

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
<b>ISO Data</b>			
Melt volume-flow rate, MVR	14	cm <sup>3</sup> /10min	ISO 1133
Temperature	200	°C	-
Load	5	kg	-

Mechanical Properties	Value	Unit	Test Standard
<b>ISO Data</b>			
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
Charpy impact strength (+23°C)	150	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	120	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength (+23°C)	16	kJ/m <sup>2</sup>	ISO 179/1eA

Thermal Properties	Value	Unit	Test Standard
<b>ISO Data</b>			
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	100	E-6/K	ISO 11359-1/-2
Burning behav. at 1.5 mm nom. thickn.	HB	class	UL 94
Thickness tested	1.6	mm	-
UL recognition	yes	-	-
Burning behav. at thickness h	HB	class	UL 94
Thickness tested	3.2	mm	-
UL recognition	yes	-	-

Electrical Properties	Value	Unit	Test Standard
<b>ISO Data</b>			
Relative permittivity, 100Hz	2.5	-	IEC 62631-2-1
Relative permittivity, 1MHz	2.5	-	IEC 62631-2-1
Dissipation factor, 100Hz	1.5	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	4	E-4	IEC 62631-2-1

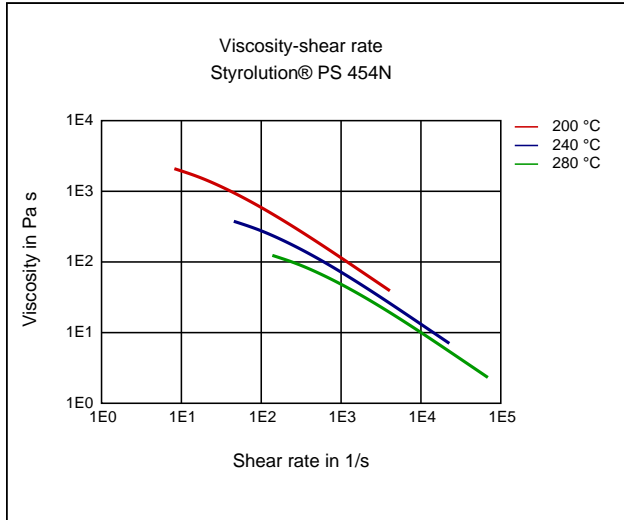
Other Properties	Value	Unit	Test Standard
<b>ISO Data</b>			
Density	1020	kg/m <sup>3</sup>	ISO 1183

Rheological calculation properties	Value	Unit	Test Standard
<b>ISO Data</b>			
Density of melt	935	kg/m <sup>3</sup>	-
Thermal conductivity of melt	0.165	W/(m K)	-
Spec. heat capacity of melt	2290	J/(kg K)	-
Ejection temperature	81	°C	-

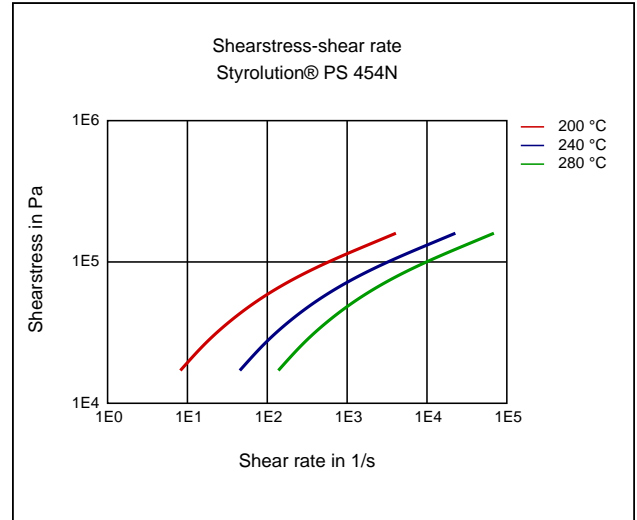
Test specimen production	Value	Unit	Test Standard
<b>ISO Data</b>			
Injection Molding, melt temperature	220	°C	ISO 294
Injection Molding, mold temperature	40	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

