

# Chemical Compatibility Chart

**Ratings -- Chemical Effect**

- A = Excellent.
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**\*Explanation of Footnote**

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All data are based on ambient or room temperature conditions, about 64° F (18° C) to 73° F (23° C).



|                               | 304 Stainless Steel | 316 Stainless Steel | ABS Plastic    | Acetal, POM | Acrylic (PMMA) | Aluminum | Brass | Bronze | Buna N (Nitrile) | Cast Iron | Copper | CPVC | EPDM | Hastelloy® - C | Hyrel® (TPE) | Ke-F® (PCTFE) | HDPE           | LDPE           | Natural Rubber | Neoprene (CR) | Noryl® (PPO) | Nylon (PA)     | Polycarbonate (PC) | Polypropylene (PP) | PTFE | PVC | PVDF (Kynar®) | Silicone (VMQ) | Titanium | Tygon | Viton® (FKM) |
|-------------------------------|---------------------|---------------------|----------------|-------------|----------------|----------|-------|--------|------------------|-----------|--------|------|------|----------------|--------------|---------------|----------------|----------------|----------------|---------------|--------------|----------------|--------------------|--------------------|------|-----|---------------|----------------|----------|-------|--------------|
| Acetaldehyde                  | A                   | A                   | D              | A           | C              | B        | A     | A      | D                | C         | C      | D    | A    | A              | B            | A             | C              | C              | C              | C             | N/A          | A              | C                  | A                  | A    | D   | D             | A              | A        | D     | D            |
| Acetamide                     | B                   | A                   | A              | A           | B              | A        | D     | D      | A                | D         | N/A    | A    | A    | A              | N/A          | A             | A              | A              | D              | B             | N/A          | A              | D                  | A                  | A    | D   | C             | B              | N/A      | D     | B            |
| Acetate Solvents              | A                   | A                   | N/A            | A           | D              | A        | A     | C      | C                | D         | A      | C    | A    | A              | N/A          | A             | A              | A              | C              | D             | D            | A              | N/A                | B                  | A    | D   | A             | C              | A        | D     | D            |
| Acetic Acid                   | D                   | B                   | D              | D           | C              | B        | D     | C      | C                | D         | B      | C    | A    | A              | A            | A             | A              | A              | B              | C             | A            | D              | B                  | B                  | A    | D   | C             | C              | A        | D     | B            |
| Acetic Acid, 20%              | B                   | A                   | C              | C           | C              | B        | D     | C      | B                | D         | B      | A    | A    | A              | A            | A             | A              | A              | B              | A             | A            | D              | A                  | A                  | A    | D   | A             | B              | A        | D     | B            |
| Acetic Acid, 80%              | D                   | B                   | D              | D           | D              | B        | D     | C      | C                | D         | B      | C    | A    | A              | A            | A             | A              | D              | C              | C             | A            | D              | B                  | A                  | A    | C   | C             | B              | A        | D     | B            |
| Acetic Acid, Glacial          | C                   | A                   | D              | D           | D              | B        | D     | C      | C                | D         | B      | B    | B    | A              | A            | A             | A              | D              | C              | D             | A            | B              | B                  | A                  | A    | D   | A             | B              | A        | D     | D            |
| Acetic Anhydride              | B                   | A                   | C              | D           | D              | A        | D     | C      | D                | D         | B      | D    | B    | A              | C            | A             | C              | D              | C              | A             | D            | A              | D                  | B                  | A    | D   | B             | C              | A        | D     | D            |
| Acetone                       | A                   | A                   | D              | A           | D              | A        | A     | A      | D                | A         | A      | D    | A    | A              | B            | A             | D              | B              | C              | C             | D            | A              | D                  | A                  | A    | D   | D             | D              | A        | D     | D            |
| Acetylene                     | A                   | A                   | N/A            | A           | A              | A        | B     | C      | B                | A         | D      | C    | A    | N/A            | A            | A             | B              | D              | B              | B             | N/A          | A              | D                  | A                  | A    | A   | A             | B              | N/A      | A     | A            |
| Acrylonitrile                 | A                   | A                   | D              | N/A         | B              | B        | A     | A      | D                | A         | A      | A    | D    | B              | N/A          | N/A           | A              | A              | B              | C             | N/A          | A              | D                  | A                  | A    | B   | A             | D              | N/A      | N/A   | D            |
| Alcohols: Amyl                | A                   | A                   | A              | A           | C              | B        | A     | A      | B                | B         | A      | A    | A    | A              | A            | A             | B <sup>1</sup> | B              | A              | C             | A            | B              | B                  | A                  | A    | A   | A             | D              | B        | D     | A            |
| Alcohols: Benzyl              | B                   | B                   | D              | A           | D              | B        | B     | A      | D                | B         | B      | A    | B    | A              | N/A          | A             | B              | D              | D              | C             | D            | B              | D                  | A                  | A    | D   | A             | N/A            | A        | D     | A            |
| Alcohols: Butyl               | A                   | A                   | D              | A           | C              | B        | A     | A      | A                | N/A       | B      | A    | A    | B              | B            | A             | B              | B <sup>1</sup> | A              | A             | A            | B              | B                  | A                  | A    | C   | A             | B              | B        | B     | A            |
| Alcohols: Ethyl               | A                   | A                   | B              | A           | C              | B        | A     | A      | C                | B         | A      | B    | A    | A              | D            | A             | A              | B              | A              | A             | A            | A              | B <sup>1</sup>     | A                  | A    | C   | A             | B              | A        | C     | A            |
| Alcohols: Isobutyl            | A                   | A                   | B              | A           | C              | B        | B     | A      | B                | C         | N/A    | N/A  | A    | A              | N/A          | A             | A              | A              | A              | A             | A            | A              | A                  | A                  | A    | A   | A             | A              | B        | A     | A            |
| Alcohols: Isopropyl           | B                   | B                   | D              | A           | A              | B        | B     | A      | B                | A         | B      | C    | A    | A              | A            | A             | A              | A <sup>1</sup> | A              | B             | A            | D              | A <sup>1</sup>     | A <sup>1</sup>     | A    | A   | A             | A              | B        | A     | A            |
| Alcohols: Methyl              | A                   | A                   | D              | A           | C              | A        | A     | A      | A                | A         | B      | A    | A    | A              | B            | A             | A              | A              | A              | A             | A            | B              | B                  | A <sup>1</sup>     | A    | A   | A             | A              | B        | A     | C            |
| Alcohols: Propyl (1-Propanol) | A                   | A                   | B              | A           | B              | A        | A     | A      | A                | A         | A      | A    | A    | A              | N/A          | A             | B              | A <sup>1</sup> | A              | A             | A            | D              | A                  | A                  | A    | A   | A             | A              | A        | A     | A            |
| Aluminum Fluoride             | D                   | D                   | A              | C           | C              | B        | D     | D      | A                | D         | D      | A    | A    | B              | N/A          | N/A           | A              | A <sup>1</sup> | B              | A             | A            | A              | N/A                | A                  | A    | A   | A             | B              | A        | A     | A            |
| Aluminum Hydroxide            | A                   | C                   | B              | A           | A              | B        | B     | C      | A                | A         | D      | A    | A    | B              | N/A          | A             | A              | A <sup>1</sup> | D              | A             | A            | A              | B                  | A                  | A    | A   | A             | N/A            | B        | A     | A            |
| Aluminum Nitrate              | A                   | A                   | A <sup>1</sup> | B           | B              | D        | D     | N/A    | A                | N/A       | D      | A    | A    | N/A            | N/A          | A             | A              | A <sup>1</sup> | A              | A             | N/A          | A              | A                  | A <sup>1</sup>     | A    | B   | A             | B              | A        | B     | A            |
| Aluminum Sulfate, 10%         | B                   | B <sup>1</sup>      | A              | B           | B              | B        | B     | B      | A                | D         | A      | A    | A    | B              | B            | A             | A              | A <sup>1</sup> | A              | A             | A            | A <sup>1</sup> | A                  | A                  | A    | A   | A             | A              | A        | A     | A            |
| Alums                         | N/A                 | A                   | A <sup>1</sup> | C           | B              | A        | D     | N/A    | A                | D         | C      | A    | A    | B              | D            | A             | A              | A              | A              | B             | N/A          | A              | N/A                | A                  | A    | N/A | N/A           | A              | A        | N/A   | A            |

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| Amines                                      | A                   | A                   | N/A            | D              | D              | B        | B     | D      | D                | D         | N/A    | D    | B    | B              | A            | A             | B    | C              | D              | B             | D            | D          | D                  | B <sup>1</sup>     | A    | D   | N/A            | B              | B        | D     | D            |     |
| Ammonia, 10% (Ammonium Hydroxide)           | A                   | A                   | B              | C              | A              | A        | D     | D      | A                | A         | D      | A    | A    | A              | C            | A             | A    | C              | D              | A             | A            | A          | D                  | A <sup>1</sup>     | A    | B   | A              | A              | C        | B     | D            |     |
| Ammonia Nitrate                             | A                   | A                   | A <sup>1</sup> | C              | A              | C        | A     | D      | C                | A         | D      | B    | A    | B              | B            | N/A           | A    | A              | N/A            | C             | A            | D          | N/A                | A                  | A    | B   | A <sup>1</sup> | N/A            | N/A      | B     | D            |     |
| Ammonia, anhydrous                          | A                   | A <sup>1</sup>      | D              | D              | A              | A        | D     | D      | B                | A         | D      | A    | A    | B              | D            | A             | A    | B <sup>1</sup> | D              | A             | B            | A          | D                  | A                  | A    | A   | A              | C              | C        | A     | D            |     |
| Ammonia, liquid                             | B                   | A <sup>1</sup>      | D              | D              | A              | A        | D     | D      | C                | A         | D      | A    | A    | B              | N/A          | A             | A    | C              | D              | A             | N/A          | B          | D                  | A <sup>1</sup>     | A    | A   | A              | N/A            | C        | A     | D            |     |
| Ammonium Acetate                            | B                   | A                   | N/A            | C              | A              | A        | D     | D      | B                | A         | N/A    | A    | A    | N/A            | D            | N/A           | A    | A              | N/A            | A             | N/A          | A          | A                  | A                  | A    | A   | A              | N/A            | N/A      | A     | A            |     |
| Ammonium Bifluoride                         | D                   | B                   | A              | D              | N/A            | B        | D     | D      | B                | D         | B      | A    | A    | B              | N/A          | N/A           | A    | A <sup>1</sup> | N/A            | D             | A            | N/A        | N/A                | A                  | A    | A   | A              | N/A            | N/A      | A     | A            |     |
| Ammonium Carbonate                          | B                   | B                   | A              | D              | D              | B        | D     | D      | B                | B         | D      | A    | A    | B              | N/A          | N/A           | B    | B <sup>1</sup> | A              | A             | A            | A          | C                  | A                  | A    | A   | A              | C              | A        | A     |              |     |
| Ammonium Chloride, 10%                      | C                   | B <sup>1</sup>      | A              | B              | B              | B        | D     | D      | B                | D         | D      | A    | A    | D              | A            | A             | A    | A <sup>1</sup> | A              | B             | A            | B          | A <sup>1</sup>     | A                  | A    | A   | A              | C              | B        | A     | A            |     |
| Ammonium Hydroxide (Aqueous Ammonia)        | A                   | A                   | B              | D              | A              | B        | D     | D      | D                | D         | D      | A    | A    | B              | C            | A             | A    | A              | D              | A             | A            | A          | D                  | A <sup>1</sup>     | A    | B   | A              | A              | C        | B     | D            |     |
| Ammonium Nitrate, 10%                       | A                   | A                   | A <sup>1</sup> | A <sup>1</sup> | A              | B        | D     | D      | A                | B         | D      | A    | A    | B              | B            | A             | A    | A              | C              | B             | A            | A          | R                  | A                  | A    | A   | A              | C              | A        | A     | A            |     |
| Ammonium Persulfate                         | A                   | B                   | A              | D              | D              | D        | D     | D      | A                | D         | D      | A    | B    | B              | N/A          | A             | A    | A <sup>1</sup> | A              | A             | A            | D          | A                  | A                  | A    | A   | A              | D              | A        | A     | A            |     |
| Ammonium Phosphate, Dibasic                 | B                   | C                   | A <sup>1</sup> | B <sup>1</sup> | A              | B        | B     | D      | A                | D         | D      | A    | A    | B              | N/A          | A             | N/A  | A <sup>1</sup> | A              | A             | A            | C          | A <sup>1</sup>     | A                  | A    | A   | A              | A              | A        | A     | A            |     |
| Ammonium Phosphate, Monobasic               | B                   | C                   | A <sup>1</sup> | B              | A              | B        | A     | D      | A                | D         | D      | A    | A    | B              | B            | N/A           | N/A  | A              | A              | A             | B            | A          | A                  | A                  | A    | A   | N/A            | A              | A        | A     | A            |     |
| Ammonium Phosphate, Tribasic                | B                   | B                   | A <sup>1</sup> | B              | A              | B        | N/A   | C      | A                | D         | D      | A    | A    | B              | N/A          | N/A           | N/A  | C              | A              | A             | A            | B          | N/A                | A                  | A    | A   | N/A            | A              | A        | A     | A            |     |
| Ammonium Sulfate                            | B                   | B                   | A              | B              | B              | A        | D     | D      | A                | D         | D      | A    | A    | B              | B            | A             | A    | A              | A              | A             | A            | A          | A <sup>1</sup>     | A                  | A    | A   | A              | A              | A        | A     | A            |     |
| Ammonium Thiosulfate                        | N/A                 | A                   | N/A            | B              | N/A            | N/A      | D     | D      | A                | D         | D      | N/A  | A    | N/A            | N/A          | N/A           | A    | N/A            | A              | N/A           | N/A          | N/A        | N/A                | N/A                | N/A  | N/A | N/A            | N/A            | N/A      | A     | N/A          | N/A |
| Amyl Acetate                                | A                   | A                   | D              | B              | C              | A        | A     | A      | D                | C         | A      | D    | A    | A              | C            | A             | N/A  | C              | D              | D             | D            | B          | D                  | B                  | A    | D   | A              | D              | A        | D     | D            |     |
| Amyl Chloride                               | A                   | A                   | D              | A              | A              | A        | C     | A      | D                | A         | A      | C    | D    | A              | N/A          | A             | B    | D              | D              | D             | D            | C          | D                  | D                  | A    | D   | A              | D              | C        | C     | B            |     |
| Antifreeze                                  | A                   | A                   | B              | D              | A              | A        | B     | A      | A                | A         | N/A    | A    | A    | A              | N/A          | N/A           | N/A  | N/A            | A              | C             | A            | D          | N/A                | D                  | A    | A   | N/A            | C              | N/A      | B     | A            |     |
| Aqua Regia (80% HCl, 20% HNO <sub>3</sub> ) | D                   | D                   | D              | D              | D              | D        | D     | D      | D                | D         | D      | C    | C    | C              | N/A          | A             | D    | B              | D              | D             | D            | D          | D                  | B                  | A    | C   | A <sup>1</sup> | D              | A        | D     | B            |     |
| Arsenic Acid                                | A                   | A                   | A              | D              | A              | D        | D     | B      | A                | D         | A      | A    | A    | B              | N/A          | N/A           | B    | B              | B              | A             | A            | C          | A                  | A                  | A    | A   | A              | A              | B        | B     | A            |     |
| Asphalt                                     | B                   | A                   | N/A            | B <sup>1</sup> | N/A            | A        | B     | A      | B                | A         | A      | A    | D    | N/A            | B            | A             | N/A  | A              | D              | D             | N/A          | A          | D                  | B                  | A    | A   | A              | D              | N/A      | N/A   | A            |     |
| Barium Carbonate                            | B                   | B                   | A              | A              | A              | D        | B     | B      | A                | A         | A      | A    | A    | B              | N/A          | A             | A    | B              | N/A            | N/A           | A            | A          | A                  | A                  | A    | A   | A              | N/A            | A        | N/A   | A            |     |

