



Application Datasheet

Standard Designation for Wrought Copper Alloys

- C20000-C29999: Copper-Zinc Alloys (*Yellow Brasses*)
- C30000-C39999: Copper-Zinc-Lead Alloys (*Leaded Brasses*)
- C40000-C49999: Copper-Zinc-Tin Alloys (*Tin Brasses*)

Revision Date: June 12, 2018

Brasses (C20000 - C49999)

* = are alloys registered with the U.S. EPA as Antimicrobial.

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status |
|------------------------------------|---------------------|---------------------|------|------|------|------|------|------|------|------|------|------|----------------------|---------|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | |
| C20500* Brass | 97.0 | 98.0 | | 0.02 | | | | Rem | | 0.05 | | | | | inactive 03/92 |
| C21000* Gilding, 95% | 94.0 | 96.0 ⁽¹⁾ | | 0.05 | | | | Rem | | 0.05 | | | | | active |
| C22000* Commercial Bronze, 90% | 89.0 | 91.0 ⁽¹⁾ | | 0.05 | | | | Rem | | 0.05 | | | | | active |
| C22600* Jewelry Bronze, 87-1/2% | 86.0 | 89.0 ⁽¹⁾ | | 0.05 | | | | Rem | | 0.05 | | | | | active |
| C23000* Red Brass, 85% | 84.0 | 86.0 ⁽¹⁾ | | 0.05 | | | | Rem | | 0.05 | | | | | active |
| C23030* | 83.5 ⁽¹⁾ | 85.5 | | 0.05 | | | | Rem | | 0.05 | | | 0.20 Si | 0.40 Si | active |
| C23400* | 81.0 | 84.0 ⁽¹⁾ | | 0.05 | | | | Rem | | 0.05 | | | | | active |
| C24000* Low Brass, 80% | 78.5 ⁽¹⁾ | 81.5 | | 0.05 | | | | Rem | | 0.05 | | | | | active |
| C24080 | 78.0 ⁽¹⁾ | 82.0 | | 0.20 | | | | Rem | | | | | | 0.10 Al | active |

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status |
|-------------------------------------|---------------------|---------------------|------|------|------|------|------|------|------|------|------|------|---------------------------------|--------------------------------|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | |
| C25000* Brass | 74.0 | 76.0 | | 0.05 | | | | Rem | | 0.05 | | | | | inactive 03/92 |
| C25600* | 71.0 | 73.0 ⁽²⁾ | | 0.05 | | | | Rem | | 0.05 | | | | | active |
| C26000* Cartridge Brass, 70% | 68.5 ⁽²⁾ | 71.5 | | 0.07 | | | | Rem | | 0.05 | | | | | active |
| C26100* Brass | 68.5 | 71.5 ⁽²⁾ | | 0.05 | | | | Rem | | 0.05 | 0.02 | 0.05 | 0.02 As | 0.06 As | inactive 03/92 |
| C26130* | 68.5 | 71.5 ⁽²⁾ | | 0.05 | | | | Rem | | 0.05 | | | 0.02 As | 0.08 As | active |
| C26200* | 67.0 | 70.0 ⁽²⁾ | | 0.07 | | | | Rem | | 0.05 | | | | | active |
| C26380 Brass | 68.0 | 72.0 | | 0.30 | | | | Rem | | 0.05 | | | | 0.10 Ag | inactive 03/92 |
| C26800* Yellow Brass, 66% | 64.0 | 68.5 ⁽²⁾ | | 0.09 | | | | Rem | | 0.05 | | | | | active |
| C27000* Yellow Brass, 65% | 63.0 | 68.5 ⁽²⁾ | | 0.09 | | | | Rem | | 0.07 | | | | | active |
| C27200* Yellow Brass | 62.0 | 65.0 ⁽²⁾ | | 0.07 | | | | Rem | | 0.07 | | | | | active |
| C27400* Yellow Brass, 63% | 61.0 | 64.0 ⁽²⁾ | | 0.09 | | | | Rem | | 0.05 | | | | | active |
| C27450 Yellow Brass | 60.0 ⁽³⁾ | 65.0 | | 0.25 | | | | Rem | | 0.35 | | | | | active |
| C27451 Yellow Brass Yellow Brass | 61.0 | 65.0 ⁽³⁾ | | 0.25 | | | | Rem | | 0.35 | 0.05 | 0.20 | | | active |
| C27453 Copper Zinc Alloy | 61.5 ⁽³⁾ | 63.5 | | 0.25 | | 0.15 | | Rem | | 0.15 | | | 0.02 As | 0.15 As | active |
| C27460 | 60.0 ⁽³⁾ | 62.0 | | 0.25 | 0.15 | 0.35 | | Rem | | 0.10 | 0.15 | 0.25 | 0.20 Ni 0.080 Al 0.060 Si | 0.35 Ni 0.16 Al 0.090 Si | active |
| C28000* Muntz Metal, 60% | 59.0 | 63.0 ⁽²⁾ | | 0.09 | | | | Rem | | 0.07 | | | | | active |
| C28200 Copper Zinc Alloy | 58.0 | 61.0 | | 0.03 | | | | Rem | | 0.05 | 0.12 | 0.22 | | 0.005 Al 0.05 Si | inactive 02/73 |

