

**Poly bd<sup>®</sup> Resins**

**Formulating Poly bd<sup>®</sup> Resins with Inorganic Filler**

Inorganic fillers can be used to reduce cost or to impart certain desired physical characteristics. Fillers tend to increase hardness and viscosity while generally reducing tensile and tear strengths. Inorganic fillers are commonly used in combination with oil extenders.

In certain instances, this combination gives synergistic effects. For example, the use of clay filler allows for increased amounts of oil extender. The effects of certain fillers on the electrical properties of a basic Poly bd<sup>®</sup> resin system are shown below.

Fillers	Volume Resistivity (ohm-cm)	Dielectric Constant @ 10 <sup>3</sup> Hz	Dissipation Factor @ 10 <sup>3</sup> Hz
None	4 x 10 <sup>15</sup>	3.07	0.0144
Calcium Carbonate, CaCO <sub>3</sub>	9 x 10 <sup>14</sup>	4.61	0.2112
Barytes, BaSO <sub>4</sub>	3 x 10 <sup>14</sup>	-	-
Silica, 325 mesh, SiO <sub>2</sub>	3 x 10 <sup>14</sup>	3.22	0.0114
Zinc Oxide	2 x 10 <sup>15</sup>	3.61	0.1216
Clay, Kaolin	6 x 10 <sup>14</sup>	3.88	0.0104
Alumina, Al <sub>2</sub> O <sub>3</sub> • 3H <sub>2</sub> O	8 x 10 <sup>14</sup>	4.07	0.0191
Glass Fibers	2 x 10 <sup>14</sup>	3.98	0.0181
Talc	8 x 10 <sup>14</sup>	4.44	0.0138
Lithium Aluminum Silicate	2 x 10 <sup>14</sup>	5.15	0.3211
Mica	3 x 10 <sup>14</sup>	3.71	0.0091

Formulation	pbw
Poly bd <sup>®</sup> R-45HT Resin	100
Electrical Grade Oil	10
Antioxidant	1
Filler	25
4,4' -Diphenylmethane Diisocyanate	12.5
Catalyst	0.01

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