



Valox* Resin K3501

Americas: COMMERCIAL

Unfilled PBT, Hydrolytically Stable, Heat Stabilized, Impact Modified. A hydrolytically stable grade designed for improved performance under heat/humidity environments. Targeted at automotive underhood applications requiring USCAR-2 Class III humidity/heat performance.

TYPICAL PROPERTIES ¹	TYPICAL VALUE	UNIT	STANDARD
MECHANICAL			
Tensile Stress, yld, Type I, 2.0 in/min	7100	psi	ASTM D 638
Tensile Stress, brk, Type I, 2.0 in/min	3500	psi	ASTM D 638
Tensile Strain, yld, Type I, 2.0 in/min	3.5	%	ASTM D 638
Tensile Strain, brk, Type I, 2.0 in/min	51	%	ASTM D 638
Tensile Modulus, 2.0 in/min	352000	psi	ASTM D 638
Flexural Stress, yld, 0.05 in/min, 2 in span	10200	psi	ASTM D 790
Flexural Modulus, 0.05 in/min, 2 in span	302000	psi	ASTM D 790
Tensile Stress, yield, 50 mm/min	50	MPa	ISO 527
Tensile Stress, break, 50 mm/min	73	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	3.2	%	ISO 527
Tensile Strain, break, 50 mm/min	37	%	ISO 527
Tensile Modulus, 1 mm/min	2020	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	73	MPa	ISO 178
Flexural Modulus, 2 mm/min	2020	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, -22°F	NB	ft-lb/in	ASTM D 4812
Izod Impact, notched, 73°F	1.6	ft-lb/in	ASTM D 256
Izod Impact, notched, 32°F	1.5	ft-lb/in	ASTM D 256
Izod Impact, notched, 0°F	1.3	ft-lb/in	ASTM D 256
Instrumented Impact Total Energy, 73°F	424	in-lb	ASTM D 3763
Instrumented Impact Total Energy, -40°F	531	in-lb	ASTM D 3673
Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m ²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	8	kJ/m ²	ISO 180/1A

1) Typical values only. Variations within normal tolerances are possible for various colours. All values are measured at least after 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume rate are measured on injection moulded samples. All samples are prepared according to ISO 294.

2) Only typical data for material selection purpose. Not to be used for part or tool design.
 3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
 4) Own measurement according to UL.

Source, GMD, Last Update: 04/15/2005

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TYPICAL PROPERTIES ¹	TYPICAL VALUE	UNIT	STANDARD
IMPACT			
Izod Impact, notched 80*10*4 +23°C	8	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	10	kJ/m ²	ISO 179/1eA
THERMAL			
HDT, 66 psi, 0.125", unannealed	260	°F	ASTM D 648
HDT, 264 psi, 0.125", unannealed	114	°F	ASTM D 648
CTE, -40°C to 40°C, flow	9.1E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	9.7E-05	1/°C	ISO 11359-2
Ball Pressure Test, 75°C +/- 2°C	NA	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	170	°C	ISO 306
Vicat Softening Temp, Rate B/120	170	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	46	°C	ISO 75/Af
PHYSICAL			
Mold Shrinkage, flow (2)	1.1 - 1.8	%	GE Method
Mold Shrinkage, xflow (2)	0.9 - 1.8	%	GE Method
Density	0.04	lb/in ³	ISO 1183
Water Absorption, equilibrium, 73°F	0.34	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.08	%	ISO 62
Melt Volume Rate, MVR at 250°C/2.16 kg	26	cm ³ /10 min	ISO 1133
AFTER 40 CYCLES, SIMILAR TO USCAR-2, CLASS III			
Tensile Stress, brk, Type I, 2.0 in/min	5300	psi	ASTM D 638
Tensile Strain, brk, Type I, 2.0 in/min	12	%	ASTM D 638
Flexural Modulus, 0.05 in/min, 2 in span	341000	psi	ASTM D 790
Instrumented Impact, Total Energy, 73°F	513.3	in-lb	ASTM D 3763
PROPERTIES AFTER 1008 HOURS AT 125°C			
Tensile Stress, yld, Type I, 2.0 in/min	7800	psi	ASTM D 638
Tensile Strain, yld, Type I, 2.0 in/min	4	%	ASTM D 638
Tensile Strain, brk, Type I, 2.0 in/min	25	%	ASTM D 638
Flexural Modulus, 0.05 in/min, 2 in span	338000	psi	ASTM D 790
Instrumented Impact, Total Energy, 73°F	539.9	in-lb	ASTM D 3763

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 3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
 4) Own measurement according to UL.

Source, GMD, Last Update:04/15/2005

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PROCESSING PARAMETERS	TYPICAL VALUE	UNIT
Injection Molding		
Drying Temperature	140 - 170	°F
Drying Time	4 - 5	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.05	%
Melt Temperature	480 - 510	°F
Nozzle Temperature	470 - 500	°F
Front - Zone 3 Temperature	480 - 510	°F
Middle - Zone 2 Temperature	470 - 500	°F
Rear - Zone 1 Temperature	460 - 490	°F
Mold Temperature	150 - 190	°F
Back Pressure	50 - 100	psi
Screw Speed	50 - 80	rpm
Shot to Cylinder Size	40 - 80	%
Vent Depth	0.001 - 0.0015	in

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