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status | |
|---|---------------------|---------------------|------|------|------|------|------|--------------------|------|------|------|------|----------------------|---|--------|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | | |
| C28300* Yellow Brass | 58.0 ⁽⁴⁾ | 62.0 | | 0.09 | | | 31.0 | 41.0 | | 0.35 | | | 0.10 S | 0.20 B 0.01 Mn 0.65 S 0.20 Zr | active | |
| C28310* Yellow Brass | 58.0 ⁽⁴⁾ | 62.0 | | 0.09 | | | 31.0 | 41.0 | | 0.35 | | | 0.01 Mn 0.10 S | 0.20 B 0.20 Mn 0.65 S 0.20 Zr | active | |
| C28320* Yellow Brass | 58.0 | 62.0 ⁽⁴⁾ | | 0.09 | | | 31.0 | 41.0 | | 0.35 | | | 0.10 S | 0.20 B 0.10 C 0.20 Mn 0.65 S 0.30 Ti 0.20 Zr | active | |
| C28330* Low-Lead Yellow Brass | 58.0 | 62.0 ⁽⁴⁾ | | 0.09 | | | 31.0 | 39.0 | | 0.35 | | | 0.10 Sb | 0.10 B 0.10 C 0.20 Mn 0.25 S 1.5 Sb 0.10 Ti 0.10 Zr | active | |
| C28340 | 61.0 ⁽³⁾ | 62.0 | .17 | .25 | .30 | .40 | | Rem ⁽⁵⁾ | | .12 | | | .07 As .65 Bi | .20 Ni .17 As ⁽⁶⁾ .75 Bi .04 Cd .02 Cr .05 Mn .05 Sb .05 Si | active | |
| C28500 Copper-Zinc- Alloy Brass | 57.0 | 59.0 ⁽⁷⁾ | | 0.25 | | | | Rem | | 0.35 | | | | | | active |
| C28580 Brass | 49.0 | 52.0 | | 0.50 | | | | Rem | | 0.10 | | | | 0.10 Al | | inactive 03/92 |
| C29800 Copper Zinc Alloy | 49.0 | 52.0 | | 0.50 | | | | Rem | | 0.10 | | | | 0.10 Al | | inactive 07/74 |
| C31000 Copper Zinc Lead Alloy | 89.0 | 91.0 | 0.30 | 0.7 | | | | Rem | | 0.10 | | | | | | inactive 07/74 |
| C31200 | 87.5 | 90.5 ⁽⁸⁾ | 0.7 | 1.2 | | | | Rem | | 0.10 | | | | 0.25 Ni | | active |
| C31400 Leaded Commercial Bronze | 87.5 | 90.5 ⁽⁸⁾ | 1.3 | 2.5 | | | | Rem | | 0.10 | | | | 0.7 Ni | | active |
| C31600 Leaded Commercial Bronze (Nickel- Bearing) | 87.5 | 90.5 ⁽⁸⁾ | 1.3 | 2.5 | | | | Rem | | 0.10 | 0.04 | 0.10 | 0.7 Ni | 1.2 Ni | | active |
| C32000 Leaded Red Brass | 83.5 ⁽⁸⁾ | 86.5 | 1.5 | 2.2 | | | | Rem | | 0.10 | | | | 0.25 Ni | | active |

