

| Media Being Heated  | Element Sheath Material |                |                     |          |        |      |           |            |                         |               |                   |              |              |          | *Notes |             |        |          |            |
|---|-------------------------|----------------|---------------------|----------|--------|------|-----------|------------|-------------------------|---------------|-------------------|--------------|--------------|----------|--------|-------------|--------|----------|------------|
|   | Iron & Steel            | Gray Cast Iron | Cast Iron Ni-Resist | Aluminum | Copper | Lead | Monel 400 | Nickel 200 | 304, 321, 347 Stn. Stl. | 316 Stn. Stl. | Type 20 Stn. Stl. | Incoloy® 800 | Inconel® 600 | Titanium |        | Hastelloy B | Quartz | Graphite | Teflon®    |
| Anodizing Solutions (10%)   |                         |                |                     |          |        |      |           |            |                         |               |                   |              |              |          |        |             |        |          |            |
| Chromic Acid 96°F   | C                       |                |                     |          |        |      |           |            | A                       | A             |                   |              |              | A        |        |             |        |          |            |
| Nickel Acetate  |                         |                |                     |          |        | C    | A         | F          |                         |               |                   |              |              |          |        |             |        |          |            |
| Nigrosine Black Dye   |                         |                |                     |          |        |      | F         | F          |                         |               |                   |              |              |          |        |             |        |          |            |
| Sodium Hydroxide Alkaline   | A                       |                |                     |          | A      |      |           | A          |                         | A             | A                 | A            |              | A        |        |             |        |          |            |
| Sulfuric Acid 70°F  |                         |                |                     |          |        | A    |           |            |                         |               | A                 |              |              |          |        |             |        |          |            |
| ARP™ 28   |                         |                |                     |          |        |      |           |            |                         |               |                   |              |              |          |        |             | A      | A        | Note 1     |
| ARP™ 80 Blackening Salt   |                         |                |                     |          |        |      |           |            |                         |               |                   |              |              |          |        |             | A      |          | Note 1     |
| Arsenic Acid  | X                       | X              |                     | X        | X      | X    | X         | X          | C                       | F             | F                 | X            | X            | X        |        | A           | A      | A        |            |
| Asphalt   | A                       | A              |                     | X        | X      | X    | X         | A          | A                       | A             | A                 | A            | A            | A        |        | A           | A      |          |            |
| Barium Chloride   |                         |                |                     | X        |        |      |           | A          | F                       | F             |                   |              |              |          |        |             |        |          |            |
| Barium Hydroxide  | F                       | F              |                     | X        | X      | X    | F         | A          | F                       | A             | A                 | F            | F            | X        |        | A           | A      |          |            |
| Barium Sulfate  | F                       | F              | F                   |          | F      | F    | F         | F          | F                       | F             | F                 | F            | F            | A        |        | A           | A      |          |            |
| Barium Sulfite  |                         |                |                     |          |        |      |           |            |                         | F             |                   |              |              |          |        |             |        |          |            |
| Black Nickel  |                         |                |                     |          |        |      |           |            |                         |               |                   |              |              |          |        | A           |        | A        | Note 5     |
| Black Oxide   |                         |                |                     |          |        |      |           |            |                         | A             |                   |              |              |          |        |             |        |          | Note 5     |
| Bleaching Solution<br>1½ lb. Oxalic Acid per<br>Gallon of H <sub>2</sub> O at 212°F |                         |                |                     |          |        |      | A         |            | F                       |               |                   |              |              |          |        |             |        |          |            |
| Bonderizing™ (Zinc Phosphate)   | C                       |                | F                   |          |        |      |           |            | A                       | A             |                   |              |              |          |        |             |        |          |            |
| Boric Acid  | X                       | X              |                     | X        | C      | C    | C         | C          | C                       | C             | C                 | C            | C            | A        | A      | A           | A      | A        |            |
| Brass Cyanide   |                         |                |                     |          |        |      |           |            |                         | A             |                   |              |              |          |        |             |        |          | Note 1     |
