

## FORTRON® 0320 | PPS | Unfilled

### Description

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 (0320B0), pellet (0320P0) and crystallized pellet (0320C0) form.

Physical properties	Value	Unit	Test Standard
Density	<b>1350</b>	kg/m <sup>3</sup>	ISO 1183
Mold shrinkage - parallel	<b>1.2 to 1.5</b>	%	ISO 294-4
Mold shrinkage - normal	<b>1.5 to 1.8</b>	%	ISO 294-4
Water absorption (23°C-sat)	<b>0.02</b>	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	<b>3500</b>	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	<b>90</b>	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	<b>8</b>	%	ISO 527-2/1A
Flexural modulus (23°C)	<b>4200</b>	MPa	ISO 178
Flexural strength (23°C)	<b>145</b>	MPa	ISO 178
Unnotched impact str (Izod) @ 23°C	<b>82</b>	kJ/m <sup>2</sup>	ISO 180/1U
Notched impact strength (Izod) @ 23°C	<b>2.6</b>	kJ/m <sup>2</sup>	ISO 180/1A
Notched impact strength (Izod) @ -30°C	<b>2.5</b>	kJ/m <sup>2</sup>	ISO 180/1A
Rockwell hardness	<b>90</b>	M-Scale	ISO 2039-2

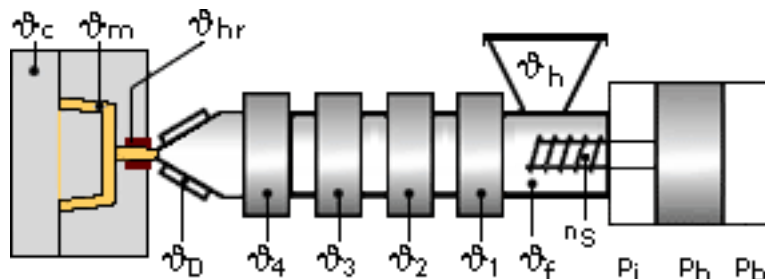
Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	<b>280</b>	°C	ISO 11357-1,-2,-3
Glass transition temperature (10°C/min)	<b>90</b>	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	<b>115</b>	°C	ISO 75-1/-2
DTUL @ 8.0 MPa	<b>95</b>	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	<b>0.52</b>	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	<b>0.53</b>	E-4/°C	ISO 11359-2
Flammability at thickness h	<b>V-0</b>	class	UL94
thickness tested (h)	<b>3</b>	mm	UL94

Electrical properties	Value	Unit	Test Standard
Relative permittivity - 1 MHz	<b>4.6</b>	-	IEC 60250
Dissipation factor - 1 MHz	<b>11</b>	E-4	IEC 60250
Volume resistivity	<b>1E9</b>	Ohm*m	IEC 60093
Electric strength	<b>18</b>	kV/mm	IEC 60243-1
Comparative tracking index CTI	<b>125</b>	-	IEC 60112

Rheological Calculation properties	Value	Unit	Test Standard
Specific heat capacity of melt	<b>1830</b>	J/(kg K)	Internal

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**Typical injection moulding processing conditions**



**Pre Drying:**

**Necessary low maximum residual moisture content: 0.02%**

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  $\leq -30^{\circ}\text{C}$ . The time between drying and processing should be as short as possible.

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

**Drying time: 3 - 4 h**

**Drying temperature: 110 - 120 °C**

**Temperature:**

	$\varnothing_{\text{Manifold}}$	$\varnothing_{\text{Mold}}$	$\varnothing_{\text{Melt}}$	$\varnothing_{\text{Nozzle}}$	$\varnothing_{\text{Zone4}}$	$\varnothing_{\text{Zone3}}$	$\varnothing_{\text{Zone2}}$	$\varnothing_{\text{Zone1}}$	$\varnothing_{\text{Feed}}$	$\varnothing_{\text{Hopper}}$
min (°C)	310	140	310	300	310	310	300	290	60	20
max (°C)	320	160	320	310	320	320	310	300	80	30

**Pressure:**

	Inj press	Hold press	Back pressure
min (bar)	400	300	0
max (bar)	800	600	30

**Speed:**

**Injection speed: fast**

**Screw speed**

Screw diameter (mm)	16	25	40	55	75
Screw speed (RPM)	-	120	75	50	-

**Injection Molding**

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 310-320 degC  
Mold wall temperature at least 140 degC

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

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Properties of molded 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. 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.

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