

# Chemical Compatibility Chart (H - I)

| Material<br>Chemical               | 303 Stainless Steel |     | 304 Stainless Steel (CF-8) |     | 316 Stainless Steel (CF-8M) |          | 410 Stainless Steel (CA-15) |             | 440 Stainless Steel |       | Aluminum  | Titanium     | Hastelloy C | Cast Bronze | Brass | Cast Iron | Carbon Steel | PVC           | Teflon | Noryl  | Nylon   | Polyethylene | Polypropylene    | Rylon   | Carbon   | Ceramic                   | Milon®         | Buna N (Nitrile) | Silicon | Neoprene | Ethylene Propylene (EPDM) | Natural Rubber | Epoxy |   |   |
|------------------------------------|---------------------|-----|----------------------------|-----|-----------------------------|----------|-----------------------------|-------------|---------------------|-------|-----------|--------------|-------------|-------------|-------|-----------|--------------|---------------|--------|--------|---------|--------------|------------------|---------|----------|---------------------------|----------------|------------------|---------|----------|---------------------------|----------------|-------|---|---|
|                                    | 303                 | 304 | 316                        | 410 | 440                         | Aluminum | Titanium                    | Hastelloy C | Cast Bronze         | Brass | Cast Iron | Carbon Steel | PVC         | Teflon      | Noryl | Nylon     | Polyethylene | Polypropylene | Rylon  | Carbon | Ceramic | Milon®       | Buna N (Nitrile) | Silicon | Neoprene | Ethylene Propylene (EPDM) | Natural Rubber | Epoxy            |         |          |                           |                |       |   |   |
| Heptane                            | A                   | -   | A                          | A   | -                           | A        | -                           | A           | A                   | -     | A         | -            | A           | A           | -     | B         | A            | A             | D      | A      | D       | D            | A                | A       | A        | A                         | A              | A                | B       | D        | -                         | A              |       |   |   |
| Hexane                             | A                   | A   | A                          | A   | -                           | A        | -                           | A           | B                   | -     | -         | B            | C           | A           | D     | A         | D            | A             | -      | C      | A       | A            | A                | A       | A        | A                         | A              | A                | B       | B        | D                         | D              | A     |   |   |
| Hexyl Alcohol                      | -                   | A   | A                          | -   | -                           | A        | A                           | A           | C                   | -     | A         | A            | -           | A           | A     | -         | A            | -             | A      | A      | -       | A            | -                | A       | A        | A                         | A              | D                | B       | A        | A                         | A              |       |   |   |
| Honey                              | -                   | A   | A                          | -   | -                           | A        | -                           | -           | A                   | -     | -         | A            | -           | A           | -     | A         | -            | A             | -      | A      | A       | A            | A                | A       | A        | A                         | A              | A                | A       | A        | A                         | A              |       |   |   |
| Hydraulic Oils (Petroleum)         | A                   | A   | A                          | A   | -                           | A        | -                           | -           | B                   | -     | A         | A            | -           | A           | -     | A         | -            | A             | -      | D      | -       | A            | A                | A       | A        | A                         | -              | B                | D       | D        | A                         |                |       |   |   |
| Hydraulic Oils (Synthetic)         | -                   | A   | A                          | -   | -                           | A        | -                           | -           | A                   | -     | A         | -            | -           | -           | -     | -         | -            | -             | -      | A      | -       | D            | -                | A       | A        | A                         | C              | D                | -       | -        | A                         |                |       |   |   |
| Hydrazine                          | -                   | A   | A                          | -   | -                           | -        | -                           | -           | -                   | -     | -         | -            | -           | -           | -     | C         | -            | -             | -      | -      | -       | -            | -                | -       | -        | A                         | B              | D                | B       | A        | C                         | A              |       |   |   |
| Hydrobromic Acid 20%               | -                   | -   | D                          | D   | -                           | -        | A                           | A           | -                   | -     | -         | -            | A           | A           | A     | D         | -            | A             | -      | -      | -       | B            | A                | D       | -        | C                         | -              | -                | -       | -        | B                         |                |       |   |   |
| Hydrobromic Acid                   | D                   | D   | D                          | D   | D                           | D        | A                           | A           | D                   | -     | D         | D            | A           | A           | C     | D         | B            | B             | -      | A      | A       | A            | D                | D       | D        | D                         | D              | D                | D       | D        | A                         | A              |       |   |   |
| Hydrochloric Acid (Dry gas)        | D                   | C   | A                          | -   | -                           | D        | -                           | -           | -                   | -     | -         | D            | A           | A           | -     | -         | D            | A             | A      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | A              |       |   |   |
| Hydrochloric Acid 20%              | -                   | D   | D                          | D   | D                           | D        | C                           | B           | D                   | -     | D         | -            | A           | A           | A     | D         | A            | A             | D      | A      | A       | D            | A                | A       | A        | C                         | -              | C                | A       | C        | A                         |                |       |   |   |