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status |
|--|-------------------------|---------------------|------|------|------|------|------|------|------|---------------------|------|------|----------------------|---------|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | |
| C32500 Copper Zinc Lead Alloy | 72.0 | 74.5 | 2.5 | 3.0 | | | | Rem | | 0.10 | | | | | inactive 07/74 |
| C32510 Leaded Brass | 69.0 | 72.0 | 0.30 | 0.7 | | | | Rem | | | | | 0.02 As | 0.06 As | inactive 03/92 |
| C33000 Low Leaded Brass (Tube) | 65.0 | 68.0 ⁽⁸⁾ | 0.25 | 0.7 | | | | Rem | | 0.07 | | | | | active |
| C33100 Leaded Brass | 65.0 | 68.0 | 0.8 | 1.5 | | | | Rem | | 0.06 | | | | | inactive 03/92 |
| C33200 High Leaded Brass (Tube) | 65.0 | 68.0 ⁽⁸⁾ | 1.5 | 2.5 | | | | Rem | | 0.07 | | | | | active |
| C33500 Low-Leaded Brass | 62.0 ⁽⁸⁾ | 65.0 | 0.25 | 0.7 | | | | Rem | | 0.15 ⁽⁹⁾ | | | | | active |
| C33530 Leaded Brass | 62.5 | 66.5 | 0.30 | 0.8 | | | | Rem | | 0.10 | | | 0.02 As | 0.06 As | inactive 03/92 |
| C34000 Medium Leaded Brass, 64-1/2% | 62.0 ⁽⁸⁾ | 65.0 | 0.8 | 1.5 | | | | Rem | | 0.15 ⁽⁹⁾ | | | | | active |
| C34200 High Leaded Brass, 64-1/2% | 62.0 ⁽⁸⁾ | 65.0 | 1.5 | 2.5 | | | | Rem | | 0.15 ⁽⁹⁾ | | | | | active |
| C34400 Leaded Brass | 62.0 | 66.0 | 0.50 | 1.0 | | | | Rem | | 0.10 | | | | | inactive 02/81 |
| C34500 | 62.0 ⁽⁸⁾ | 65.0 | 1.5 | 2.5 | | | | Rem | | 0.15 | | | | | active |
| C34700 Leaded Brass | 62.5 | 64.5 | 1.0 | 1.8 | | | | Rem | | 0.10 | | | | | inactive 02/81 |
| C34800 Leaded Brass | 61.5 | 63.5 | 0.40 | 0.8 | | | | Rem | | 0.10 | | | | | inactive 02/81 |
| C34900 Leaded Brass | 61.0 | 64.0 | 0.10 | 0.50 | | | | Rem | | 0.10 | | | | | inactive 02/82 |
| C35000 Medium Leaded Brass, 62% | 60.0 ⁽⁸⁾⁽¹⁰⁾ | 63.0 | 0.8 | 2.0 | | | | Rem | | 0.15 ⁽⁹⁾ | | | | | active |
| C35300 High Leaded Brass, 62% | 60.0 ⁽³⁾⁽¹⁰⁾ | 63.0 | 1.5 | 2.5 | | | | Rem | | 0.15 ⁽⁹⁾ | | | | | active |

