Wednesday, June 13, 2018

VALOX™ FR Resin 420SE0 - Europe

SABIC - *Polybutylene Terephthalate*

Units SI

Action **Legend (Open)**

General Information

Product Description

VALOX 420SE0 Polybutylene Terephthalate (PBT) resin is a 30% glass fiber reinforced, injection moldable grade. This brominated flame retardant PBT has a UL V0 and 5VA rating. VALOX 420SE0 resin is a general purpose resin that is an excellent candidate for a wide variety of applications including electrical components, bobbins, switches, stators, commutators and cooling fans.

General			
Material Status	• Commercial: Active		
Availability	• Europe		
Filler / Reinforcement	• Glass Fiber, 30% Filler by Weight		
Uses	• Aerospace Applications • Appliances • Automotive Exterior Parts • Automotive Interior Parts • Automotive Lighting	• Automotive Under the Hood • Construction Applications • Electrical/Electronic Applications • Electronic Displays • Industrial Applications	• Lighting Applications • Medical/Healthcare Applications • Non-specific Food Applications • Sporting Goods
RoHS Compliance	• RoHS Compliant		
Processing Method	• Injection Molding		
Also Available In	• Asia Pacific	• Latin America	• North America

ASTM & ISO Properties [1]

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.63	g/cm³	ASTM D792
Specific Volume	0.610	cm³/g	ASTM D792
Density	1.63	g/cm³	ISO 1183
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 - Flow			Internal Method
-- [2]	0.10 to 0.50	%	
3.20 mm	0.50 to 0.70	%	
Molding Shrinkage - Across Flow			Internal Method
-- [2]	0.40 to 0.80	%	
3.20 mm	0.50 to 1.0	%	
Water Absorption (Saturation, 23°C)	0.090	%	ISO 62
Water Absorption (Equilibrium, 23°C, 50% RH)	0.070	%	ISO 62
Outdoor Suitability	f2		UL 746C
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus [3]	12000	MPa	ASTM D638
Tensile Modulus	10000	MPa	ISO 527-2/1
Tensile Strength [4] (Yield)	120	MPa	ASTM D638
Tensile Stress (Yield)	120	MPa	ISO 527-2/5
Tensile Strength [4] (Break)	120	MPa	ASTM D638
Tensile Stress (Break)	120	MPa	ISO 527-2/5
Tensile Elongation [4] (Yield)	2.0	%	ASTM D638
Tensile Strain (Yield)	1.9	%	ISO 527-2/5
Tensile Elongation [4] (Break)	2.0	%	ASTM D638
Tensile Strain (Break)	1.9	%	ISO 527-2/5
Flexural Modulus [5] (50.0 mm Span)	9800	MPa	ASTM D790