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| Barium Sulfate                              | B                   | B                   | A              | B <sup>1</sup> | A              | B        | B     | C      | A                | B         | B      | B    | A    | A              | D            | A             | B    | B <sup>1</sup> | A              | A             | A            | A              | D                  | B                  | A    | B   | A              | A              | B        | N/A   | A            |   |
| Barium Sulfide                              | B                   | B <sup>1</sup>      | A              | A              | C              | D        | D     | D      | A                | D         | D      | A    | A    | N/A            | N/A          | N/A           | A    | B <sup>1</sup> | A              | A             | A            | A              | N/A                | B                  | A    | A   | A              | A              | A        | N/A   | A            |   |
| Beer  | A                   | A                   | A              | A              | A              | A        | B     | A      | A                | D         | B      | A    | A    | A              | A            | A             | A    | A <sup>1</sup> | A              | A             | A            | A              | A <sup>1</sup>     | A                  | A    | A   | A              | A              | B        | C     | A            |   |
| Benzaldehyde                                | B                   | B                   | B              | A              | C              | B        | A     | A      | D                | A         | B      | D    | A    | A              | B            | A             | B    | A              | D              | D             | B            | A              | D                  | D                  | A    | D   | A <sup>1</sup> | D              | A        | D     | D            |   |
| Benzene                                     | B                   | B                   | D              | A              | D              | B        | A     | A      | D                | A         | B      | D    | D    | B              | C            | B             | D    | C              | D              | D             | D            | A              | D                  | D                  | A    | C   | A <sup>1</sup> | D              | A        | C     | A            |   |
| Benzene Sulfonic Acid                       | B                   | B                   | N/A            | C              | N/A            | D        | B     | N/A    | D                | D         | N/A    | D    | D    | B              | B            | N/A           | A    | A              | A              | A             | A            | D              | D                  | D                  | A    | A   | A              | D              | B        | B     | A            |   |
| Benzoic Acid                                | B                   | B                   | D              | B              | A              | B        | D     | B      | D                | D         | N/A    | A    | D    | B              | D            | A             | A    | A              | D              | B             | B            | D              | B                  | B                  | A    | A   | A              | B              | A        | A     | A            |   |
| Benzyl Chloride                             | C                   | B                   | D              | A              | D              | D        | D     | D      | D                | D         | D      | A    | D    | C              | D            | N/A           | N/A  | N/A            | D              | D             | D            | A <sup>1</sup> | N/A                | C                  | A    | N/A | A              | D              | N/A      | N/A   | A            |   |
| Borax (Sodium Borate)                       | A                   | A                   | A <sup>1</sup> | B              | A              | B        | A     | B      | B                | A         | B      | A    | A    | B              | A            | A             | A    | A <sup>1</sup> | A              | A             | A            | A              | A                  | A <sup>1</sup>     | A    | A   | A              | A              | B        | B     | N/A          | A |
| Boric Acid, 10%                             | B                   | A                   | A <sup>1</sup> | A              | A              | D        | B     | B      | A                | D         | B      | A    | A    | A              | A            | A             | A    | A <sup>1</sup> | A              | D             | A            | B              | A                  | A                  | A    | A   | A              | A              | A        | A     | A            |   |
| Bromine Gas                                 | D                   | D                   | D              | D              | D              | D        | D     | D      | D                | N/A       | D      | D    | D    | A              | D            | A             | D    | D              | D              | D             | A            | D              | C                  | D                  | A    | C   | A              | D              | D        | B     | A            |   |
| Butadiene                                   | A                   | A                   | N/A            | A              | B              | A        | A     | C      | D                | N/A       | C      | A    | C    | C              | D            | A             | D    | D              | D              | B             | D            | C              | D                  | C                  | A    | C   | A              | D              | N/A      | N/A   | B            |   |
| Butane Gas                                  | A                   | A <sup>1</sup>      | B              | A              | A              | A        | A     | C      | A                | N/A       | C      | C    | D    | A              | A            | A             | B    | C              | D              | A             | D            | A <sup>1</sup> | D                  | A                  | A    | C   | A              | D              | A        | C     | A            |   |
| Butanol (Butyl Alcohol)                     | A                   | A                   | D              | A              | D              | B        | A     | A      | A                | N/A       | B      | A    | A    | B              | B            | A             | B    | B <sup>1</sup> | A              | A             | A            | B              | B                  | A                  | A    | C   | A              | B              | B        | B     | A            |   |
| Butyl Amine                                 | A                   | A                   | N/A            | C              | D              | A        | N/A   | B      | C                | N/A       | N/A    | N/A  | B    | B              | D            | D             | N/A  | C              | D              | D             | D            | A <sup>1</sup> | D                  | B                  | A    | D   | A              | B              | B        | D     | D            |   |
| Butyl Ether                                 | B                   | A                   | N/A            | D              | D              | A        | N/A   | N/A    | B                | N/A       | N/A    | D    | D    | B              | N/A          | A             | N/A  | N/A            | D              | D             | D            | A <sup>1</sup> | N/A                | D                  | A    | A   | A              | D              | N/A      | A     | D            |   |
| Butyric Acid, 20%                           | B                   | B <sup>1</sup>      | D              | A              | C              | B        | A     | D      | D                | D         | C      | D    | B    | A              | B            | A             | D    | D              | D              | D             | D            | C              | D                  | B                  | A    | B   | A              | D              | A        | D     | B            |   |
| Calcium Carbonate (Chalk) CaCO <sub>3</sub> | A                   | B                   | N/A            | A              | A              | D        | D     | A      | A                | N/A       | A      | A    | A    | B              | N/A          | N/A           | B    | B              | A              | A             | A            | A              | C <sup>1</sup>     | A                  | A    | A   | A              | A              | B        | N/A   | A            |   |
| Calcium Chloride, 10%                       | C                   | B                   | B              | D              | B              | D        | B     | A      | A                | C         | B      | A    | A    | A              | A            | A             | B    | A              | A              | A             | A            | A              | A                  | A                  | A    | C   | A              | A              | A        | N/A   | A            |   |
| Calcium Hydroxide (Lye), 10%                | B                   | B                   | A <sup>1</sup> | D              | A              | C        | D     | D      | A                | A         | D      | A    | A    | A              | B            | A             | A    | A <sup>1</sup> | A              | A             | A            | A <sup>1</sup> | D                  | A <sup>1</sup>     | A    | B   | A <sup>1</sup> | A              | A        | B     | A            |   |
| Calcium Hypochlorite                        | C                   | B                   | N/A            | D              | B              | D        | D     | D      | C                | D         | D      | B    | B    | B              | C            | B             | A    | A              | D              | D             | A            | D              | D                  | A                  | A    | B   | A              | B              | A        | A     | A            |   |
| Calcium Nitrate                             | C                   | B <sup>1</sup>      | A              | D              | A              | B        | B     | B      | A                | B         | B      | A    | A    | B              | N/A          | A             | B    | A              | A              | A             | A            | A              | A <sup>1</sup>     | A <sup>1</sup>     | A    | A   | A <sup>1</sup> | B              | B        | A     | A            |   |
| Calcium Oxide (Unslaked Lime) CaO           | A                   | A                   | D              | A              | A              | C        | N/A   | D      | A                | N/A       | N/A    | A    | A    | A              | A            | N/A           | A    | B              | B              | A             | A            | B              | D                  | A                  | A    | B   | A              | A              | A        | C     | B            |   |
| Calcium Sulfate, 10%                        | B                   | B                   | C              | D              | A              | C        | B     | A      | A                | A         | A      | A    | A    | B              | N/A          | A             | A    | B              | B              | B             | A            | D              | A <sup>1</sup>     | A                  | A    | B   | A              | N/A            | A        | N/A   | A            |   |

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**\*Explanation of Footnote**