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status |
|---|---------------------|---------------------|------|---------------------|------|------|------|------|------|---------------------|------|------|----------------------|---------|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | |
| C35330 DZR Brass | 59.5 | 64.0 ⁽³⁾ | 1.5 | 3.5 ⁽¹¹⁾ | | | | Rem | | | | | 0.02 As | 0.25 As | active |
| C35340 Leaded Brass | 60.0 | 63.0 | 1.5 | 2.5 | | | | Rem | 0.10 | 0.30 | | | | | inactive 03/92 |
| C35350 Leaded Brass | 61.0 ⁽³⁾ | 63.0 | 2.0 | 4.5 | | 0.30 | | Rem | | 0.40 | 0.05 | 0.20 | 0.05 Ni | 0.30 Ni | active |
| C35600 Extra High Leaded Brass | 60.0 ⁽³⁾ | 63.0 | 2.0 | 3.0 | | | | Rem | | 0.15 ⁽⁹⁾ | | | | | active |
| C36000 Free-Cutting Brass | 60.0 | 63.0 ⁽³⁾ | 2.5 | 3.0 | | | | Rem | | 0.35 | | | | | active |
| C36010 Leaded Brass Free-Cutting Brass | 60.0 | 63.0 ⁽³⁾ | 3.1 | 3.7 | | | | Rem | | 0.35 | | | | | active |
| C36200 Leaded Brass | 60.0 | 63.0 | 3.5 | 4.5 | | | | Rem | | 0.15 | | | | | inactive 03/92 |
| C36300 Copper-Zinc-Lead Alloy | 61.0 | 63.0 ⁽³⁾ | 0.25 | 0.7 | | | | Rem | | 0.15 | 0.04 | 0.15 | | | active |
| C36500 Leaded Muntz Metal, Uninhibited | 58.0 ⁽⁸⁾ | 61.0 | 0.25 | 0.7 | | 0.25 | | Rem | | 0.15 | | | | | active |
| C36600 Leaded Muntz Metal, Arsinical | 58.0 | 61.0 | 0.25 | 0.7 | | 0.25 | | Rem | | 0.15 | | | 0.02 As | 0.06 As | inactive 03/92 |
| C36700 Leaded Muntz Metal, Antimonial | 58.0 | 61.0 | 0.25 | 0.7 | | 0.25 | | Rem | | 0.15 | | | 0.02 Sb | 0.10 Sb | inactive 03/92 |
| C36800 Leaded Brass | 58.0 | 61.0 | 0.25 | 0.7 | | 0.25 | | Rem | | 0.15 | 0.02 | 0.10 | | | inactive 03/92 |
| C37000 Free-Cutting Muntz Metal | 59.0 | 62.0 ⁽⁸⁾ | 0.8 | 1.5 | | | | Rem | | 0.15 | | | | | active |
| C37100 | 58.0 | 62.0 ⁽⁸⁾ | 0.6 | 1.2 | | | | Rem | | 0.15 | | | | | active |
| C37700 Forging Brass | 58.0 ⁽³⁾ | 61.0 | 1.5 | 2.5 | | | | Rem | | 0.30 | | | | | active |
| C37710 | 56.5 ⁽³⁾ | 60.0 | 1.0 | 3.0 | | | | Rem | | 0.30 | | | | | active |

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status |
|--|---------------------|---------------------|------|------|------|------|------|------|------|------|-------|------|------------------------|---------|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | |
| C37800 Leaded Brass | 56.0 | 59.0 | 1.5 | 2.5 | | | | Rem | | 0.30 | | | | | inactive 03/92 |
| C38000 Architectural Bronze, Low Leaded | 55.0 | 60.0 ⁽³⁾ | 1.5 | 2.5 | | 0.30 | | Rem | | 0.35 | | | | 0.50 Al | active |
| C38010 Leaded Brass | 55.0 | 60.0 | 1.5 | 3.0 | | | | Rem | | 0.30 | | | 0.10 Al | 0.6 Al | inactive 03/92 |
| C38500 Architectural Bronze | 55.0 ⁽³⁾ | 59.0 | 2.5 | 3.5 | | | | Rem | | 0.35 | | | | | active |
| C38510 Leaded Brass | 56.0 | 60.0 | 2.5 | 4.5 | | | | Rem | | | | | | | inactive 03/92 |
| C38590 Leaded Brass | 56.5 | 60.0 | 2.0 | 3.5 | | | | Rem | | 0.35 | | | | | inactive 03/92 |
| C38600 Leaded Brass | 56.0 | 59.0 | 2.5 | 3.5 | | | | Rem | | 0.35 | | | | 0.02 Sb | inactive 02/82 |
| C40400* | | Rem ⁽²⁾ | | | 0.35 | 0.7 | 2.0 | 3.0 | | | | | | | active |
| C40410* Copper-Zinc-Tin Alloy | 95.0 | 99.0 ⁽²⁾ | | 0.05 | 0.1 | 0.40 | | Rem | | 0.05 | | | | | active |
| C40500* Penny Bronze | 94.0 ⁽²⁾ | 96.0 | | 0.05 | 0.7 | 1.3 | | Rem | | 0.05 | | | | | active |
| C40800* Silicon Brass | 94.0 | 96.0 | | 0.05 | 1.8 | 2.2 | | Rem | | 0.05 | | | | | inactive 03/92 |
| C40810* | 94.5 ⁽²⁾ | 96.5 | | 0.05 | 1.8 | 2.2 | | Rem | 0.08 | 0.12 | 0.028 | 0.04 | 0.11 Ni | 0.20 Ni | active |
| C40820* | 94.0 ⁽³⁾ | | | 0.02 | 1.0 | 2.5 | 0.20 | 2.5 | | | | 0.05 | 0.10 Ni | 0.50 Ni | active |
| C40850* | 94.5 ⁽²⁾ | 96.5 | | 0.05 | 2.6 | 4.0 | | Rem | 0.05 | 0.20 | 0.01 | 0.20 | 0.05 Ni | 0.20 Ni | active |
| C40860* | 94.0 ⁽²⁾ | 96.0 | | 0.05 | 1.7 | 2.3 | | Rem | 0.01 | 0.05 | 0.02 | 0.04 | 0.05 Ni | 0.20 Ni | active |
| C40900 Copper Zinc Tin Alloy | 92.0 | 94.0 | | 0.05 | 0.50 | 0.8 | | Rem | | 0.05 | | | | | inactive 07/74 |
| C40950* | 91.5 ⁽²⁾ | 94.5 | | .05 | .30 | .8 | | Rem | | .03 | .01 | .08 | .30 Ni ⁽¹²⁾ | .8 Ni | active |
| C41000* | 91.0 ⁽²⁾ | 93.0 | | 0.05 | 2.0 | 2.8 | | Rem | | 0.05 | | | | | active |