Flexural Modulus [6]	9500	MPa	ISO 178
Flexural Stress	180	MPa	ISO 178
Flexural Strength [5] (Break, 50.0 mm Span)	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 [7]			ISO 179/1eA
-30°C	6.0	kJ/m²	
23°C	7.0	kJ/m²	
Charpy Unnotched Impact Strength [7]			ISO 179/1eU
-30°C	50	kJ/m²	
23°C	50	kJ/m²	
Notched Izod Impact			ASTM D256
-30°C	57	J/m	
23°C	60	J/m	
Notched Izod Impact Strength [8]			ISO 180/1A
-30°C	6.0	kJ/m²	
23°C	7.0	kJ/m²	
Unnotched Izod Impact (23°C)	620	J/m	ASTM D4812
Unnotched Izod Impact Strength [8]			ISO 180/1U
-30°C	45	kJ/m²	
23°C	45	kJ/m²	
Instrumented Dart Impact (23°C, Total Energy)	5.00	J	ASTM D3763
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness (R-Scale)	119		ASTM D785
Rockwell Hardness (R-Scale)	119		ISO 2039-2
Ball Indentation Hardness (H 358/30)	118	MPa	ISO 2039-1
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load (0.45 MPa, Unannealed, 3.20 mm)	212	°C	ASTM D648
Heat Deflection Temperature [9] (0.45 MPa, Unannealed, 4.00 mm, 100 mm Span)	220	°C	ISO 75-2/Be
Deflection Temperature Under Load (1.8 MPa, Unannealed, 3.20 mm)	200	°C	ASTM D648
Heat Deflection Temperature			
1.8 MPa, Unannealed, 4.00 mm, 100 mm Span [9]	195	°C	ISO 75-2/Ae
1.8 MPa, Unannealed, 4.00 mm, 64.0 mm Span [8]	200	°C	ISO 75-2/Af
Vicat Softening Temperature	200	°C	ASTM D1525 [10]
Vicat Softening Temperature			
--	220	°C	ISO 306/A50
--	200	°C	ISO 306/B50
--	200	°C	ISO 306/B120
Ball Pressure Test (123 to 127°C)	Pass		IEC 60695-10-2
CLTE - Flow (-40 to 40°C)	2.5E-5	cm/cm/°C	ASTM E831
CLTE - Flow			ISO 11359-2
-40 to 40°C	2.5E-5	cm/cm/°C	
23 to 80°C	2.5E-5	cm/cm/°C	
CLTE - Transverse (-40 to 40°C)	8.9E-5	cm/cm/°C	ASTM E831
CLTE - Transverse			ISO 11359-2
-40°C	8.9E-5	cm/cm/°C	
23 to 80°C	1.2E-4	cm/cm/°C	
Thermal Conductivity	0.25	W/m/K	ISO 8302
RTI Elec	130	°C	UL 746
RTI Imp	130	°C	UL 746
RTI Str	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
Volume Resistivity	> 1.0E+15	ohms·cm	IEC 60093
Dielectric Strength			ASTM D149
1.60 mm, in Oil	24	kV/mm	

3.20 mm, in Air	19	kV/mm	
Electric Strength			IEC 60243-1
0.800 mm, in Oil	23	kV/mm	
1.60 mm, in Oil	22	kV/mm	
3.20 mm, in Oil	16	kV/mm	
Dielectric Constant			ASTM D150
100 Hz	3.80		
1 MHz	3.70		
Relative Permittivity			IEC 60250
50 Hz	3.30		
60 Hz	3.30		
100 Hz	3.80		
1 MHz	3.30		
Dissipation Factor			ASTM D150
100 Hz	2.0E-3		
1 MHz	0.020		
Dissipation Factor			IEC 60250
50 Hz	1.0E-3		
60 Hz	1.0E-3		
100 Hz	2.0E-3		
1 MHz	0.010		
Arc Resistance [11]	PLC 6		ASTM D495
Comparative Tracking Index (CTI)	PLC 3		UL 746
Comparative Tracking Index			IEC 60112
--	175	V	
Solution B	125	V	
High Amp Arc Ignition (HAI) [12]	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
0.40 mm	V-2		
0.71 mm	V-0		
2.0 mm	5VA		
Glow Wire Flammability Index (1.0 mm)	960	°C	IEC 60695-2-12
Oxygen Index	32	%	ISO 4589-2

Processing Information

Injection	**Nominal Value**	**Unit**
Drying Temperature	120	°C
Drying Time	3.0 to 4.0	hr
Suggested Max Moisture	0.020	%
Suggested Shot Size	40 to 80	%
Rear Temperature	245 to 265	°C
Middle Temperature	250 to 270	°C
Front Temperature	255 to 275	°C
Nozzle Temperature	250 to 270	°C
Processing (Melt) Temp	255 to 275	°C
Mold Temperature	65 to 90	°C
Back Pressure	0.300 to 0.700	MPa
Screw Speed	50 to 80	rpm
Vent Depth	0.025 to 0.038	mm

Injection Notes

Injection Molding Parameters
- Drying Time (Cumulative): 12 hrs

Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Tensile Bar

[3] 5.0 mm/min

[4] Type I, 5.0 mm/min

[5] 1.3 mm/min

[6] 2.0 mm/min

[7] 80*10*4 sp=62mm

[8] 80*10*4 mm

[9] 120*10*4 mm

[10] Rate A (50°C/h), Loading 2 (50 N)

[11] Tungsten Electrode

[12] Surface