## PROPERTIES OF METALS

| METAL OR ALLOY | WT/CU FT. | SPECIFIC GRAVITY | MELTING POINT °F | YIELD STRENGTH | TENSILE STRENGTH | ELONGATION | BRINELL HARDNESS | MODULUS OF ELASTICITY 104psi | THERMAL CONDUCTIVITY BTU/SQ FT HR/°F/in. | ELECTRICAL CONDUCTIVITY % COPPER | ELECTRICAL RESISTIVITY OHMS/cmF | COEFFICIENT OF EXPANSION °F x 104 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALUMINUM 99% | 165 | 2.72 | 1220 | 5,000 | 13,000 | 35 | 23 | 10.2 | 1570 | 59.0 | 17.6 | 13.8 |
| ANTIMONY | 417 | 6.67 | 1166 | | | | 30 | 11.2 | | 1.0 | | 6.7 |
| ARSENIC | 367 | 5.72 | 1497 | | | | | | | 4.5 | | 2.14 |
| BISMUTH | 612 | 9.8 | 520 | | | | 9 | 4.6 | | 1.3 | 670 | 7.47 |
| BRASS, YELLOW | 535 | 8.6 | 1660 | 18,000 | 40,000 | 60 | 60 | 14.0 | | 26.0 | 40 | |
| BRONZE, ALUMINUM | 481 | 7.7 | 1905 | 30,000 | 76,000 | 55 | 125 | 15 | 173 | 15.0 | 80 | 16.5 |
| BRONZE, MANGANESE | 522 | 8.38 | 1598 | 25,000 | 60,000 | 30 | 100 | 15 | 100 | 25.0 | 42 | 11.7 |
| BRONZE, TOBIN | 535 | 8.6 | 1625 | 24,000 | 54,000 | 40 | 100 | 15 | 810 | 25.0 | 42 | 11.9 |
| CADMIUM | 540 | 8.64 | 1610 | | 9,200 | 20 | 20 | 7.1 | | 34.0 | | 16.6 |
| CHROMIUM | 419 | 6.7 | 2740 | | | | 350 | | | 55.0 | | 4.5 |
| COBALT | 550 | 8.8 | 2700 | | 35,000 | | 125 | | | 16.0 | | 12.4 |
| COPPER | 557 | 8.93 | 1981 | 10,000 | 32,000 | 40 | 30 | 15.8 | 2680 | 100.0 | 10.4 | 9.8 |
| EVERDUR | 534 | 8.57 | 1866 | 20,000 | 55,000 | 50 | 95 | 15.0 | | | | 9.6 |
| GOLD | 1204 | 19.3 | 1945 | | 17,000 | 45 | 25 | 13 | 2000 | 71.0 | 14.6 | 7.8 |
| INCONEL® | 534 | 8.57 | 2540 | 35,000 | 85,000 | 45 | 150 | 30 | 420 | 7.8 | 100 | 7.2 |
| IRON, CAST | 450 | 7.22 | 2300 | | 25,000 | 0.5 | 180 | 13 | 310 | 2.9 | 400 | 6.0 |
| IRON, MALLEABLE | 462 | 7.42 | 2300 | 37,500 | 57,000 | 22 | 110 | 12.5 | | | | 6.6 |
| IRON, PURE | 490 | 7.86 | 2795 | 19,000 | 38,000 | 45 | 67 | 30.1 | 470 | 17.5 | 57 | 6.8 |
| IRON, WROUGHT | 480 | 7.76 | 2750 | 27,000 | 40,000 | 14* | 97 TO 105 | 29.0 | 418 | 15.0 | 87 | 6.7 |

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| LEAD, CHEMICAL | 710 | 11.4 | 620 | 1,900 | 2,500 | 50 | 5 | 2 | 240 | 8.0 | 124 | 16.4 |
| LEAD, TELLURIUM | 707 | 11.34 | 620 | 2,200 | 3,000 | 45 | 6 | 2 | 240 | 8.0 | 124 | 16.4 |
| MAGNESIUM 99% | 108 | 1.74 | 1240 | 13,000 | 25,000 | 4 | 40 | 6.5 | 1090 | 37.0 | 27 | 14.3 |
| MANGANESE | 475 | 7.3 | 2246 | | 130,000 | 60 | 200 | | | 35.0 | 29 | 12.8 |
| MOLYBDENUM | 651 | 10.3 | 4532 | 100,000 | 140,000 | | 147 | 50.2 | | 35.0 | 29 | 3.1 |
| MONEL ® | 551 | 8.84 | 2400 | 35,000 | 75,000 | 40 | 125 | 26 | 180 | 3.6 | 290 | 7.8 |
| NICHROME | 517 | 8.19 | 2450 | 50,000 | 70,000 | 5 | 170 | | 135 | 1.5 | 675 | 13.7 |
| NICKEL, 99% | 556 | 8.91 | 2650 | 8,500 | 46,000 | 28 | 85 | 30 | 575 | 18.8 | 57 | 7.4 |
| NICKEL SILVER 18 | 546 | 8.75 | 2030 | 20,000 | 58,000 | 40 | 90 | 18.5 | 230 | 8.3 | 17.5 | 10 |
| PLATINUM | 1330 | 21.4 | 3218 | 10,000 | 24,000 | 24 | 25 | 24 | 480 | 15.0 | 64 | 4.9 |
| SILICON | 147 | 2.34 | 2588 | | | | | 16.5 | | 1.6 | 630 | 3.5 |
| SILVER | 655 | 10.5 | 1762 | 8,000 | 23,000 | 50 | 30 | 10.5 | 2900 | 106.0 | 9.6 | 10.6 |
| STEEL, 0.15C | 490 | 7.85 | 2700 | 40,000 | 60,000 | 35 | 130.0 | 30.0 | 460 | 14.5 | 72.0 | 6.7 |
| STEEL, 0.30C | 490 | 7.85 | 2600 | 52,000 | 84,000 | 24 | 170.0 | 30.0 | 460 | 14.5 | 72.0 | 6.7 |
| STEEL, 0.50C | 490 | 7.83 | 2500 | 72,000 | 98,000 | 26 | 201.0 | 30.0 | 460 | 14.5 | 72.0 | 6.7 |
| STEEL, MANGANESE | 495 | 7.93 | 2450 | 75,000 | 118,000 | 22 | 300.0 | 29.0 | | | | 6.7 |
| STEEL, NICKEL (2330) | 490 | 7.85 | 2600 | 84,000 | 105,000 | 25 | 217.0 | 30.0 | | | | 6.7 |
| STEEL, CAST | 490 | 7.85 | 2600 | 40,000 | 72,000 | 26 | 140.0 | 30.0 | 400 | 16 | 60 | 6.7 |
| STEEL, STAINLESS (304) | 495 | 7.93 | 2550 | 35,000 | 85,000 | 55 | 160.0 | 29.0 | | 2.0 | 460 | 9.3 |
| TIN (CAST) | 458 | 7.28 | 450 | 1,710 | 3,130 | 70 | 5.9 | 7.1 | 455 | 13.5 | 69 | 11.7 |
| TITANIUM | 281 | 4.5 | 3270 | | | | 230.0 | 12.1 | | | | 4.0 |
| TUNGSTEN | 1191 | 19.1 | 6152 | | 500,000 | | | 51.0 | | 31.0 | 33.1 | 2.2 |
| VANADIUM | 380 | 6 | 3182 | | | | | | | | | 5.6 |
| ZINC | 447 | 7.14 | 786 | | 20,000 | 60 | 35.0 | 18.5 | | 30.0 | 34 | 18.0 |