

Corrosion Tables

These tables of laboratory data are intended as guidance for what alloys might be tested in a given environment. They must NOT be used as the major basis for alloy selection, or as substitutes for competent corrosion engineering work.

Corrosion Rates in Caustic (NaOH)

| Alloy | Notes | Concentration, % | Temperature | | Time | Corrosion Rate | | Ref |
|----------|----------------------------|------------------|-------------|---------|--------|----------------|---------|-----|
| | | | C | F | | mm/yr | mils/yr | |
| 439 | (boiling) | 50 | 143 | 290 | 5x48hr | 7.77 | 306 | 1 |
| E-Brite® | (boiling) | 50 | 143 | 290 | 5x48hr | 0.00024 | 0.1 | 1 |
| 17-4PH® | condition H 1075 | 30 | 80 | 176 | 5x48hr | 0.18 | 7 | 13 |
| 17-4PH | condition H 1075 | 50 | 80 | 176 | 5x48hr | 0.10 | 4 | 13 |
| 17-4PH | condition H 1075 | 30 | | boiling | 5x48hr | 0.28 | 11 | 13 |
| 17-4PH | condition H 1075 | 50 | | boiling | 5x48hr | 14.2 | 560 | 13 |
| 2205 | nitrogen purge | 50 | 80 | 176 | 96hr | 0.6 | 2.4 | 10 |
| 2205 | nitrogen purge | 50 | 85 | 185 | 96hr | 0.12 | 4.8 | 10 |
| 2205 | nitrogen purge | 50 | 90 | 194 | 96hr | 0.15 | 5.8 | 10 |
| 2205 | (boiling) | 50 | 143 | 290 | 5x48hr | 0.61 | 24 | 1 |
| 304 | (boiling) | 50 | 143 | 290 | 5x48hr | 4.65 | 183 | 1 |
| 304L | (boiling) | 50 | 143 | 290 | 5x48hr | 1.8 | 71 | 1 |
| 316 | (boiling) | 50 | 143 | 290 | 5x48hr | 3.12 | 123 | 1 |
| 316L | (boiling) | 50 | 143 | 290 | 5x48hr | 1.98 | 78 | 1 |
| 904L | (boiling) | 50 | 143 | 290 | 5x48hr | 0.254 | 10 | 1 |
| AL-6XN | (boiling) | 50 | 143 | 290 | 5x48hr | 0.41 | 16 | 1 |
| C-276 | (boiling) | 50 | 143 | 290 | 5x48hr | 0.452 | 17.8 | 1 |
| 625 | (boiling) | 50 | 143 | 290 | 5x48hr | 0.061 | 2.4 | 1 |
| 400 | quiet immersion | 4 | 20 | 68 | — | 0.0041 | 0.16 | 15 |
| 400 | plant test, receiving tank | 75 | 135 | 275 | — | 0.043 | 1.7 | 15 |
| nickel | — | 50 | 40 | 100 | — | 0.00023 | 0.009 | 5 |
| nickel | — | 50 | 60 | 135 | — | 0.0005 | 0.02 | 5 |
| nickel | — | 50 | 55-75 | 130-165 | — | 0.0005 | 0.02 | 5 |
| nickel | — | 50 | 150 | 300 | — | 0.013 | 0.5 | 5 |
| nickel | — | 70-73 | 110 | 230 | — | 0.0025 | 0.1 | 5 |
| nickel | — | 70-73 | 90-115 | 190-240 | — | 0.0025 | 0.01 | 5 |
| nickel | — | 70-73 | 120 | 245 | — | 0.005 | 0.2 | 5 |
| nickel | — | 70-73 | 130 | 265 | — | 0.025 | 1 | 5 |
| 201 | Static conditions. Above | (molten) | 400 | 750 | — | 0.023 | 0.9 | 4 |
| 201 | 540C (1004F), dynamic | (molten) | 500 | 932 | — | 0.053 | 1.3 | 4 |
| 201 | conditions increase | (molten) | 580 | 1076 | — | 0.064 | 2.5 | 4 |
| 201 | rates dramatically | (molten) | 680 | 1256 | — | 0.96 | 37.8 | 4 |