Celanese
The chemistry inside innovation™

FORTRON® ICE 504L - PPS-GF

Description

FORTRON ICE 504L is a 40% glass fiber reinforced material that belongs to our new generation of PPS. This new technology allows you to optimize your molding conditions with faster cycle times for complex shapes or process with low mold temperatures.

Physical properties	Value	Unit	Test Standard
Density	**1650**	kg/m³	ISO 1183
Molding shrinkage, parallel	**0.3**	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.6**	%	ISO 294-4, 2577
Water absorption, 23°C-sat	**0.02**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**14700**	MPa	ISO 527-2/1A
Tensile stress at break, 5mm/min	**195**	MPa	ISO 527-2/1A
Tensile strain at break, 5mm/min	**1.9**	%	ISO 527-2/1A
Flexural modulus, 23°C	**14500**	MPa	ISO 178
Flexural stress at break	**285**	MPa	ISO 178
Charpy impact strength, 23°C	**53**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**53**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	**10**	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	**10**	kJ/m²	ISO 179/1eA
Izod impact notched, 23°C	**10**	kJ/m²	ISO 180/1A
Izod impact notched, -30°C	**10**	kJ/m²	ISO 180/1A
Izod impact unnotched, 23°C	**34**	kJ/m²	ISO 180/1U
Izod impact unnotched, -30°C	**34**	kJ/m²	ISO 180/1U
Compressive modulus	**15000**	MPa	ISO 604
Rockwell hardness	**100**	M-Scale	ISO 2039-2

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	**280**	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	**90**	°C	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	**270**	°C	ISO 75-1, -2
DTUL at 8.0 MPa	**215**	°C	ISO 75-1, -2
Coeff. of linear therm expansion, parallel	**0.26**	E-4/°C	ISO 11359-2
Coeff. of linear therm expansion, normal	**0.42**	E-4/°C	ISO 11359-2
Limiting oxygen index (LOI)	**47**	%	ISO 4589-1/-2
Flammability @1.6mm nom. thickn.	**V-0**	class	UL 94
thickness tested (1.6)	**1.5**	mm	UL 94
Flammability at thickness h	**V-0**	class	UL 94
thickness tested (h)	**0.38**	mm	UL 94

Electrical properties	Value	Unit	Test Standard
Relative permittivity, 1MHz	**4.1**	-	IEC 60250
Dissipation factor, 1MHz	**20**	E-4	IEC 60250
Volume resistivity	**>1E13**	Ohm*m	IEC 60093
Surface resistivity	**>1E15**	Ohm	IEC 60093
Electric strength	**28**	kV/mm	IEC 60243-1
Comparative tracking index	**125**	-	IEC 60112

Test specimen production	Value	Unit	Test Standard
Injection Molding, melt temperature	**310 - 340**	°C	ISO 294
Injection Molding, mold temperature	**135 - 160**	°C	ISO 294

Rheological calculation properties	Value	Unit	Test Standard
Spec. heat capacity melt	**1500**	J/(kg K)	Internal

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Typical injection moulding processing conditions

Pre Drying	Value	Unit	Test Standard
Necessary low maximum residual moisture content	**0.02**	%	-
Drying time	**3 - 4**	h	-
Drying temperature	**130 - 140**	°C	-
Temperature	**Value**	**Unit**	**Test Standard**
Hopper temperature	**20 - 30**	°C	-
Feeding zone temperature	**60 - 80**	°C	-
Zone1 temperature	**290 - 300**	°C	-
Zone2 temperature	**310 - 320**	°C	-
Zone3 temperature	**330 - 340**	°C	-
Zone4 temperature	**330 - 340**	°C	-
Die temperature	**310 - 330**	°C	-
Melt temperature	**330 - 340**	°C	-
Cavity temperature	**140 - 160**	°C	-
Hot runner temperature	**330 - 340**	°C	-
Pressure	**Value**	**Unit**	**Test Standard**
Back pressure max.	**30**	bar	-
Speed	**Value**	**Unit**	**Test Standard**
Injection speed	**fast**	-	-
Screw Speed	**Value**	**Unit**	**Test Standard**
Screw speed diameter, 25mm	**120**	RPM	-
Screw speed diameter, 40mm	**75**	RPM	-
Screw speed diameter, 55mm	**50**	RPM	-

Other text information

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.

Longer pre-drying times/storage

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

Characteristics

Product Categories

Glass reinforced, Specialty

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General Disclaimer

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