

ULTEM™ STM1700 resin

Polyether Imide

SABIC Innovative Plastics

Message:

Siltem STM1700 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	1.20	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (295°C/6.6 kg)	7.0	g/10 min	ASTM D1238
Molding Shrinkage - Flow (3.20 mm)	0.87 - 0.92	%	Internal method
Water Absorption (Saturation, 23°C)	0.76	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D)	80		ASTM D2240
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ¹	2400	MPa	ASTM D638
--	2300	MPa	ISO 527-2/1
Tensile Strength			
Yield ²	62.0	MPa	ASTM D638
Yield	68.0	MPa	ISO 527-2/50
Fracture ³	53.0	MPa	ASTM D638
Fracture	59.0	MPa	ISO 527-2/50
Tensile Elongation			
Yield ⁴	5.0	%	ASTM D638
Yield	5.0	%	ISO 527-2/50
Fracture ⁵	20	%	ASTM D638

Fracture	15	%	ISO 527-2/50
Flexural Modulus			
--	2150	MPa	ASTM D790
50.0mm span ⁶	2150	MPa	ASTM D790
-- ⁷	2000	MPa	ISO 178
Flexural Strength			
--	94.0	MPa	ASTM D790
--	98.0	MPa	ISO 178
Yield, 50.0mm span ⁸	94.0	MPa	ASTM D790
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel)	50.0	mg	ASTM D1044
Elastomers	Nominal Value	Unit	Test Method
Tear Strength ⁹ (1.60 mm)	37	kN/m	ISO 34-1
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			
23°C	180	J/m	ASTM D256
-30°C ¹⁰	8.0	kJ/m ²	ISO 180/1A
23°C ¹¹	16	kJ/m ²	ISO 180/1A
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, unannealed, 64.0mm span ¹²	164	°C	ISO 75-2/Bf
1.8 MPa, unannealed, 3.20mm	145	°C	ASTM D648
Glass Transition Temperature	200	°C	DSC
Vicat Softening Temperature	180	°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	3.13		ASTM D150
100 kHz	3.07		ASTM D150
1 MHz	3.04		ASTM D150
Dissipation Factor			ASTM D150
100 Hz	0.011		ASTM D150
100 kHz	6.1E-3		ASTM D150
1 MHz	5.4E-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	320 - 330	°C
Middle Temperature	320 - 330	°C
Front Temperature	320 - 330	°C
Nozzle Temperature	320 - 330	°C
Processing (Melt) Temp	320 - 330	°C
Mold Temperature	110 - 120	°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	4.0 - 6.0	hr
Suggested Max Moisture	0.020	%
Cylinder Zone 1 Temp.	310 - 340	°C
Cylinder Zone 3 Temp.	320 - 350	°C
Cylinder Zone 5 Temp.	330 - 360	°C
Melt Temperature	330 - 360	°C
Die Temperature	330 - 360	°C
Extrusion instructions		
Compression Ratio 2.1:1 to 2.7:1Conductor Pre-heat Temperature: 100 - 150 °CCross-head Temperature: 330 - 360 °CExtruder Length/Diameter Ratio (L/D): 22:1 to 28:1Feed - Compression - Metering 10 - 5 - 10 DNeck Temperature: 330 - 360 °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.	Method A, Pant-Shaped Specimen	
10.	80*10*4	
11.	80*10*4	
12.	80*10*4 mm	

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