1. Satisfactory to 120°F (48° C)

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|                                       | 304 Stainless Steel | 316 Stainless Steel | ABS Plastic    | Acetal, POM | Acrylic (PMMA) | Aluminum | Brass | Bronze | Buna N (Nitrile) | Cast Iron | Copper | CPVC | EPDM | Hastelloy® - C | Hyrel® (TPE) | Ke-F® (PCTFE) | HDPE | LDPE           | Natural Rubber | Neoprene (CR) | Noryl® (PPO) | Nylon (PA) | Polycarbonate (PC) | Polypropylene (PP) | PTFE | PVC | PVDF (Kynar®) | Silicone (VMQ) | Titanium | Tygon | Viton® (FKM) |   |   |
|---------------------------------------|---------------------|---------------------|----------------|-------------|----------------|----------|-------|--------|------------------|-----------|--------|------|------|----------------|--------------|---------------|------|----------------|----------------|---------------|--------------|------------|--------------------|--------------------|------|-----|---------------|----------------|----------|-------|--------------|---|---|
| Carbolic Acid (Phenol)                | B                   | B                   | D              | D           | D              | A        | D     | B      | D                | D         | D      | B    | B    | A              | D            | B             | A    | D              | D              | D             | D            | D          | D                  | B                  | A    | D   | A             | D              | A        | B     | A            | B | A |
| Carbon Dioxide, dry                   | A                   | A                   | B              | A           | A              | B        | B     | A      | A                | D         | A      | A    | B    | A              | A            | B             | A    | B              | B              | B             | A            | A          | N/A                | A <sup>1</sup>     | A    | A   | A             | A              | B        | A     | N/A          | B |   |
| Carbon Dioxide, wet                   | A                   | A                   | B              | A           | A              | A        | A     | A      | A                | D         | A      | A    | B    | A              | A            | B             | A    | B              | B              | A             | A            | A          | A                  | A                  | A    | A   | A             | B              | A        | N/A   | B            |   |   |
| Carbon Monoxide Gas                   | A                   | A                   | A <sup>1</sup> | A           | A              | A        | A     | A      | A                | A         | A      | A    | A    | B              | A            | A             | B    | A <sup>1</sup> | D              | B             | A            | A          | A                  | A                  | A    | A   | B             | A              | N/A      | N/A   | A            |   |   |
| Carbonated Water (Carbonic Acid)      | A                   | A                   | A              | A           | A              | A        | D     | A      | A                | D         | B      | A    | B    | A              | D            | A             | A    | A              | C              | A             | A            | A          | A                  | B                  | A    | A   | A             | A              | B        | A     | A            |   |   |
| Carbonic Acid (Carbonated Water)      | A                   | A                   | A              | B           | A              | B        | D     | B      | D                | D         | B      | A    | B    | A              | D            | A             | A    | A              | C              | D             | A            | A          | A                  | B                  | A    | A   | A             | A              | B        | A     | A            |   |   |
| Chlorine Gas, dry 10%                 | A                   | B                   | D              | D           | A              | C        | D     | B      | B                | D         | A      | D    | A    | A              | D            | B             | D    | D              | C              | B             | D            | A          | D                  | A                  | D    | A   | D             | D              | D        | A     | A            |   |   |
| Chlorine Dioxide, 8% aqueous solution | D                   | C                   | B              | N/A         | C              | D        | D     | D      | D                | D         | D      | A    | D    | A              | D            | N/A           | C    | C              | D              | D             | N/A          | D          | N/A                | C                  | A    | A   | A             | B              | A        | C     | B            |   |   |
| Chlorine Water (5-10 ppm)             | C                   | C                   | D              | D           | A              | D        | D     | B      | D                | N/A       | D      | A    | C    | A              | D            | A             | C    | B              | C              | D             | C            | C          | N/A                | D                  | A    | A   | B             | D              | A        | N/A   | A            |   |   |
| Chloroacetic Acid                     | B                   | A                   | N/A            | D           | C              | D        | D     | C      | D                | D         | D      | D    | B    | A              | D            | A             | A    | D              | D              | D             | N/A          | D          | D                  | C                  | A    | B   | A             | D              | A        | A     | D            |   |   |
| Chlorobenzene (mono)                  | A                   | B                   | D              | D           | D              | A        | B     | C      | D                | B         | B      | D    | D    | A              | D            | A             | D    | C              | D              | D             | D            | D          | D                  | C                  | B    | D   | A             | D              | B        | A     | A            |   |   |
| Chlorobromomethane                    | B                   | B                   | N/A            | B           | N/A            | D        | N/A   | N/A    | D                | D         | B      | N/A  | B    | N/A            | D            | N/A           | N/A  | A              | D              | D             | C            | C          | N/A                | A                  | A    | D   | N/A           | D              | N/A      | N/A   | A            |   |   |
| Chloroform                            | A                   | A                   | D              | A           | D              | B        | B     | B      | D                | B         | A      | D    | D    | A              | D            | B             | D    | C              | D              | D             | D            | A          | D                  | C                  | A    | D   | A             | D              | A        | B     | A            |   |   |
| Chlorosulfonic Acid                   | D                   | B <sup>1</sup>      | N/A            | D           | D              | C        | B     | D      | D                | D         | D      | D    | D    | A              | D            | A             | D    | D              | D              | D             | D            | D          | C                  | D                  | A    | D   | D             | D              | A        | C     | D            |   |   |
| Chromic Acid, 5%                      | B                   | A                   | B              | D           | C              | C        | D     | B      | D                | D         | D      | A    | A    | B              | D            | A             | A    | D              | B              | D             | A            | D          | B                  | D                  | A    | A   | A             | C              | A        | B     | A            |   |   |
| Chromic Acid, 10%                     | B                   | B                   | B              | D           | C              | D        | D     | D      | D                | D         | D      | A    | C    | A              | D            | A             | A    | D              | D              | D             | A            | D          | B                  | D                  | A    | A   | A             | C              | B        | C     | B            |   |   |
| Chromic Acid, 30%                     | B                   | B                   | B              | D           | D              | D        | D     | D      | D                | D         | D      | A    | B    | D              | D            | A             | A    | D              | D              | D             | D            | D          | C                  | D                  | A    | A   | A             | C              | A        | B     | A            |   |   |
| Chromic Acid, 50%                     | C                   | B                   | D              | D           | D              | D        | D     | D      | D                | D         | D      | D    | B    | B              | D            | A             | A    | D              | D              | D             | D            | D          | D                  | D                  | A    | D   | A             | C              | A        | B     | A            |   |   |
| Citric Acid, aqueous 10%              | B                   | A <sup>1</sup>      | D              | B           | A              | C        | D     | D      | A                | D         | D      | B    | A    | A              | A            | A             | A    | D              | A              | A             | A            | A          | A                  | A                  | A    | B   | A             | A              | A        | N/A   | A            |   |   |
| Citrus Oil or Terpene (d-Limonene)    | A                   | A                   | C              | B           | N/A            | C        | A     | D      | A                | D         | D      | A    | B    | A              | N/A          | A             | C    | C              | D              | D             | A            | A          | C                  | A                  | A    | C   | A             | D              | A        | A     | A            |   |   |
| Clorox® Bleach                        | A                   | A                   | B              | D           | C              | A        | D     | N/A    | D                | D         | D      | A    | B    | A              | C            | D             | N/A  | N/A            | D              | B             | A            | A          | A                  | D                  | A    | A   | A             | N/A            | N/A      | B     | A            |   |   |
| Coffee                                | A                   | A                   | N/A            | A           | A              | A        | D     | A      | A                | N/A       | A      | A    | A    | A              | N/A          | N/A           | A    | N/A            | A              | A             | A            | A          | C                  | A                  | A    | N/A | N/A           | A              | A        | N/A   | A            |   |   |
| Copper Chloride                       | D                   | D                   | A              | A           | A              | N/A      | D     | D      | A                | N/A       | D      | A    | A    | N/A            | A            | A             | B    | N/A            | C              | A             | A            | D          | N/A                | A                  | A    | A   | A             | A              | D        | A     | A            |   |   |
| Copper Sulfate, 5%                    | B                   | B                   | A <sup>1</sup> | D           | A              | D        | D     | B      | A                | D         | B      | A    | A    | A              | A            | A             | A    | A <sup>1</sup> | C              | A             | A            | D          | A                  | A                  | A    | A   | A             | A              | A        | N/A   | A            |   |   |

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| Cresols                                   | A                   | A                   | D           | D           | D              | A        | C     | A      | D                | C         | A      | D    | D    | B              | A            | A             | D    | B              | D              | D             | D            | D              | D                  | D                  | D    | A <sup>1</sup> | D              | B              | D        | A     |              |   |
| Cyclohexane                               | A                   | A                   | D           | A           | C              | A        | A     | B      | B                | B         | B      | D    | D    | B              | A            | A             | D    | B              | D              | D             | D            | A              | B                  | D                  | A    | D              | A              | D              | A        | D     | A            |   |
| Cyclohexanone                             | A                   | A <sup>1</sup>      | D           | A           | D              | A        | B     | B      | D                | B         | B      | D    | B    | A              | D            | A             | B    | D              | D              | D             | D            | A              | D                  | D                  | A    | D              | D              | D              | N/A      | D     | D            |   |
| Detergents                                | A                   | A                   | B           | A           | A              | B        | A     | B      | A                | N/A       | A      | A    | A    | B              | B            | A             | A    | D              | B              | B             | A            | A              | A                  | A                  | A    | A              | A              | A              | A        | A     | A            | A |
| Diacetone Alcohol                         | B                   | B                   | N/A         | A           | D              | A        | A     | B      | D                | A         | A      | D    | A    | A              | C            | B             | A    | A              | D              | D             | A            | A              | D                  | A                  | A    | D              | D              | D              | A        | B     | D            |   |
| Dichlorobenzene                           | N/A                 | B                   | D           | B           | D              | B        | N/A   | B      | D                | N/A       | N/A    | D    | D    | A              | D            | N/A           | D    | D              | D              | D             | N/A          | D              | D                  | C                  | A    | D              | A              | D              | N/A      | N/A   | C            |   |
| Dichloroethane                            | B                   | B                   | D           | A           | D              | B        | B     | D      | D                | N/A       | A      | D    | N/A  | A              | N/A          | A             | C    | C              | D              | D             | A            | A              | D                  | D                  | A    | D              | A              | N/A            | B        | D     | C            |   |
| Diesel Fuel                               | A                   | A                   | N/A         | A           | B              | A        | A     | A      | A                | A         | A      | A    | D    | B              | B            | A             | D    | C              | D              | B             | D            | A              | A <sup>1</sup>     | A                  | A    | A              | A              | A              | D        | B     | N/A          | A |
| Diethyl Ether                             | B                   | B <sup>1</sup>      | D           | A           | D              | B        | B     | A      | D                | N/A       | A      | D    | D    | B              | C            | C             | D    | N/A            | D              | D             | N/A          | A              | D                  | A                  | A    | D              | A              | D              | A        | N/A   | D            |   |
| Diethylamine                              | A                   | A                   | D           | B           | B              | B        | A     | A      | C                | B         | A      | D    | B    | A              | N/A          | A             | D    | D              | A              | A             | N/A          | A              | D                  | A                  | D    | D              | D              | B              | A        | C     | A            |   |
| Dimethylformamide (N,N-Dimethylformamide) | A                   | B                   | D           | C           | D              | B        | C     | B      | C                | B         | A      | D    | B    | A              | B            | A             | A    | A              | C              | D             | D            | A              | D                  | A                  | A    | D              | D              | C              | A        | D     | D            |   |
| Dyes                                      | A                   | A                   | N/A         | C           | D              | B        | A     | N/A    | D                | N/A       | A      | N/A  | A    | N/A            | D            | N/A           | N/A  | N/A            | C              | C             | A            | A              | D                  | N/A                | A    | B              | N/A            | N/A            | N/A      | C     | A            |   |
| Ethane                                    | A                   | A                   | N/A         | A           | N/A            | A        | N/A   | N/A    | A                | A         | A      | A    | D    | A              | N/A          | N/A           | N/A  | N/A            | D              | B             | N/A          | D              | N/A                | D                  | A    | A              | A              | D              | N/A      | A     | A            |   |
| Ethanol (Ethyl Alcohol)                   | A                   | A                   | B           | A           | D              | B        | A     | A      | C                | B         | A      | B    | A    | A              | D            | A             | A    | B              | A              | A             | A            | A              | C                  | A                  | A    | C              | A              | B              | A        | C     | A            |   |
| Ethanolamine                              | A                   | A                   | N/A         | D           | C              | B        | N/A   | B      | B                | B         | D      | N/A  | B    | B              | N/A          | D             | N/A  | N/A            | B              | B             | A            | A              | N/A                | D                  | A    | D              | C              | B              | B        | N/A   | D            |   |
| Ether                                     | A                   | A                   | D           | A           | D              | B        | B     | A      | D                | C         | A      | D    | C    | B              | N/A          | B             | D    | D              | D              | D             | D            | A              | D                  | D                  | A    | D              | B              | D              | A        | C     | C            |   |
| Ethyl Acetate                             | B                   | B                   | D           | A           | D              | A        | B     | A      | D                | A         | A      | D    | B    | A              | B            | A             | A    | A              | C              | D             | A            | A <sup>1</sup> | D                  | A                  | A    | D              | D              | B              | A        | D     | D            |   |
| Ethyl Benzoate                            | A                   | A                   | D           | A           | D              | A        | N/A   | N/A    | D                | A         | A      | D    | A    | A              | C            | N/A           | B    | C <sup>1</sup> | D              | D             | A            | D              | D                  | B                  | A    | D              | D              | D              | N/A      | D     | A            |   |
| Ethyl Chloride                            | A                   | A                   | D           | A           | D              | B        | A     | A      | A                | C         | B      | D    | A    | B              | C            | B             | C    | C              | B              | C             | D            | A              | D                  | D                  | A    | D              | A              | D              | A        | D     | A            |   |
| Ethyl Ether                               | B                   | B                   | D           | A           | D              | B        | B     | A      | D                | C         | A      | D    | D    | B              | N/A          | A             | D    | D              | D              | D             | D            | A              | N/A                | D                  | A    | D              | A <sup>1</sup> | D              | A        | N/A   | D            |   |
| Ethylene Glycol                           | B                   | B                   | A           | B           | A              | A        | B     | A      | A                | A         | A      | A    | A    | B              | A            | A             | A    | A <sup>1</sup> | A              | A             | A            | A              | B                  | A                  | A    | A              | A              | A              | A        | A     | B            | A |
| Ethylene Oxide Gas (EO), dry 3%           | B                   | B                   | D           | D           | A              | D        | D     | C      | D                | D         | D      | C    | C    | A              | A            | A             | B    | A              | D              | D             | A            | A              | C                  | D                  | A    | D              | A              | D              | N/A      | N/A   | D            |   |
| Fatty Acids                               | B                   | A                   | A           | A           | A              | A        | C     | A      | B                | C         | D      | A    | D    | A              | B            | A             | A    | D              | C              | C             | A            | A              | B                  | A                  | A    | A              | A              | C              | B        | B     | A            |   |
| Ferric Chloride, 10%                      | D                   | D                   | A           | D           | A              | D        | D     | D      | A                | D         | D      | A    | A    | B              | C            | A             | D    | A              | A              | B             | A            | A              | A <sup>1</sup>     | A                  | A    | A              | A              | B              | A        | B     | A            |   |

