**Specification Sheet**

Last Modified: May 13, 2017

# C15500

## Chemical Composition

(%max., unless shown as range or min.)

| | Cu[1] | Mg | P | Ag |
|---|---|---|---|---|
| Min./Max. | 99.75 min | .08-.13 | .040-.080 | .027-.10 |
| Nominal | - | 0.11 | 0.06 | 0.064 |

(1) Cu value includes Ag.

(2) In troy ounce: Min = 8, Max = 30and Nom = 19

## Applicable Specifications

| Product | Specification |
|---|---|
| Strip | ASTM B88 |

## Common Fabrication Processes

Bending, Blanking, Drawing, Etching, Forming, Machining, Shearing, Spinning

**Millard Wire & Specialty Strip Co.**

449 Warwick Industrial Drive • Warwick, RI 02886

Phone: (401) 737-9330 • Fax: (401) 737-9340

## Fabrication Properties

| Joining Technique | Suitability |
|---|---|
| Soldering | Excellent |
| Brazing | Excellent |
| Oxyacetylene Welding | Not Recommended |
| Gas Shielded Arc Welding | Not Recommended |
| Coated Metal Arc Welding | Not Recommended |
| Spot Weld | Good |
| Seam Weld | Not Recommended |
| Butt Weld | Not Recommended |
| Capacity for Being Cold Worked | Excellent |
| Capacity for Being Hot Formed | Excellent |
| Forgeability Rating | 65 |
| Machinability Rating | 20 |

## Thermal Properties

| Treatment | Temp./Time – US | Temp./Time – SI |
|---|---|---|
| Stress Temperature | | |
| Solution Minimum | | |
| Solution Maximum | | |
| Solution Time | | |
| Solution Medium | None | |
| Precipitation Value | | |
| Precipitation Time | | |
| Precipitation Medium | None | |
| Annealing Minimum | 900 | 483 |
| Annealing Maximum | 1000 | 538 |
| Annealing Time | | |
| Hot Works Minimum | 1400 | 761 |
| Hot Works Maximum | 1600 | 872 |

