

FORTRON® ICE 716A - PPS

Description

Fast Crystallizing 65% glass/mineral filled

FORTRON ICE 716A is a 65% glass fiber-mineral reinforced polyphenylene sulfide, 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	122	lb/ft³	ISO 1183
Molding shrinkage, parallel (flow)	0.2	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	0.5	%	ISO 294-4, 2577
Water absorption, 23°C-sat	0.02	%	Sim. to ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	2.76E6	psi	ISO 527-1, -2
Tensile stress at break, 5mm/min	18900	psi	ISO 527-1, -2
Tensile strain at break, 5mm/min	1.2	%	ISO 527-1, -2
Flexural modulus, 23°C	2.73E6	psi	ISO 178
Flexural stress at break	30500	psi	ISO 178
Charpy impact strength, 23°C	9.51	ft-lb/in²	ISO 179/1eU
Charpy impact strength, -30°C	9.51	ft-lb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	3.33	ft-lb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	3.33	ft-lb/in²	ISO 179/1eA
Izod impact notched, 23°C	2.85	ft-lb/in²	ISO 180/1A
Izod impact notched, -30°C	2.85	ft-lb/in²	ISO 180/1A
Izod impact unnotched, 23°C	9.51	ft-lb/in²	ISO 180/1U
Izod impact unnotched, -30°C	9.51	ft-lb/in²	ISO 180/1U
Compressive modulus	2.68E6	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	0.106	E-4/°F	ISO 11359-2
Coeff. of linear therm expansion, normal	0.133	E-4/°F	ISO 11359-2

Electrical properties	Value	Unit	Test Standard
Dielectric constant (Dk), 1MHz	5.6	-	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
Electric strength, 23°C (AC)	635	kV/in	IEC 60243-1
Comparative tracking index	PLC 4	-	UL 746

Rheological calculation properties	Value	Unit	Test Standard
Spec. heat capacity melt	1600	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 $\leq -30^{\circ}\text{C}$. 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 ($\leq 60\text{ h}$).

Characteristics

Special Characteristics	Flame retardant, Heat resistant, High crystallinity, High flow, Light stabilized
Product Categories	Mineral/Glass reinforced
Processing	Injection molding
Delivery Form	Pellets
Additives	Release agent

