

# Bronze Alloy Chemical Resistance

The following decision chart provides guidance on the selection of the 3 most popular bronze alloys according to the environmental conditions of the application.



| Definitions |  |
|-------------|--|
| R           | Resistant  |
| O           | Resistant depending on construction, oxygen content, temperature, etc. |
| X           | Not Recommended  |

| STRONG ACIDS                  | Concentration % | Temperature in ° C | C93200 | C95400 | C86300 |
|-------------------------------|-----------------|--------------------|--------|--------|--------|
| Hydrochloric Acid             | 5               | 20                 | X      | O      | X      |
| Hydrofluoric Acid             | 5               | 20                 | O      | O      | X      |
| Nitric Acid                   | 5               | 20                 | X      | X      | X      |
| Sulfuric Acid                 | 5               | 20                 | O      | R      | X      |
| Phosphoric Acid               | 5               | 20                 | O      | O      | X      |
| <b>WEAK ACIDS</b>             |                 |                    |        |        |        |
| Acetic Acid                   | 5               | 20                 | X      | O      | X      |
| Formic Acid                   | 5               | 20                 | X      | R      | X      |
| Boric Acid                    | 5               | 20                 | X      | R      | X      |
| Citric Acid                   | 5               | 20                 | X      | R      | X      |
| <b>BASES</b>                  |                 |                    |        |        |        |
| Ammonia                       | 10              | 20                 | X      | X      | X      |
| Sodium Hydroxide              | 5               | 20                 | O      | R      | O      |
| Potassium Hydroxide           | 5               | 20                 | O      | R      | O      |
| <b>SOLVENTS</b>               |                 |                    |        |        |        |
| Acetone                       |                 | 20                 | O      | R      | O      |
| Carbon Tetrachloride          |                 | 20                 | O      | O      | O      |
| Ethanol                       |                 | 20                 | O      | R      | O      |
| Ethyl Chloride                |                 | 20                 | O      | R      | O      |
| Glycerin                      |                 | 20                 | O      | R      | O      |
| <b>SALTS</b>                  |                 |                    |        |        |        |
| Ammonium Nitrate              |                 |                    | X      | X      | X      |
| Calcium Chloride              |                 |                    | R      | R      | R      |
| Magnesium Chloride            |                 |                    | R      | R      | R      |
| Magnesium Sulfate             |                 |                    | R      | R      | R      |
| Sodium Chloride               |                 |                    | R      | R      | R      |
| Sodium Nitrate                |                 |                    | R      | R      | R      |
| Zinc Chloride                 |                 |                    | X      | O      | X      |
| Zinc Sulfate                  |                 |                    | O      | O      | O      |
| <b>GASES</b>                  |                 |                    |        |        |        |
| Ammonia                       |                 |                    | O      | O      | O      |
| Chlorine                      |                 |                    | X      | X      | X      |
| Carbon Dioxide                |                 |                    | R      | R      | O      |
| Fluorine                      |                 |                    | X      | X      | X      |
| Sulfur Dioxide                |                 |                    | O      | O      | X      |
| Hydrogen Sulfide              |                 |                    | O      | O      | O      |
| Nitrogen                      |                 |                    | O      | R      | X      |
| Hydrogen                      |                 |                    | O      | R      | X      |
| <b>FUELS &amp; LUBRICANTS</b> |                 |                    |        |        |        |
| Paraffin                      |                 | 20                 | R      | R      | R      |
| Petroleum                     |                 | 20                 | R      | R      | R      |
| Fuel Oil                      |                 | 20                 | R      | R      | R      |
| Diesel Fuel                   |                 | 20                 | R      | R      | R      |
| Mineral Oil                   |                 | 70                 | R      | R      | R      |
| <b>OTHERS</b>                 |                 |                    |        |        |        |
| Water                         |                 |                    | R      | R      | O      |
| Sea Water                     |                 |                    | O      | R      | X      |
| Resin                         |                 |                    | R      | R      | O      |
| Hydrocarbon                   |                 |                    | R      | R      | O      |