

VALOX™ RESIN 420HP

REGION AMERICAS

DESCRIPTION

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.

TYPICAL PROPERTY VALUES

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	3	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	3	%	ASTM D638
Tensile Modulus, 5 mm/min	9300	MPa	ASTM D638
Flexural Stress, brk, 1.3 mm/min, 50 mm span	189	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	7580	MPa	ASTM D790
Hardness, Rockwell R	118	-	ASTM D785
Tensile Stress, yield, 5 mm/min	125	MPa	ISO 527
Tensile Stress, break, 5 mm/min	125	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	2	%	ISO 527
Tensile Strain, break, 5 mm/min	2	%	ISO 527
Tensile Modulus, 1 mm/min	9300	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	195	MPa	ISO 178
Flexural Modulus, 2 mm/min	8500	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	801	J/m	ASTM D4812
Izod Impact, notched, 23°C	85	J/m	ASTM D256
Izod Impact, notched, -30°C	80	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	8	J	ASTM D3763
Izod Impact, unnotched 80*10*4 +23°C	45	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	45	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	8	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	7	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	45	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	45	kJ/m²	ISO 179/1eU
THERMAL			
Vicat Softening Temp, Rate B/50	215	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	220	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	203	°C	ASTM D648
HDT, 0.45 MPa, 6.4 mm, unannealed	215	°C	ASTM D648
CTE, -40°C to 40°C, flow	2.52E-05	1/°C	ASTM E831

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
CTE, -40°C to 40°C, xflow	1.2E-04	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	2.52E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	1.2E-04	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50	223	°C	ISO 306
Vicat Softening Temp, Rate B/50	215	°C	ISO 306
Vicat Softening Temp, Rate B/120	215	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	217	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	204	°C	ISO 75/Af
PHYSICAL			
Specific Gravity	1.53	-	ASTM D792
Specific Volume	0.65	cm³/g	ASTM D792
Filler Content	30	%	ASTM D229
Water Absorption, (23°C/24hrs)	0.06	%	ASTM D570
Mold Shrinkage on Tensile Bar, flow	0.3 – 0.7	%	SABIC method
Mold Shrinkage, flow, 3.2 mm	0.3 – 0.8	%	SABIC method
Mold Shrinkage, flow, 1.5-3.2 mm	0.3 – 0.5	%	SABIC method
Mold Shrinkage, flow, 3.2-4.6 mm	0.5 – 0.8	%	SABIC method
Mold Shrinkage on Tensile Bar, xflow	0.5 – 1	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm	0.5 – 1	%	SABIC method
Mold Shrinkage, xflow, 1.5-3.2 mm	0.4 – 0.6	%	SABIC method
Mold Shrinkage, xflow, 3.2-4.6 mm	0.6 – 0.9	%	SABIC method
Melt Flow Rate, 250°C/2.16 kgf	17	g/10 min	ASTM D1238
Density	1.53	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.26	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.08	%	ISO 62
Melt Volume Rate, MVR at 250°C/2.16 kg	13	cm³/10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	>3.2E+16	Ω.cm	ASTM D257
Dielectric Strength, in air, 3.2 mm	18.7	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	24.8	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
Dissipation Factor, 1 MHz	0.02	-	ASTM D150
FLAME CHARACTERISTICS			
UL Yellow Card Link	E121562-220792	-	-
INJECTION MOLDING			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	12	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	250 – 265	°C	
Nozzle Temperature	245 – 260	°C	
Front - Zone 3 Temperature	250 – 265	°C	
Middle - Zone 2 Temperature	245 – 260	°C	



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Rear - Zone 1 Temperature	240 – 255	°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	