SABIC Innovative Plastics™

Ultem* Resin STM1700

Americas: COMMERCIAL

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.

Property

TYPICAL PROPERTIES (1)			
MECHANICAL	Value	Unit	Standard
Tensile Stress, yld, Type I, 5 mm/min	62	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	53	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	5	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	20	%	ASTM D 638
Tensile Modulus, 5 mm/min	2400	MPa	ASTM D 638
Flexural Stress	94	MPa	ASTM D 790
Flexural Stress, yld, 1.3 mm/min, 50 mm span	94	MPa	ASTM D 790
Flexural Modulus	2150	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2150	MPa	ASTM D 790
Hardness, Shore D	80	-	ASTM D 2240
Taber Abrasion, CS-17, 1 kg	50	mg/1000cy	ASTM D 1044
Tensile Stress, yield, 50 mm/min	68	MPa	ISO 527
Tensile Stress, break, 50 mm/min	59	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5	%	ISO 527
Tensile Strain, break, 50 mm/min	15	%	ISO 527
Tensile Modulus, 1 mm/min	2300	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	98	MPa	ISO 178
Flexural Modulus, 2 mm/min	2000	MPa	ISO 178
Tear Strength @ 1.6mm	37	N/mm	ISO 34 (Method A)
IMPACT	Value	Unit	Standard
Izod Impact, notched, 23°C	175	J/m	ASTM D 256
Izod Impact, notched 80*10*4 +23°C	16	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	8	kJ/m²	ISO 180/1A
THERMAL	Value	Unit	Standard
HDT, 1.82 MPa, 3.2mm, unannealed	145	°C	ASTM D 648
Vicat Softening Temp, Rate B/120	180	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	164	°C	ISO 75/Bf
PHYSICAL	Value	Unit	Standard
Specific Gravity	1.2	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.87 - 0.92	%	SABIC Method
Melt Flow Rate, 295°C/6.6 kgf	7	g/10 min	ASTM D 1238
Density	1.2	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.76	%	ISO 62
Matrix Tg	200	°C	DMA
ELECTRICAL	Value	Unit	Standard
Volume Resistivity	>1.E+16	Ohm-cm	ASTM D 257
Surface Resistivity	>1.E+15	Ohm	ASTM D 257

Dielectric Strength, in oil, 3.2 mm	16.7	kV/mm	ASTM D 149
Relative Permittivity, 100 Hz	3.13	-	ASTM D 150
Relative Permittivity, 100 kHz	3	-	ASTM D 150
Relative Permittivity, 1 MHz	3.04	-	ASTM D 150
Dissipation Factor, 100 Hz	0.011	-	ASTM D 150
Dissipation Factor, 100 kHz	0.0061	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0054	-	ASTM D 150
FLAME CHARACTERISTICS	Value	Unit	Standard
UL Compliant, 94V-0 Flame Class Rating (3)(4)	1.6	mm	UL 94 by GE
Oxygen Index (LOI)	48	%	ASTM D 2863

Source GMD, last updated:02/08/2008

Processing

Parameter Injection Molding	Value	Unit
Drying Temperature	105	°C
Drying Time	4 - 6	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	320 - 330	°C
Nozzle Temperature	320 - 330	°C
Front - Zone 3 Temperature	320 - 330	°C
Middle - Zone 2 Temperature	320 - 330	°C
Rear - Zone 1 Temperature	320 - 330	°C
Mold Temperature	110 - 120	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	50 - 100	rpm
Shot to Cylinder Size	40 - 60	%
Vent Depth	0.025 - 0.076	mm

Parameter Wire Coating Extrusion	Value	Unit
Drying Temperature	110 - 130	°C
Drying Time	4 - 6	hrs
Maximum Moisture Content	0.02	%
Extruder Length/Diameter Ratio (L/D)	22:1 to 28:1	-
Compression Ratio	2.1:1 to 2.7:1	-
Feed - Compression - Metering	10 - 5 - 10	D
Screw Speed	5 - 50	rpm
Feed Zone Temperature	310 - 340	°C
Middle Zone Temperatures	320 - 350	°C
Head Zone Temperature	330 - 360	°C
Neck Temperature	330 - 360	°C
Cross-head Temperature	330 - 360	°C
Die Temperature	330 - 360	°C
Melt Temperature	330 - 360	°C
Conductor Pre-heat Temperature	100 - 150	°C
Screen Pack	100 - 200	-
Water Bath Temperature	70 - 90	°C

Source GMD, last updated:02/08/2008

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.
(2) Only typical data for selection purposes. Not to be used for part or tool design.
(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
(4) Internal measurements according to UL standards.