



Epoxy Dotted Paper

Raman boards now offer epoxy dotted paper in a range of thicknesses with resin formulation expertise gained at our Research and Development centre. We have developed this product with capability to coat the resin on both side of high grade Insulation Presspaper. The base paper has been proven for usage in transformers over the last many years.

The epoxy resin is coated in squares of dimension 9.5mm with a distance of 6.7mm between squares. The thickness of the coating is 0.02mm, ± 0.01 mm

The epoxy resin is maintained in reactive 'B' state and will melt upon raising the curing temperature to 120 to 140°C. This facilitates firm bonding with the conductor and the non-reactive 'C' state is reached after a curing time of 6-8 hours. The insulation is then in the stable duroplastic condition. We offer these materials in nature brown finish in thicknesses ranging between 0.063 to 0.30 mm.

Storage: the rolls must be stored in upright and dry condition with packing at a maximum ambient temperature of 30°C. Avoid direct sunlight.

Shelf life: 180 days, when stored at $< 30^{\circ}\text{C}$

Bond strength

The epoxy dotted paper should bond firmly and evenly to the conductor. The bonding or tensile shear strength can be checked as follows

- Prepare four layers of specimens of epoxy dotted paper of size 50 x 50 mm
- Take two cleaned Aluminum or copper plates with dimension of 150 x 50 x 0.5 mm, cleaned by solvent followed by an oven drying for one hour at 100°C
- Place the paper specimen in between aluminum or copper plates for 6 hours at 140°C and 2 psi pressure.
- The bonded samples are then tested for tensile shear strength with a pull rate of 110mm per minute at this stage separation must take place in the paper layer and not on bonded surface



PROPERTIES EPOXY DOTTED PAPER					
Specification: IEC60641-3-2 P4.1					
Properties	Units	3 mil	5 mil	8 mil	10 mil
Thickness	mm	0.075	0.125	0.200	0.250
Thickness, Range	mm	0.068 to 0.08	0.112 to 0.138	0.18 to 0.22	0.23 to 0.28
Apparent Density (Range)	g/cc	1.0 – 1.2	1.0 – 1.2	1.0 – 1.2	1.0 – 1.2
Tensile strength (min)	MD CD Mpa	80 40	80 40	80 40	80 40
Shrinkage (min)	MD CD PD %	1 1.5 7	1 1.5 7	1 1.5 7	1 1.5 7
Moisture content (max)	%	8	8	8	8
Ash content (max)	%	1	1	1	1
Conductivity of aqueous extract (max)	mS/m	8	8	8	8
pH of aqueous extract (Range)		6 - 9	6 - 9	6 - 9	6 - 9
Electric strength in Air, (min)	kV/mm	11	11	10	10
Electric strength in Oil, (min)	kV/mm	60	60	55	55
Recommended curing temperature	°C	120 to 140	120 to 140	120 to 140	120 to 140
Recommended curing time	Hrs	6 - 8	6 - 8	6 - 8	6 - 8
Bonding Shear Strength @ 140 Deg C for 6 hours & load 2 psi	psi	60 - 70	80 - 90	80 - 90	70 - 80

The paper is available in roll form, standard width 500mm/750 mm/1500mm. Core ID will be 76mm.