

FORTRON[®] 1140L4 HR

Polyphenylene sulfide

Fortron 1140L4 HR is a 40% glass-reinforced grade with improved hydrolysis resistance. It is the strongest and toughest product available. It exhibits excellent heat and chemical resistance, good electrical properties and is inherently flame-retardant. The high hardness and rigidity at elevated temperatures allows for good load bearing performance. This product has good weldability due to the modest filler level. Applications made of this grade are electronical components (i.e. bobbins, lamp housings, brush holders) and various other components requiring strength and resistance to aggressive chemicals (i.e. automotive heaters, pumps, valves, fuel rails, microwave oven rings and distillation column packings).

Product information Resin Identification Part Marking Code	PPS-GF40 >PPS-GF40<		ISO 1043 ISO 11469
Rheological properties			
Moulding shrinkage, parallel Moulding shrinkage, normal	0.3 0.6		ISO 294-4, 2577 ISO 294-4, 2577
Typical mechanical properties			
Tensile modulus	15600		ISO 527-1/-2
Tensile stress at break, 5mm/min Tensile strain at break, 5mm/min	200	MPa %	ISO 527-1/-2 ISO 527-1/-2
Flexural modulus	14600		ISO 327-17-2 ISO 178
Flexural strength		MPa	ISO 178
Charpy notched impact strength, 23 °C		kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C		kJ/m ²	ISO 180/1A
Izod impact strength, 23°C Poisson's ratio	58.7 0.33 ^[C]	kJ/m²	ISO 180/1U
[C]: Calculated	0.33		
Thermal properties			
Melting temperature, 10°C/min	280	°C	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
Thermal conductivity, flow		W/(m K)	ISO 22007-2
Thermal conductivity, crossflow Thermal conductivity, through plane		W/(m K) W/(m K)	ISO 22007-2 ISO 22007-2
Effective thermal diffusivity, flow	2.7E-7	· · ·	ISO 22007-2 ISO 22007-4
Effective thermal diffusivity, crossflow	2.4E-7		ISO 22007-4
Effective thermal diffusivity, through plane	2.2E-7	m²/s	ISO 22007-4
Specific heat capacity of melt	1040	J/(kg K)	ISO 22007-4
Flammability			
Burning Behav. at thickness h		class	IEC 60695-11-10
Thickness tested	0.38		IEC 60695-11-10
Oxygen index	47	%	ISO 4589-1/-2



IEC 62631-3-1

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Electrical properties	
Volume resistivity	

Arc Resistance	134	s	UL 746B
Physical/Other properties			
Water absorption, 2mm	0.02	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.02		Sim. to ISO 62
Density	1600	kg/m ³	ISO 1183
Injection			
Drying Recommended	yes		
Drying Temperature	130	°C	
Drying Time, Dehumidified Dryer	2 - 4	h	
Processing Moisture Content	≤0.02	%	
Melt Temperature Optimum	330	°C	
Min. melt temperature	310	°C	
Max. melt temperature	340	°C	
Screw tangential speed	0.2 - 0.3	m/s	
Mold Temperature Optimum	150	°C	
Min. mould temperature	140	°C	
Max. mould temperature	160	°C	
Hold pressure range	30 - 70	MPa	
Back pressure	3	MPa	

Characteristics

Additives

Release agent

Additional information

Injection molding

Preprocessing

Predrying in a dehumidified air dryer at 130 - 140 degC/3-4 hours is recommended.

1E15 Ohm.m

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

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Processing Notes

Tool temperature of at least 135 degC is recommended for parts to achieve maximum crystallizable potential.

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 $= < -30^{\circ}$ 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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NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design not intended for use in medical or dental implants. Regardless of any such product expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, 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. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials the lowest that texist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the m

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Page: 3 of 3