

## 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.

### Property

TYPICAL PROPERTIES <sup>(1)</sup>			
MECHANICAL	Value	Unit	Standard
Tensile Stress, yld, Type I, 50 mm/min	49	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	24	MPa	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	2430	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	71	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2080	MPa	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	Value	Unit	Standard
Izod Impact, unnotched, -30°C	NB	J/m	ASTM D 4812
Izod Impact, notched, 23°C	89	J/m	ASTM D 256
Izod Impact, notched, 0°C	83	J/m	ASTM D 256
Izod Impact, notched, -20°C	73	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	48	J	ASTM D 3763
Instrumented Impact Total Energy, -40°C	60	J	ASTM D 3673
Izod Impact, unnotched 80*10*4 -30°C	NB	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
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	10	kJ/m <sup>2</sup>	ISO 179/1eA
THERMAL	Value	Unit	Standard
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	Value	Unit	Standard
Mold Shrinkage, flow, 3.2 mm	1.7 - 2.6	%	SABIC Method
Mold Shrinkage, xflow, 3.2 mm	1.7 - 2.6	%	SABIC Method
Density	1.28	g/cm <sup>3</sup>	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 <sup>3</sup> /10 min	ISO 1133
<b>AFTER 40 CYCLES, SIMILAR TO USCAR-2, CLASS III</b>	<b>Value</b>	<b>Unit</b>	<b>Standard</b>
Tensile Stress, brk, Type I, 50 mm/min	37	MPa	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	12	%	ASTM D 638
Flexural Modulus, 1.3 mm/min, 50 mm span	2350	MPa	ASTM D 790
Instrumented Impact, Total Energy, 23°C	58	J	ASTM D 3763
<b>PROPERTIES AFTER 1008 HOURS AT 125°C</b>	<b>Value</b>	<b>Unit</b>	<b>Standard</b>
Tensile Stress, yld, Type I, 50 mm/min	54	MPa	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
Flexural Modulus, 1.3 mm/min, 50 mm span	2330	MPa	ASTM D 790
Instrumented Impact, Total Energy, 23°C	61	J	ASTM D 3763

Source GMD, last updated:04/02/2004

## Processing

Parameter	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

Source GMD, last updated:04/02/2004

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. 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) Internal measurements according to UL standards.

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