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The chemistry inside innovation™

FORTRON® ICE 506L

Polyphenylene sulfide

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.

Product information

Resin Identification	PPS-GF40		ISO 1043
Part Marking Code	>PPS-GF40<		ISO 11469

Rheological properties

Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Molding shrinkage, normal	0.6	%	ISO 294-4, 2577

Typical mechanical properties

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	2.1E6	psi	ISO 178
Flexural strength	41300	psi	ISO 178
Compressive modulus	2.1E6	psi	ISO 604
Compressive strength	38400	psi	ISO 604
Charpy impact strength, 23 °C	25.2	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30 °C	25.2	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23 °C	4.76	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -30 °C	4.76	ftlb/in²	ISO 179/1eA
Izod notched impact strength, 23 °C	4.76	ftlb/in²	ISO 180/1A
Izod notched impact strength, -30 °C	4.76	ftlb/in²	ISO 180/1A
Izod impact strength, 23 °C	16.2	ftlb/in²	ISO 180/1U
Izod impact strength, -30 °C	16.2	ftlb/in²	ISO 180/1U
Hardness, Rockwell, M-scale	100		ISO 2039-2

Thermal properties

Melting temperature, 10 °C/min	536	°F	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	194	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	518	°F	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	419	°F	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	0.14	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.233	E-4/°F	ISO 11359-1/-2
Specific heat capacity of melt	1500	J/(kg K)	ISO 22007-4

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Electrical properties

Relative permittivity, 1MHz	4.1		IEC 62631-2-1
Dissipation factor, 1MHz	20	E-4	IEC 62631-2-1
Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Comparative tracking index	125		IEC 60112
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	0.0596	lb/in^3	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	266	°F
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	626	°F
Min. melt temperature	590	°F
Max. melt temperature	644	°F
Max. screw tangential speed	0.2 - 0.3	m/s
Mold Temperature Optimum	284	°F
Min. mold temperature	257	°F
Max. mold temperature	320	°F
Hold pressure range	4350 - 10200	psi
Back pressure	435	psi
Ejection temperature	464	°F

Characteristics

Processing	Injection Molding
Additives	Release agent, Nucleated
Special characteristics	Flame retardant, Heat stabilized or stable to heat, High Flow

Additional information

Processing Notes

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.

Storage

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

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