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| Ferric Nitrate   | B                   | B                   | A           | D              | A              | D        | D     | C      | A                | D         | D      | A    | A    | B              | D            | A             | B    | A <sup>1</sup> | A              | A             | A            | A              | A                  | A                  | A    | A   | A              | C              | A        | N/A   | A            |   |
| Ferric Sulfate   | B                   | A                   | A           | D              | B              | D        | D     | C      | A                | D         | D      | A    | A    | A              | A            | A             | A    | A <sup>1</sup> | A              | A             | A            | A              | A                  | A                  | A    | A   | A              | B              | A        | B     | A            |   |
| Ferrous Sulfate  | B                   | B                   | A           | D              | A              | B        | B     | B      | A                | D         | B      | A    | A    | B              | A            | A             | B    | A <sup>1</sup> | B              | A             | A            | D              | A                  | A                  | A    | A   | A              | N/A            | A        | B     | B            |   |
| Fluosilicic Acid, 20%  | C                   | B                   | D           | B              | B              | D        | N/A   | B      | A                | B         | B      | A    | A    | B              | N/A          | A             | B    | B <sup>1</sup> | A              | B             | B            | D              | N/A                | A                  | A    | A   | A              | D              | D        | A     | A            |   |
| Fluosilicic Acid, 100%   | D                   | D                   | D           | A              | C              | D        | N/A   | B      | B                | D         | D      | N/A  | A    | B              | N/A          | B             | C    | B              | A              | B             | B            | D              | N/A                | A                  | A    | B   | A              | D              | D        | D     | A            |   |
| Formaldehyde, 40%  | A                   | A                   | A           | A <sup>1</sup> | B              | B        | A     | A      | B                | B         | B      | A    | A    | B              | C            | A             | A    | D              | B              | B             | A            | A              | A                  | A                  | A    | A   | A              | N/A            | B        | N/A   | A            |   |
| Formaldehyde, 100%   | C                   | A                   | B           | A              | D              | A        | N/A   | B      | C                | C         | A      | A    | A    | A              | D            | A             | A    | B              | C              | C             | A            | D              | A <sup>1</sup>     | C                  | A    | A   | A              | B              | A        | B     | D            |   |
| Formic Acid (Methanoic Acid), 10%                                | B                   | A                   | D           | A <sup>1</sup> | B              | A        | D     | C      | C                | D         | C      | A    | A    | A              | B            | A             | A    | D              | C              | A             | A            | D              | A                  | A                  | A    | A   | A              | B              | C        | B     | C            |   |
| Fruit Juices   | A                   | A                   | B           | D              | A              | A        | D     | N/A    | A                | D         | A      | A    | A    | A              | B            | A             | A    | A              | D              | A             | B            | A              | A                  | B                  | A    | A   | A              | N/A            | A        | B     | A            |   |
| Fuel Oils  | A                   | A                   | D           | A              | B              | C        | B     | A      | A                | A         | A      | N/A  | D    | A              | B            | A             | C    | B              | D              | B             | B            | A              | B                  | A                  | B    | A   | B              | D              | A        | A     | A            |   |
| Furfural (Ant Oil ) C <sub>8</sub> H <sub>4</sub> O <sub>2</sub> | A                   | B                   | D           | A              | D              | A        | A     | B      | D                | B         | A      | D    | D    | B              | B            | D             | A    | D              | D              | D             | D            | B              | D                  | D                  | A    | D   | B <sup>1</sup> | D              | A        | D     | D            |   |
| Gallic Acid, 5%  | A                   | B                   | N/A         | N/A            | A              | D        | C     | B      | B                | D         | D      | C    | B    | B              | D            | A             | A    | A              | A              | B             | A            | A              | A                  | A                  | B    | B   | A              | D              | B        | A     | A            |   |
| Gasoline (high-aromatic)   | A                   | A                   | D           | B              | D              | D        | N/A   | A      | A                | A         | N/A    | C    | D    | A              | A            | A             | B    | A              | D              | A             | B            | A              | A                  | A                  | B    | A   | A              | D              | B        | A     | A            |   |
| Gasoline, leaded, ref.   | A                   | A                   | D           | A              | D              | A        | A     | A      | A                | A         | B      | D    | D    | A              | A            | A             | B    | N/A            | D              | B             | B            | A              | A                  | B                  | A    | B   | A              | D              | A        | C     | A            |   |
| Gasoline, unleaded   | A                   | A <sup>1</sup>      | D           | A              | D              | A        | A     | A      | A                | A         | B      | C    | D    | A              | N/A          | A             | B    | N/A            | D              | B             | D            | A <sup>1</sup> | A <sup>1</sup>     | C                  | A    | C   | A              | D              | A        | C     | A            |   |
| Glucose  | A                   | A                   | B           | A              | A              | A        | A     | N/A    | A                | A         | A      | A    | A    | A              | A            | N/A           | A    | A <sup>1</sup> | A              | A             | A            | A              | A                  | A                  | A    | A   | A              | A              | A        | A     | A            | A |
| Glue, PVA (Polyvinyl Acetate)                                    | A                   | A <sup>1</sup>      | N/A         | A              | D              | A        | N/A   | A      | A                | A         | B      | A    | A    | A              | A            | N/A           | A    | A              | A              | A             | N/A          | A              | N/A                | N/A                | A    | C   | A              | A              | A        | C     | B            |   |
| Glycerin   | A                   | A                   | C           | A              | A              | A        | B     | A      | A                | A         | A      | A    | A    | A              | A            | A             | A    | A              | A              | A             | A            | A              | A <sup>1</sup>     | A                  | A    | A   | A              | A              | A        | A     | A            | A |
| Glycolic Acid  | A                   | A                   | B           | A              | C              | N/A      | N/A   | N/A    | A                | N/A       | N/A    | A    | A    | A              | N/A          | B             | B    | A              | D              | A             | N/A          | N/A            | N/A                | A                  | A    | B   | B              | A              | A        | A     | A            |   |
| Grease   | N/A                 | A                   | N/A         | D              | A              | N/A      | A     | A      | A                | A         | A      | N/A  | D    | A              | A            | N/A           | N/A  | N/A            | D              | D             | N/A          | N/A            | A                  | N/A                | A    | A   | A              | D              | N/A      | A     | A            |   |
| Heptane  | A                   | A                   | D           | A              | C              | A        | A     | A      | A                | A         | A      | A    | D    | A              | B            | A             | B    | B              | D              | B             | B            | A              | B                  | C <sup>1</sup>     | A    | C   | A              | D              | A        | B     | A            |   |
| Hexane   | A                   | A                   | D           | A              | C              | A        | A     | A      | A                | A         | A      | B    | D    | A              | A            | A             | C    | D              | D              | B             | B            | B              | D                  | B                  | A    | B   | A              | D              | A        | D     | A            |   |
| Honey  | A                   | A                   | N/A         | A              | A              | A        | N/A   | A      | A                | A         | N/A    | N/A  | A    | A              | N/A          | N/A           | N/A  | B              | A              | A             | N/A          | A              | A                  | A                  | A    | A   | A              | A              | N/A      | A     | A            | A |
| Hydraulic Oil (Petro)  | A                   | A                   | N/A         | B              | D              | A        | A     | A      | A                | A         | A      | N/A  | D    | A              | D            | N/A           | A    | C              | D              | A             | N/A          | A              | N/A                | D                  | A    | A   | A              | B              | N/A      | A     | A            |   |

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| Hydraulic Oil (Synthetic)                           | A                   | A                   | N/A            | B           | D              | A        | A     | A      | D                | A         | A      | N/A  | A    | A              | N/A          | A             | A    | A              | D              | A             | N/A          | A              | N/A                | D                  | A    | A   | A             | B              | N/A      | A     | A            |     |
| Hydrazine (Diamine) H <sub>2</sub> NNH <sub>2</sub> | A                   | A                   | N/A            | B           | C              | N/A      | D     | N/A    | B                | D         | A      | D    | A    | N/A            | C            | N/A           | D    | N/A            | C              | B             | N/A          | N/A            | D                  | C                  | A    | N/A | A             | B              | N/A      | N/A   | A            |     |
| Hydrobromic Acid, 20%                               | D                   | D                   | N/A            | C           | D              | D        | D     | N/A    | D                | D         | D      | A    | A    | A              | N/A          | A             | D    | B              | A              | D             | B            | D              | N/A                | A                  | N/A  | B   | A             | D              | A        | B     | A            |     |
| Hydrobromic Acid, 100%                              | D                   | D                   | B              | D           | D              | D        | D     | N/A    | D                | D         | D      | A    | A    | C              | N/A          | A             | D    | B              | A              | D             | B            | D              | N/A                | C                  | A    | A   | A             | D              | A        | B     | A            |     |
| Hydrochloric Acid, 20%                              | D                   | D                   | A              | C           | C              | D        | D     | D      | D                | D         | D      | A    | A    | A              | B            | A             | A    | A <sup>1</sup> | A              | C             | A            | D              | B                  | B <sup>1</sup>     | A    | A   | A             | D              | D        | A     | A            |     |
| Hydrochloric Acid, 37%                              | D                   | D                   | A              | C           | C              | D        | D     | D      | B                | D         | D      | A    | C    | B              | C            | A             | A    | B              | A              | B             | A            | D              | D                  | C                  | A    | B   | A             | B              | D        | A     | A            |     |
| Hydrochloric Acid, 100%                             | D                   | D                   | A              | C           | D              | D        | D     | D      | D                | D         | D      | A    | D    | A              | D            | A             | D    | N/A            | D              | D             | A            | D              | D                  | B                  | A    | D   | A             | D              | D        | A     | A            |     |
| Hydrochloric Acid, dry gas                          | D                   | D                   | N/A            | N/A         | N/A            | D        | D     | A      | N/A              | N/A       | D      | A    | N/A  | A              | N/A          | A             | D    | A              | N/A            | N/A           | A            | A              | N/A                | B                  | A    | A   | A             | A              | N/A      | C     | N/A          | N/A |
| Hydrofluoric Acid, 20%                              | D                   | D                   | C              | D           | C              | D        | D     | B      | D                | D         | B      | C    | D    | B              | D            | B             | A    | A              | B              | B             | C            | C              | D                  | A <sup>1</sup>     | A    | B   | A             | D              | D        | C     | A            |     |
| Hydrofluoric Acid, 50%                              | D                   | D                   | C              | D           | C              | D        | D     | B      | D                | D         | B      | C    | D    | B              | D            | B             | A    | A              | B              | D             | D            | D              | D                  | A                  | A    | B   | A             | D              | D        | C     | B            |     |
| Hydrofluoric Acid, 75%                              | D                   | D                   | C              | D           | D              | D        | D     | B      | D                | D         | B      | C    | C    | B              | D            | B             | B    | C              | D              | D             | D            | D              | D                  | C                  | A    | C   | A             | D              | D        | C     | B            |     |
| Hydrofluoric Acid, 100%                             | B                   | B                   | D              | D           | D              | D        | D     | B      | D                | D         | B      | C    | D    | B              | D            | A             | D    | N/A            | D              | D             | D            | D              | D                  | C                  | A    | C   | A             | D              | D        | D     | B            |     |
| Hydrogen Gas  | A                   | A                   | A <sup>1</sup> | N/A         | N/A            | A        | A     | A      | A                | A         | A      | A    | A    | A              | A            | B             | A    | A <sup>1</sup> | B              | A             | A            | A <sup>1</sup> | A <sup>1</sup>     | A                  | A    | A   | A             | C              | A        | A     | A            |     |
| Hydrogen Peroxide, 10%                              | B                   | B                   | A              | D           | C              | A        | D     | B      | D                | C         | D      | A    | A    | A              | D            | A             | A    | A              | B              | D             | A            | C              | A                  | A                  | A    | A   | A             | A              | A        | B     | A            |     |
| Hydrogen Peroxide, 30%                              | B                   | B                   | N/A            | D           | C              | A        | D     | B      | D                | B         | D      | A    | B    | A              | D            | B             | A    | C <sup>1</sup> | C              | D             | A            | D              | A <sup>1</sup>     | B                  | A    | A   | A             | B              | B        | B     | A            |     |
| Hydrogen Peroxide, 50%                              | B                   | A <sup>1</sup>      | N/A            | D           | D              | A        | D     | B      | D                | N/A       | D      | A    | B    | A              | D            | A             | A    | C <sup>1</sup> | C              | D             | N/A          | D              | A <sup>1</sup>     | B                  | A    | A   | A             | B              | A        | B     | A            |     |
| Hydrogen Peroxide, 100%                             | B                   | A <sup>1</sup>      | A              | D           | D              | A        | D     | B      | D                | B         | D      | A    | D    | A              | D            | B             | A    | C <sup>1</sup> | C              | D             | A            | D              | A                  | B                  | A    | A   | A             | B              | B        | B     | A            |     |
| Hydrogen Sulfide, aqueous                           | C                   | A                   | B              | C           | A              | B        | D     | A      | D                | D         | D      | A    | B    | A              | A            | A             | A    | A              | C              | A             | A            | C              | A                  | A                  | A    | B   | A             | C              | B        | A     | D            |     |
| Hydrogen Sulfide, dry                               | C                   | A                   | N/A            | A           | A              | B        | D     | B      | D                | D         | D      | A    | B    | A              | A            | B             | A    | A              | C              | A             | N/A          | C              | N/A                | A                  | A    | A   | A             | C              | A        | D     | D            |     |
| Isopropyl Alcohol (IPA, isopropanol)                | B                   | B                   | D              | A           | A              | B        | B     | A      | B                | A         | B      | C    | A    | A              | A            | A             | A    | A <sup>1</sup> | A              | B             | A            | D              | A <sup>1</sup>     | A <sup>1</sup>     | A    | A   | A             | A              | B        | A     | A            |     |
| Ketones   | A                   | A                   | A              | D           | D              | B        | N/A   | A      | D                | A         | A      | N/A  | D    | A              | D            | B             | D    | C              | A              | D             | D            | A <sup>1</sup> | D                  | C                  | A    | D   | C             | N/A            | A        | D     | D            |     |
| Lacquer Thinners                                    | A                   | A                   | A              | D           | D              | A        | A     | A      | D                | C         | A      | N/A  | D    | A              | D            | N/A           | D    | A              | D              | D             | D            | A              | B                  | D                  | A    | D   | N/A           | D              | C        | D     | D            |     |
| Lacquers  | A                   | A                   | A              | D           | N/A            | A        | D     | A      | D                | C         | A      | A    | D    | A              | D            | A             | D    | A              | D              | D             | D            | A              | D                  | D                  | A    | D   | D             | D              | A        | A     | D            |     |
| Lactic Acid   | B                   | B                   | D              | B           | A              | B        | D     | B      | A                | D         | B      | A    | A    | B              | D            | A             | A    | A              | A              | A             | A            | B              | B                  | B                  | A    | B   | B             | A              | A        | A     | A            |     |

