

Polyphenylene sulfide

Fortron 6165A6 is an easier flow version of Fortron 6165A4. It offers similar characteristics to the 6165A4. Applications include electronic components (i.e. lamps housings and sockets) and mechanical components (i.e. pumps and pistons).

				- 1			c -		1	100
$\mathbf{\nu}$	r <i>r</i>	\mathbf{n}	ш	\sim	ГΙ	ın	$\tau \cap$	rn	าว	tion
	ıv	J	ıu		L		ıv	ч н	ıa	uon

Resin Identification	PPS-(GF+MD)6		ISO 1043
Part Marking Code	>PPS-(GF+MD)6	5<	ISO 11469
Rheological properties			
Moulding shrinkage, parallel Moulding shrinkage, normal	0.2 0.5		ISO 294-4, 2577 ISO 294-4, 2577
Typical mechanical properties			
Tensile modulus Tensile stress at break, 5mm/min Tensile strain at break, 5mm/min Flexural modulus Flexural strength Compressive modulus Compressive strength Charpy impact strength, 23°C Charpy impact strength, -30°C Charpy notched impact strength, 23°C Charpy notched impact strength, -30°C Izod notched impact strength, 23°C Izod notched impact strength, -30°C Izod impact strength, 23°C Izod impact strength, 23°C Izod impact strength, -30°C Izod impact strength, -30°C Hardness, Rockwell, M-scale Poisson's ratio [C]: Calculated	1.2 19000 210 18500 230 20 20 7 7 6 6.0 20	MPa % MPa MPa MPa KJ/m² KJ/m² KJ/m² KJ/m² KJ/m² KJ/m² KJ/m² KJ/m²	ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2 ISO 178 ISO 178 ISO 604 ISO 604 ISO 179/1eU ISO 179/1eU ISO 179/1eA ISO 180/1A ISO 180/1A ISO 180/1U ISO 180/1U ISO 2039-2
Thermal properties Melting temperature, 10°C/min	280	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min Temperature of deflection under load, 1.8 MPa Temperature of deflection under load, 8 MPa Coefficient of linear thermal expansion (CLTE), parallel	90 270 215	°C	ISO 11357-1/-3 ISO 11357-1/-3 ISO 75-1/-2 ISO 75-1/-2 ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	24	E-6/K	ISO 11359-1/-2
Thermal conductivity, flow Thermal conductivity, crossflow Thermal conductivity, through plane Specific heat capacity of melt	0.7 0.7	W/(m K) W/(m K) W/(m K) J/(kg K)	ISO 22007-2 ISO 22007-2 ISO 22007-2 ISO 22007-4

Printed: 2024-09-05 Page: 1 of 14

Revised: 2024-06-13 Source: Celanese Materials Database



Polyphenylene sulfide

Flammability

Burning Behav. at 1.5mm nom. thickn.	V-0 clas	SS	IEC 60695-11-10
Thickness tested	1.5 mm	1	IEC 60695-11-10
Burning Behav. at thickness h	V-0 clas	SS	IEC 60695-11-10
Thickness tested	0.75 mm	1	IEC 60695-11-10

Electrical properties

Relative permittivity, 1MHz	5.6	IEC 62631-2-1
Dissipation factor, 1MHz	20 E-4	IEC 62631-2-1
Volume resistivity	>1E13 Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15 Ohm	IEC 62631-3-2
Electric strength	25 kV/mm	IEC 60243-1
Arc Resistance	182 s	UL 746B

Physical/Other properties

Water absorption, 2mm	0.02 %	Sim. to ISO 62
Water absorption, Immersion 24h	0.03 %	Sim. to ISO 62
Density	2000 kg/m ³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	130	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	330	°C
Min. melt temperature	310	°C
Max. melt temperature	340	°C
Screw tangential speed	0.2 - 0.3	m/s
Mold Temperature Optimum	150	°C
Min. mould temperature	140	°C
Max. mould temperature	160	°C
Hold pressure range	30 - 70	MPa
Back pressure	3	MPa
Ejection temperature	219	°C

Characteristics

Additives Release agent

Additional information

Injection molding Preprocessing

Predrying in a dehumidified air dryer at 130 - 140 degC/3-4 hours is recommended.

