



VALOX™ Resin K3501
Americas: COMMERCIAL

Unfilled PBT, Hydrollytically Stable, Heat Stabilized, Impact Modified. A hydrollytically 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, 50 mm/min	500	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	240	kgf/cm ²	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	3.5	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	51	%	ASTM D 638
Tensile Modulus, 50 mm/min	24700	kgf/cm ²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	720	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	21200	kgf/cm ²	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, -30°C	NB	cm-kgf/cm	ASTM D 4812
Izod Impact, notched, 23°C	9	cm-kgf/cm	ASTM D 256
Izod Impact, notched, 0°C	8	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -20°C	7	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	489	cm-kgf	ASTM D 3763
Instrumented Impact Total Energy, -40°C	611	cm-kgf	ASTM D 3763
Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m ²	ISO 180/1U



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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, 0.45 MPa, 3.2 mm, unannealed	127	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	46	°C	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, 3.2 mm (5)	1.7 - 2.6	%	SABIC Method
Mold Shrinkage, xflow, 3.2 mm (5)	1.7 - 2.6	%	SABIC Method
Density	1.28	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	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, 50 mm/min	370	kgf/cm ²	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	12	%	ASTM D 638
Flexural Modulus, 1.3 mm/min, 50 mm span	24000	kgf/cm ²	ASTM D 790
Instrumented Impact, Total Energy, 23°C	590	cm-kgf	ASTM D 3763
PROPERTIES AFTER 1008 HOURS AT 125°C			
Tensile Stress, yld, Type I, 50 mm/min	550	kgf/cm ²	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	4	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	25	%	ASTM D 638



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TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
PROPERTIES AFTER 1008 HOURS AT 125°C			
Flexural Modulus, 1.3 mm/min, 50 mm span	23700	kgf/cm ²	ASTM D 790
Instrumented Impact, Total Energy, 23°C	620	cm-kgf	ASTM D 3763



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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Drying Temperature	60 - 75	°C
Drying Time	4 - 5	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.05	%
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
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