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| Latex  | A                   | A <sup>1</sup>      | B              | B           | N/A            | A        | A     | A      | A                | A         | N/A    | N/A  | A    | A              | N/A          | N/A           | N/A  | N/A            | N/A            | B             | N/A          | A              | N/A                | A <sup>1</sup>     | A    | N/A | A              | A              | N/A      | A     | A            |   |
| Ligroin  | A <sup>1</sup>      | A <sup>1</sup>      | N/A            | B           | N/A            | D        | N/A   | N/A    | A                | A         | N/A    | N/A  | D    | N/A            | N/A          | N/A           | A    | D              | B              | N/A           | D            | A              | A <sup>1</sup>     | A                  | N/A  | A   | D              | N/A            | A        | A     |              |   |
| Lime (CaO)   | A                   | A                   | A <sup>1</sup> | B           | A              | A        | N/A   | N/A    | A                | A         | N/A    | N/A  | D    | N/A            | C            | A             | A    | A              | N/A            | A             | N/A          | A              | D                  | D                  | A    | B   | A              | N/A            | A        | A     |              |   |
| Linoleic Acid  | B                   | A                   | A              | B           | N/A            | A        | D     | C      | B                | D         | D      | A    | D    | A              | N/A          | N/A           | B    | A              | D              | D             | N/A          | N/A            | N/A                | B                  | A    | A   | A <sup>1</sup> | B              | N/A      | A     | B            |   |
| Lithium Hydroxide  | C                   | C                   | N/A            | N/A         | N/A            | D        | D     | B      | C                | B         | N/A    | N/A  | A    | B              | N/A          | N/A           | D    | N/A            | A              | D             | N/A          | N/A            | D                  | A                  | A    | N/A | N/A            | N/A            | N/A      | N/A   | A            |   |
| Lubricants   | A                   | A <sup>1</sup>      | N/A            | A           | A              | A        | A     | A      | A                | A         | A      | N/A  | D    | A              | A            | N/A           | B    | D              | D              | D             | C            | A              | A                  | A                  | A    | B   | A              | D              | A        | B     | A            |   |
| Lye (KOH, Potassium Hydroxide)                                       | B                   | A                   | A              | A           | B              | D        | D     | D      | B                | B         | B      | A    | A    | B              | D            | B             | B    | A              | B              | B             | A            | C              | D                  | A                  | A    | B   | A              | C              | D        | B     | B            |   |
| Lye (NaOH, Sodium Hydroxide)   | B                   | B                   | C              | C           | A              | D        | D     | D      | A                | D         | B      | A    | B    | C              | C            | B             | B    | D              | A              | B             | A            | A              | D                  | A                  | A    | A   | D              | A              | B        | B     | B            |   |
| Magnesium Bisulfate  | A                   | A                   | N/A            | N/A         | N/A            | D        | N/A   | A      | B                | N/A       | N/A    | N/A  | N/A  | N/A            | N/A          | N/A           | A    | N/A            | B              | B             | N/A          | A              | A                  | A <sup>1</sup>     | A    | A   | N/A            | N/A            | N/A      | A     | N/A          |   |
| Magnesium Chloride, 10%  | D                   | D                   | B              | B           | A              | D        | D     | B      | A                | D         | A      | A    | A    | A              | C            | A             | A    | A              | A              | A             | A            | A              | A <sup>1</sup>     | A <sup>1</sup>     | A    | B   | A              | A              | A        | A     | A            |   |
| Magnesium Hydroxide, 10%   | B                   | A                   | B              | A           | A              | C        | D     | B      | A                | A         | B      | A    | A    | A              | C            | A             | B    | A <sup>1</sup> | A              | A             | A            | B              | A                  | A                  | A    | A   | A              | A              | A        | A     | C            | A |
| Malic Acid (Apple Acid) C <sub>4</sub> H <sub>6</sub> O <sub>5</sub> | A                   | A <sup>1</sup>      | N/A            | A           | N/A            | B        | B     | B      | A                | D         | D      | A    | D    | B              | N/A          | N/A           | N/A  | B <sup>1</sup> | B              | D             | N/A          | A              | D                  | A                  | A    | A   | A              | A              | B        | A     | A            | A |
| Mercury  | A                   | A                   | B              | A           | A              | D        | D     | A      | A                | A         | D      | A    | A    | A              | B            | A             | A    | A              | A              | A             | A            | A              | D                  | B                  | A    | A   | A              | N/A            | A        | D     | A            |   |
| Methane Gas  | A                   | A                   | A              | A           | A              | A        | A     | A      | A                | N/A       | A      | N/A  | D    | A              | B            | N/A           | A    | N/A            | D              | B             | N/A          | A              | A                  | A                  | A    | B   | A              | D              | N/A      | N/A   | A            |   |
| Methanol (Methyl Alcohol)  | A                   | A                   | D              | A           | C              | A        | A     | A      | A                | A         | B      | A    | A    | A              | B            | A             | A    | A              | A              | A             | A            | B              | B                  | A <sup>1</sup>     | A    | A   | A              | A              | B        | A     | C            |   |
| Methyl Acetate   | A                   | B                   | D              | B           | D              | A        | N/A   | A      | D                | A         | B      | N/A  | B    | A              | C            | A             | C    | B              | D              | B             | N/A          | A              | D                  | D                  | A    | D   | B              | D              | N/A      | A     | D            |   |
| Methyl Acetone (mixture)   | A                   | A                   | N/A            | D           | N/A            | A        | A     | A      | D                | A         | N/A    | N/A  | A    | A              | N/A          | N/A           | N/A  | N/A            | A              | D             | N/A          | A              | N/A                | D                  | A    | D   | D              | N/A            | N/A      | A     | D            |   |
| Methyl Alcohol, 10%  | A                   | A                   | D              | A           | C              | A        | A     | A      | A                | A         | A      | A    | A    | A              | B            | A             | A    | A              | A              | A             | A            | B              | B                  | A <sup>1</sup>     | A    | A   | A              | A              | B        | A     | C            |   |
| Methyl Butyl Ketone  | A                   | A                   | N/A            | D           | D              | A        | N/A   | D      | D                | N/A       | N/A    | N/A  | A    | N/A            | N/A          | N/A           | N/A  | N/A            | D              | D             | N/A          | D              | D                  | D                  | A    | A   | D              | D              | N/A      | N/A   | D            |   |
| Methyl Cellosolve  | B                   | B                   | A              | D           | A              | B        | A     | A      | A                | C         | B      | D    | B    | N/A            | N/A          | N/A           | N/A  | N/A            | D              | B             | N/A          | C              | D                  | B                  | A    | D   | A              | D              | N/A      | C     | D            |   |
| Methyl Chloride  | A                   | A                   | D              | B           | D              | D        | A     | B      | D                | D         | N/A    | D    | D    | B              | D            | A             | N/A  | C              | D              | D             | D            | B              | D                  | D                  | A    | D   | A              | D              | A        | D     | A            |   |
| Methyl Ethyl Ketone (MEK, Butanone)                                  | A                   | A                   | D              | C           | D              | B        | A     | A      | D                | A         | A      | D    | A    | A              | B            | A             | D    | B              | D              | D             | D            | A              | D                  | B <sup>1</sup>     | A    | D   | D              | D              | A        | D     | D            |   |
| Methyl Ethyl Ketone Peroxide (MEKP)                                  | N/A                 | A                   | D              | D           | N/A            | D        | D     | D      | D                | D         | D      | D    | D    | N/A            | N/A          | N/A           | N/A  | N/A            | D              | D             | N/A          | N/A            | N/A                | N/A                | A    | N/A | N/A            | B              | N/A      | N/A   | D            |   |
| Methyl Isobutyl Ketone   | B                   | B                   | D              | D           | D              | B        | N/A   | A      | D                | C         | B      | D    | B    | A              | B            | A             | D    | C              | D              | D             | D            | B <sup>1</sup> | D                  | A                  | A    | D   | D              | A              | N/A      | D     |              |   |

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# Chemical Compatibility Chart

**Ratings -- Chemical Effect**

A = Excellent.  
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**\*Explanation of Footnote**

1. Satisfactory to 120°F (48° C)

All data are based on ambient or room temperature conditions, about 64° F (18° C) to 73° F (23° C).



|                            | 304 Stainless Steel | 316 Stainless Steel | ABS Plastic | Acetal, POM | Acrylic (PMMA) | Aluminum | Brass | Bronze | Buna N (Nitrile) | Cast Iron | Copper | CPVC | EPDM | Hastelloy® - C | Hyrel® (TPE) | Ke-F® (PCTFE) | HDPE | LDPE | Natural Rubber | Neoprene (CR) | Noryl® (PPO) | Nylon (PA)     | Polycarbonate (PC) | Polypropylene (PP) | PTFE | PVC | PVDF (Kynar®)  | Silicone (VMQ) | Titanium | Tygon | Viton® (FKM) |   |
|----------------------------|---------------------|---------------------|-------------|-------------|----------------|----------|-------|--------|------------------|-----------|--------|------|------|----------------|--------------|---------------|------|------|----------------|---------------|--------------|----------------|--------------------|--------------------|------|-----|----------------|----------------|----------|-------|--------------|---|
| Methyl Isopropyl Ketone    | A                   | A                   | N/A         | A           | D              | A        | N/A   | A      | D                | C         | A      | N/A  | C    | A              | D            | N/A           | D    | D    | D              | D             | D            | A              | D                  | N/A                | A    | D   | A              | C              | N/A      | N/A   | D            | D |
| Methylamine                | A                   | A                   | D           | D           | D              | A        | D     | A      | B                | A         | N/A    | N/A  | A    | B              | N/A          | A             | N/A  | A    | B              | A             | N/A          | N/A            | D                  | A <sup>1</sup>     | A    | D   | C              | N/A            | N/A      | D     | D            |   |
| Methylene Chloride         | B                   | B                   | D           | B           | D              | C        | A     | B      | D                | B         | B      | D    | C    | B              | D            | A             | D    | D    | B              | D             | D            | C              | D                  | B                  | A    | D   | B              | D              | B        | D     | B            | D |
| Milk                       | A                   | A                   | B           | A           | A              | A        | D     | A      | A                | D         | D      | A    | A    | A              | B            | A             | B    | A    | A              | A             | A            | A              | A                  | B                  | A    | A   | A              | A <sup>1</sup> | A        | A     | B            | A |
| Mineral Spirits            | A                   | A                   | D           | A           | B              | A        | A     | A      | A                | B         | N/A    | A    | D    | B              | N/A          | A             | D    | B    | D              | C             | A            | A              | C                  | B                  | A    | A   | N/A            | D              | B        | B     | A            |   |
| Monochloroacetic Acid      | A                   | A                   | N/A         | D           | D              | D        | B     | B      | D                | D         | D      | N/A  | C    | A              | D            | B             | D    | N/A  | N/A            | A             | N/A          | D              | D                  | N/A                | A    | N/A | B              | N/A            | A        | N/A   | C            |   |
| Monoethanol Amine          | A                   | A                   | N/A         | D           | N/A            | B        | N/A   | A      | D                | A         | D      | N/A  | B    | N/A            | D            | N/A           | N/A  | C    | B              | D             | A            | A              | N/A                | B                  | A    | D   | C              | B              | B        | N/A   | D            |   |
| Morpholine                 | N/A                 | A                   | C           | N/A         | D              | A        | N/A   | B      | D                | B         | N/A    | N/A  | D    | A              | N/A          | N/A           | B    | N/A  | A              | D             | D            | A <sup>1</sup> | D                  | B <sup>1</sup>     | A    | N/A | B              | N/A            | N/A      | N/A   | N/A          |   |
| Motor Oil                  | A                   | A <sup>1</sup>      | C           | B           | B              | A        | A     | A      | A                | N/A       | A      | A    | D    | N/A            | B            | A             | A    | C    | D              | B             | A            | A <sup>1</sup> | A                  | A                  | A    | B   | B              | N/A            | A        | A     | N/A          |   |
| Mustard                    | A                   | A                   | B           | C           | N/A            | B        | N/A   | A      | B                | D         | N/A    | A    | A    | A              | B            | N/A           | A    | A    | B              | A             | A            | A              | A                  | A                  | A    | B   | A              | N/A            | A        | B     | D            |   |
| Naphtha                    | A                   | A                   | D           | A           | D              | A        | A     | A      | A                | B         | A      | A    | D    | B              | B            | A             | D    | A    | D              | D             | D            | A              | B                  | B                  | B    | A   | A              | D              | B        | C     | A            |   |
| Natural Gas                | A                   | A                   | B           | B           | A              | A        | A     | A      | A                | A         | A      | N/A  | D    | N/A            | B            | N/A           | A    | A    | C              | A             | N/A          | N/A            | D                  | A                  | A    | A   | N/A            | A              | N/A      | A     | A            |   |
| Nitric Acid, 5-10%         | A                   | A                   | B           | D           | A              | A        | D     | A      | D                | D         | D      | A    | A    | A              | C            | A             | A    | B    | D              | B             | A            | D              | A                  | A                  | A    | A   | A              | C              | A        | D     | A            |   |
| Nitric Acid, 20%           | A                   | A                   | B           | D           | A              | D        | D     | A      | D                | D         | D      | A    | A    | A              | D            | A             | B    | C    | D              | D             | B            | D              | B                  | A <sup>1</sup>     | A    | A   | A              | D              | A        | D     | A            |   |
| Nitric Acid, 50%           | A                   | A                   | C           | D           | C              | D        | D     | A      | D                | D         | D      | B    | D    | A              | D            | A             | D    | B    | D              | D             | B            | D              | B                  | B                  | A    | B   | A              | D              | A        | D     | A            |   |
| Nitric Acid (Concentrated) | A                   | A                   | D           | D           | D              | D        | D     | A      | D                | D         | D      | D    | D    | B              | D            | A             | D    | C    | D              | D             | B            | D              | C                  | D                  | A    | B   | A              | D              | A        | D     | A            |   |
| Nitrobenzene               | B                   | B                   | D           | C           | D              | B        | C     | A      | D                | C         | B      | D    | B    | D              | D            | A             | D    | C    | D              | D             | D            | B              | D                  | B                  | A    | D   | A              | D              | A        | D     | B            |   |
| Nitromethane               | A                   | A                   | D           | A           | D              | A        | N/A   | N/A    | D                | N/A       | A      | N/A  | B    | A              | C            | A             | D    | A    | B              | D             | D            | B              | D                  | B <sup>1</sup>     | A    | B   | A <sup>1</sup> | D              | N/A      | B     | D            |   |
| Nitrous Acid               | B                   | B                   | D           | N/A         | C              | D        | D     | B      | D                | D         | C      | A    | A    | D              | N/A          | B             | D    | N/A  | C              | D             | N/A          | N/A            | N/A                | A                  | A    | A   | B              | N/A            | N/A      | A     | B            |   |
| Nitrous Oxide              | B                   | B                   | N/A         | N/A         | D              | B        | B     | D      | A                | B         | B      | N/A  | A    | B              | N/A          | N/A           | N/A  | C    | A              | A             | N/A          | C              | D                  | D                  | A    | A   | D              | N/A            | N/A      | A     | B            |   |
| Oils: Citric               | A                   | A                   | D           | A           | N/A            | A        | B     | N/A    | D                | D         | N/A    | N/A  | B    | A              | N/A          | N/A           | B    | A    | N/A            | D             | A            | A              | A                  | A                  | A    | B   | A              | N/A            | A        | D     | A            |   |
| Oils: Cod Liver            | A                   | A                   | A           | B           | A              | A        | D     | N/A    | A                | D         | N/A    | A    | A    | A              | N/A          | A             | A    | N/A  | D              | B             | N/A          | N/A            | A                  | A                  | A    | A   | A              | B              | N/A      | N/A   | A            |   |
| Oils: Corn                 | A                   | A                   | B           | A           | A              | A        | B     | N/A    | D                | A         | B      | N/A  | C    | A              | A            | A             | A    | A    | D              | A             | A            | A              | N/A                | A <sup>1</sup>     | A    | B   | A              | A              | N/A      | B     | B            |   |
| Oils: Cottonseed           | A                   | A                   | A           | A           | A              | A        | A     | N/A    | A                | A         | A      | A    | D    | A              | A            | A             | A    | A    | D              | C             | A            | B              | N/A                | A                  | A    | B   | A              | A              | A        | B     | A            |   |

