VALOX™ 4022 resin

Polybutylene Terephthalate

SABIC Innovative Plastics Europe

Message:

VALOX 4022 is a 20% high strength glass fibre reinforced PBT injection moulding resin, with improved mechanical properties. Applications : Spotlights, appliance housings and handles.

General Information			
Filler / Reinforcement	Glass Fiber,20% Filler by Weight		
Features	High Strength		
Uses	Appliance Components Handles Housings		
RoHS Compliance	RoHS Compliant		
Processing Method	Injection Molding		
Physical	**Nominal Value**	**Unit**	**Test Method**
Specific Gravity	1.45	g/cm³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (266°C/5.0 kg)	40	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/2.16 kg	16.0	cm³/10min	
250°C/5.0 kg	23.0	cm³/10min	
265°C/5.0 kg	30.0	cm³/10min	
Molding Shrinkage [1]			Internal Method
Flow	0.30 to 0.70	%	
Across Flow	0.40 to 1.0	%	
Water Absorption			ISO 62
Saturation, 23°C	0.15	%	
Equilibrium, 23°C, 50% RH	0.030	%	
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness (R-Scale)	122		ISO 2039-2
Ball Indentation Hardness (H 358/30)	130	MPa	ISO 2039-1
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus			
-- [2]	7400	MPa	ASTM D638
--	7300	MPa	ISO 527-2/1
Tensile Strength			
Yield [3]	120	MPa	ASTM D638
Yield	120	MPa	ISO 527-2/5
Break [4]	120	MPa	ASTM D638

Break	120	MPa	ISO 527-2/5
Tensile Elongation			
Yield [5]	3.0	%	ASTM D638
Yield	3.0	%	ISO 527-2/5
Break [6]	3.0	%	ASTM D638
Break	3.0	%	ISO 527-2/5
Flexural Modulus			
50.0 mm Span [7]	5900	MPa	ASTM D790
-- [8]	6200	MPa	ISO 178
Flexural Stress			
--	180	MPa	ISO 178
--	175	MPa	ISO 178
Yield, 50.0 mm Span [9]	170	MPa	ASTM D790
Break, 50.0 mm Span [10]	170	MPa	ASTM D790
Flexural Strain at Break [11]	3.0	%	ISO 178
Filler Content	20	%	ASTM D229
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength			
-30°C [12]	5.0	kJ/m²	ISO 179/1eA
-30°C	9.0	kJ/m²	ISO 179/2C
23°C [13]	6.0	kJ/m²	ISO 179/1eA
23°C	9.0	kJ/m²	ISO 179/2C
Charpy Unnotched Impact Strength			
-30°C [14]	30	kJ/m²	ISO 179/1eU
-30°C	42	kJ/m²	ISO 179/2U
23°C [15]	40	kJ/m²	ISO 179/1eU
23°C	42	kJ/m²	ISO 179/2U
Notched Izod Impact			
-30°C	75	J/m	ASTM D256
0°C	75	J/m	ASTM D256
23°C	75	J/m	ASTM D256
-30°C [16]	8.0	kJ/m²	ISO 180/1A
0°C [17]	8.0	kJ/m²	ISO 180/1A
23°C [18]	8.0	kJ/m²	ISO 180/1A
Unnotched Izod Impact			
-30°C	560	J/m	ASTM D4812
23°C	560	J/m	ASTM D4812
-30°C [19]	35	kJ/m²	ISO 180/1U
23°C [20]	40	kJ/m²	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	200	°C	ASTM D648
1.8 MPa, Unannealed, 100 mm Span [23]	205	°C	ISO 75-2/Ae
1.8 MPa, Unannealed, 64.0 mm Span [24]	200	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	220	°C	ASTM D1525, ISO 306/A50 14 [25]
--	215	°C	ASTM D1525, ISO 306/B50 15 [26]
--	210	°C	ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
CLTE			ISO 11359-2
Flow : -40 to 40°C	3.1E-5	cm/cm/°C	
Flow : 23 to 80°C	4.0E-5	cm/cm/°C	
Flow : 23 to 150°C	3.0E-5	cm/cm/°C	
Transverse : -40 to 40°C	7.3E-5	cm/cm/°C	
Transverse : 23 to 80°C	8.0E-5	cm/cm/°C	
Transverse : 23 to 150°C	1.8E-4	cm/cm/°C	
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			ASTM D149, IEC 60243-1
0.800 mm, in Oil	26	kV/mm	
1.60 mm, in Oil	24	kV/mm	
3.20 mm, in Oil	18	kV/mm	
Dielectric Constant			
1 MHz	3.60		ASTM D150, IEC 60250
50 Hz	3.20		IEC 60250
60 Hz	3.20		IEC 60250
Dissipation Factor			
1 MHz	0.015		ASTM D150, IEC 60250
50 Hz	1.0E-3		IEC 60250
60 Hz	1.0E-3		IEC 60250
Comparative Tracking Index	250	V	IEC 60112
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating (0.840 mm, Testing by SABIC)	HB		UL 94
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)	140	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)

Recommended distributors for this material

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