

# Fortron® 1140L4

Ticona - Polyphenylene Sulfide

Monday, September 22, 2008

## General Information

### Product Description

Fortron 1140L4 is a 40% glass-reinforced grade that is the strongest and toughest product available. It exhibits excellent heat and chemical resistance, good electrical properties and is inherently flame-retardant. The high hardness and rigidity at elevated temperatures allows for good load bearing performance. This product has good weldability due to the modest filler level. Applications made of this grade are electrical components (i.e. bobbins, lamp housings, brush holders) and various other components requiring strength and resistance to aggressive chemicals (i.e. automotive heaters, pumps, valves, fuel rails, microwave oven rings and distillation column packings).

### General

Material Status	• Commercial: Active		
Availability	• Latin America	• North America	• South America
Filler / Reinforcement	• Glass Fiber Reinforcement, 40% Filler by Weight		
Features	• Flame Retardant • Good Chemical Resistance • Good Electrical Properties	• High Hardness • High Heat Resistance • High Rigidity	• Weldable
Uses	• Automotive Applications • Electrical/Electronic Applications	• Housings • Pump Parts	• Valves/Valve Parts
RoHS Compliance	• Contact Manufacturer		
Forms	• Pellets		
Processing Method	• Injection Molding		
Multi-Point Data	• Isochronous Stress vs. Strain (ISO 11403-1)	• Isothermal Stress vs. Strain (ISO 11403-1)	• Shear Modulus vs. Temperature (ISO 11403-2)

## ASTM and ISO Properties <sup>1</sup>

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	0.0596 lb/in <sup>3</sup>	1650 kg/m <sup>3</sup>	ISO 1183 <sup>2</sup>
Molding Shrinkage			ISO 2577 <sup>2</sup>
Flow	0.20 to 0.60 %	0.20 to 0.60 %	
Across Flow	0.40 to 0.60 %	0.40 to 0.60 %	
Water Absorption (Saturation, 73°F (23°C))	0.020 %	0.020 %	ISO 62
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus	2.13E+6 psi	14700 MPa	ISO 527-2/1
Tensile Stress (Break)	28300 psi	195 MPa	ISO 527-2/5
Tensile Strain (Break)	1.9 %	1.9 %	ISO 527-2/5
Flexural Modulus (73°F (23°C))	2.10E+6 psi	14500 MPa	ISO 178
Flexural Strength	41300 psi	285 MPa	ISO 178
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy notched impact strength			ISO 179/1eA <sup>2</sup>
23°C	4.76 ft-lb/in <sup>2</sup>	10.0 kJ/m <sup>2</sup>	
-30°C	4.76 ft-lb/in <sup>2</sup>	10.0 kJ/m <sup>2</sup>	
Charpy impact strength			ISO 179/1eU <sup>2</sup>
23°C	25.2 ft-lb/in <sup>2</sup>	53.0 kJ/m <sup>2</sup>	
-30°C	25.2 ft-lb/in <sup>2</sup>	53.0 kJ/m <sup>2</sup>	
Notched Izod Impact Strength			ISO 180/1A
-22°F (-30°C)	4.76 ft-lb/in <sup>2</sup>	10.00 kJ/m <sup>2</sup>	
73°F (23°C)	4.76 ft-lb/in <sup>2</sup>	10.00 kJ/m <sup>2</sup>	
Unnotched Izod Impact Strength (73°F (23°C))	16.2 ft-lb/in <sup>2</sup>	34.0 kJ/m <sup>2</sup>	ISO 180/1U

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The information presented on this data sheet was acquired by IDES from the producer of the material. IDES makes substantial efforts to assure the accuracy of this data. However, IDES assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

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## Ticona - Polyphenylene Sulfide

Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness (M-Scale)	100	100	ISO 2039-2
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			ISO 75-2 <sup>2</sup>
1.8 MPa	518 °F	270 °C	
8.0 MPa	419 °F	215 °C	
Glass Transition Temperature <sup>3</sup>	190 °F	90 °C	ISO 11357-2 <sup>2</sup>
Melting Temperature <sup>3</sup>	536 °F	280 °C	ISO 11357-3 <sup>2</sup>
CLTE			ISO 11359-2 <sup>2</sup>
Flow	0.000014 in/in/°F	0.000026 cm/cm/°C	
Transverse	0.000034 in/in/°F	0.000062 cm/cm/°C	
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Surface resistivity	> 1.0E+15 ohms	> 1.0E+15 ohms	IEC 60093 <sup>2</sup>
Volume resistivity	> 3.9E+14 ohm-in	> 1.0E+13 ohm-m	IEC 60093 <sup>2</sup>
Relative Permittivity			IEC 60250
10000 Hz	4.00	4.00	
1 MHz	4.60	4.60	
Dissipation Factor			IEC 60250
10000 Hz	0.000200	0.000200	
1 MHz	0.0062	0.0062	
Comparative tracking index	125	125	IEC 60112 <sup>2</sup>
Electric strength	710 V/mil	28 kV/mm	IEC 60243-1 <sup>2</sup>
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating - UL			UL 94
0.0150 in (0.380 mm)	V-0	V-0	
0.0591 in (1.50 mm)	V-0	V-0	
0.118 in (3.00 mm)	5VA	5VA	
Oxygen index	47 %	47 %	ISO 4589-2 <sup>2</sup>

### Additional Properties

Injection Molding Melt Temperature, ISO 294: 310 to 340°C  
Injection Molding Mold Temperature, ISO 294: 135 to 160°C  
Specific Heat Capacity of Melt, Internal Method: 1500 J/(kg-K)

### Processing Information

Injection	Nominal Value (English)	Nominal Value (SI)
Processing (Melt) Temp	608 to 644 °F	320 to 340 °C
Mold Temperature	284 °F	140 °C
Injection Rate	Moderate	Moderate

### Notes

- <sup>1</sup> Typical properties: these are not to be construed as specifications.  
<sup>2</sup> Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.  
<sup>3</sup> 10 °C/min



### US INFORMATION SERVICES

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