

Ultem* Resin STM1600

Americas: COMMERCIAL

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.

Property

TYPICAL PROPERTIES ⁽¹⁾			
	Value	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	43	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	40	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	10	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	64	%	ASTM D 638
Tensile Modulus, 5 mm/min	1400	MPa	ASTM D 638
Flexural Stress	48	MPa	ASTM D 790
Flexural Stress, yld, 1.3 mm/min, 50 mm span	48	MPa	ASTM D 790
Flexural Modulus	1250	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	1250	MPa	ASTM D 790
Hardness, Shore D	72	-	ASTM D 2240
Taber Abrasion, CS-17, 1 kg	50	mg/1000cy	ASTM D 1044
Tensile Stress, yield, 50 mm/min	42	MPa	ISO 527
Tensile Stress, break, 50 mm/min	41	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	10	%	ISO 527
Tensile Strain, break, 50 mm/min	74	%	ISO 527
Tensile Modulus, 1 mm/min	1380	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	55	MPa	ISO 178
Flexural Modulus, 2 mm/min	1250	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	412	J/m	ASTM D 256
Izod Impact, notched 80*10*4 +23°C	36	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	25	kJ/m ²	ISO 180/1A
THERMAL			
HDT, 1.82 MPa, 3.2mm, unannealed	80	°C	ASTM D 648
Vicat Softening Temp, Rate B/120	167	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	144	°C	ISO 75/Bf
PHYSICAL			
Specific Gravity	1.19	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.86 - 1.01	%	SABIC Method
Melt Flow Rate, 295°C/6.6 kgf	8.6	g/10 min	ASTM D 1238
Density	1.19	g/cm ³	ISO 1183
Water Absorption, 23°C/24hrs	0.58	%	ISO 62-1
Water Absorption, (23°C/sat)	0.58	%	ISO 62
Matrix Tg	195	°C	DMA
ELECTRICAL			
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	16.6	kV/mm	ASTM D 149
Relative Permittivity, 100 Hz	3.14	-	ASTM D 150
Relative Permittivity, 100 kHz	3	-	ASTM D 150
Relative Permittivity, 1 MHz	3.02	-	ASTM D 150
Dissipation Factor, 100 Hz	0.014	-	ASTM D 150
Dissipation Factor, 100 kHz	0.0064	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0055	-	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:02/07/2008

Processing

Parameter	Value	Unit
Injection Molding		
Drying Temperature	105	°C
Drying Time	4 - 6	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	310 - 320	°C
Nozzle Temperature	310 - 320	°C
Front - Zone 3 Temperature	310 - 320	°C
Middle - Zone 2 Temperature	310 - 320	°C
Rear - Zone 1 Temperature	310 - 320	°C
Mold Temperature	105 - 115	°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		
Drying Temperature	110 - 130	°C
Drying Time	5 - 7	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	270 - 310	°C
Middle Zone Temperatures	280 - 320	°C
Head Zone Temperature	290 - 330	°C
Neck Temperature	290 - 330	°C
Cross-head Temperature	290 - 330	°C
Die Temperature	290 - 330	°C
Melt Temperature	290 - 330	°C
Conductor Pre-heat Temperature	100 - 150	°C
Screen Pack	100 - 200	-
Water Bath Temperature	70 - 90	°C

Source GMD, last updated:02/07/2008

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

- (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.

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