

FORTRON® ICE 716A

Polyphenylene sulfide

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.

Product information

Resin Identification	PPS-(GF+MD)6 5	ISO 1043
Part Marking Code	>PPS-(GF+MD)65<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	0.2 %	ISO 294-4, 2577
Moulding shrinkage, normal	0.5 %	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	19000 MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	130 MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.2 %	ISO 527-1/-2
Flexural modulus	18800 MPa	ISO 178
Flexural strength	210 MPa	ISO 178
Compressive modulus	18500 MPa	ISO 604
Compressive strength	230 MPa	ISO 604
Charpy impact strength, 23 °C	20 kJ/m ²	ISO 179/1eU
Charpy impact strength, -30 °C	20 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23 °C	7 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30 °C	7 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23 °C	6 kJ/m ²	ISO 180/1A
Izod notched impact strength, -30 °C	6.0 kJ/m ²	ISO 180/1A
Izod impact strength, 23 °C	20 kJ/m ²	ISO 180/1U
Izod impact strength, -30 °C	20 kJ/m ²	ISO 180/1U
Hardness, Rockwell, M-scale	100	ISO 2039-2
Poisson's ratio	0.33 ^[C]	

[C]: Calculated

Thermal properties

Melting temperature, 10 °C/min	280 °C	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	90 °C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	270 °C	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	215 °C	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	19 E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	24 E-6/K	ISO 11359-1/-2
Specific heat capacity of melt	1600 J/(kg K)	ISO 22007-4

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Electrical properties

Relative permittivity, 1MHz	5.6	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
Electric strength	25 kV/mm	IEC 60243-1
Comparative tracking index	175	IEC 60112
Arc Resistance	182 s	UL 746B

Physical/Other properties

Water absorption, 2mm	0.02 %	Sim. to ISO 62
Water absorption, Immersion 24h	0.03 %	Sim. to ISO 62
Density	2000 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	140 °C
Min. mould temperature	125 °C
Max. mould temperature	160 °C
Hold pressure range	30 - 70 MPa
Back pressure	3 MPa
Ejection temperature	241 °C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent, Nucleated
Special characteristics	Flame retardant, Light stabilised or stable to light, Heat stabilised 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).