

ULTEM™ STM1600 resin

Polyether Imide

SABIC Innovative Plastics

Message:

Siltem 1600 is a flexible copolymer designed for wire and cable applications. It offers a halogen free (according VDE 0472) flame retardant solution that also offers low smoke emission and toxicity. It is an amber colored transparent material that can be selfcolored and easily processed on conventional equipment. The material may also have a fit in flexible profiles or injection molded parts.

General Information	
Features	Low smoke Low toxicity Copolymer Good flexibility Halogen-free Flame retardancy
Uses	Wire and cable applications
Appearance	Transparent amber
Processing Method	Extrusion coating Injection molding

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.19	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (295°C/6.6 kg)	8.6	g/10 min	ASTM D1238
Molding Shrinkage - Flow (3.20 mm)	0.86 - 1.0	%	Internal method
Water Absorption			ISO 62
23°C, 24 hr	0.58	%	ISO 62
Saturated, 23°C	0.58	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D)	72		ASTM D2240
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ¹	1400	MPa	ASTM D638
--	1380	MPa	ISO 527-2/1
Tensile Strength			
Yield ²	43.0	MPa	ASTM D638
Yield	42.0	MPa	ISO 527-2/50
Fracture ³	40.0	MPa	ASTM D638
Fracture	41.0	MPa	ISO 527-2/50
Tensile Elongation			
Yield ⁴	10	%	ASTM D638

Yield	10	%	ISO 527-2/50
Fracture ⁵	64	%	ASTM D638
Fracture	74	%	ISO 527-2/50
Flexural Modulus			
50.0mm span ⁶	1250	MPa	ASTM D790
--	1250	MPa	ASTM D790
-- ⁷	1250	MPa	ISO 178
Flexural Strength			
--	48.0	MPa	ASTM D790
--	55.0	MPa	ISO 178
Yield, 50.0mm span ⁸	48.0	MPa	ASTM D790
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel)	50.0	mg	ASTM D1044
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			
23°C	410	J/m	ASTM D256
-30°C ⁹	25	kJ/m ²	ISO 180/1A
23°C ¹⁰	36	kJ/m ²	ISO 180/1A
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, unannealed, 64.0mm span ¹¹	144	°C	ISO 75-2/Bf
1.8 MPa, unannealed, 3.20mm	80.0	°C	ASTM D648
Glass Transition Temperature	195	°C	DSC
Vicat Softening Temperature	167	°C	ISO 306/B120
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	ASTM D257
Volume Resistivity	> 1.0E+16	ohms·cm	ASTM D257
Dielectric Strength (3.20 mm, in Oil)	17	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
100 Hz	3.14		ASTM D150
100 kHz	3.05		ASTM D150
1 MHz	3.02		ASTM D150
Dissipation Factor			ASTM D150
100 Hz	0.014		ASTM D150
100 kHz	6.4E-3		ASTM D150
1 MHz	5.5E-3		ASTM D150
Flammability	Nominal Value	Unit	Test Method
Flame Rating (1.60 mm, Testing by SABIC)	V-0		UL 94
Oxygen Index	48	%	ASTM D2863
Injection	Nominal Value	Unit	
Drying Temperature	105	°C	
Drying Time	4.0 - 6.0	hr	

Drying Time, Maximum	8.0	hr
Suggested Max Moisture	0.020	%
Suggested Shot Size	40 - 60	%
Rear Temperature	310 - 320	°C
Middle Temperature	310 - 320	°C
Front Temperature	310 - 320	°C
Nozzle Temperature	310 - 320	°C
Processing (Melt) Temp	310 - 320	°C
Mold Temperature	105 - 115	°C
Back Pressure	0.300 - 0.700	MPa
Screw Speed	50 - 100	rpm
Vent Depth	0.025 - 0.076	mm
Extrusion	Nominal Value	Unit
Drying Temperature	110 - 130	°C
Drying Time	5.0 - 7.0	hr
Suggested Max Moisture	0.020	%
Cylinder Zone 1 Temp.	270 - 310	°C
Cylinder Zone 3 Temp.	280 - 320	°C
Cylinder Zone 5 Temp.	290 - 330	°C
Melt Temperature	290 - 330	°C
Die Temperature	290 - 330	°C
Extrusion instructions		
Compression Ratio 2.1:1 to 2.7:1Conductor Pre-heat Temperature: 100 - 150 °CCross-head Temperature: 290 - 330 °CExtruder Length/Diameter Ratio (L/D): 22:1 to 28:1Feed - Compression - Metering 10 - 5 - 10 DNeck Temperature: 290 - 330 °CScreen Pack: 100 - 200Screw Speed: 5 - 50 rpmWater Bath Temperature: 70 - 90 °C		
NOTE		
1.	5.0 mm/min	
2.	Type 1, 5.0 mm/min	
3.	Type 1, 5.0 mm/min	
4.	Type 1, 5.0 mm/min	
5.	Type 1, 5.0 mm/min	
6.	1.3 mm/min	
7.	2.0 mm/min	
8.	1.3 mm/min	
9.	80*10*4	
10.	80*10*4	
11.	80*10*4 mm	

The information and data on this page are provided by manufacturers and document providers. SHANGHAI SUSHENG assumes no legal liability. It is strongly recommended to verify all technical data with material suppliers before final material selection.All rights belong to the original authors. If any infringement occurs, please contact us immediately.

Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