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status |
|----------------------------------|---------------------|-------------------------|------|------|------|------|------|------|------|-------|-------|-------|----------------------|--|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | |
| C41100* Tin Brass | 89.0 | 92.0 ⁽²⁾ | | 0.09 | 0.30 | 0.7 | | Rem | | 0.05 | | | | | active |
| C41110* Copper Zinc Tin Alloy | 90.0 | 94.0 ⁽²⁾ | | 0.05 | 0.10 | 0.50 | | Rem | | 0.05 | | | | | active |
| C41120* | 89.0 | 92.0 ⁽²⁾ | | 0.05 | 0.30 | 0.7 | | Rem | 0.05 | 0.20 | 0.01 | 0.35 | 0.05 Ni | 0.20 Ni | active |
| C41125* | 86.5 ⁽³⁾ | 90.5 | | .05 | .50 | .9 | | Rem | | .03 | | .06 | | .8 Ni | active |
| C41300* Tin Brass | 89.0 ⁽²⁾ | 93.0 | | 0.09 | 0.7 | 1.3 | | Rem | | 0.05 | | | | | active |
| C41500* Tin Brass | 89.0 | 93.0 ⁽²⁾ | | 0.09 | 1.5 | 2.2 | | Rem | | 0.05 | | | | | active |
| C41900 Tin Brass | 89.0 | 92.0 | | 0.10 | 4.5 | 5.5 | | Rem | | 0.05 | | | | | inactive 07/74 |
| C42000* | 88.0 ⁽²⁾ | 91.0 | | | 1.5 | 2.0 | | Rem | | | | 0.25 | | | active |
| C42100* Tin Brass | 87.5 | 89.0 | | 0.05 | 2.2 | 3.0 | | Rem | | 0.05 | | 0.35 | 0.15 Mn | 0.35 Mn | inactive 03/92 |
| C42200* | 86.0 ⁽²⁾ | 89.0 | | 0.05 | 0.8 | 1.4 | | Rem | | 0.05 | | 0.35 | | | active |
| C42210* Tin Brass | 86.0 | 89.0 ⁽²⁾⁽¹³⁾ | | 0.01 | 1.1 | 1.6 | | Rem | | 0.035 | 0.001 | 0.010 | | 0.5 Ni ⁽¹⁴⁾ 0.005 Te ⁽¹⁵⁾ 0.005 Se ⁽¹⁵⁾ | active |
| C42220* | 88.0 ⁽²⁾ | 91.0 | | 0.05 | 0.7 | 1.4 | | Rem | 0.05 | 0.20 | 0.02 | 0.05 | 0.05 Ni | 0.20 Ni | active |
| C42230 BW33520 | 87.0 ⁽³⁾ | 91.0 | | 0.01 | 0.40 | 1.5 | | Rem | | 0.05 | | | 0.30 Co 0.05 Si | 1.5 Co 0.05 Mn 0.30 Si | active |
| C42500* | 87.0 | 90.0 ⁽²⁾ | | 0.05 | 1.5 | 3.0 | | Rem | | 0.05 | | 0.35 | | | active |
| C42510 | | | | | | | | | | | | | | | inactive 12/98 |
| C42520* | 88.0 ⁽²⁾ | 91.0 | | 0.05 | 1.5 | 3.0 | | Rem | 0.05 | 0.20 | 0.01 | 0.20 | 0.05 Ni | 0.20 Ni | active |
| C42600* | 87.0 | 90.0 ⁽¹³⁾⁽²⁾ | | 0.05 | 2.5 | 4.0 | | Rem | 0.05 | 0.20 | 0.01 | 0.20 | 0.05 Ni | 0.20 Ni ⁽¹²⁾ | active |
| C43000* Tin Brass | 84.0 | 87.0 ⁽²⁾ | | 0.09 | 1.7 | 2.7 | | Rem | | 0.05 | | | | | active |
| C43200 Tin Brass | 85.0 | 88.0 | | 0.35 | 0.40 | 0.6 | | Rem | | 0.05 | | 0.35 | | | inactive 03/92 |