| Hydrochloric Acid 37%              | -                   | D   | D                          | D   | D                           | D        | C                           | B           | D                   | -     | D         | -            | A           | A           | A     | D         | A            | A             | D      | A      | A       | D            | A                | A       | C        | C                         | C              | C                | C       | C        | D                         | A              |       |   |   |
| Hydrochloric Acid 100%             | -                   | D   | D                          | -   | -                           | D        | D                           | C           | D                   | -     | D         | -            | A           | A           | -     | D         | A            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | A              |       |   |   |
| Hydrocyanic Acid                   | A                   | A   | A                          | -   | C                           | A        | A                           | A           | D                   | D     | -         | C            | A           | A           | A     | A         | B            | A             | -      | A      | A       | A            | B                | A       | -        | A                         | A              | C                | -       | B        | -                         | A              | A     |   |   |
| Hydrocyanic Acid (Gas 10%)         | -                   | D   | D                          | D   | -                           | -        | -                           | -           | -                   | -     | -         | -            | A           | A           | -     | -         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | A              |       |   |   |
| Hydrofluoric Acid 20%              | -                   | D   | D                          | D   | D                           | D        | D                           | B           | D                   | -     | D         | -            | D           | A           | A     | D         | C            | A             | C      | B      | C       | B            | C                | D       | D        | D                         | D              | D                | D       | C        | C                         | C              |       |   |   |
| Hydrofluoric Acid 75%              | -                   | C   | D                          | D   | -                           | D        | D                           | C           | D                   | -     | D         | -            | C           | A           | D     | D         | C            | B             | C      | D      | D       | C            | B                | C       | D        | D                         | A              | D                | D       | D        | C                         | C              |       |   |   |
| Hydrofluoric Acid 100%             | D                   | D   | D                          | D   | -                           | D        | D                           | B           | D                   | -     | D         | D            | C           | A           | -     | -         | D            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | A              |       |   |   |
| Hydrofluosilicic Acid 20%          | -                   | D   | D                          | D   | -                           | D        | B                           | A           | -                   | D     | -         | D            | A           | B           | D     | -         | A            | -             | A      | D      | A       | B            | -                | A       | B        | -                         | B              | A                | A       | A        | C                         | A              |       |   |   |
| Hydrofluosilicic Acid              | -                   | D   | D                          | D   | -                           | C        | -                           | C           | D                   | -     | -         | -            | -           | -           | -     | -         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              |       |   |   |
| Hydrogen Gas                       | A                   | A   | A                          | A   | -                           | A        | -                           | -           | A                   | -     | B         | B            | A           | A           | -     | -         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | A     |   |   |
| Hydrogen Peroxide 10%              | -                   | C   | C                          | -   | -                           | A        | C                           | A           | D                   | D     | -         | A            | A           | -           | B     | A         | -            | B             | A      | -      | B       | A            | A                | -       | A        | -                         | A              | -                | D       | -        | -                         | C              | D     |   |   |
| Hydrogen Peroxide 30%              | -                   | B   | A                          | -   | -                           | B        | A                           | -           | D                   | -     | -         | A            | A           | -           | B     | -         | A            | C             | -      | -      | A       | C            | -                | -       | A        | D                         | -              | C                | -       | -        | -                         | B              |       |   |   |
| Hydrogen Peroxide                  | -                   | A   | B                          | A   | A                           | A        | B                           | A           | D                   | D     | D         | D            | A           | A           | B     | B         | B            | A             | C      | -      | A       | A            | D                | C       | D        | C                         | D              | C                | C       | C        | A                         | A              |       |   |   |
| Hydrogen Sulfide, Aqueous Solution | -                   | A   | A                          | D   | C                           | C        | A                           | A           | D                   | C     | D         | -            | A           | A           | A     | B         | B            | A             | A      | A      | A       | B            | B                | A       | A        | A                         | B              | C                | -       | B        | A                         | D              | A     |   |   |
| Hydrogen Sulfide (Dry)             | A                   | C   | A                          | -   | -                           | D        | -                           | A           | D                   | C     | B         | B            | A           | A           | -     | B         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | A     |   |   |
