Celanese
The chemistry inside innovation™

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

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

Typical mechanical properties

Tensile modulus	508000	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	13100	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	8	%	ISO 527-1/-2
Flexural modulus	609000	psi	ISO 178
Flexural strength	21000	psi	ISO 178
Izod notched impact strength, 23°C	1.24	ftlb/in²	ISO 180/1A
Izod notched impact strength, -30°C	1.19	ftlb/in²	ISO 180/1A
Izod impact strength, 23°C	39	ftlb/in²	ISO 180/1U
Izod impact strength, -30°C	25.2	ftlb/in²	ISO 180/1U
Hardness, Rockwell, M-scale	90		ISO 2039-2

Thermal properties

Melting temperature, 10°C/min	536	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	194	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	239	°F	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	203	°F	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	0.29	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.294	E-4/°F	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	0.1181	in	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	457	kV/in	IEC 60243-1
Comparative tracking index	125		IEC 60112
Arc Resistance	124	s	UL 746B

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Physical/Other properties

Water absorption, 2mm	0.02	%	Sim. to ISO 62
Density	0.0505	lb/in³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	230	°F
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	599	°F
Min. melt temperature	543	°F
Max. melt temperature	608	°F
Max. screw tangential speed	0.2 - 0.3	m/s
Mold Temperature Optimum	302	°F
Min. mold temperature	284	°F
Max. mold temperature	320	°F
Hold pressure range	4350 - 10200	psi
Back pressure	435	psi

Characteristics

Processing	Injection Molding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion, Fiber spinning / Gel spinning, Porous Sintering
Special characteristics	Flame retardant, Heat stabilized or stable to heat, Chemical resistant

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

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

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