

FORTRON® 1140E7 | PPS | Glass Reinforced

Description

Fortron 1140E7 is an inherently flame-retardant grade exhibiting extremely low flash and fast cycle times. It has excellent electrical properties, high hardness and stiffness. This grade exhibits good high-temperature load-bearing capabilities. It is especially used for thinner walled and longer flow length parts requiring low flash behavior. Good weldability due to a modest filler level. Commonly used in electrical connectors and other thin wall/long flow length parts.

Physical properties	Value	Unit	Test Standard
Density	1650	kg/m ³	ISO 1183
Mold shrinkage - parallel	0.2 - 0.6	%	ISO 294-4
Mold shrinkage - normal	0.4 - 0.6	%	ISO 294-4
Water absorption (23°C-sat)	0.02	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	15700	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	150	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	1.2	%	ISO 527-2/1A
Flexural modulus (23°C)	15000	MPa	ISO 178
Flexural stress @ break	230	MPa	ISO 178
Charpy impact strength @ 23°C	28	kJ/m ²	ISO 179/1eU
Charpy impact strength @ -30°C	28	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	7	kJ/m ²	ISO 179/1eA
Charpy notched impact strength @ -30°C	7	kJ/m ²	ISO 179/1eA
Notched impact strength (Izod) @ 23°C	7	kJ/m ²	ISO 180/1A
Notched impact strength (Izod) @ -30°C	7	kJ/m ²	ISO 180/1A
Rockwell hardness	100	M-Scale	ISO 2039-2

Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	280	°C	ISO 11357-1,-2,-3
Glass transition temperature (10°C/min)	90	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	270	°C	ISO 75-1/-2
DTUL @ 8.0 MPa	215	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	0.2	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	0.41	E-4/°C	ISO 11359-2
Limiting oxygen index (LOI)	47	%	ISO 4589
Flammability @1.6mm nom. thickn. thickness tested (1.6)	V-0 1.5	class mm	UL94 UL94
Flammability at thickness h thickness tested (h)	V-0 0.85	class mm	UL94 UL94

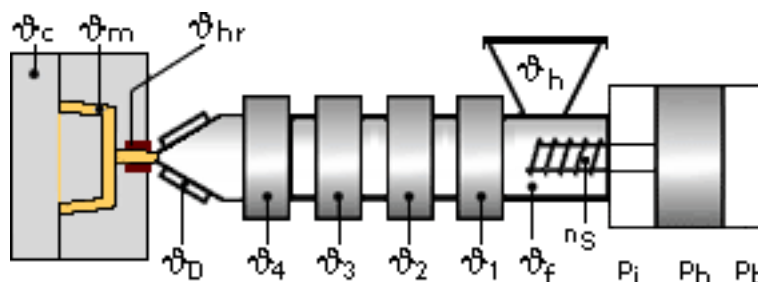
Electrical properties	Value	Unit	Test Standard
Relative permittivity - 1 MHz	4.7	-	IEC 60250
Dissipation factor - 1 MHz	200	E-4	IEC 60250
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Electric strength	25	kV/mm	IEC 60243-1

Test specimen production	Value	Unit	Test Standard
Injection molding melt temperature	310 - 340	°C	ISO 294

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Test specimen production	Value	Unit	Test Standard
Injection molding mold temperature	135 - 160	°C	ISO 294

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 (≤ 60 h).

Drying time: 3 - 4 h

Drying temperature: 130 - 140 °C

Temperature:

	$\vartheta_{\text{Manifold}}$	ϑ_{Mold}	ϑ_{Melt}	$\vartheta_{\text{Nozzle}}$	ϑ_{Zone4}	ϑ_{Zone3}	ϑ_{Zone2}	ϑ_{Zone1}	ϑ_{Feed}	$\vartheta_{\text{Hopper}}$
min (°C)	330	140	330	310	330	330	310	290	60	20
max (°C)	340	160	340	330	340	340	320	300	80	30

Pressure:

	Inj press	Hold press	Back pressure
min (bar)	500	300	0
max (bar)	1000	700	30

Speed:

Injection speed: fast

Screw speed

	16	25	40	55	75
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, as are usual in the trade, the FORTRON is processable. A shut-off nozzle is preferred to a free-flow nozzle.

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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.

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General Disclaimer

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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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