| Hydroxyacetic Acid 70%             | -                   | -   | -                          | -   | -                           | D        | B                           | -           | -                   | -     | -         | -            | A           | -           | -     | -         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | A     |   |   |
| Ink                                | A                   | A   | A                          | -   | -                           | C        | -                           | -           | C                   | -     | D         | D            | -           | -           | B     | A         | B            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | A |   |
| Iodine                             | -                   | D   | D                          | D   | D                           | A        | B                           | D           | -                   | D     | -         | D            | A           | A           | D     | D         | D            | -             | D      | A      | A       | D            | D                | -       | D        | A                         | A              | B                | -       | D        | B                         | D              | A     |   |   |
| Iodine (In Alcohol)                | -                   | -   | B                          | -   | -                           | -        | D                           | A           | -                   | -     | -         | -            | D           | A           | C     | D         | -            | B             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | - |   |
| Iodoform                           | B                   | D   | A                          | -   | -                           | A        | -                           | -           | C                   | -     | C         | B            | -           | A           | -     | A         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | - |   |
| Iron Plating                       |                     |     |                            |     |                             |          |                             |             |                     |       |           |              |             |             |       |           |              |               |        |        |         |              |                  |         |          |                           |                |                  |         |          |                           |                |       |   |   |
| Ferrous Chloride Bath 85°C         | -                   | -   | D                          | -   | -                           | -        | A                           | D           | -                   | -     | -         | -            | D           | A           | A     | D         | -            | C             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | D |   |
| Ferrous Sulfate Bath 65°C          | -                   | -   | C                          | -   | -                           | -        | A                           | A           | -                   | -     | -         | -            | D           | A           | A     | D         | -            | A             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | D |   |
| Ferrous Am. Sulfate Bath 65°C      | -                   | -   | C                          | -   | -                           | -        | A                           | A           | -                   | -     | -         | -            | D           | A           | A     | D         | -            | A             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | D |   |
| Sulfate-Chloride Bath 70°C         | -                   | -   | D                          | -   | -                           | -        | A                           | D           | -                   | -     | -         | -            | D           | A           | A     | D         | -            | A             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | D |   |
| Fluoborate Bath 60°C               | -                   | -   | D                          | -   | -                           | -        | D                           | B           | -                   | -     | -         | -            | D           | A           | A     | D         | -            | A             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | D |   |
| Sulfamate 60°C                     | -                   | -   | D                          | -   | -                           | -        | A                           | B           | -                   | -     | -         | -            | A           | A           | A     | D         | -            | A             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | A |   |
| Isobutyl Alcohol                   | -                   | A   | A                          | -   | -                           | B        | A                           | A           | A                   | C     | -         | A            | -           | -           | A     | A         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | A |   |
| Isopropyl Acetate                  | -                   | -   | B                          | A   | -                           | C        | -                           | -           | -                   | -     | -         | -            | -           | -           | -     | -         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | A |   |
| Isopropyl Alcohol                  | -                   | A   | A                          | A   | -                           | B        | A                           | A           | A                   | C     | C         | A            | -           | -           | A     | A         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | A |   |
| Isopropyl Ether                    | A                   | -   | A                          | A   | -                           | A        | -                           | -           | A                   | -     | -         | A            | -           | -           | A     | D         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | - | A |
| Isotane                            | -                   | -   | -                          | -   | -                           | A        | -                           | -           | -                   | -     | -         | -            | -           | -           | -     | -         | -            | -             | -      | -      | -       | -            | -                | -       | -        | -                         | -              | -                | -       | -        | -                         | -              | -     | - | A |

**Chemical Resistance Legend**

- A ▶ No Effect – Excellent
- B ▶ Minor Effect – Acceptable
- C ▶ Moderate Effect – Questionable
- D ▶ Severe Effect – Not Recommended
- ▶ No Information

**Note**

These recommendations are based upon information from material suppliers and careful examination of available published information. However, since the resistance of metals, plastics and elastomers can be affected by concentration, temperature, presence of other chemicals and other factors, this chart should be considered as general guide. The customer must determine the suitability of the material used in various solutions.

All recommendations assume ambient temperature unless otherwise stated.