

VALOX™ FR Resin 420SE0 - Europe

SABIC - Polybutylene Terephthalate

 Units

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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Asia Pacific • Latin America • North America

ASTM & ISO Properties ¹

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.63	g/cm ³	ASTM D792
Specific Volume	0.610	cm ³ /g	ASTM D792
Density	1.63	g/cm ³	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	cm ³ /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/m ²	
23°C	7.0 kJ/m ²	
Charpy Unnotched Impact Strength ⁷		ISO 179/1eU
-30°C	50 kJ/m ²	
23°C	50 kJ/m ²	
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/m ²	
23°C	7.0 kJ/m ²	
Unnotched Izod Impact (23°C)	620 J/m	ASTM D4812
Unnotched Izod Impact Strength ⁸		ISO 180/1U
-30°C	45 kJ/m ²	
23°C	45 kJ/m ²	
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
Flame Rating		Test Method
0.40 mm	V-2	UL 94
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

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- 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
-

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