

VALOX™ 420SE0 resin

Polybutylene Terephthalate

SABIC Innovative Plastics

Message:

30% glass reinforced, UL94 V-0/5V rated. Numerous applications: edge trimmers, food mixer motor stator and commutator, cooling fan, connectors, bobbins, switches etc

General Information			
UL YellowCard	E45329-101092092	E45329-101513786	
Filler / Reinforcement	Glass fiber reinforced material, 30% filler by weight		
Uses	Electrical housing		
	Power/other tools		
	Household goods		
	Switch		
	Connector		
	General		
RoHS Compliance	RoHS compliance		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.63	g/cm³	ASTM D792, ISO 1183
Specific Volume	0.610	cm³/g	ASTM D792
Melt Mass-Flow Rate (MFR) (250°C/5.0 kg)	42	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (250°C/5.0 kg)	29.0	cm³/10min	ISO 1133
Molding Shrinkage			Internal method
Flow ¹	0.10 - 0.50	%	Internal method
Flow: 3.20mm	0.50 - 0.70	%	Internal method
Transverse flow ²	0.40 - 0.80	%	Internal method
Transverse flow: 3.20mm	0.50 - 1.0	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	0.090	%	ISO 62
Equilibrium, 23°C, 50% RH	0.070	%	ISO 62
Outdoor Suitability	f2		UL 746C
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			
Class r	119		ASTM D785
R scale	119		ISO 2039-2
Ball Indentation Hardness (H 358/30)	118	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			

-- ³	12000	MPa	ASTM D638
--	10000	MPa	ISO 527-2/1
Tensile Strength			
Yield ⁴	120	MPa	ASTM D638
Yield	120	MPa	ISO 527-2/5
Fracture ⁵	120	MPa	ASTM D638
Fracture	120	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁶	2.0	%	ASTM D638
Yield	1.9	%	ISO 527-2/5
Fracture ⁷	2.0	%	ASTM D638
Fracture	1.9	%	ISO 527-2/5
Flexural Modulus			
50.0mm span ⁸	9800	MPa	ASTM D790
-- ⁹	9500	MPa	ISO 178
Flexural Stress			
--	180	MPa	ISO 178
Fracture, 50.0mm span ¹⁰	186	MPa	ASTM D790
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel)	22.0	mg	Internal method
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ¹¹			ISO 179/1eA
-30°C	6.0	kJ/m ²	ISO 179/1eA
23°C	7.0	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength ¹²			ISO 179/1eU
-30°C	50	kJ/m ²	ISO 179/1eU
23°C	50	kJ/m ²	ISO 179/1eU
Notched Izod Impact			
-30°C	57	J/m	ASTM D256
23°C	60	J/m	ASTM D256
-30°C ¹³	6.0	kJ/m ²	ISO 180/1A
23°C ¹⁴	7.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
23°C	620	J/m	ASTM D4812
-30°C ¹⁵	45	kJ/m ²	ISO 180/1U
23°C ¹⁶	45	kJ/m ²	ISO 180/1U
Instrumented Dart Impact (23°C, Total Energy)	5.00	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, unannealed, 3.20mm	212	°C	ASTM D648
0.45 MPa, unannealed, 100 mm span ¹⁷	220	°C	ISO 75-2/Be
1.8 MPa, unannealed, 3.20mm	200	°C	ASTM D648

1.8 MPa, unannealed, 100 mm span ¹⁸	195	°C	ISO 75-2/Ae
1.8 MPa, unannealed, 64.0mm span ¹⁹	200	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	200	°C	ASTM D1525, ISO 306/B50, ISO 306/B120 ²⁰
--	220	°C	ISO 306/A50
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			
Flow: -40 to 40°C	2.5E-5	cm/cm/°C	ASTM E831, ISO 11359-2
Flow: 23 to 80°C	2.5E-5	cm/cm/°C	ISO 11359-2
Lateral: -40 to 40°C	8.9E-5	cm/cm/°C	ASTM E831, ISO 11359-2
Lateral: 23 to 80°C	1.2E-4	cm/cm/°C	ISO 11359-2
Thermal Conductivity	0.25	W/m/K	ISO 8302
RTI Elec	130	°C	UL 746
RTI Imp	130	°C	UL 746
RTI	140	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity	> 1.0E+15	ohms·cm	ASTM D257, IEC 60093
Dielectric Strength			
1.60 mm, in Oil	24	kV/mm	ASTM D149
3.20 mm, in Air	19	kV/mm	ASTM D149
0.800mm, in oil	23	kV/mm	IEC 60243-1
1.60mm, in oil	22	kV/mm	IEC 60243-1
3.20mm, in oil	16	kV/mm	IEC 60243-1
Dielectric Constant			
100 Hz	3.80		ASTM D150, IEC 60250
1 MHz	3.70		ASTM D150
50 Hz	3.30		IEC 60250
60 Hz	3.30		IEC 60250
1 MHz	3.30		IEC 60250
Dissipation Factor			
100 Hz	2.0E-3		ASTM D150, IEC 60250
1 MHz	0.020		ASTM D150
50 Hz	1.0E-3		IEC 60250
60 Hz	1.0E-3		IEC 60250
1 MHz	0.010		IEC 60250
Arc Resistance ²¹	PLC 6		ASTM D495
Comparative Tracking Index (CTI)	PLC 3		UL 746
Comparative Tracking Index			IEC 60112
--	175	V	IEC 60112
Solution B	125	V	IEC 60112

High Amp Arc Ignition (HAI)	PLC 0		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 4		UL 746
Hot-wire Ignition (HWI)	PLC 2		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.400 mm	V-2		UL 94
0.710 mm	V-0		UL 94
2.00 mm	5VA		UL 94
Glow Wire Flammability Index (1.00 mm)	960	°C	IEC 60695-2-12
Oxygen Index	32	%	ISO 4589-2
Injection	Nominal Value	Unit	
Drying Temperature	121	°C	
Drying Time	3.0 - 4.0	hr	
Drying Time, Maximum	12	hr	
Suggested Max Moisture	0.020	%	
Suggested Shot Size	40 - 80	%	
Rear Temperature	243 - 266	°C	
Middle Temperature	249 - 271	°C	
Front Temperature	254 - 277	°C	
Nozzle Temperature	249 - 271	°C	
Processing (Melt) Temp	254 - 277	°C	
Mold Temperature	65.6 - 87.8	°C	
Back Pressure	0.345 - 0.689	MPa	
Screw Speed	50 - 80	rpm	
Vent Depth	0.025 - 0.038	mm	
NOTE			
1.	Tensile Bar		
2.	Tensile Bar		
3.	5.0 mm/min		
4.	Type 1, 5.0 mm/min		
5.	Type 1, 5.0 mm/min		
6.	Type 1, 5.0 mm/min		
7.	Type 1, 5.0 mm/min		
8.	1.3 mm/min		
9.	2.0 mm/min		
10.	1.3 mm/min		
11.	80*10*4 sp=62mm		
12.	80*10*4 sp=62mm		
13.	80*10*4		
14.	80*10*4		
15.	80*10*4		
16.	80*10*4		

17.	120*10*4 mm
18.	120*10*4 mm
19.	80*10*4 mm
20.	标准 B (120°C/h), 载荷2 (50N)
21.	Tungsten electrode

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