

VALOX™ 420HP resin

Polybutylene Terephthalate

SABIC Innovative Plastics

Message:

30% Glass filled PBT resin, FDA Food Contact compliant in limited colors. Effective March 2008 this grade will no longer be supported with biocompatibility information. Alternative grade VALOX HX420HP.

General Information			
UL YellowCard	E121562-220792		
Filler / Reinforcement	Glass Fiber,30% Filler by Weight		
Features	Food Contact Acceptable		
Agency Ratings	FDA Food Contact, Unspecified Rating		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.53	g/cm ³	ASTM D792, ISO 1183
Specific Volume	0.650	cm ³ /g	ASTM D792
Filler Content	30	%	ASTM D229
Melt Mass-Flow Rate (MFR) (250°C/2.16 kg)	17	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (250°C/2.16 kg)	13.0	cm ³ /10min	ISO 1133
Molding Shrinkage			Internal Method
Flow ¹	0.50 to 0.80	%	
Flow ²	0.30 to 0.50	%	
Flow ³	0.30 to 0.70	%	
Flow : 3.20 mm	0.30 to 0.80	%	
Across Flow ⁴	0.60 to 0.90	%	
Across Flow ⁵	0.40 to 0.60	%	
Across Flow ⁶	0.50 to 1.0	%	
Across Flow : 3.20 mm	0.50 to 1.0	%	
Water Absorption			
24 hr	0.060	%	ASTM D570
Saturation, 23°C	0.26	%	ISO 62
Equilibrium, 23°C, 50% RH	0.080	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	118		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ⁷	9300	MPa	ASTM D638
--	9300	MPa	ISO 527-2/1
Tensile Strength			

Yield ⁸	120	MPa	ASTM D638
Yield	125	MPa	ISO 527-2/5
Break ⁹	120	MPa	ASTM D638
Break	125	MPa	ISO 527-2/5
Tensile Elongation			
Yield ¹⁰	3.0	%	ASTM D638
Yield	2.0	%	ISO 527-2/5
Break ¹¹	3.0	%	ASTM D638
Break	2.0	%	ISO 527-2/5
Flexural Modulus			
50.0 mm Span ¹²	7580	MPa	ASTM D790
-- ¹³	8500	MPa	ISO 178
Flexural Stress			
--	195	MPa	ISO 178
Break, 50.0 mm Span ¹⁴	189	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ¹⁵			ISO 179/1eA
-30°C	5.0	kJ/m ²	
23°C	5.0	kJ/m ²	
Charpy Unnotched Impact Strength ¹⁶			ISO 179/1eU
-30°C	45	kJ/m ²	
23°C	45	kJ/m ²	
Notched Izod Impact			
-30°C	80	J/m	ASTM D256
23°C	85	J/m	ASTM D256
-30°C ¹⁷	7.0	kJ/m ²	ISO 180/1A
23°C ¹⁸	8.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
23°C	800	J/m	ASTM D4812
-30°C ¹⁹	45	kJ/m ²	ISO 180/1U
23°C ²⁰	45	kJ/m ²	ISO 180/1U
Instrumented Dart Impact (23°C, Total Energy)	8.00	J	ASTM D3763
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, 6.40 mm	216	°C	ASTM D648
0.45 MPa, Unannealed, 64.0 mm Span ²¹	217	°C	ISO 75-2/Bf
1.8 MPa, Unannealed, 3.20 mm	203	°C	ASTM D648
1.8 MPa, Unannealed, 64.0 mm Span ²²	204	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	215	°C	ASTM D1525, ISO 306/B50, ISO 306/B120 ²³

--	223	°C	ISO 306/A50
CLTE			ASTM E831, ISO 11359-2
Flow : -40 to 40°C	2.5E-5	cm/cm/°C	
Transverse : -40 to 40°C	1.2E-4	cm/cm/°C	
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	> 3.2E+16	ohms·cm	ASTM D257
Dielectric Strength			ASTM D149
1.60 mm, in Oil	25	kV/mm	
3.20 mm, in Air	19	kV/mm	
Dielectric Constant			ASTM D150
100 Hz	3.80		
1 MHz	3.70		
Dissipation Factor			ASTM D150
100 Hz	2.0E-3		
1 MHz	0.020		
Injection	Nominal Value	Unit	
Drying Temperature	121	°C	
Drying Time	3.0 to 4.0	hr	
Drying Time, Maximum	12	hr	
Suggested Max Moisture	0.020	%	
Suggested Shot Size	40 to 80	%	
Rear Temperature	238 to 254	°C	
Middle Temperature	243 to 260	°C	
Front Temperature	249 to 266	°C	
Nozzle Temperature	243 to 260	°C	
Processing (Melt) Temp	249 to 266	°C	
Mold Temperature	65.6 to 87.8	°C	
Back Pressure	0.345 to 0.689	MPa	
Screw Speed	50 to 80	rpm	
Vent Depth	0.025 to 0.038	mm	
NOTE			
1.	3.2 to 4.6 mm		
2.	1.5 to 3.2 mm		
3.	Tensile Bar		
4.	3.2-4.6 mm		
5.	1.5 to 3.2 mm		
6.	Tensile Bar		
7.	5.0 mm/min		
8.	Type I, 5.0 mm/min		
9.	Type I, 5.0 mm/min		
10.	Type I, 5.0 mm/min		
11.	Type I, 5.0 mm/min		

12.	1.3 mm/min
13.	2.0 mm/min
14.	1.3 mm/min
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 mm
22.	80*10*4 mm
23.	Rate B (120°C/h), Loading 2 (50 N)

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