

VALOX™ 451E resin

Polybutylene Terephthalate

SABIC Innovative Plastics

Message:

VALOX 451E is 20% glass reinforced, flame retardant PBT injection moulding resin.

General Information			
UL YellowCard	E45329-236601		
Filler / Reinforcement	Glass fiber reinforced material, 20% filler by weight		
Additive	Flame retardancy		
Features	Flame retardancy		
RoHS Compliance	RoHS compliance		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.54	g/cm ³	ASTM D792, ISO 1183
Specific Volume	0.650	cm ³ /g	ASTM D792
Flexural Strain at Break ¹	3.0	%	ISO 178
Filler Content	20	%	ASTM D229
Melt Mass-Flow Rate (MFR)			ASTM D1238
250°C/2.16 kg	17	g/10 min	ASTM D1238
266°C/5.0 kg	110	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/2.16 kg	12.0	cm ³ /10min	ISO 1133
250°C/5.0 kg	55.0	cm ³ /10min	ISO 1133
265°C/5.0 kg	85.0	cm ³ /10min	ISO 1133
Molding Shrinkage			Internal method
Flow ²	0.40 - 0.80	%	Internal method
Flow: 3.20mm	0.40 - 1.0	%	Internal method
Transverse flow ³	0.60 - 0.90	%	Internal method
Transverse flow: 3.20mm	0.80 - 1.2	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	0.27	%	ISO 62
Equilibrium, 23°C, 50% RH	0.080	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	120		ISO 2039-2
Ball Indentation Hardness (H 358/30)	117	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ⁴	7900	MPa	ASTM D638
--	8000	MPa	ISO 527-2/1

Tensile Strength			
Yield ⁵	110	MPa	ASTM D638
Yield	110	MPa	ISO 527-2/5
Fracture ⁶	110	MPa	ASTM D638
Fracture	110	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁷	2.0	%	ASTM D638
Yield	2.0	%	ISO 527-2/5
Fracture ⁸	2.0	%	ASTM D638
Fracture	2.0	%	ISO 527-2/5
Flexural Modulus			
50.0mm span ⁹	6100	MPa	ASTM D790
-- ¹⁰	6600	MPa	ISO 178
Flexural Stress			
--	160	MPa	ISO 178
Yield, 50.0mm span ¹¹	154	MPa	ASTM D790
Fracture, 50.0mm span ¹²	154	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
-30°C ¹³	5.0	kJ/m ²	ISO 179/1eA
-30°C	7.0	kJ/m ²	ISO 179/2C
23°C ¹⁴	7.0	kJ/m ²	ISO 179/1eA, ISO 179/2C
Charpy Unnotched Impact Strength			
-30°C ¹⁵	45	kJ/m ²	ISO 179/1eU
-30°C	28	kJ/m ²	ISO 179/2U
23°C ¹⁶	35	kJ/m ²	ISO 179/1eU
23°C	30	kJ/m ²	ISO 179/2U
Notched Izod Impact			
-30°C	60	J/m	ASTM D256
0°C	60	J/m	ASTM D256
23°C	60	J/m	ASTM D256
-30°C ¹⁷	6.0	kJ/m ²	ISO 180/1A
0°C ¹⁸	6.0	kJ/m ²	ISO 180/1A
23°C ¹⁹	6.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
-30°C	320	J/m	ASTM D4812
23°C	350	J/m	ASTM D4812
-30°C ²⁰	25	kJ/m ²	ISO 180/1U
23°C ²¹	25	kJ/m ²	ISO 180/1U
Instrumented Dart Impact (23°C, Total Energy)	6.00	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method

Deflection Temperature Under Load			
0.45 MPa, unannealed, 3.20mm	219	°C	ASTM D648
0.45 MPa, unannealed, 64.0mm span ²²	219	°C	ISO 75-2/Bf
1.8 MPa, unannealed, 3.20mm	200	°C	ASTM D648
1.8 MPa, unannealed, 64.0mm span ²³	200	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	202	°C	ASTM D1525, ISO 306/B120 13 ²⁴
--	218	°C	ASTM D1525, ISO 306/A50 14 ²⁵
--	203	°C	ISO 306/B50
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			
Flow: -40 to 40°C	3.1E-5	cm/cm/°C	ASTM E831
Flow: -40 to 40°C	2.6E-5	cm/cm/°C	ISO 11359-2
Flow: 23 to 150°C	2.4E-5	cm/cm/°C	ISO 11359-2
Lateral: -40 to 40°C	9.3E-5	cm/cm/°C	ASTM E831
Lateral: -40 to 40°C	7.0E-5	cm/cm/°C	ISO 11359-2
Horizontal: 23 to 150°C	1.6E-4	cm/cm/°C	ISO 11359-2
RTI Elec	120	°C	UL 746
RTI Imp	120	°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			IEC 60243-1
0.800mm, in oil	22	kV/mm	IEC 60243-1
1.60mm, in oil	21	kV/mm	IEC 60243-1
3.20mm, in oil	15	kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
50 Hz	3.30		IEC 60250
60 Hz	3.30		IEC 60250
1 MHz	3.30		IEC 60250
Dissipation Factor			IEC 60250
50 Hz	1.0E-3		IEC 60250
60 Hz	1.0E-3		IEC 60250
1 MHz	0.010		IEC 60250
Comparative Tracking Index	175	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.710 mm	V-0		UL 94
2.30 mm	5VA		UL 94
Glow Wire Flammability Index (1.00 mm)	960	°C	IEC 60695-2-12

Oxygen Index	30	%	ISO 4589-2
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (260°C, 1500 sec ⁻¹)	100	Pa·s	ISO 11443
Injection	Nominal Value	Unit	
Drying Temperature	110 - 120	°C	
Drying Time	2.0 - 4.0	hr	
Suggested Max Moisture	0.020	%	
Hopper Temperature	40.0 - 60.0	°C	
Rear Temperature	230 - 245	°C	
Middle Temperature	240 - 255	°C	
Front Temperature	245 - 265	°C	
Nozzle Temperature	240 - 260	°C	
Processing (Melt) Temp	250 - 270	°C	
Mold Temperature	40.0 - 100	°C	
NOTE			
1.	2 mm/min		
2.	Tensile Bar		
3.	Tensile Bar		
4.	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.	Type 1, 5.0 mm/min		
9.	1.3 mm/min		
10.	2.0 mm/min		
11.	1.3 mm/min		
12.	1.3 mm/min		
13.	80*10*4 sp=62mm		
14.	80*10*4 sp=62mm		
15.	80*10*4 sp=62mm		
16.	80*10*4 sp=62mm		
17.	80*10*4		
18.	80*10*4		
19.	80*10*4		
20.	80*10*4		
21.	80*10*4		
22.	80*10*4 mm		
23.	80*10*4 mm		
24.	标准 B (120°C/h), 载荷2 (50N)		
25.	速率 A (50°C/h), 载荷2 (50N)		

The information and data on this page are provided by manufacturers and document providers. SHANGHAI SUSHENG assumes no legal liability. It is strongly recommended to verify all technical data with material suppliers before final material selection. All rights belong to the original authors. If any

infringement occurs, please contact us immediately.

Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