Diagrams

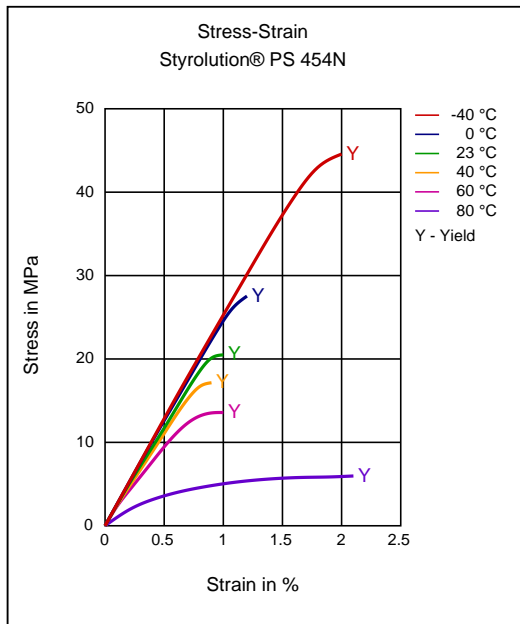
Viscosity-shear rate



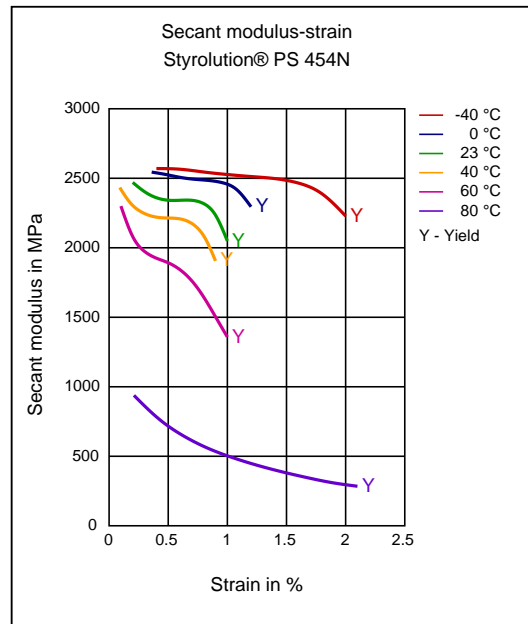
Shearstress-shear rate



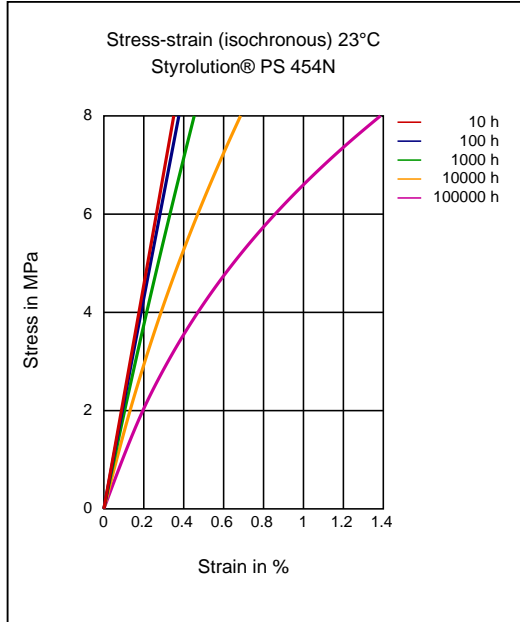
Stress-strain



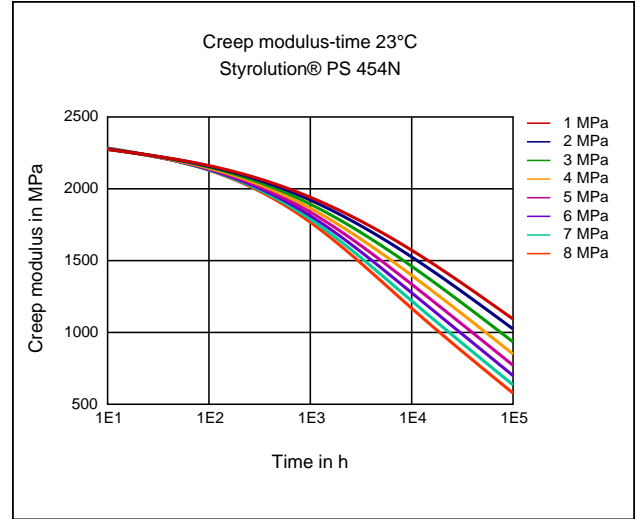
Secant modulus-strain



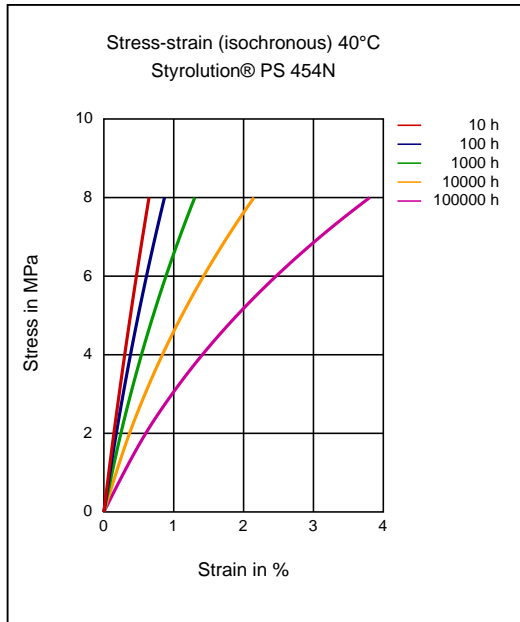
**Stress-strain (isochronous) 23 °C**



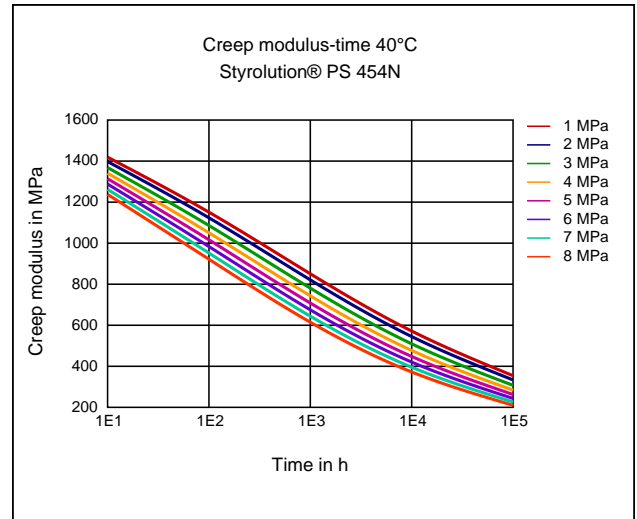
**Creep modulus-time 23 °C**



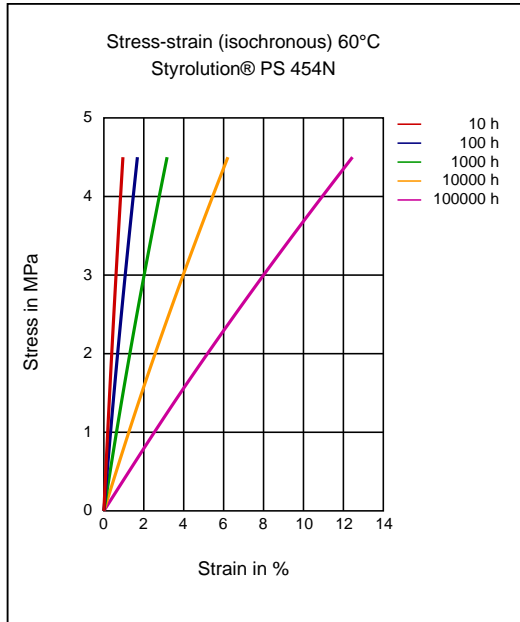
**Stress-strain (isochronous) 40 °C**



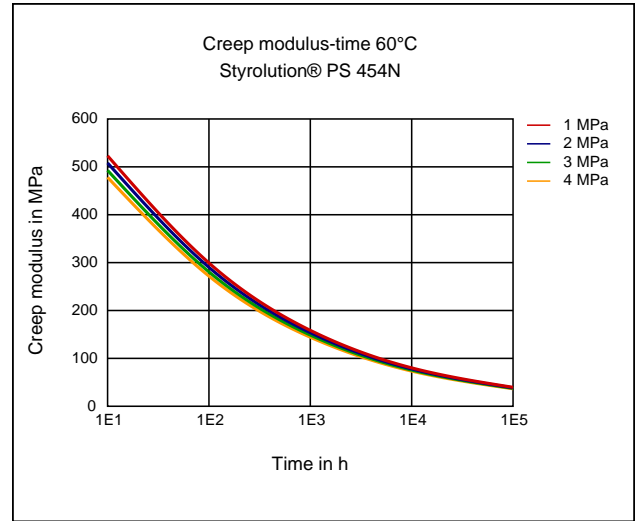
**Creep modulus-time 40 °C**



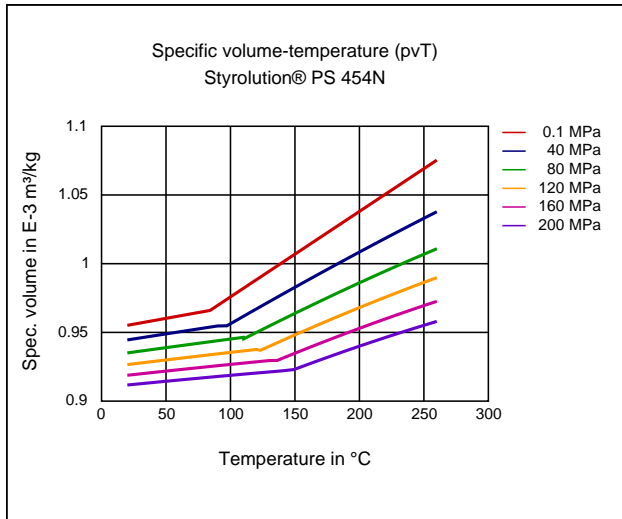
**Stress-strain (isochronous) 60 °C**



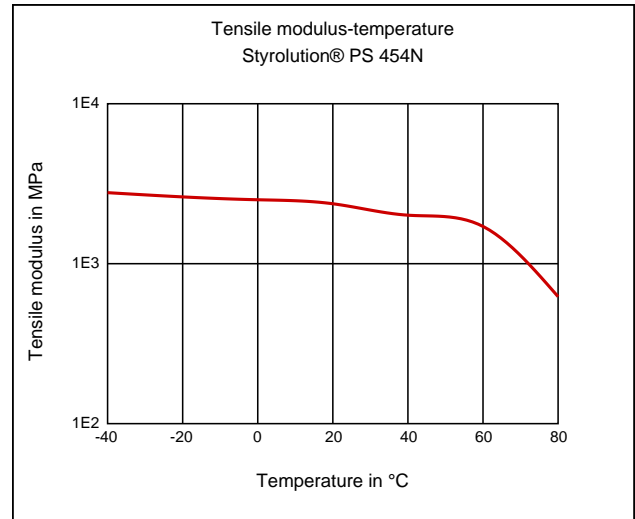
**Creep modulus-time 60 °C**



**Specific volume-temperature (pvT)**



**Tensile modulus-temperature**



**Characteristics**

**Processing**

Injection Molding, Film Extrusion

**Delivery form**

Pellets

**Special Characteristics**

Impact modified

**Injection Molding**

**PROCESSING**

injection molding, Melt temperature, range: 180 - 260 °C  
 injection molding, Melt temperature, recommended: 220 °C  
 injection molding, Mold temperature, range: 10 - 60 °C  
 injection molding, Mold temperature, recommended: 40 °C