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status |
|---|---------------------|-------------------------|------|------|---------------------|---------------------|------|------|------|------|-------|------|---------------------------------|--|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | |
| C43400* | 84.0 | 87.0 ⁽²⁾ | | 0.05 | 0.40 | 1.0 | | Rem | | 0.05 | | | | | active |
| C43500* Tin Brass | 79.0 | 83.0 ⁽²⁾ | | 0.09 | 0.6 | 1.2 | | Rem | | 0.05 | | | | | active |
| C43600* | 80.0 ⁽²⁾ | 83.0 | | 0.05 | 0.20 | 0.50 | | Rem | | 0.05 | | | | | active |
| C43800* Copper Zinc Tin Alloy | 79.0 | 82.0 | | 0.05 | 1.0 | 1.5 | | Rem | | 0.05 | | | | | inactive 07/74 |
| C44200* Copper Zinc Tin Alloy | 70.0 | 73.0 | | 0.07 | 0.8 | 1.2 | | Rem | | 0.06 | | | | | inactive 05/71 |
| C44250* | 73.0 ⁽⁸⁾ | 76.0 | | 0.07 | 0.50 | 1.5 | | Rem | | 0.20 | | 0.10 | | 0.20 Ni | active |
| C44300* Admiralty, Arsenical | 70.0 | 73.0 ⁽⁸⁾ | | 0.07 | 0.8 | 1.2 ⁽¹⁶⁾ | | Rem | | 0.06 | | | 0.02 As | 0.06 As | active |
| C44400* Admiralty, Antimonial | 70.0 | 73.0 ⁽⁸⁾ | | 0.07 | 0.8 ⁽¹⁶⁾ | 1.2 | | Rem | | 0.06 | | | 0.02 Sb | 0.10 Sb | active |
| C44500* Admiralty, Phosphorized | 70.0 ⁽⁸⁾ | 73.0 | | 0.07 | 0.8 | 1.2 ⁽¹⁶⁾ | | Rem | | 0.06 | 0.02 | 0.10 | | | active |
| C44710 | 65.5 ⁽²⁾ | 71.5 | | 0.05 | 0.20 | 0.8 | | Rem | | 0.03 | 0.005 | 0.05 | 1.5 Ni | 2.5 Ni | active |
| C44730 | | Rem ⁽³⁾ | | .05 | .50 | 1.5 | 27.0 | 31.0 | | .6 | | .05 | .8 Ni ⁽¹²⁾ .10 Si | 2.5 Ni .7 Cr .40 Mg .40 Mn .6 Si .40 Zr | active |
| C44750* Tin Brass | | Rem ⁽⁸⁾ | | 0.05 | 0.30 | 3.0 | 27.0 | 31.5 | 0.10 | 1.5 | | | | | active |
| C45450* Tin Brass | 65.0 | 66.0 | | | 0.10 | 0.30 | | Rem | | | 0.10 | 0.30 | 0.20 Al | 0.40 Al | inactive 03/92 |
| C45470* Copper-Zinc-Tin Aluminum Alloy | 64.0 | 69.0 ⁽³⁾ | | .09 | 0.6 | 0.9 | | Rem | | | | | 0.30 Al | 0.8 Al | active |
| C46200 Naval Brass, 63-1/2% | 62.0 | 65.0 ⁽⁸⁾ | | 0.20 | 0.50 | 1.0 | | Rem | | 0.10 | | | | | active |
| C46210* Tin Brass | 61.0 | 64.0 | | 0.05 | | 1.0 | | Rem | | | | | | 0.03 Al 0.50 Si | inactive 03/92 |
| C46250* HONLUX 01 | 62.0 | 65.0 ⁽¹⁷⁾⁽³⁾ | | .09 | .50 | 1.0 | | 37.0 | | .10 | .05 | .15 | .05 Mg | .20 Mg | active |

