VALOX™ FR RESINS 420SE0

REGION ASIA

DESCRIPTION

VALOX 420SE0 is a 30% glass filled, flame retardant Polybutylene Terephthalate (PBT) injection moldable grade with excellent chemical resistance. It has a UL94V0@0.71mm and 5VA@2.0mm flame rating. This is a good candidate for a variety of applications in the electrical industry including commutators, cooling fan components, connectors, bobbins, and switches.

TYPICAL PROPERTY VALUES

Revision 20260520

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	120	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	120	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	2	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	2	%	ASTM D638
Tensile Modulus, 5 mm/min	12000	MPa	ASTM D638
Flexural Stress, brk, 1.3 mm/min, 50 mm span	186	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	9800	MPa	ASTM D790
Hardness, Rockwell R	119	-	ASTM D785
Taber Abrasion, CS-17, 1 kg	22	mg/1000cy	SABIC method
Tensile Stress, yield, 5 mm/min	120	MPa	ISO 527
Tensile Stress, break, 5 mm/min	120	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	1.9	%	ISO 527
Tensile Strain, break, 5 mm/min	1.9	%	ISO 527
Tensile Modulus, 1 mm/min	10000	MPa	ISO 527
Flexural Stress	180	MPa	ISO 178
Flexural Modulus, 2 mm/min	9500	MPa	ISO 178
Ball Indentation Hardness, H358/30	118	MPa	ISO 2039-1
Hardness, Rockwell R	119	-	ISO 2039-2
IMPACT			
Izod Impact, Unnotched			
23°C	620	J/m	ASTM D4812
80*10*4 +23°C	45	kJ/m²	ISO 180/1U
80*10*4 -30°C	45	kJ/m²	ISO 180/1U
Izod impact, notched			
23°C	60	J/m	ASTM D256
-30°C	57	J/m	ASTM D256
80*10*4 +23°C	7	kJ/m²	ISO 180/1A
80*10*4 -30°C	6	kJ/m²	ISO 180/1A
Instrumented Dart Impact Total Energy, 23°C	5	J	ASTM D3763
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	6	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	50	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	50	kJ/m²	ISO 179/1eU
THERMAL			

© 2026 Copyright by SABIC. All rights reserved

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Vicat Softening Temp, Rate B/50	200	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	212	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	200	°C	ASTM D648
CTE, -40°C to 40°C, flow	2.5E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	8.9E-05	1/°C	ASTM E831
Thermal Conductivity	0.25	W/m-°C	ISO 8302
CTE, -40°C to 40°C, flow	2.5E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.9E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, flow	2.5E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	1.2E-04	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	220	°C	ISO 306
Vicat Softening Temp, Rate B/50	200	°C	ISO 306
Vicat Softening Temp, Rate B/120	200	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	220	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	195	°C	ISO 75/Ae
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	200	°C	ISO 75/Af
Relative Temp Index, Elec	130	°C	UL 746B
Relative Temp Index, Mech w/impact	130	°C	UL 746B
Relative Temp Index, Mech w/o impact	140	°C	UL 746B
PHYSICAL			
Specific Gravity	1.63	-	ASTM D792
Specific Volume	0.61	cm³/g	ASTM D792
Mold Shrinkage on Tensile Bar, flow	0.1 – 0.5	%	SABIC method
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.7	%	SABIC method
Mold Shrinkage on Tensile Bar, xflow	0.4 – 0.8	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm	0.5 – 1	%	SABIC method
Melt Flow Rate			
250°C/5.0 kgf	42	g/10 min	ASTM D1238
Density	1.63	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.09	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Melt Volume Rate			
250°C/5.0 kg	29	cm³/10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	>1.E+15	Ω.cm	ASTM D257
Dielectric Strength, in air, 3.2 mm	19	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	24	kV/mm	ASTM D149
Relative Permittivity, 100 Hz	3.8	-	ASTM D150
Relative Permittivity, 1 MHz	3.7	-	ASTM D150
Dissipation Factor			
100 Hz	0.002	-	ASTM D150
1 MHz	0.02	-	ASTM D150
50/60 Hz	0.001	-	IEC 60250
100 Hz	0.002	-	IEC 60250
1 MHz	0.01	-	IEC 60250

© 2026 Copyright by SABIC. All rights reserved

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495
Hot Wire Ignition {PLC}	2	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	0	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
Volume Resistivity	>1.E+15	Ω.cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ω	IEC 60093
Dielectric Strength, in oil, 0.8 mm	23	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	22	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	IEC 60243-1
Relative Permittivity, 100 Hz	3.8	-	IEC 60250
Relative Permittivity, 1 MHz	3.3	-	IEC 60250
Comparative Tracking Index	175	V	IEC 60112
Comparative Tracking Index, M	125	V	IEC 60112
Relative Permittivity, 50/60 Hz	3.3	-	IEC 60250
FLAME CHARACTERISTICS			
UL Yellow Card Link	E207780-101092084	-	-
UL Yellow Card Link 2	E207780-101513785	-	-
UL Yellow Card Link 3	E45587-101092091	-	-
UL Yellow Card Link 4	E45587-101513788	-	-
UL Recognized, 94V-2 Flame Class Rating	0.4	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	0.71	mm	UL 94
UL Recognized, 94-5VA Flame Class Rating	2	mm	UL 94
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Oxygen Index (LOI)	32	%	ISO 4589
UV-light, water exposure/immersion	F2	-	UL 746C
INJECTION MOLDING			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	12	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	255 – 275	°C	
Nozzle Temperature	250 – 270	°C	
Front - Zone 3 Temperature	255 – 275	°C	
Middle - Zone 2 Temperature	250 – 270	°C	
Rear - Zone 1 Temperature	245 – 265	°C	
Mold Temperature	65 – 90	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	50 – 80	rpm	
Shot to Cylinder Size	40 – 80	%	
Vent Depth	0.025 – 0.038	mm	

© 2026 Copyright by SABIC. All rights reserved

DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.

© 2026 Copyright by SABIC. All rights reserved