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| Oils: Diesel Fuel (20, 30, 40, 50)                    | A                   | A                   | N/A         | D           | B              | A        | A     | A      | A                | A         | A      | N/A  | D    | B              | A            | A             | D              | A              | D              | B             | D              | A          | A                  | B                  | A    | B   | A              | D              | B        | A     | A            |
| Oils: Fuel (1, 2, 3, 5A, 5B, 6)                       | A                   | A                   | D           | D           | B              | C        | B     | A      | B                | A         | A      | N/A  | D    | A              | A            | C             | B              | D              | D              | A             | A              | B          | B                  | A                  | A    | B   | C              | B              | A        | B     |              |
| Oils: Hydraulic Oil (Petro)                           | A                   | A                   | N/A         | B           | N/A            | A        | A     | A      | A                | A         | A      | N/A  | D    | A              | A            | N/A           | A              | C              | D              | A             | N/A            | A          | N/A                | D                  | A    | A   | A              | B              | N/A      | A     | A            |
| Oils: Hydraulic Oil (Synthetic)                       | A                   | A                   | N/A         | B           | N/A            | A        | A     | A      | D                | A         | A      | N/A  | A    | A              | A            | N/A           | A              | A              | D              | A             | N/A            | A          | N/A                | D                  | A    | A   | A              | B              | N/A      | A     | A            |
| Oils: Mineral   | A                   | A                   | A           | A           | A              | A        | A     | A      | A                | N/A       | B      | A    | D    | A              | A            | A             | B              | D              | B              | A             | A              | B          | A                  | A                  | B    | A   | C              | A              | B        | A     |              |
| Oils: Silicone  | A                   | A                   | A           | A           | B              | A        | A     | A      | A                | A         | A      | A    | A    | A              | A            | N/A           | A              | A              | D              | D             | A              | A          | A                  | A                  | A    | A   | A              | C              | N/A      | A     | A            |
| Oils: Soybean   | A                   | A                   | A           | A           | N/A            | A        | N/A   | A      | A                | A         | N/A    | A    | C    | A              | B            | A             | A              | A              | D              | C             | N/A            | A          | N/A                | A                  | A    | A   | A              | A              | A        | B     | A            |
| Oils: Turbine   | A                   | A                   | N/A         | A           | N/A            | A        | N/A   | A      | B                | A         | A      | A    | A    | N/A            | N/A          | N/A           | N/A            | C              | D              | D             | N/A            | A          | N/A                | B                  | A    | A   | A              | D              | A        | A     | A            |
| Oleic Acid  | A                   | A                   | D           | A           | C              | A        | D     | B      | B                | N/A       | A      | A    | B    | A              | A            | B             | C              | C <sup>1</sup> | D              | C             | A              | A          | A                  | B                  | A    | C   | A              | D              | B        | C     | B            |
| Oxalic Acid, cold 10%                                 | B                   | A                   | A           | B           | A              | A        | D     | B      | D                | C         | B      | A    | A    | B              | D            | A             | A <sup>1</sup> | B              | D              | A             | B <sup>1</sup> | N/A        | A <sup>1</sup>     | A                  | B    | B   | B              | A              | B        | A     |              |
| Ozone Gas   | B                   | A                   | B           | C           | A              | B        | B     | B      | D                | C         | A      | A    | A    | A              | C            | A             | C <sup>1</sup> | C              | D              | C             | N/A            | D          | A                  | B                  | A    | B   | A              | A              | A        | B     | A            |
| Palmitic Acid   | B                   | A                   | A           | A           | D              | B        | D     | A      | A                | N/A       | B      | A    | B    | B              | A            | N/A           | A              | N/A            | B              | D             | N/A            | A          | A                  | B                  | A    | B   | A <sup>1</sup> | D              | N/A      | B     | A            |
| Paraffin  | A                   | A                   | A           | A           | A              | A        | A     | A      | B                | N/A       | B      | A    | D    | B              | N/A          | A             | B              | B              | B              | B             | A              | A          | A                  | A                  | A    | B   | A              | N/A            | A        | B     | B            |
| Pentane (Amyl Hydride) C <sub>5</sub> H <sub>12</sub> | C                   | C                   | A           | B           | N/A            | B        | A     | C      | A                | N/A       | A      | N/A  | D    | A              | B            | N/A           | N/A            | D              | D              | B             | N/A            | A          | A                  | D                  | A    | A   | A              | D              | N/A      | A     | A            |
| Peracetic Acid (Peroxyacetic Acid)                    | B                   | A                   | B           | D           | D              | C        | D     | D      | C                | D         | D      | D    | B    | A              | N/A          | N/A           | A              | D              | D              | D             | N/A            | D          | A                  | A                  | A    | C   | A              | C              | N/A      | D     | A            |
| Perchloric Acid                                       | C                   | C                   | N/A         | C           | C              | D        | N/A   | B      | D                | N/A       | D      | A    | B    | B              | D            | B             | D              | B              | D              | A             | N/A            | D          | D                  | C                  | A    | C   | A              | D              | D        | D     | A            |
| Peroxyacetic Acid (Peracetic Acid)                    | B                   | A                   | B           | D           | D              | C        | D     | D      | C                | D         | D      | D    | B    | A              | N/A          | N/A           | A              | D              | D              | D             | N/A            | D          | A                  | A                  | A    | C   | A              | C              | N/A      | D     | A            |
| Petroleum   | A                   | A                   | B           | B           | N/A            | D        | N/A   | A      | A                | N/A       | B      | A    | D    | N/A            | B            | N/A           | D              | C              | D              | B             | D              | A          | C                  | B                  | A    | N/A | A              | D              | A        | N/A   | A            |
| Phenol, 10%   | B                   | B                   | D           | B           | D              | A        | N/A   | B      | D                | D         | B      | A    | B    | B              | D            | B             | D              | B              | A              | D             | D              | D          | B                  | B                  | A    | C   | A              | D              | B        | C     | A            |
| Phenol (Carbolic Acid)                                | B                   | B                   | D           | D           | D              | A        | D     | B      | D                | D         | D      | B    | B    | A              | D            | B             | D              | D              | D              | D             | D              | D          | D                  | B                  | A    | D   | A              | D              | A        | B     | A            |
| Phosphoric Acid, >40%                                 | D                   | D                   | C           | D           | C              | C        | D     | B      | D                | D         | D      | A    | B    | A              | D            | A             | A              | B              | B              | B             | A              | B          | A                  | A <sup>1</sup>     | A    | B   | B              | D              | C        | D     | A            |
| Phosphoric Acid, crude                                | D                   | B                   | C           | D           | D              | C        | D     | B      | D                | D         | D      | N/A  | B    | A              | N/A          | A             | B              | B              | D              | D             | A              | B          | A                  | B                  | A    | B   | A              | D              | C        | D     | A            |
| Phosphoric Acid, S40%                                 | D                   | C                   | B           | D           | D              | C        | D     | B      | D                | D         | D      | A    | B    | A              | N/A          | A             | A              | A              | B              | B             | A              | B          | A                  | A                  | A    | B   | B              | C              | C        | D     | A            |
| Phosphorus  | A                   | A                   | N/A         | B           | D              | B        | N/A   | A      | N/A              | N/A       | B      | B    | N/A  | A              | N/A          | N/A           | D              | B              | N/A            | N/A           | N/A            | N/A        | D                  | A                  | A    | A   | A              | N/A            | N/A      | B     | N/A          |

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\*Conditions are based on ambient or room temperature unless otherwise noted, about 64°F (18°C) to 73°F (23°C).

# Chemical Compatibility Chart

**Ratings -- Chemical Effect**

A = Excellent.

B = Good -- Minor Effect, slight corrosion or discoloration.

C = Fair -- Moderate Effect, not recommended swelling may occur.

D = Severe Effect, not recommended for ANY use.

N/A = Information Not Available.

**\*Explanation of Footnote**

1. Satisfactory to 120°F (48° C)

All data are based on ambient or room temperature conditions, about 64° F (18° C) to 73° F (23° C).