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status |
|--|---------------------|---------------------|------|------|------|------|------|------|------|------|------|------|-------------------------|----------------------------------|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | |
| C46400 Naval Brass, Uninhibited | 59.0 ⁽⁸⁾ | 62.0 | | 0.20 | 0.50 | 1.0 | | Rem | | 0.10 | | | | | active |
| C46420 Tin Brass | 61.0 | 63.5 | | 0.20 | 1.0 | 1.4 | | Rem | | 0.20 | | | | | inactive 03/92 |
| C46500 Naval Brass, Arsenical | 59.0 ⁽⁸⁾ | 62.0 | | 0.20 | 0.50 | 1.0 | | Rem | | 0.10 | | | 0.02 As | 0.06 As | active |
| C46600 Tin Brass | 59.0 | 62.0 | | 0.20 | 0.50 | 1.0 | | Rem | | 0.10 | | | 0.02 Sb | 0.10 Sb | inactive 03/92 |
| C46700 Tin Brass | 59.0 | 62.0 | | 0.20 | 0.50 | 1.0 | | Rem | | 0.10 | 0.02 | 0.10 | | | inactive 03/92 |
| C46750 | 59.2 ⁽³⁾ | 62.5 | | .25 | 1.00 | 1.80 | | Rem | | .10 | .05 | .15 | .05 Sb | .50 Ni ⁽¹²⁾ .15 Sb | active |
| C47000 Naval Brass Welding and Brazing Rod | 57.0 ⁽⁸⁾ | 61.0 | | 0.05 | 0.25 | 1.0 | | Rem | | | | | | 0.01 Al | active |
| C47200 Copper Zinc Tin Alloy | 49.0 | 52.0 | | 0.50 | 3.0 | 4.0 | | Rem | | 0.10 | | | | | inactive 07/74 |
| C47600 Tin Brass | 86.0 | 88.0 | 1.8 | 2.2 | 1.8 | 2.2 | | Rem | | 0.05 | 0.03 | 0.07 | 0.05 Mn | 0.15 Mn | inactive 03/92 |
| C47940 | 63.0 ⁽⁸⁾ | 66.0 | 1.0 | 2.0 | 1.2 | 2.0 | | Rem | 0.10 | 1.0 | | | 0.10 Ni ⁽¹²⁾ | 0.50 Ni | active |
| C48200 Naval Brass, Medium Leaded | 59.0 ⁽⁸⁾ | 62.0 | 0.40 | 1.0 | 0.50 | 1.0 | | Rem | | 0.10 | | | | | active |
| C48500 Naval Brass, High Leaded | 59.0 ⁽⁸⁾ | 62.0 | 1.3 | 2.2 | 0.50 | 1.0 | | Rem | | 0.10 | | | | | active |
| C48510 Tin Brass | 59.0 | 62.0 | 1.0 | 2.5 | 0.7 | 1.5 | | Rem | | | | | 0.02 As | 0.25 As | inactive 02/81 |
| C48600 DZR Brass | 59.0 | 62.0 ⁽⁸⁾ | 1.0 | 2.5 | 0.30 | 1.5 | | Rem | | | | | 0.02 As | 0.25 As | active |
| C48640 | 59.0 | 62.0 ⁽³⁾ | 1.0 | 3.0 | 0.50 | 2.0 | | Rem | | 0.40 | 0.05 | 0.25 | | 0.3 Ni | active |
| C48650 Replaced by C48600 | | | | | | | | | | | | | | | inactive 02/81 |

