

FORTRON® 0320

Polyphenylene sulfide

0320 exhibits a high melt strength for extrusion processes. The material demonstrates excellent heat and chemical resistance. The intended use of this product is for extruding monofilament/fibers, rod and slab. Available standard in powder 'flake' (0320B0), ground powder (0320B0/100 µm), pellet (0320P0) and crystallized pellet (0320C0) form.

Product information

Resin Identification	PPS	ISO 1043
Part Marking Code	>PPS<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	1.2 %	ISO 294-4, 2577
Moulding shrinkage, normal	1.5 %	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	3500 MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	90 MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	8 %	ISO 527-1/-2
Flexural modulus	4200 MPa	ISO 178
Flexural strength	140 MPa	ISO 178
Izod notched impact strength, 23°C	2.6 kJ/m ²	ISO 180/1A
Izod notched impact strength, -30°C	2.5 kJ/m ²	ISO 180/1A
Izod impact strength, 23°C	82 kJ/m ²	ISO 180/1U
Izod impact strength, -30°C	53 kJ/m ²	ISO 180/1U
Hardness, Rockwell, M-scale	90	ISO 2039-2
Poisson's ratio	0.37 ^[C]	

[C]: Calculated

Thermal properties

Melting temperature, 10°C/min	280 °C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	90 °C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	115 °C	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	95 °C	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	52 E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	53 E-6/K	ISO 11359-1/-2
Specific heat capacity of melt	1830 J/(kg K)	ISO 22007-4

Flammability

Burning Behav. at thickness h	V-0 class	IEC 60695-11-10
Thickness tested	3 mm	IEC 60695-11-10

Electrical properties

Relative permittivity, 1000Hz	2.8	IEC 62631-2-1
Relative permittivity, 1MHz	4.6	IEC 62631-2-1
Dissipation factor, 1MHz	11 E-4	IEC 62631-2-1
Volume resistivity	1E9 Ohm.m	IEC 62631-3-1
Electric strength	18 kV/mm	IEC 60243-1

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Comparative tracking index	125	IEC 60112
Arc Resistance	124 s	UL 746B

Physical/Other properties

Water absorption, 2mm	0.02 %	Sim. to ISO 62
Density	1400 kg/m ³	ISO 1183

Injection

Drying Recommended	yes
Drying Temperature	110 °C
Drying Time, Dehumidified Dryer	2 - 4 h
Processing Moisture Content	≤0.02 %
Melt Temperature Optimum	315 °C
Min. melt temperature	290 °C
Max. melt temperature	320 °C
Screw tangential speed	0.2 - 0.3 m/s
Mold Temperature Optimum	140 °C
Min. mould temperature	75 °C
Max. mould temperature	160 °C
Hold pressure range	30 - 70 MPa
Back pressure	3 MPa

Additional information

Injection molding

Preprocessing

In spite of the minimum moisture absorption a drying of FORTRON is necessary. Predrying in a dehumidified air dryer at 120 degC/3-4 hours is recommended.

Processing

On injection molding machines with 15-25 D long three-section screws, are usual in the trade, the unreinforced FORTRON is processable. A shut-off nozzle is recommended.

Melt temperature 290-320 degC
 Mold temperature at least 75 degC

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

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

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

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