# C94800

**Cast**

| | |
|---|---|
| **Product Description:** | Leaded Nickel-Tin Bronze |
| **Solids:** | ½" to 10" O.D. |
| **Tubes:** | 1" to 16" O.D. |
| **Rectangles:** | Up to 20" |
| **Standard Lengths:** | 144" |
| **Shape/Form:** | semi-finished, mill stock or near-net shapes, anode, bar stock, billet/bloom, squares, hex, plate, profile or structural shape, flats/rectangular bar |

## Typical Uses

| | |
|---|---|
| **Builders Hardware** | structural castings |
| **Industrial** | gear components, motion translation devices, bearings, machinery parts |

## Similar or Equivalent Specification

| CDA | ASTM | Asarcon | SAE | AMS | Federal | Military | Other |
|---|---|---|---|---|---|---|---|
| C94800 | B505<br>B505M<br>B948<br>B292-B | 51N | | | QQ-C-390, F3 | | |

## Chemical Composition

| Cu% | Pb% | Sn% | Zn% | Fe% | P% | Ni%[1] | Al% | Mn% | S% | Sb% | Si% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 84.00-89.00 | 0.30-1.00 | 4.50-6.00 | 1.00-2.50 | 0.25 | 0.05 | 4.50-6.00 | 0.005 | 0.20 | 0.05 | 0.15 | 0.005 |

Chemical Composition according to ASTM B505/B505M-18

[1]Ni value includes Co.
Note: Cu + Sum of Named Elements, 98.7% min. Single values represent maximums.

## Machinability

| Copper Alloy UNS No. | Machinability Rating | Density (lb/cu in at 68° F) |
|---|---|---|
| C94800 | 50 | 0.320 |

CONCAST METAL PRODUCTS CO.

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## Mechanical Properties



| Tensile Strength, min | | Yield Strength, at .5% Extension Under Load, min | | Elongation, in 2 in. or 50 mm min | Brinell Hardness | Remarks |
|---|---|---|---|---|---|---|
| ksi | MPa | ksi | MPa | % | typical BHN | |
| 40 | 276 | 20 | 138 | 20 | 80 (500 kg) | |

Mechanical Properties according to ASTM B505/B505M-18

## Physical Properties

| | US Customary | Metric |
|---|---|---|
| Melting Point – Liquidus | 1880˚ F | 1027˚ C |
| Melting Point – Solidus | 1660˚ F | 904˚ C |
| Density | 0.320 lb/in$^3$ at 68˚ F | 8.86 gm/cm$^3$ at 20˚ C |
| Specific Gravity | 8.86 | 8.86 |
| Electrical Conductivity | 12% IACS at 68˚ F | 0.07 MegaSiemens/cm at 20˚ C |
| Thermal Conductivity | 22.3 Btu · ft/(hr · ft$^2$ · ˚F) at 68˚ F | 38.6 W/m at 20˚ C |
| Coefficient of Thermal Expansion | 10.9 · 10$^{-6}$ per ˚F (68˚-572˚ F) | 18.8 · 10$^{-6}$ per ˚C (20˚-300˚ C) |
| Specific Heat Capacity | 0.09 Btu/lb/˚F at 68˚ F | 377.1 J/kg at 293˚ C |
| Modulas of Elasticity in Tension | 15000 ksi | 103400 MPa |

Physical Properties provided by CDA

## Fabrication Properties

| Joining Technique | Suitability |
|---|---|
| Soldering | Excellent |
| Brazing | Good |
| Oxyacetylene Welding | Not Recommended |
| Gas Shielded Arc Welding | Not Recommended |
| Coated Metal Arc Welding | Not Recommended |

Fabrication Properties provided by CDA

## Thermal Properties

| Treatment | Temp./Time - US | Temp./Time - SI |
|---|---|---|
| Stress Temperature | 500 | 260 |
| Solution Minimum | 1425 | 775 |
| Solution Maximum | 1475 | 802 |
| Solution Time | 2.0 | |
| Solution Medium | Water | |
| Precipitation Value | 580 | 305 |
| Precipitation Time | 6.0 | |
| Precipitation Medium | Air | |
| Annealing Minimum | | |
| Annealing Maximum | | |
| Annealing Time | | |
| Hot Treatment Minimum | | |
| Hot Treatment Maximum | | |

Thermal Properties provided by CDA

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