# C15500 Specification Sheet

## Mechanical Properties (Measured at Room Temperature, 68°F (20°C))

| Temper | Section Size | Cold Work | Typ/Min | Temp | Tensile Strength | Yield Strength (0.5% ext. under load) | Yield Strength (0.2% offset) | Yield Strength (0.05% offset) | El | Rockwell Hardness | | | | Vickens Hardness | Brinell Hardness | | Shear Strength | Fatigue Strength | Izod Impact Strength |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in. | % | | F | ksi | ksi | ksi | ksi | % | B | C | F | 30T | 500 | 500 | 3000 | ksi | ksi | ft-lb |
| | mm. | | | C | MPa | MPa | MPa | MPa | | | | | | | | | MPa | MPa | J |
| **Flat Products** | | | | | | | | | | | | | | | | | | | |
| O50 | 0.04 | 0 | TYP | 68 | 40 | 18 | 18 | - | 34 | - | - | 70 | - | - | - | - | - | 15 | 0 |
| | 1 | | | 20 | 276 | 124 | 123 | - | 34 | - | - | 70 | - | - | - | - | - | 103 | 0 |
| H02 | 0.04 | 0 | TYP | 68 | 53 | 47 | 47 | - | 13 | - | - | 92 | - | - | - | - | - | - | 0 |
| | 1 | | | 20 | 365 | 324 | 324 | - | 13 | - | - | 92 | - | - | - | - | - | - | 0 |
| H01 | 0.2 | 0 | TYP | 68 | 45 | 36 | 36 | - | 28 | - | - | 89 | - | - | - | - | - | - | 0 |
| | 5.08 | | | 20 | 310 | 248 | 246 | - | 28 | - | - | 89 | - | - | - | - | - | - | 0 |
| H12 | 0.04 | 0 | TYP | 68 | 75 | 70 | 73 | - | 3 | 82 | - | - | - | - | - | - | - | - | 0 |
| | 1 | | | 20 | 517 | 483 | 503 | - | 3 | 82 | - | - | - | - | - | - | - | - | 0 |
| H04 | 0.04 | 0 | TYP | 68 | 62 | 57 | 57 | - | 5 | - | - | 97 | - | - | - | - | - | 24 | 0 |
| | 1 | | | 20 | 427 | 393 | 394 | - | 5 | - | - | 97 | - | - | - | - | - | 162 | 0 |
| O50 | 0.2 | 0 | TYP | 68 | 40 | 18 | 18 | - | 40 | - | - | 70 | - | - | - | - | - | - | 0 |
| | 5.08 | | | 20 | 276 | 124 | 122 | - | 40 | - | - | 70 | - | - | - | - | - | - | 0 |
| H08 | 0.04 | 0 | TYP | 68 | 67 | 65 | 67 | - | 4 | - | - | 100 | - | - | - | - | - | 23 | 0 |
| | 1 | | | 20 | 462 | 448 | 462 | - | 4 | - | - | 100 | - | - | - | - | - | 155 | 0 |
| H14 | 0.04 | 0 | TYP | 68 | 80 | 72 | 75 | - | 3 | 84 | - | - | - | - | - | - | - | - | 0 |
| | 1 | | | 20 | 552 | 496 | 517 | - | 3 | 84 | - | - | - | - | - | - | - | - | 0 |
| H10 | 0.04 | 0 | TYP | 68 | 72 | 68 | 71 | - | 3 | 80 | - | - | - | - | - | - | - | - | 0 |
| | 1 | | | 20 | 496 | 469 | 490 | - | 3 | 80 | - | - | - | - | - | - | - | - | 0 |
| H01 | 0.04 | 0 | TYP | 68 | 45 | 36 | 36 | - | 25 | - | - | 89 | - | - | - | - | - | - | 0 |
| | 1 | | | 20 | 310 | 248 | 247 | - | 25 | - | - | 89 | - | - | - | - | - | - | 0 |

*Fatigue Strength: 100 x $10^6$ cycles, unless indicated as [N]X $10^6$.

## Physical Properties

| Property | US Customary | Metric |
|---|---|---|
| Melting Point - Liquidus | 1980° F | 1082° C |
| Melting Point - Solidus | 1972° F | 1078° C |
| Density | 0.322 lb/$in^3$ at 68° F | 8.91 gm/$cm^3$ @ 20° C |
| Specific Gravity | 8.91 | 8.91 |
| Electrical Resistivity | 11.50 ohms-cmil/ft @ 68° F | 1.91 microhm-cm @ 20° C |
| Electrical Conductivity* | 90 %IACS @ 68° F | 0.527 MegaSiemens/cm @ 20° C |
| Thermal Conductivity | 200 Btu·ft/(hr·ft2·°F)at 68°F | 346.1 W/m·°K at 20° C |
| Coefficient of Thermal Expansion | 9.80·$10^{-6}$ per °F (68-212° F) | 17.6·$10^{-6}$ per °C (20-100° C) |
| Specific Heat Capacity | 0.092 Btu/lb/°F at 68° F | 393.5 J/kg·°K at 293° K |
| Modulas of Elasticity in Tension | 17000 ksi | 117000 MPa |
| Modulus of Rigidity | 6400 ksi | 44130 MPa |

## Tempers Most Commonly Used

| Flat Products | |
|---|---|
| BAR, ROLLED | H01, O50 |
| PLATE | H01, O50 |
| SHEET | H01, H02, H04, H06, H08, H10, O50, OTHER |
| STRIP, ROLLED | H01, H02, H04, H06, H08, H10, O50, OTHER |

## Typical Uses

### Electrical

Commutators for Electric Motors, Flexing Switch Parts, Tinsel Wire, Wire, High Strength for Aircraft Hook Up, Contacts, Fittings, Electronic Components, Conductors in Solid State Devices, Electrical Connectors, Lead Frames

### Fasteners

Clamps

### Industrial

Diaphragms, Heat Sinks, Resistance Welding Electrodes, High Conductivity, Light Duty Springs

## Casting Characteristics

No casting characteristics for this alloy.