

## Epoxy Resin - Chemical Resistance Data

### Method A

For the organic solvents listed below. A cotton ball, saturated with the test chemical, was placed in a one ounce bottle (10mm x 75mm test tube or similar container). The container was inverted on the test material surface for a period of 24 hours. Temperature of test: 23° +/-2° C (73° +/-4° F).

### Method B

For all chemicals listed below other than the organic solvents. Five drops (1/4cc) of the test chemical were placed on the test material surface. The chemical was covered with a watch glass (25mm) for a period of 24 hours. Temperature of test: 23° +/-2° C (73° +/-4° F).

### Evaluation

After 24 hour exposure, exposed areas were washed with water, then a detergent solution and finally with isopropyl alcohol. Materials were then rinsed with distilled water and dried with a cloth. Samples are numerically rated as follows:

1. No Effect - No detectable change in the material surface.
2. Excellent - Slight detectable change in color or gloss but no change in function or life of the surface.
3. Good - A clearly discernible change in color or gloss but no significant impairment of surface life or function.
4. Fair - Objectionable change in appearance due to dis-coloration or etch, possibly resulting in deterioration of function over an extended period of time.
5. Failure - Pitting, cratering or erosion of the surface. Obvious and significant deterioration.

| Inorganic Acids - Corrosive   | Black Onyx | Gray | Alpine White | Forest Green | Steel Blue |
|-------------------------------|------------|------|--------------|--------------|------------|
| Chromic Acid (CrO3) - 40%     | 2          | 2    | 2            | 1            | 3          |
| Hydrochloric Acid (HCl) - 10% | 1          | 1    | 1            | 1            | 1          |
| Hydrochloric Acid (HCl) - 37% | 1          | 1    | 1            | 1            | 1          |
| Nitric Acid (HNO3) - 40%      | 1          | 1    | 1            | 1            | 1          |
| Nitric Acid (HNO3) - 70%      | 2          | 2    | 2            | 2            | 2          |
| Sulfuric Acid (H2SO4) - 40%   | 1          | 1    | 1            | 1            | 1          |
| Sulfuric Acid (H2SO4) - 96%   | 5          | 5    | 5            | 5            | 5          |

| Organic Acids - Corrosive       | Black Onyx | Gray | Alpine White | Forest Green | Steel Blue |
|---------------------------------|------------|------|--------------|--------------|------------|
| Acetic Acid (CH3CO2H) - 5%      | 2          | 2    | 2            | 1            | 1          |
| Acetic Acid (CH3CO2H) - Glacial | 2          | 1    | 1            | 1            | 1          |
| Citric Acid (C6H8O7) - 1% Oleic | 1          | 1    | 1            | 1            | 1          |
| Acid (C18H34O2) - Phenol        | 1          | 1    | 1            | 1            | 1          |
| Solution (C6H5OH) - 5%          | 1          | 1    | 1            | 1            | 1          |

| Alkaline Solutions - Corrosive   | Black Onyx | Gray | Alpine White | Forest Green | Steel Blue |
|----------------------------------|------------|------|--------------|--------------|------------|
| Ammonium Hydroxide (NH4OH) - 10% | 1          | 1    | 1            | 1            | 1          |
| Potassium Hydroxide (KOH) - 15%  | 1          | 1    | 1            | 1            | 1          |
| Sodium Carbonate (Na2CO3) - 20%  | 1          | 1    | 1            | 1            | 1          |
| Sodium Hydroxide (NaOH) - 60%    | 1          | 1    | 2            | 1            | 2          |
| Sodium Hypochlorite (NaOCl) - 4% | 1          | 1    | 1            | 1            | 1          |

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| Organic Solvents  | Black Onyx | Gray | Alpine White | Forest Green | Steel Blue |
|---|------------|------|--------------|--------------|------------|
| Acetone (CH <sub>3</sub> COCH <sub>3</sub> )                                      | 3          | 2    | 2            | 2            | 2          |
| Benzene (C <sub>6</sub> H <sub>6</sub> )  | 2          | 2    | 2            | 2            | 2          |
| Carbon Tetrachloride (CCl <sub>4</sub> )  | 1          | 1    | 1            | 1            | 1          |
| Diethyl Ether (CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub> ) | 1          | 1    | 1            | 1            | 1          |
| Dimethyl Formamide (HCON[CH <sub>3</sub> ] <sub>2</sub> )                         | 1          | 1    | 1            | 1            | 1          |
| Ethyl Acetate (CH <sub>3</sub> CO <sub>2</sub> C <sub>2</sub> H <sub>5</sub> )    | 2          | 2    | 2            | 2            | 2          |
| Ethyl Alcohol (CH <sub>3</sub> CH <sub>2</sub> OH) -95%                           | 1          | 1    | 1            | 2            | 1          |
| Ethylene Dichloride (ClCH <sub>2</sub> CH <sub>2</sub> Cl)                        | 1          | 1    | 1            | 1            | 1          |
| Heptane (CH <sub>3</sub> [CH <sub>2</sub> ] <sub>5</sub> CH <sub>3</sub> )        | 1          | 1    | 1            | 1            | 1          |
| Isooctane (C <sub>8</sub> H <sub>18</sub> )                                       | 1          | 1    | 1            | 1            | 1          |
| Kerosene  | 1          | 1    | 2            | 1            | 1          |
| Methyl Alcohol (CH <sub>3</sub> OH)   | 1          | 1    | 1            | 1            | 1          |
| Sodium Hypochlorite Sol (NaOCl) - 4%  | 1          | 1    | 1            | 1            | 1          |

| Organic Compounds  | Black Onyx | Gray | Alpine White | Forest Green | Steel Blue |
|--|------------|------|--------------|--------------|------------|
| Aniline (C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub> ) | 2          | 1    | 1            | 2            | 1          |
| Mineral Oil  | 1          | 1    | 1            | 1            | 1          |
| Olive Oil  | 1          | 1    | 1            | 1            | 1          |
| Soap Solution - 1%                                       | 1          | 1    | 1            | 1            | 1          |
| Transformer Oil  | 1          | 1    | 1            | 1            | 1          |
| Turpentine   | 2          | 1    | 1            | 1            | 2          |