

VALOX™ 4031 resin

Polybutylene Terephthalate
SABIC Innovative Plastics Europe

Message:

VALOX 4031 is a 30% high strength glass fibre reinforced PBT injection moulding resin with excellent strength, stiffness and heat resistance. Applications: appliance handles, spotlights, electric motors.

General Information			
UL YellowCard	E45329-236594		
Filler / Reinforcement	Glass Fiber,30% Filler by Weight		
Features	High Heat Resistance		
	High Stiffness		
	High Strength		
Uses	Appliance Components		
	Handles		
RoHS Compliance	RoHS Compliant		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.54	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (266°C/5.0 kg)	50	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/2.16 kg	12.0	cm ³ /10min	
250°C/5.0 kg	30.0	cm ³ /10min	
265°C/5.0 kg	40.0	cm ³ /10min	
Molding Shrinkage ¹			Internal Method
Flow	0.30 to 0.70	%	
Across Flow	0.50 to 1.0	%	
Water Absorption			ISO 62
Saturation, 23°C	0.26	%	
Equilibrium, 23°C, 50% RH	0.060	%	
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	125		ISO 2039-2
Ball Indentation Hardness (H 358/30)	125	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ²	10000	MPa	ASTM D638
--	10000	MPa	ISO 527-2/1
Tensile Strength			

Yield ³	140	MPa	ASTM D638
Yield	135	MPa	ISO 527-2/5
Break ⁴	140	MPa	ASTM D638
Break	135	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁵	3.0	%	ASTM D638
Yield	2.0	%	ISO 527-2/5
Break ⁶	3.0	%	ASTM D638
Break	2.0	%	ISO 527-2/5
Flexural Modulus			
50.0 mm Span ⁷	7900	MPa	ASTM D790
-- ⁸	8300	MPa	ISO 178
Flexural Stress			
--	210	MPa	ISO 178
--	200	MPa	ISO 178
Yield, 50.0 mm Span ⁹	190	MPa	ASTM D790
Break, 50.0 mm Span ¹⁰	190	MPa	ASTM D790
Flexural Strain at Break ¹¹	3.0	%	ISO 178
Filler Content	30	%	ASTM D229
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
-30°C ¹²	6.0	kJ/m ²	ISO 179/1eA
-30°C	12	kJ/m ²	ISO 179/2C
23°C ¹³	7.0	kJ/m ²	ISO 179/1eA
23°C	12	kJ/m ²	ISO 179/2C
Charpy Unnotched Impact Strength			
-30°C ¹⁴	55	kJ/m ²	ISO 179/1eU
-30°C	60	kJ/m ²	ISO 179/2U
23°C ¹⁵	50	kJ/m ²	ISO 179/1eU
23°C	65	kJ/m ²	ISO 179/2U
Notched Izod Impact			
-30°C	100	J/m	ASTM D256
0°C	100	J/m	ASTM D256
23°C	100	J/m	ASTM D256
-30°C ¹⁶	10	kJ/m ²	ISO 180/1A
0°C ¹⁷	11	kJ/m ²	ISO 180/1A
23°C ¹⁸	11	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
-30°C	880	J/m	ASTM D4812
23°C	880	J/m	ASTM D4812
-30°C ¹⁹	55	kJ/m ²	ISO 180/1U
23°C ²⁰	55	kJ/m ²	ISO 180/1U

Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Unannealed, 3.20 mm	220	°C	ASTM D648
0.45 MPa, Unannealed, 100 mm Span ²¹	220	°C	ISO 75-2/Be
0.45 MPa, Unannealed, 64.0 mm Span ²²	220	°C	ISO 75-2/Bf
1.8 MPa, Unannealed, 3.20 mm	205	°C	ASTM D648
1.8 MPa, Unannealed, 100 mm Span ²³	210	°C	ISO 75-2/Ae
1.8 MPa, Unannealed, 64.0 mm Span ²⁴	205	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	220	°C	ASTM D1525, ISO 306/A50 15 ²⁵
--	215	°C	ASTM D1525, ISO 306/B50, ISO 306/B120 ²⁶
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
CLTE			ISO 11359-2
Flow : -40 to 40°C	2.1E-5	cm/cm/°C	
Flow : 23 to 80°C	3.0E-5	cm/cm/°C	
Flow : 23 to 150°C	2.0E-5	cm/cm/°C	
Transverse : -40 to 40°C	7.4E-5	cm/cm/°C	
Transverse : 23 to 80°C	1.2E-4	cm/cm/°C	
Transverse : 23 to 150°C	1.7E-4	cm/cm/°C	
RTI Elec	140	°C	UL 746
RTI Imp	140	°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, IEC 60093
Dielectric Strength			
0.800 mm, in Oil	26	kV/mm	ASTM D149, IEC 60243-1
1.60 mm, in Oil	24	kV/mm	ASTM D149, IEC 60243-1
3.20 mm, in Oil	18	kV/mm	ASTM D149
3.20 mm, in Oil	15	kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
50 Hz	3.30		
60 Hz	3.30		
1 MHz	3.10		
Dissipation Factor			IEC 60250
50 Hz	1.6E-3		
60 Hz	1.6E-3		
1 MHz	0.014		
Arc Resistance ²⁷	PLC 5		ASTM D495
Comparative Tracking Index (CTI)	PLC 0		UL 746
Comparative Tracking Index	250	V	IEC 60112

High Amp Arc Ignition (HAI)	PLC 1		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 1		UL 746
Hot-wire Ignition (HWI)	PLC 1		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.840 mm	HB		
6.00 mm	HB		
Glow Wire Flammability Index (1.00 mm)	750	°C	IEC 60695-2-12
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (260°C, 1500 sec ⁻¹)	150	Pa · s	ISO 11443
Injection	Nominal Value	Unit	
Drying Temperature	110 to 120	°C	
Drying Time	2.0 to 4.0	hr	
Suggested Max Moisture	0.020	%	
Hopper Temperature	40.0 to 60.0	°C	
Rear Temperature	230 to 245	°C	
Middle Temperature	240 to 255	°C	
Front Temperature	245 to 265	°C	
Nozzle Temperature	240 to 260	°C	
Processing (Melt) Temp	250 to 270	°C	
Mold Temperature	40.0 to 100	°C	
NOTE			
1.	Tensile Bar		
2.	5.0 mm/min		
3.	Type I, 5.0 mm/min		
4.	Type I, 5.0 mm/min		
5.	Type I, 5.0 mm/min		
6.	Type I, 5.0 mm/min		
7.	1.3 mm/min		
8.	2.0 mm/min		
9.	1.3 mm/min		
10.	1.3 mm/min		
11.	2 mm/min		
12.	80*10*4 sp=62mm		
13.	80*10*4 sp=62mm		
14.	80*10*4 sp=62mm		
15.	80*10*4 sp=62mm		
16.	80*10*4		
17.	80*10*4		
18.	80*10*4		
19.	80*10*4		
20.	80*10*4		

21.	120*10*4 mm
22.	80*10*4 mm
23.	120*10*4 mm
24.	80*10*4 mm
25.	Rate A (50°C/h), Loading 2 (50 N)
26.	Rate B (120°C/h), Loading 2 (50 N)
27.	Tungsten Electrode

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

