

## Valox\* Resin 4512

## Europe-Africa-Middle East: COMMERCIAL

VALOX 4512 is a 10% glass reinforced PBT, flame retarded, impact modified PBT injection moulding resin. Applications: electrical/lighting applications.

### Property

TYPICAL PROPERTIES <sup>(1)</sup>			
MECHANICAL	Value	Unit	Standard
Tensile Stress, break, 5 mm/min	80	MPa	ISO 527
Tensile Strain, break, 5 mm/min	3	%	ISO 527
Tensile Modulus, 1 mm/min	4000	MPa	ISO 527
Flexural Stress, break, 2 mm/min	115	MPa	ISO 178
Flexural Modulus, 2 mm/min	3800	MPa	ISO 178
IMPACT	Value	Unit	Standard
Izod Impact, unnotched 80*10*4 +23°C	38	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	25	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	6	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	4	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	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	40	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	35	kJ/m <sup>2</sup>	ISO 179/1eU
THERMAL	Value	Unit	Standard
CTE, 23°C to 80°C, flow	6.E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	8.E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	210	°C	ISO 306
Vicat Softening Temp, Rate B/50	159	°C	ISO 306
Vicat Softening Temp, Rate B/120	157	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	200	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	125	°C	ISO 75/Ae
Relative Temp Index, Elec	120	°C	UL 746B
Relative Temp Index, Mech w/impact	120	°C	UL 746B
Relative Temp Index, Mech w/o impact	140	°C	UL 746B
PHYSICAL	Value	Unit	Standard
Mold Shrinkage on Tensile Bar, flow (2)	0.6 - 0.9	%	SABIC Method
Mold Shrinkage on Tensile Bar, xflow (2)	0.7 - 1	%	SABIC Method
Density	1.42	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.2	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Melt Volume Rate, MVR at 250°C/2.16 kg	8	cm <sup>3</sup> /10 min	ISO 1133
ELECTRICAL	Value	Unit	Standard
Volume Resistivity	>1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ohm	IEC 60093
Dielectric Strength, in oil, 1.6 mm	20	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	15	kV/mm	IEC 60243-1

Relative Permittivity, 50/60 Hz	3.3	-	IEC 60250
Relative Permittivity, 1 MHz	3.3	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.001	-	IEC 60250
Dissipation Factor, 1 MHz	0.01	-	IEC 60250
Comparative Tracking Index	175	V	IEC 60112
<b>FLAME CHARACTERISTICS</b>	<b>Value</b>	<b>Unit</b>	<b>Standard</b>
UL Recognized, 94V-0 Flame Class Rating (3)	0.75	mm	UL 94
Glow Wire Flammability Index 960°C, passes at	1.6	mm	IEC 60695-2-12

Source GMD, last updated:10/10/1994

## Processing

Parameter	Value	Unit
<b>Injection Molding</b>		
Drying Temperature	110 - 120	°C
Drying Time	2 - 4	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	250 - 270	°C
Nozzle Temperature	240 - 260	°C
Front - Zone 3 Temperature	245 - 265	°C
Middle - Zone 2 Temperature	240 - 255	°C
Rear - Zone 1 Temperature	230 - 245	°C
Hopper Temperature	40 - 60	°C
Mold Temperature	40 - 100	°C

Source GMD, last updated:10/10/1994

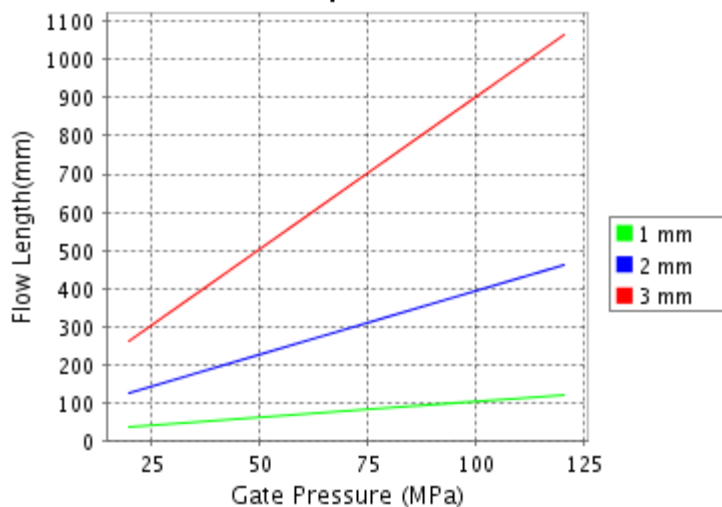
### CALCULATED FLOW LENGTH INDICATION

Moldflow® Radial Flow Analysis

Valox® 212HPR

Melt Temperature : 260°C

Mold Temperature : 70°C



**Note: Technical support is recommended if Gate Pressure is greater than 80 MPa. Contact your local representative.**

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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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