

# 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

Revision 20180905

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	120	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	120	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	3	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	3	%	ASTM D 638
Tensile Modulus, 5 mm/min	9300	MPa	ASTM D 638
Flexural Stress, brk, 1.3 mm/min, 50 mm span	189	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	7580	MPa	ASTM D 790
Hardness, Rockwell R	118	-	ASTM D 785
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
<b>IMPACT</b>			
Izod Impact, unnotched, 23°C	801	J/m	ASTM D 4812
Izod Impact, notched, 23°C	85	J/m	ASTM D 256
Izod Impact, notched, -30°C	80	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	8	J	ASTM D 3763
Izod Impact, unnotched 80°10°4 +23°C	45	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80°10°4 -30°C	45	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, notched 80°10°4 +23°C	8	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80°10°4 -30°C	7	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm	5	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80°10°4 sp=62mm	5	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80°10°4 sp=62mm	45	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80°10°4 sp=62mm	45	kJ/m <sup>2</sup>	ISO 179/1eU
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	215	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	220	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	203	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	215	°C	ASTM D 648
CTE, -40°C to 40°C, flow	2.52E-05	1/°C	ASTM E 831

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CTE, -40°C to 40°C, xflow	1.2E-04	1/°C	ASTM E 831
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
<b>PHYSICAL</b>			
Specific Gravity	1.53	-	ASTM D 792
Specific Volume	0.65	cm <sup>3</sup> /g	ASTM D 792
Filler Content	30	%	ASTM D 229
Water Absorption, 24 hours	0.06	%	ASTM D 570
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 D 1238
Density	1.53	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.26	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.08	%	ISO 62
Melt Volume Rate, MVR at 250°C/2.16 kg	13	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Volume Resistivity	>3.2E+16	Ohm-cm	ASTM D 257
Dielectric Strength, in air, 3.2 mm	18.7	kV/mm	ASTM D 149
Dielectric Strength, in oil, 1.6 mm	24.8	kV/mm	ASTM D 149
Relative Permittivity, 100 Hz	3.8	-	ASTM D 150
Relative Permittivity, 1 MHz	3.7	-	ASTM D 150
Dissipation Factor, 100 Hz	0.002	-	ASTM D 150
Dissipation Factor, 1 MHz	0.02	-	ASTM D 150
<b>INJECTION MOLDING</b>			
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	
Rear - Zone 1 Temperature	240 – 255	°C	
Mold Temperature	65 – 90	°C	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	

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