temperature



Characteristics

Processing

Injection Molding, Film Extrusion

Delivery form

Pellets

Special Characteristics

Impact modified

Injection Molding

PROCESSING

Melt temperature, range: 180 - 260 °C

Mold temperature, recommended: 40 °C

Styrolution PS 454N can be injection molded under different conditions depending on machinery available and articles molded.

Masstemperature can be as high as 260 °C. It is suitable for gas assisted injection molding. To achieve articles with very high gloss, well-polished surfaces are recommended.

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Film Extrusion

PROCESSING

Flat film, Melt temperature: 200 - 240°C

Extrusion temperatures should not exceed 240°C.