|  | 304 Stainless Steel | 316 Stainless Steel | ABS Plastic    | Acetal, POM | Acrylic (PMMA) | Aluminum | Brass | Bronze | Buna N (Nitrile) | Cast Iron | Copper | CPVC | EPDM | Hastelloy® - C | Hyrel® (TPE) | Kel-F® (PCTFE) | HDPE | LDPE           | Natural Rubber | Neoprene (CR) | Noryl® (PPO) | Nylon (PA)     | Polycarbonate (PC) | Polypropylene (PP) | PTFE           | PVC | PVDF (Kynar®)  | Silicone (VMQ) | Titanium | Tygon | Viton® (FKM) |   |
|--|---------------------|---------------------|----------------|-------------|----------------|----------|-------|--------|------------------|-----------|--------|------|------|----------------|--------------|----------------|------|----------------|----------------|---------------|--------------|----------------|--------------------|--------------------|----------------|-----|----------------|----------------|----------|-------|--------------|---|
| Photographic Developer   | A                   | A                   | B              | D           | B              | N/A      | N/A   | A      | A                | D         | D      | A    | B    | B              | D            | N/A            | A    | A              | A              | A             | A            | N/A            | A                  | A                  | A              | A   | N/A            | B              | A        | N/A   | A            |   |
| Photographic Solutions   | D                   | N/A                 | N/A            | D           | B              | N/A      | N/A   | A      | B                | N/A       | D      | A    | A    | B              | B            | A              | A    | A              | B              | B             | A            | A              | A                  | A                  | A              | A   | B              | A              | A        | A     | B            |   |
| Potassium Bicarbonate  | B                   | B                   | A              | C           | A              | D        | N/A   | B      | A                | A         | B      | A    | A    | B              | N/A          | A              | B    | A              | A              | A             | A            | A              | N/A                | A                  | A              | A   | B              | A              | A        | A     | A            |   |
| Potassium Bromide  | B                   | B                   | A              | A           | A              | C        | N/A   | B      | A                | D         | B      | A    | A    | B              | N/A          | A              | B    | A              | A              | A             | A            | A              | A                  | A                  | A              | A   | A              | A              | A        | B     | A            |   |
| Potassium Chloride, up to 30%  | B                   | A                   | A              | A           | A              | D        | D     | B      | A                | A         | B      | A    | A    | A              | B            | A              | A    | A              | A              | A             | A            | A              | A                  | A                  | A              | A   | A              | A              | A        | A     | A            |   |
| Potassium Dichromate   | B                   | B                   | B              | A           | B              | B        | D     | B      | A                | A         | B      | A    | A    | B              | C            | A              | B    | A              | B              | A             | A            | B              | A                  | A                  | A              | A   | A              | A              | A        | C     | A            |   |
| Potassium Ferrocyanide   | B                   | B                   | A <sup>1</sup> | B           | C              | B        | N/A   | B      | D                | C         | B      | B    | A    | B              | N/A          | A              | B    | A <sup>1</sup> | A              | A             | A            | B              | D                  | A <sup>1</sup>     | A              | A   | A <sup>1</sup> | N/A            | A        | B     | A            |   |
| Potassium Hydroxide (Caustic Potash)                                 | B                   | A                   | A              | A           | B              | D        | D     | D      | B                | B         | B      | A    | A    | B              | D            | B              | A    | A              | B              | B             | A            | C              | D                  | A                  | A              | A   | A              | C              | D        | B     | B            |   |
| Potassium Iodide   | A                   | A                   | B              | N/A         | A              | B        | N/A   | A      | A                | A         | A      | A    | A    | A              | N/A          | N/A            | B    | B              | B              | B             | A            | N/A            | A                  | A                  | A <sup>1</sup> | A   | A              | A <sup>1</sup> | N/A      | A     | B            | A |
| Potassium Nitrate, 10%   | B                   | B                   | B              | A           | A              | B        | B     | B      | A                | A         | A      | A    | A    | B              | B            | N/A            | B    | A              | A              | A             | A            | B              | A                  | A                  | A              | A   | A              | A              | A        | A     | A            |   |
| Potassium Nitrite  | B                   | B                   | B              | A           | N/A            | B        | B     | B      | A                | A         | A      | A    | A    | B              | B            | N/A            | N/A  | A              | A              | A             | A            | B              | A                  | A                  | A              | A   | A              | A              | A        | A     | A            |   |
| Potassium Permanganate   | B                   | B                   | B              | A           | B              | B        | C     | A      | C                | A         | A      | A    | A    | A              | D            | N/A            | A    | A              | A              | A             | A            | D              | A <sup>1</sup>     | A                  | A              | A   | A              | N/A            | A        | B     | A            |   |
| Propane (liquefied)  | A                   | A                   | A              | A           | N/A            | A        | A     | A      | A                | A         | A      | A    | D    | A              | A            | A              | D    | C              | D              | C             | A            | A              | C                  | A                  | A              | A   | A              | D              | N/A      | N/A   | A            |   |
| Propylene (C <sub>3</sub> H <sub>6</sub> , Propene, Methyl Ethylene) | B                   | A                   | B              | A           | B              | A        | N/A   | N/A    | D                | A         | A      | N/A  | D    | A              | N/A          | N/A            | N/A  | N/A            | D              | D             | N/A          | N/A            | A                  | A                  | A              | B   | A              | D              | N/A      | B     | A            |   |
| Propylene Glycol   | B                   | B                   | B              | B           | B              | B        | B     | A      | A                | A         | A      | C    | A    | B              | N/A          | N/A            | A    | B <sup>1</sup> | A              | C             | N/A          | A              | B                  | A <sup>1</sup>     | A              | C   | A              | A              | A        | N/A   | A            |   |
| Pyridine (C <sub>5</sub> H <sub>5</sub> N)                           | A                   | A                   | A              | B           | D              | B        | B     | B      | D                | A         | B      | D    | B    | B              | C            | A              | D    | B              | D              | D             | B            | C              | D                  | A <sup>1</sup>     | A              | D   | D              | D              | B        | D     | D            |   |
| Resorcinol (C <sub>6</sub> H <sub>6</sub> O <sub>2</sub> )           | N/A                 | N/A                 | A              | N/A         | C              | N/A      | N/A   | N/A    | N/A              | N/A       | N/A    | N/A  | B    | N/A            | D            | N/A            | A    | B <sup>1</sup> | N/A            | D             | N/A          | D              | B                  | A <sup>1</sup>     | A              | C   | N/A            | N/A            | N/A      | C     | A            |   |
| Rosins   | A                   | A                   | N/A            | B           | N/A            | B        | C     | B      | A                | D         | B      | C    | A    | A              | N/A          | A              | B    | B              | N/A            | A             | N/A          | A              | N/A                | A <sup>1</sup>     | A              | C   | N/A            | A              | N/A      | N/A   | A            |   |
| Salicylic Acid   | B                   | B <sup>1</sup>      | A              | D           | B              | B        | C     | A      | B                | A         | A      | N/A  | A    | A              | N/A          | A              | A    | B <sup>1</sup> | A              | D             | N/A          | A              | A                  | A                  | A              | B   | A              | N/A            | A        | B     | A            |   |
| Salt Brine (NaCl saturated)  | B                   | A                   | A <sup>1</sup> | A           | A              | B        | A     | B      | A                | D         | B      | A    | A    | A              | A            | N/A            | A    | A              | A              | A             | A            | A              | A                  | A                  | A              | A   | A              | A              | A        | N/A   | A            |   |
| Sea Water  | C                   | C                   | A <sup>1</sup> | A           | A              | B        | D     | A      | A                | D         | B      | A    | A    | A              | D            | A              | A    | A <sup>1</sup> | A              | B             | A            | A <sup>1</sup> | A <sup>1</sup>     | A                  | A              | A   | A              | A              | A        | N/A   | A            |   |
| Shellac (Bleached)   | A                   | A                   | N/A            | A           | N/A            | A        | B     | A      | A                | A         | A      | N/A  | A    | N/A            | N/A          | N/A            | A    | A              | A              | B             | N/A          | A              | N/A                | A                  | A              | N/A | N/A            | N/A            | N/A      | N/A   | A            |   |
| Shellac (Orange)   | A                   | A                   | N/A            | A           | N/A            | A        | B     | A      | A                | A         | A      | N/A  | A    | N/A            | N/A          | N/A            | A    | D              | D              | N/A           | A            | N/A            | A                  | A                  | N/A            | N/A | N/A            | N/A            | N/A      | N/A   | A            |   |
| Silicone   | A                   | A                   | D              | A           | N/A            | A        | A     | A      | A                | A         | A      | A    | A    | A              | A            | A              | A    | N/A            | C              | A             | A            | A              | A <sup>1</sup>     | A                  | A              | A   | A              | C              | N/A      | N/A   | A            |   |

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|---|---------------------|---------------------|----------------|-------------|----------------|----------|-------|----------------|------------------|-----------|--------|----------------|------|----------------|--------------|----------------|------|----------------|----------------|---------------|----------------|------------|--------------------|--------------------|------|----------------|----------------|----------------|----------|----------------|--------------|---|
| Silver Bromide                          | D                   | D                   | N/A            | C           | A              | D        | N/A   | D              | N/A              | D         | N/A    | N/A            | N/A  | B              | N/A          | A              | N/A  | A              | N/A            | N/A           | A              | N/A        | N/A                | N/A                | A    | N/A            | N/A            | N/A            | N/A      | N/A            | N/A          |   |
| Silver Nitrate                          | B                   | B                   | B              | A           | A              | D        | D     | B              | B                | C         | D      | A              | A    | A              | D            | A              | A    | A              | A              | A             | A              | A          | A                  | A                  | A    | A              | A              | A              | A        | A              | B            | A |
| Soap Solutions                          | A                   | A                   | A              | A           | A              | C        | B     | B              | A                | A         | A      | A              | A    | A              | A            | N/A            | B    | D              | B              | B             | A              | A          | A                  | A                  | A    | A              | A              | A              | A        | A              | B            | A |
| Sodium Acetate                          | B                   | B                   | B              | B           | B              | B        | B     | B              | B                | B         | A      | A              | A    | A              | N/A          | A              | A    | A              | A              | B             | A              | B          | A                  | A                  | A    | B              | A              | D              | A        | N/A            | D            |   |
| Sodium Benzoate                         | N/A                 | N/A                 | A              | N/A         | A              | A        | N/A   | A              | B                | N/A       | N/A    | A              | A    | A              | N/A          | N/A            | B    | A <sup>1</sup> | A              | A             | N/A            | B          | A <sup>1</sup>     | A <sup>1</sup>     | A    | B              | A <sup>1</sup> | N/A            | A        | B              | A            |   |
| Sodium Bicarbonate (Baking Soda)        | A                   | A                   | A              | A           | A              | D        | D     | A              | A                | C         | B      | A              | A    | B              | B            | A              | A    | A <sup>1</sup> | A              | A             | A              | A          | A                  | A                  | A    | A              | A              | A              | A        | A              | B            | A |
| Sodium Bisulfate, 10%                   | D                   | C                   | A              | B           | A              | D        | D     | A <sup>1</sup> | B                | D         | B      | A <sup>1</sup> | A    | B              | C            | A <sup>1</sup> | B    | A <sup>1</sup> | A              | A             | A              | A          | A                  | A                  | A    | A              | A              | A              | A        | B              | A            |   |
| Sodium Bisulfite                        | B                   | B                   | A              | C           | A              | D        | D     | B              | A                | D         | B      | A <sup>1</sup> | A    | B              | B            | N/A            | B    | A <sup>1</sup> | A              | A             | A              | C          | A                  | A                  | A    | A              | A              | A              | A        | B              | A            |   |
| Sodium Bromide                          | C                   | C                   | B              | A           | A              | D        | N/A   | A              | N/A              | C         | D      | A <sup>1</sup> | A    | B              | N/A          | A              | A    | A <sup>1</sup> | A              | A             | A <sup>1</sup> | B          | A                  | A                  | A    | B <sup>1</sup> | A <sup>1</sup> | N/A            | A        | B <sup>1</sup> | A            |   |
| Sodium Carbonate                        | A                   | A                   | B              | A           | B              | D        | B     | A <sup>1</sup> | A                | B         | A      | A <sup>1</sup> | A    | A              | B            | A              | A    | B <sup>1</sup> | A              | A             | A              | B          | A <sup>1</sup>     | A                  | A    | A              | A              | A              | A        | B              | A            |   |
| Sodium Chlorate                         | A                   | B                   | A              | A           | A              | C        | B     | B              | B                | B         | B      | A              | A    | B              | N/A          | N/A            | B    | B <sup>1</sup> | A              | A             | A              | D          | A                  | A                  | A    | A              | A              | C              | A        | B              | A            |   |
| Sodium Chloride                         | B                   | B                   | A              | A           | A              | C        | D     | B              | A                | D         | B      | A <sup>1</sup> | A    | A              | A            | A              | A    | A <sup>1</sup> | A              | A             | A              | A          | A                  | A                  | A    | A              | A              | A              | A        | B              | A            |   |
| Sodium Hydroxide, 80%                   | C                   | B                   | A              | D           | A              | D        | D     | C              | D                | D         | D      | A              | B    | A              | D            | A              | C    | D              | A              | B             | A              | C          | D                  | A                  | A    | A              | A              | A              | D        | A              | D            |   |
| Sodium Hypochlorite, <20%               | C                   | C                   | B              | D           | A              | D        | D     | C              | B                | D         | D      | A              | B    | A              | A            | A              | A    | A              | C              | C             | A              | D          | C                  | A                  | A    | A              | A              | B              | C        | C              | A            |   |
| Sodium Hypochlorite, 100%               | D                   | D                   | D              | D           | N/A            | D        | D     | C              | D                | D         | D      | C              | B    | B              | D            | A              | C    | B <sup>1</sup> | C              | C             | A              | D          | D                  | B                  | A    | B              | A              | B              | C        | N/A            | A            |   |
| Sodium Hydrosulfite (Sodium Dithionite) | N/A                 | N/A                 | N/A            | N/A         | A              | A        | N/A   | N/A            | C                | N/A       | N/A    | C              | B    | A              | N/A          | N/A            | N/A  | N/A            | C              | B             | N/A            | A          | N/A                | N/A                | A    | C              | N/A            | C              | N/A      | A              | B            |   |
| Sodium Nitrate                          | B                   | B                   | A <sup>1</sup> | A           | A              | B        | B     | B              | A                | B         | D      | A              | A    | B              | B            | A              | B    | A <sup>1</sup> | B              | B             | A              | A          | D                  | A                  | A    | A              | A              | D              | A        | B              | A            |   |
| Sodium Perborate                        | B                   | B                   | A              | B           | A              | C        | D     | B              | B                | C         | B      | A              | A    | B              | B            | A              | A    | A              | B              | B             | A              | B          | A                  | A                  | A    | A              | N/A            | B              | N/A      | N/A            | A            |   |
| Sodium Peroxide                         | A                   | A                   | A <sup>1</sup> | D           | C              | C        | D     | A              | B                | C         | B      | A              | A    | B              | B            | A              | B    | A              | B              | B             | N/A            | A          | A                  | B                  | A    | B              | A              | D              | N/A      | N/A            | A            |   |
| Sodium Polyphosphate                    | B                   | B                   | N/A            | B           | N/A            | D        | D     | B              | A                | D         | A      | A              | A    | A              | N/A          | A              | B    | A              | C              | B             | A              | A          | N/A                | A                  | A    | A              | A              | D              | A        | N/A            | A            |   |
| Sodium Silicate (Water Glass)           | A                   | B                   | A <sup>1</sup> | C           | A              | A        | D     | B              | A                | B         | B      | A              | A    | B              | A            | A              | A    | A <sup>1</sup> | A              | A             | A              | A          | A                  | A                  | A    | A              | A              | A              | A        | B              | A            |   |
| Sodium Sulfate (Salt Cake, Thenardite)  | B                   | B                   | A <sup>1</sup> | B           | A              | A        | B     | B              | A                | B         | B      | A              | A    | B              | A            | A              | A    | A <sup>1</sup> | B              | A             | A              | A          | A                  | A                  | A    | A              | A              | A              | A        | N/A            | A            |   |
| Sodium Sulfide                          | B                   | D                   | A <sup>1</sup> | B           | A              | D        | D     | B              | A                | C         | D      | A              | A    | B              | A            | A              | B    | A              | B              | A             | A              | A          | D                  | A                  | A    | A              | A              | A              | A        | B              | A            |   |
| Sodium Sulfite                          | B                   | A                   | A <sup>1</sup> | A           | A              | C        | D     | B              | A                | A         | D      | A              | A    | B              | A            | A              | B    | B              | B              | A             | A              | D          | A                  | A                  | A    | A              | A              | A              | A        | A              | A            |   |