Polystyrol 454N can be injection moulded under different conditions depending on machinery available and articles moulded. Mass temperature can be as high as 260 °C. Polystyrol 454N is suitable for gas assisted injection moulding. To achieve articles with very high gloss well polished surfaces are recommended.

#### Film extrusion

##### PROCESSING

Extrusion, Flat film, Melt temperature: 200 - 240 °C

Extrusion temperatures should not exceed 240 °C.

#### Disclaimer

These guide values are measured and provided by the product manufacturer and have been determined on standardised test specimens and can be affected by pigmentation, mould design and processing conditions. M-Base has taken the guide values from the producer's original Technical Data Sheet. **ALBIS AND M-BASE ARE THEREFORE NOT RESPONSIBLE FOR THE ACCURACY OF THE GUIDE VALUES AND CANNOT GIVE ANY WARRANTY WITH REGARD TO THEIR CORRECTNESS.**

Any information given on the chemical and physical characteristics of our products, including, without limitation, technical advice on applications, whether verbally, in writing or by testing the product, is given to the best of our knowledge and in good faith and does not exempt the buyer from carrying out their own investigations and tests in order to ascertain the product's specific suitability for the purpose intended.

The buyer is solely responsible for confirming the suitability of the product for a particular application, its utilization and processing and must observe any applicable laws and government regulations. **NO EXPRESS OR IMPLIED RECOMMENDATION OR WARRANTY IS GIVEN WITH REGARD TO THE SUITABILITY OF THE PRODUCT FOR A PARTICULAR APPLICATION, SUCH AS, BUT NOT LIMITED TO, SAFETY-CRITICAL COMPONENTS OR SYSTEMS.**

**Healthcare uses:** the supply of any product by ALBIS for any medical, pharmaceutical or diagnostic application is conditional to an assessment by ALBIS in terms of compliance with ALBIS' internal risk management policy – even for products which are in general designated for use in Healthcare applications.

**Important:** irrespective of product type or designation, ALBIS does not recommend or support the use of any products it supplies which fall into the following medical, pharmaceutical or diagnostic application categories:

- risk class III applications according to EU directive 93/42/EEC
- any bodily implant application for greater than 30 days
- any critical component in any medical device that supports or sustains human life.

At all times, our standard terms and conditions of sale apply.