# PROPERTIES OF EPOXY TUBING

TYPES – Two general types, filled and unfilled. The filler is a silicon dioxide and the tests below were conducted at a 50% PBW filler content. The filler improves dielectric properties such as dielectric strength, but it is difficult to machine and is more brittle.

## MECHANICAL PROPERTIES

| *PROPERTY* | *GENERAL PURPOSE UNFILLED* | *50 % PBW SILICON DIOXIDE FILLED* |
|---|---|---|
| HEAT DEFLECTION TEMP. ºF | 310 | 320 |
| FLEXURAL STRENGTH psi (ULTIMATE) | 16,000 | |
| FLEXURAL MODULUS psi | 410,000 | |
| TENSILE STRENGTH psi (ULTIMATE) | 12,100 | 6,000 |
| TENSILE MODULUS psi | 360,000 | |
| THERMAL COEFFICIENT OF EXPANSION | 60 X $10^{-6}$ IN/IN/ºC | 30 X $10^{-6}$ IN/IN/ºC |
| DIELECTRIC STRENGTH (VOLTS/MIL) | | |
| .030 THICK | >500 | |
| .125 THICK | 425 | |

ALL TESTS PERFORMED @ 23ºC

## CHEMICAL PROPERTIES

| | |
|---|---|
| XYLENE | 0.3 |
| 1,1,1 – TRICHLOROETHANE | 0.2 |
| M.E.K. | 1.7 |
| ETHYLENE GLYCOL MONOETHYL | 0.6 |
| ETHYL GLYCOL | 0.3 |
| WATER (DISTILLED) | 0.7 |
| 5% DETERGENT SOLUTION | 0.7 |
| 10% SODIUM HYDROXIDE | 0.5 |
| 50% SODIUM HYDROXIDE | 0.2 |
| 10% SULFURIC ACID | 0.8 |
| 70% SULFURIC ACID | 0.4 |
| 20% NITRIC ACID | 1.2 |
| 10% ACETIC ACID | 0.8 |

% CHANGE AFTER 3 WEEKS IMMERSION @ 23ºC