

Polyphenylene sulfide

Fortron 6165A4 offers a unique balance of properties based on a high mineral and glass reinforced composition. The heat resistance under load bearing conditions is excellent for this product. As with all Fortron grades this product is inherently flame-retardant. Applications include electronic components (i.e. lamp houses, connection parts and sockets) and components in industry (i.e. pumps and pistons).

Product information

i roddol information			
Resin Identification	PPS-(GF+MD)6 5		ISO 1043
Part Marking Code	>PPS-(GF+MD)6	5<	ISO 11469
Rheological properties			
Moulding shrinkage, parallel	0.2	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.5	%	ISO 294-4, 2577
Typical mechanical properties			
Tensile modulus	19000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min		MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.2		ISO 527-1/-2
Flexural modulus	18800	MPa	ISO 178
Flexural strength	210	MPa	ISO 178
Compressive modulus	18500	MPa	ISO 604
Compressive strength	230	MPa	ISO 604
Charpy impact strength, 23°C	20	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C		kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C		kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C		kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C		kJ/m ²	ISO 180/1A
Izod notched impact strength, -30°C		kJ/m ²	ISO 180/1A
Izod impact strength, 23°C		kJ/m ²	ISO 180/1U
Izod impact strength, -30°C		kJ/m²	ISO 180/1U
Hardness, Rockwell, M-scale	100 0 00 ^[C]		ISO 2039-2
Poisson's ratio	0.33 ^[C]		
[C]: Calculated			
Thermal properties			
Melting temperature, 10°C/min	280		ISO 11357-1/-3
Glass transition temperature, 10°C/min		°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	270		ISO 75-1/-2
Temperature of deflection under load, 8 MPa	215		ISO 75-1/-2
Coefficient of linear thermal expansion	19	E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coefficient of linear thermal expansion (CLTE),	24	E-6/K	ISO 11359-1/-2
normal	0.00		100 00007 0
Thermal conductivity, flow		W/(m K)	ISO 22007-2
Thermal conductivity, crossflow Thermal conductivity, through plane		W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	0.71 3.7E-7	W/(m K)	ISO 22007-2 ISO 22007-4
Effective thermal diffusivity, now	3.6E-7		ISO 22007-4 ISO 22007-4
LINGUVE MEIMAI UMUSIVILY, CIUSSIIUW	3.0E-7	111/3	130 22007-4

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Effective thermal diffusivity, through plane Specific heat capacity of melt	3.8E-7 930	m²/s J/(kg K)	ISO 22007-4 ISO 22007-4
Flammability			
Burning Behav. at 1.5mm nom. thickn. Thickness tested Burning Behav. at thickness h Thickness tested Burning Behav. 5V at thickness h Thickness tested	1.5 V-0 0.75 5VA 3	class mm	IEC 60695-11-10 IEC 60695-11-10 IEC 60695-11-10 IEC 60695-11-10 IEC 60695-11-20 IEC 60695-11-20
Oxygen index	53	%	ISO 4589-1/-2
Electrical properties			
Relative permittivity, 1MHz Dissipation factor, 1MHz Volume resistivity Surface resistivity Electric strength Arc Resistance	1E15 >1E15	kV/mm	IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 62631-3-2 IEC 60243-1 UL 746B
Physical/Other properties			
Water absorption, 2mm Water absorption, Immersion 24h Density Bulk density			Sim. to ISO 62 Sim. to ISO 62 ISO 1183 ISO 60
Injection			
Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Screw tangential speed Mold Temperature Optimum Min. mould temperature Max. mould temperature Hold pressure range Back pressure Ejection temperature	yes 130 2 - 4 ≤0.02 330 310 340 0.2 - 0.3 150 140 160 30 - 70 3 212	h % °C °C °C m/s °C °C °C MPa MPa	

Characteristics

Additives

Release agent



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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 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

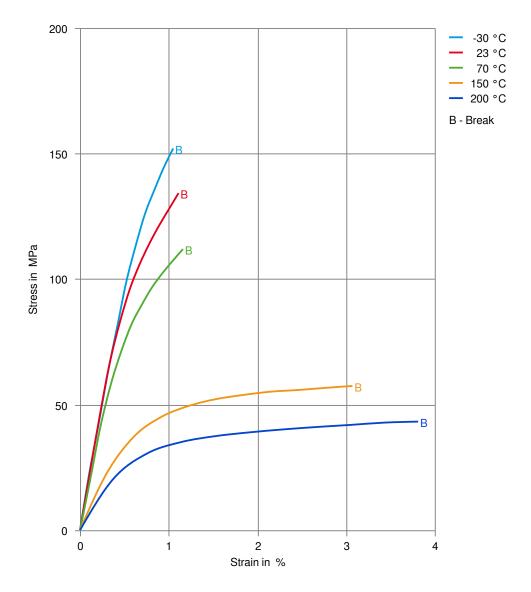
For subsequent storage the material should be stored dry in the dryer until processed (≤ 60 h).

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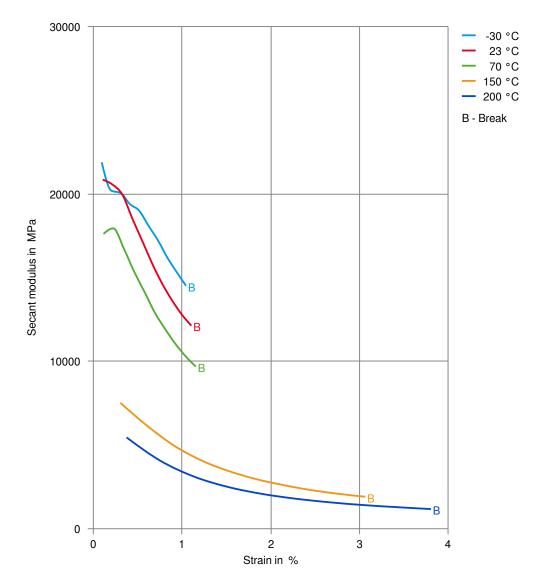
Stress-strain





Polyphenylene sulfide

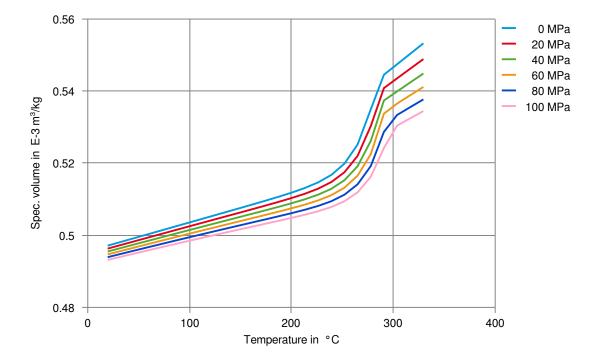
Secant modulus-strain





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Specific volume-temperature (pvT)



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

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