SILTEM™ Resin STM1600

REGION AMERICAS

DESCRIPTION

SILTEM™ STM1600 resin is a flexible polyetherimide(PEI)-siloxane copolymer designed for wire and cable applications. The material is RoHS compliant and 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 processing equipment. The material may also be used for extrusion of e.g. corrugated pipes and profiles as well as flexible injection molded parts.

ISCC+ certified renewable bio-based solutions are available for this grade via differentiated color nomenclature.

INDUSTRY	SUB INDUSTRY
Automotive	Aerospace
Electrical and Electronics	Energy Management
Industrial	Electrical, Material Handling, Defense
Mass Transportation	Rail

TYPICAL PROPERTY VALUES

Revision 20260420

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	43	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	40	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	10	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	64	%	ASTM D638
Tensile Modulus, 5 mm/min	1400	MPa	ASTM D638
Flexural Stress	48	MPa	ASTM D790
Flexural Stress, yld, 1.3 mm/min, 50 mm span	48	MPa	ASTM D790
Flexural Modulus	1250	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	1250	MPa	ASTM D790
Hardness, Shore D	72	-	ASTM D2240
Taber Abrasion, CS-17, 1 kg	50	mg/1000cy	ASTM D1044
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 D256
Izod Impact, notched 80*10*4 +23°C	36	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	25	kJ/m²	ISO 180/1A
THERMAL			
HDT, 1.82 MPa, 3.2mm, unannealed	80	°C	ASTM D648
Vicat Softening Temp, Rate B/120	167	°C	ISO 306

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	144	°C	ISO 75/Bf
PHYSICAL			
Specific Gravity	1.19	-	ASTM D792
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 D1238
Density	1.19	g/cm³	ISO 1183
Water Absorption, (23°C/24hrs)	0.58	%	ISO 62-1
Water Absorption, (23°C/saturated)	0.58	%	ISO 62-1
Matrix Tg	195	°C	DMA
ELECTRICAL			
Volume Resistivity	>1.E+16	Ω.cm	ASTM D257
Surface Resistivity	>1.E+15	Ω	ASTM D257
Dielectric Strength, in oil, 3.2 mm	16.6	kV/mm	ASTM D149
Relative Permittivity, 100 Hz	3.14	-	ASTM D150
Relative Permittivity, 100 kHz	3	-	ASTM D150
Relative Permittivity, 1 MHz	3.02	-	ASTM D150
Dissipation Factor			
100 Hz	0.014	-	ASTM D150
100 kHz	0.0064	-	ASTM D150
1 MHz	0.0055	-	ASTM D150
Comparative Tracking Index	175	V	IEC 60112
FLAME CHARACTERISTICS			
UL Compliant, 94V-0 Flame Class Rating	1.6	mm	UL 94 by SABIC-IP
Oxygen Index (LOI)	48	%	ASTM D2863
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	
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	-	

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	

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