

# 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 <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30 °C	20 kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23 °C	7 kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30 °C	7 kJ/m <sup>2</sup>	ISO 179/1eA
Izod notched impact strength, 23 °C	6 kJ/m <sup>2</sup>	ISO 180/1A
Izod notched impact strength, -30 °C	6.0 kJ/m <sup>2</sup>	ISO 180/1A
Izod impact strength, 23 °C	20 kJ/m <sup>2</sup>	ISO 180/1U
Izod impact strength, -30 °C	20 kJ/m <sup>2</sup>	ISO 180/1U
Hardness, Rockwell, M-scale	100	ISO 2039-2
Poisson's ratio	0.33 <sup>[C]</sup>	

[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 <sup>3</sup>	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	150 °C
Min. mould temperature	140 °C
Max. mould temperature	160 °C
Hold pressure range	30 - 70 MPa
Back pressure	3 MPa
Ejection temperature	241 °C

### Characteristics

Additives	Release agent, Nucleated
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### 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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