Processing

On injection molding machines with 15-25 D long three-section screws, as are

Printed: 2024-09-05 Page: 2 of 14

Revised: 2024-06-13 Source: Celanese Materials Database



Polyphenylene sulfide

usual in the trade, the FORTRON is processable. A shut-off nozzle is preferred to a free-flow nozzle.

Melt temperature 320-340 degC Mold wall temperature at least 140 degC

A medium injection rate is normally preferred. All mold cavities must be effectively vented.

Postprocessing

Tool temperature of at least 135 degC is recommended for parts to achieve maximum crystallizable potential.

Processing Notes

Pre-Drying

FORTRON should in principle be predried. Because of the necessary low maximum residual moisture content the use of dry air dryers is recommended. The dew point should be =< - 30° C. The time between drying and processing should be as short as possible.

Storage

For subsequent storage the material should be stored dry in the dryer until processed (<= 60 h).

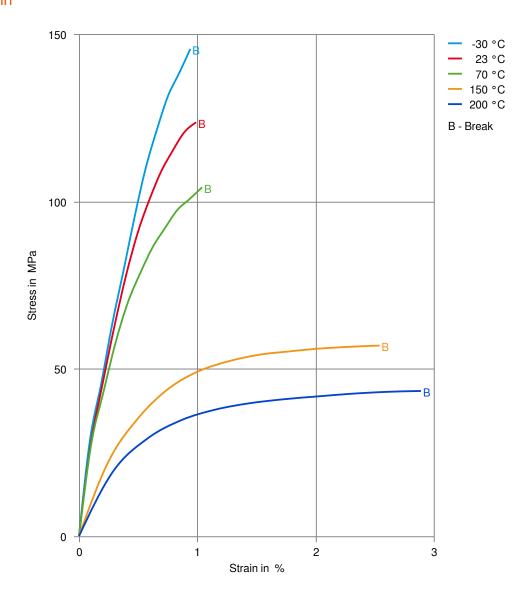
Printed: 2024-09-05 Page: 3 of 14

Revised: 2024-06-13 Source: Celanese Materials Database



Polyphenylene sulfide

Stress-strain

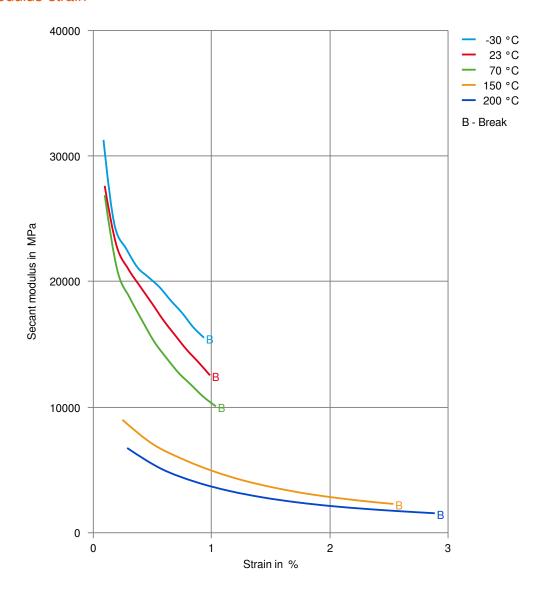


Printed: 2024-09-05 Page: 4 of 14



Polyphenylene sulfide

Secant modulus-strain

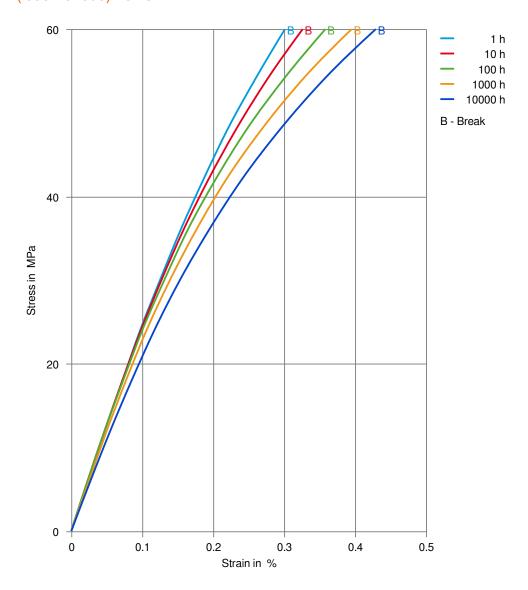


Printed: 2024-09-05 Page: 5 of 14



Polyphenylene sulfide

Stress-strain (isochronous) 23°C

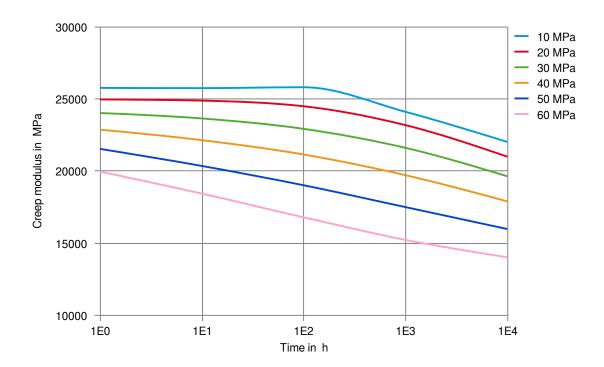


Printed: 2024-09-05 Page: 6 of 14



Polyphenylene sulfide

Creep modulus-time 23°C

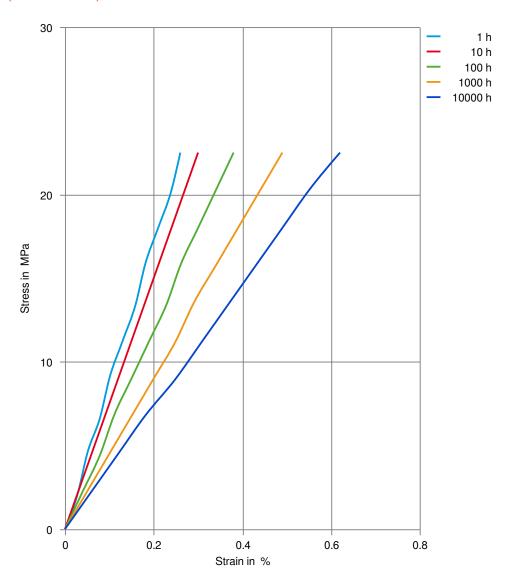


Printed: 2024-09-05 Page: 7 of 14



Polyphenylene sulfide

Stress-strain (isochronous) 120°C

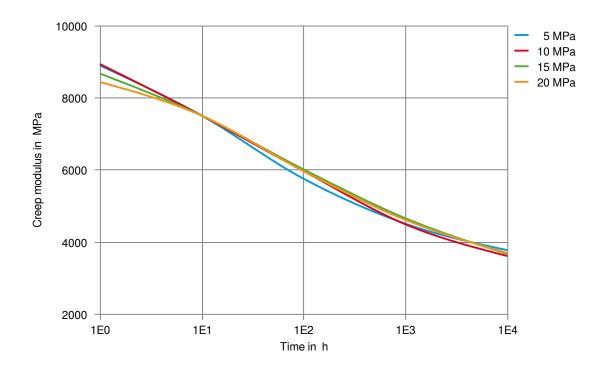


Printed: 2024-09-05 Page: 8 of 14



Polyphenylene sulfide

Creep modulus-time 120°C

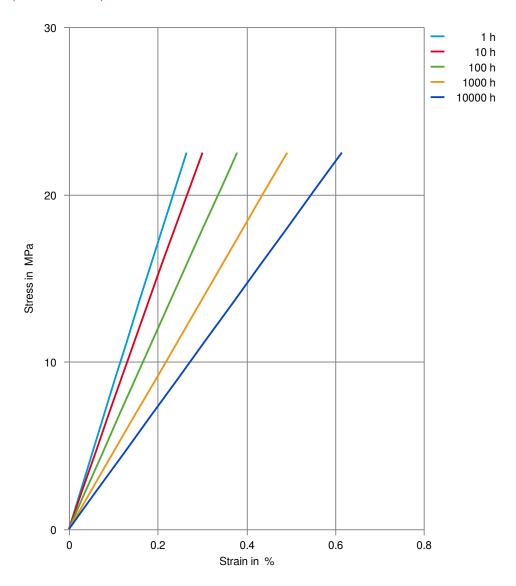


Printed: 2024-09-05 Page: 9 of 14



Polyphenylene sulfide

Stress-strain (isochronous) 150°C

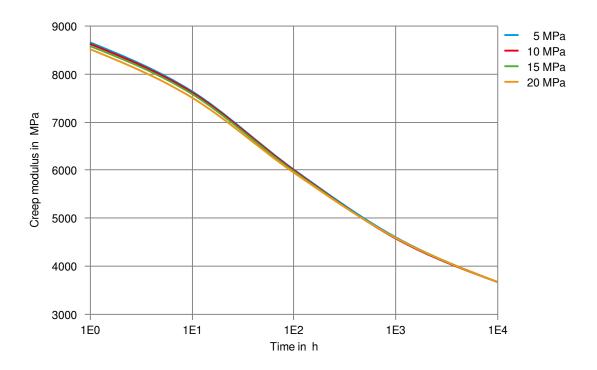