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|  | 304 Stainless Steel | 316 Stainless Steel | ABS Plastic    | Acetal, POM    | Acrylic (PMMA) | Aluminum | Brass | Bronze | Buna N (Nitrile) | Cast Iron | Copper | CPVC | EPDM | Hastelloy® - C | Hyrel® (TPE) | Ke-F® (PCTFE) | HDPE | LDPE           | Natural Rubber | Neoprene (CR) | Noryl® (PPO) | Nylon (PA)     | Polycarbonate (PC) | Polypropylene (PP) | PTFE | PVC | PVDF (Kynar®)  | Silicone (VMQ) | Titanium | Tygon | Viton® (FKM) |   |
|--|---------------------|---------------------|----------------|----------------|----------------|----------|-------|--------|------------------|-----------|--------|------|------|----------------|--------------|---------------|------|----------------|----------------|---------------|--------------|----------------|--------------------|--------------------|------|-----|----------------|----------------|----------|-------|--------------|---|
| Sodium Thiosulfate (hypo)  | A                   | B                   | A <sup>1</sup> | C              | B              | A        | D     | A      | B                | C         | D      | A    | A    | A              | N/A          | A             | A    | A              | B              | A             | A            | B              | D                  | A <sup>1</sup>     | A    | A   | A              | A              | A        | A     | N/A          | A |
| Starch   | A                   | A                   | A <sup>1</sup> | A              | A              | A        | A     | B      | A                | C         | N/A    | A    | A    | N/A            | B            | A             | A    | B              | A              | A             | A            | A              | A                  | A                  | A    | A   | A              | A              | N/A      | N/A   | N/A          | A |
| Stearic Acid   | B                   | A                   | A <sup>1</sup> | A              | A              | B        | D     | B      | B                | C         | D      | B    | B    | B              | C            | N/A           | A    | B              | C              | B             | A            | A <sup>1</sup> | A                  | A <sup>1</sup>     | A    | B   | A              | B              | A        | B     | A            |   |
| Stoddard's Solvent   | A                   | A                   | B              | A              | A              | A        | A     | A      | A                | A         | A      | C    | D    | A              | A            | A             | N/A  | C <sup>1</sup> | D              | C             | D            | A              | A <sup>1</sup>     | C                  | A    | C   | A              | D              | A        | C     | A            |   |
| Styrene (Vinylbenzene) C <sub>6</sub> H <sub>5</sub> CHCH <sub>2</sub> | A                   | A                   | N/A            | A              | D              | A        | A     | A      | D                | A         | B      | D    | D    | D              | D            | N/A           | N/A  | N/A            | D              | D             | A            | A              | D                  | N/A                | A    | D   | A              | D              | N/A      | N/A   | B            |   |
| Sulfite Liquors  | B                   | B                   | N/A            | D              | N/A            | D        | D     | B      | A                | C         | D      | B    | A    | B              | N/A          | N/A           | A    | A <sup>1</sup> | B              | B             | N/A          | B              | N/A                | A                  | A    | B   | A              | B              | N/A      | N/A   | A            |   |
| Sulfur Dioxide   | D                   | A                   | D              | B              | D              | B        | D     | B      | D                | N/A       | B      | A    | A    | C              | C            | A             | D    | B              | N/A            | B             | A            | C              | B                  | A                  | A    | A   | A              | B              | A        | C     | A            |   |
| Sulfur Dioxide Gas, dry  | D                   | A                   | A              | B              | B              | B        | D     | B      | D                | A         | A      | A    | A    | B              | C            | A             | A    | A              | C              | D             | A            | B              | A                  | A                  | A    | A   | A              | B              | A        | C     | A            |   |
| Sulfur Dioxide Gas, wet  | A                   | C                   | A              | B              | D              | A        | D     | C      | D                | B         | D      | A    | C    | B              | X            | N/A           | D    | A              | C              | D             | D            | D              | A                  | C                  | A    | A   | A              | B              | N/A      | A     | A            |   |
| Sulfur Trioxide, dry   | D                   | A                   | N/A            | D              | N/A            | A        | A     | B      | D                | A         | B      | A    | C    | B              | X            | N/A           | A    | C              | C              | D             | D            | A              | N/A                | D                  | A    | A   | C              | B              | D        | B     | A            |   |
| Sulfuric Acid, <10%  | D                   | B                   | B              | D              | A              | D        | D     | B      | A                | C         | D      | A    | A    | B              | A            | A             | A    | A              | A              | B             | A            | C              | A                  | A <sup>1</sup>     | A    | A   | A              | C              | D        | B     | A            |   |
| Sulfuric Acid, 10-75%  | D                   | D                   | B              | D              | D              | D        | D     | B      | B                | D         | D      | A    | B    | B              | X            | A             | A    | A              | C              | B             | A            | D              | B                  | A                  | A    | A   | A              | D              | D        | N/A   | A            |   |
| Sulfuric Acid, 75-100%   | C                   | D                   | A              | D              | D              | D        | D     | B      | C                | D         | D      | C    | B    | B              | C            | A             | B    | B              | D              | D             | A            | D              | D                  | C                  | A    | D   | A              | D              | D        | D     | A            |   |
| Sulfuric Acid, cold concentrated                                       | C                   | B                   | D              | D              | D              | B        | D     | B      | D                | D         | D      | D    | C    | A              | B            | A             | B    | C              | D              | D             | A            | D              | N/A                | A <sup>1</sup>     | A    | D   | A              | D              | D        | D     | B            |   |
| Sulfurous Acid, 10%  | B                   | B                   | N/A            | C              | A              | B        | D     | B      | B                | D         | D      | A    | B    | B              | C            | A             | B    | B <sup>1</sup> | B              | C             | A            | D              | D                  | A                  | A    | A   | A              | D              | A        | B     | A            |   |
| Tannic Acid, 10%   | B                   | A                   | A              | B              | A              | C        | B     | B      | A                | C         | A      | A    | A    | B              | A            | A             | A    | B <sup>1</sup> | A              | A             | A            | C              | C                  | A                  | A    | A   | B              | B              | A        | B     | A            |   |
| Tetrachloroethane  | B                   | A                   | D              | A              | D              | C        | C     | N/A    | D                | A         | A      | C    | D    | A              | N/A          | A             | D    | N/A            | D              | D             | D            | C              | D                  | C                  | A    | C   | A              | D              | A        | N/A   | A            |   |
| Toluene (Toluol)   | A                   | A                   | D              | C              | D              | A        | A     | A      | D                | A         | A      | D    | D    | A              | B            | B             | D    | C              | D              | D             | D            | A              | D                  | C                  | A    | D   | A              | D              | A        | D     | C            |   |
| Trichloroacetic Acid   | D                   | C                   | N/A            | N/A            | C              | D        | N/A   | N/A    | C                | D         | D      | N/A  | B    | B              | D            | A             | C    | A              | C              | D             | N/A          | C              | D                  | A                  | A    | B   | B              | D              | D        | C     | C            |   |
| Trichloroethylene  | B                   | B                   | D              | D              | D              | D        | N/A   | B      | D                | C         | A      | D    | D    | A              | C            | A             | D    | D              | D              | D             | D            | C              | D                  | C                  | A    | D   | B              | D              | A        | N/A   | A            |   |
| Triethylamine  | A                   | A                   | N/A            | D              | A              | N/A      | N/A   | C      | C                | A         | A      | A    | A    | N/A            | N/A          | A             | N/A  | N/A            | B              | A             | B            | A              | D                  | D                  | A    | B   | A <sup>1</sup> | N/A            | N/A      | A     | D            |   |
| Trisodium Phosphate  | B                   | B                   | B              | A              | B              | D        | A     | A      | A                | N/A       | B      | A    | A    | A              | A            | N/A           | A    | A              | A              | A             | A            | A              | A                  | A                  | A    | A   | A              | A              | N/A      | A     | A            |   |
| Turpentine (COH16)   | A                   | A                   | D              | A <sup>1</sup> | B              | A        | D     | A      | A                | N/A       | B      | A    | D    | B              | B            | A             | B    | D              | D              | D             | D            | B              | D                  | D                  | A    | D   | A              | D              | B        | B     | A            |   |
| Urea   | B                   | B                   | B              | A              | A              | B        | N/A   | B      | B                | N/A       | D      | A    | A    | B              | B            | N/A           | A    | A              | N/A            | B             | A            | A              | D                  | A                  | A    | D   | A              | B              | A        | B     | A            |   |

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| Varnish                         | A                   | A                   | N/A            | A              | N/A            | A        | A     | B      | B                | C         | B      | D    | D    | A              | N/A          | A              | B    | A              | D              | D             | D            | A              | D                  | A                  | D    | A   | D             | N/A            | D        | A     |              |
| Vegetable Juice                 | A                   | A                   | B              | A              | N/A            | D        | A     | A      | A                | D         | A      | N/A  | A    | N/A            | N/A          | N/A            | N/A  | N/A            | N/A            | N/A           | A            | A              | A                  | N/A                | A    | N/A | N/A           | B              | N/A      | A     | A            |
| Vinegar                         | A                   | A                   | A              | B              | A              | D        | D     | A      | B                | D         | B      | A    | A    | A              | C            | A              | A    | A              | B              | B             | A            | A              | A <sup>1</sup>     | A                  | A    | B   | B             | A              | A        | A     |              |
| Water, Deionized                | A                   | A <sup>1</sup>      | A <sup>1</sup> | N/A            | A              | A        | A     | N/A    | A                | D         | B      | A    | A    | A              | N/A          | A              | A    | N/A            | A              | A             | A            | A              | N/A                | A <sup>1</sup>     | A    | A   | A             | A <sup>1</sup> | N/A      | A     | A            |
| Water, Distilled                | A                   | A                   | B              | B              | A              | A        | A     | A      | A                | D         | B      | A    | A    | A              | N/A          | A              | A    | A <sup>1</sup> | A              | A             | A            | A              | A <sup>1</sup>     | A                  | A    | A   | A             | C              | A        | B     | A            |
| Water, Fresh                    | A                   | A                   | A              | A <sup>1</sup> | A              | B        | B     | A      | A                | D         | B      | A    | A    | A              | A            | A              | A    | A <sup>1</sup> | A              | A             | A            | A              | A <sup>1</sup>     | A                  | A    | A   | B             | A              | B        | A     | A            |
| Water, Salt                     | B                   | B                   | A <sup>1</sup> | A              | A              | B        | D     | A      | A                | D         | B      | A    | A    | A              | A            | A              | A    | A <sup>1</sup> | A              | A             | A            | A <sup>1</sup> | A <sup>1</sup>     | A                  | A    | B   | A             | B              | A        | B     | A            |
| Weed Killers                    | A                   | A                   | N/A            | A              | N/A            | D        | N/A   | N/A    | B                | N/A       | N/A    | N/A  | N/A  | N/A            | B            | N/A            | N/A  | N/A            | N/A            | C             | N/A          | A              | N/A                | C                  | N/A  | N/A | N/A           | A              | N/A      | N/A   | A            |
| Whiskey and Wines               | A                   | A                   | C              | A              | A              | C        | B     | A      | A                | D         | B      | A    | A    | N/A            | B            | A              | B    | C              | A              | C             | A            | A              | A                  | A                  | A    | A   | A             | A              | A        | C     | A            |
| Xylene (Xylol, Dimethylbenzene) | B                   | B                   | D              | A              | D              | A        | A     | A      | D                | B         | A      | D    | D    | A              | B            | A              | D    | B              | D              | D             | B            | A <sup>1</sup> | D                  | B                  | A    | D   | A             | D              | A        | D     | B            |
| Zinc Chloride, 10%              | B                   | B                   | A              | C              | B              | D        | D     | B      | A                | D         | C      | A    | A    | B              | A            | A              | A    | A              | A              | A             | A            | A              | A                  | A                  | A    | B   | A             | B              | A        | A     | A            |
| Zinc Sulfate, 10%               | B                   | A                   | A              | C              | B              | D        | B     | B      | A                | D         | B      | A    | A    | A              | D            | A              | A    | A <sup>1</sup> | B              | A             | A            | A              | A <sup>1</sup>     | A                  | A    | A   | A             | A              | A        | A     | A            |

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