| UNS # | Cu | | Pb | | Sn | | Zn | | Fe | | P | | Other Named Elements | | Status |
|--|-------------------------|-------------------------|------|------|------|------|------|------|------|------|------|------|----------------------|--|-------------------|
| | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | Min% | Max% | |
| C49080 Tin Brass | 49.0 | 52.0 | | 0.50 | 3.0 | 4.0 | | Rem | | | | | | 0.10 Al | inactive 03/92 |
| C49250* Copper-Zinc-Bismuth Copper-Zinc-Bismuth | 58.0 | 61.0 ⁽³⁾ | | 0.09 | | 0.30 | | Rem | | 0.50 | | | 1.8 Bi | 2.4 Bi 0.001 Cd | active |
| C49255 Copper-Zinc-Bismuth | 58.0 ⁽³⁾ | 60.0 | | 0.09 | | 0.50 | | Rem | | 0.10 | | 0.10 | 1.7 Bi 0.02 Se | 0.3 Ni 2.9 Bi 0.0075 Cd 0.10 Si 0.07 Se | active |
| C49260* GEM Brass | 58.0 | 63.0 ⁽³⁾ | | 0.09 | | 0.50 | | Rem | | 0.50 | 0.05 | 0.15 | 0.50 Bi | 1.8 Bi 0.001 Cd 0.10 Si | active |
| C49265 Low Leaded GEM Brass | 58.0 ⁽¹³⁾⁽³⁾ | 62.0 | 0.09 | 0.25 | | 0.50 | | Rem | | 0.30 | 0.05 | 0.12 | 0.50 Bi | 1.3 Bi 0.001 Cd 0.10 Si | active |
| C49300* Lead-Free Bismuth Alloy Lead-Free | 58.0 ⁽³⁾ | 62.0 | | 0.09 | 1.0 | 1.8 | | Rem | | 0.10 | | | 0.5 Bi | 0.3 Ni 2.5 Bi 0.0075 Cd 0.50 Sb 0.10 Si 0.20 Se | active |
| C49340* GEM Brass | 60.0 | 63.0 ⁽³⁾⁽¹³⁾ | | 0.09 | 0.50 | 1.5 | | Rem | | 0.12 | 0.05 | 0.15 | 0.50 Bi | 2.2 Bi 0.001 Cd 0.10 Si | active |
| C49345 Low Leaded GEM Brass | 60.0 | 64.0 ⁽³⁾⁽¹³⁾ | 0.09 | 0.25 | 0.50 | 1.5 | | Rem | | 0.30 | 0.05 | 0.12 | 0.50 Bi | 1.3 Bi 0.001 Cd 0.10 Si | active |
| C49350* Bismuth Brass Alloy | 61.0 ⁽³⁾ | 63.0 | | 0.09 | 1.5 | 3.0 | | Rem | | 0.12 | 0.04 | 0.15 | 0.50 Bi 0.02 Sb | 2.5 Bi 0.10 Sb 0.30 Si | active |
| C49355* Copper Zinc Bismuth Alloy | 63.0 ⁽³⁾ | 69.0 | | 0.09 | 0.50 | 2.0 | 27.0 | 35.0 | | 0.10 | | | 0.50 Bi 1.0 Si | 0.001 B 1.5 Bi 0.10 Mn 2.0 Si | active |
| C49360* Tin-Eco(bismuth) | | Rem ⁽³⁾ | | 0.09 | 1.0 | 2.0 | 19.0 | 22.0 | | | | | 0.50 Bi 2.0 Si | 1.5 Bi 3.5 Si | active |

* = are alloys registered with the U.S. EPA as Antimicrobial.

(1) = Cu + Sum of Named Elements 99.8% min.

(2) = Cu + Sum of Named Elements 99.7% min.

(3) = Cu + Sum of Named Elements 99.5% min.

(4) = Cu + Sum of Named Elements 99.3% min.

(5) = For optimum DZR properties , Zn should not exceed 38%.

(6) = P may be substituted for As.

(7) = Cu + Sum of Named Elements 99.1% min.

(8) = Cu + Sum of Named Elements 99.6% min.

(9) = For flat products, the iron shall be 0.10% max.

(10) = Cu, 61.0% min. for rod.

(11) = Pb may be reduced to 1.0% by agreement.

(12) = Ni value includes Co.

(13) = Cu value includes Ag.

(14) = Includes Co.

(15) = Te + Se 0.006% max.

(16) = For tubular products, the minimum Sn content may be 0.9%.

(17) = Includes Lanthanum 0.01-0.08