| Bright Nickel   |                         |                |                     |          |        |      |           |            |                         |               |                   |              |              | A        |        | A           |        |          | Notes 1, 5 |
| Brine (Salt Water)  |                         |                |                     |          |        |      | A         |            |                         |               |                   |              | F            |          |        |             |        |          |            |
| Bronze Plating  | A                       |                |                     |          |        |      |           |            |                         | A             |                   |              |              |          |        |             |        |          | Note 1     |
| Butanol   | A                       | A              |                     | F        | A      | A    | A         | A          | A                       | A             | A                 | A            | A            |          | A      | A           | A      |          | Note 2     |
| Cadmium Black   |                         |                |                     |          |        |      |           |            |                         |               |                   |              |              |          |        | A           |        |          | Note 1     |
| Cadmium Fluoborate  |                         |                |                     |          |        |      |           |            |                         |               |                   |              |              |          |        |             | A      | A        | Note 1     |
| Cadmium Plating   |                         |                |                     |          |        |      |           |            |                         | A             |                   |              | A            | A        |        |             |        |          | Note 1     |
| Calcium Chlorate  | F                       | F              |                     | F        | C      | C    | F         | F          | F                       | F             | F                 | F            | F            |          | A      |             |        |          |            |
| Calcium Chloride  | F                       | F              |                     | C        | F      | X    | F         | F          | F                       | F             | F                 | F            | F            | A        | A      | A           | A      | A        |            |
| Carbon Dioxide—Dry Gas  | X                       | X              | A                   | A        | A      | F    | A         | A          | A                       | A             | A                 | A            | A            | X        |        | A           | X      | X        |            |
| Carbon Dioxide—Wet Gas  | X                       | X              | C                   | A        | X      | F    | A         | A          | A                       | A             | A                 | A            | A            | X        |        | A           | X      | X        |            |
| Carbon Tetrachloride  | X                       | X              | C                   | X        | C      | A    | A         | A          | C                       | F             | F                 | A            | A            | A        |        | A           |        |          |            |
| Carbonic Acid   | C                       | C              |                     | C        | C      | X    | C         | C          | A                       | F             | A                 | F            | A            | A        |        | A           | A      | A        |            |
| Castor Oil  | A                       | A              |                     | A        | A      | A    | A         | A          | A                       | A             | A                 | A            | A            | A        |        | A           | A      | A        |            |
| Caustic Etch  | A                       | A              |                     | X        | X      |      | A         | A          | A                       | A             | X                 | X            | X            | A        |        | X           | A      | X        |            |
| Caustic Soda (Lye) (Sodium Hydroxide) 2%  | F                       | F              | F                   | X        | F      | X    | A         | A          | X                       | F             | A                 | A            | A            | A        |        |             |        |          |            |
| 10–30%, 210°F   | F                       | F              | A                   | X        | F      | X    | A         | A          | A                       | A             | A                 | A            | A            | A        |        |             |        |          |            |
| 76%, 180°F  | X                       | X              | X                   | X        | X      | X    | F         | A          | F                       | F             | F                 | A            | A            | F        |        |             |        |          |            |
| Chlorine Gas: Dry   | X                       | X              | F                   | X        | X      | X    | F         | C          | C                       | C             | F                 | C            | F            | X        |        | A           | F      | F        | Note 2     |
| Wet   | X                       | X              | X                   | X        | X      | X    | X         | X          | X                       | X             | X                 | X            | X            | F        |        | A           | X      | X        | Note 2     |
| Chloroacetic Acid   | X                       | X              |                     | X        | X      | X    | F         | F          | X                       | X             |                   | C            | C            | A        |        | A           | A      | A        |            |
| Chromic Acetate   |                         |                |                     |          |        |      |           |            |                         |               |                   |              |              |          |        | A           |        |          | Note 1     |

### Corrosion Resistance Ratings:

**A = Good**

**F = Fair**

**C = Depends on Conditions**

**X = Unsuitable**

**Blank = Data Not Available**

\* See Key to Notes in Material Selection Guide on Page 16-12.