Celanese
The chemistry inside innovation™

FORTRON® ICE 506L - PPS

Description

Fast crystallizing, 40% glass-filled, easy flow
FORTRON ICE 506L is a 40% glass fiber reinforced polyphenylene sulfide of high flowability, that belongs to our new generation of Fortron® PPS. This new technology allows optimization of molding conditions with faster cycle times. Due to the faster crystallization of the material at a higher temperature, the option of mold wall temperature reduction can be subject of advanced process optimization. The potential for optimization of Fortron® ICE by cycle time reduction is possible by standard cavity surface temperatures of 140 °C. The potential for lowering the mold temperature must be checked individually and it depends on process and part design.

Physical properties	Value	Unit	Test Standard
Density	**103**	lb/ft³	ISO 1183
Molding shrinkage, parallel (flow)	**0.3**	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	**0.6**	%	ISO 294-4, 2577
Water absorption, 23 °C-sat	**0.02**	%	Sim. to ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**2.13E6**	psi	ISO 527-1, -2
Tensile stress at break, 5mm/min	**28300**	psi	ISO 527-1, -2
Tensile strain at break, 5mm/min	**1.9**	%	ISO 527-1, -2
Flexural modulus, 23 °C	**2.1E6**	psi	ISO 178
Flexural stress at break	**41300**	psi	ISO 178
Charpy impact strength, 23 °C	**25.2**	ft-lb/in²	ISO 179/1eU
Charpy impact strength, -30 °C	**25.2**	ft-lb/in²	ISO 179/1eU
Charpy notched impact strength, 23 °C	**4.76**	ft-lb/in²	ISO 179/1eA
Charpy notched impact strength, -30 °C	**4.76**	ft-lb/in²	ISO 179/1eA
Izod impact notched, 23 °C	**4.76**	ft-lb/in²	ISO 180/1A
Izod impact notched, -30 °C	**4.76**	ft-lb/in²	ISO 180/1A
Izod impact unnotched, 23 °C	**16.2**	ft-lb/in²	ISO 180/1U
Izod impact unnotched, -30 °C	**16.2**	ft-lb/in²	ISO 180/1U
Compressive modulus	**2.1E6**	psi	ISO 604
Rockwell hardness (M-Scale)	**100**	M-Scale	ISO 2039-2

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10 °C/min	**536**	°F	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	**194**	°F	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	**518**	°F	ISO 75-1, -2
DTUL at 8.0 MPa	**419**	°F	ISO 75-1, -2
Coeff. of linear therm expansion, parallel	**0.144**	E-4/°F	ISO 11359-2
Coeff. of linear therm expansion, normal	**0.233**	E-4/°F	ISO 11359-2
CSA rating @ 0.84 mm	**A00**	-	CSA F-1

Electrical properties	Value	Unit	Test Standard
Dielectric constant (Dk), 1MHz	**4.1**	-	IEC 60250
Dissipation factor, 1MHz	**20**	E-4	IEC 60250
Volume resistivity, 23 °C	**>1E13**	Ohm*m	IEC 62631-3-1
Surface resistivity, 23 °C	**>1E15**	Ohm	IEC 62631-3-2
Comparative tracking index	**PLC 4**	-	UL 746

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

Typical injection moulding processing conditions

Pre Drying	Value	Unit
Necessary low maximum residual moisture content	**0.02**	%

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Drying time	**3 - 4**	h
Drying temperature	**266 - 284**	°F

Temperature	Value	Unit
Hopper temperature	**68 - 86**	°F
Feeding zone temperature	**140 - 176**	°F
Zone1 temperature	**554 - 572**	°F
Zone2 temperature	**590 - 608**	°F
Zone3 temperature	**626 - 644**	°F
Zone4 temperature	**626 - 644**	°F
Nozzle temperature	**590 - 626**	°F
Melt temperature	**626 - 644**	°F
Mold temperature	**284 - 320**	°F
Hot runner temperature	**626 - 644**	°F

Pressure	Value	Unit
Back pressure max.	**30**	bar

Speed	Value
Injection speed	**fast**

Screw Speed	Value	Unit
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

Special Characteristics	Flame retardant, Heat resistant, High crystallinity, High flow
Product Categories	Glass reinforced
Processing	Injection molding
Regulatory	Drinking water approved
Delivery Form	Pellets
Additives	Release agent