Printed: 2024-09-05 Page: 10 of 14



Polyphenylene sulfide

Creep modulus-time 150°C

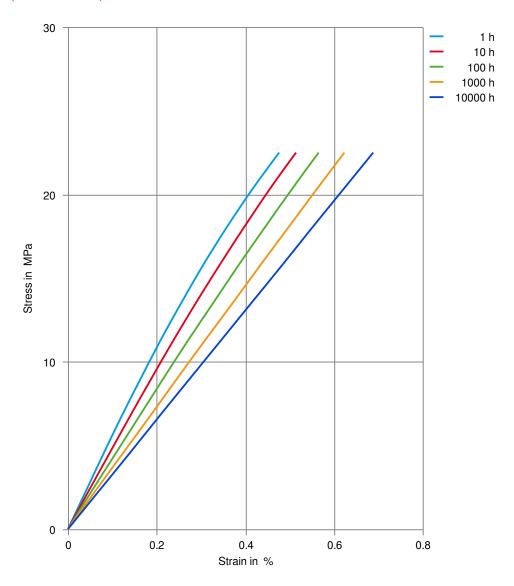


Printed: 2024-09-05 Page: 11 of 14



Polyphenylene sulfide

Stress-strain (isochronous) 200°C

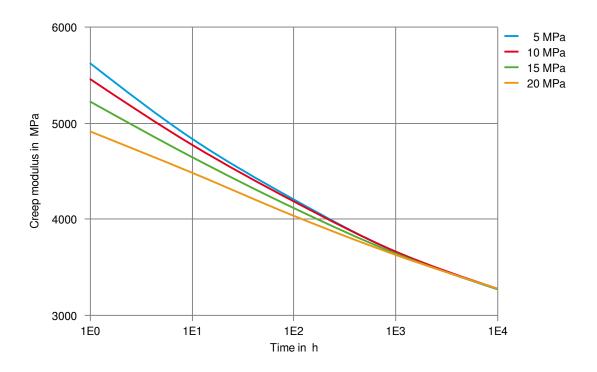


Printed: 2024-09-05 Page: 12 of 14



Polyphenylene sulfide

Creep modulus-time 200°C

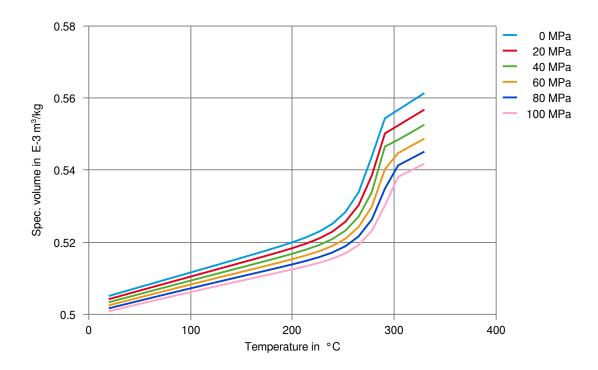


Printed: 2024-09-05 Page: 13 of 14



Polyphenylene sulfide

Specific volume-temperature (pvT)



Printed: 2024-09-05 Page: 14 of 14

Revised: 2024-06-13 Source: Celanese Materials Database

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any e

© 2024 Celanese or its affiliates. All rights reserved. Celanese®, registered C-ball design and all other trademarks identified herein with ®, TM, SM, unless otherwise noted, are trademarks of Celanese or its affiliates. Fortron is a registered trademark of Fortron Industries LLC. KEPITAL is a registered trademark of Korea Engineering Plastics Company, Ltd.