



TECHNICAL DATA SHEET

PRODUCT: COPPER ALLOY UNS-C21000

PRODUCT BASIC INFORMATION:

Alloy:	UNS-C21000	Gilding Brass
Form:	--	
Temper:		--
Dimension:	--	
Surface Finish:	--	
Similar Alloys:	UNS C40500 – UNS C87200 – UNS C19800 – UNS C83300 – UNS C87610 – UNS C41500	
Application:	General Use	

CHEMICAL COMPOSITION:

Element		Percentage (%)
Aluminum	(Al)	--
Silicon	(Si)	--
Iron	(Fe)	0.05 max
Copper	(Cu)	94.0 – 96
Manganese	(Mn)	--
Magnesium	(Mg)	--
Lead	(Pb)	0.05 max
Zinc	(Zn)	balance
Titanium	(Ti)	--
Remainder Each		--
Remainder Total		--

MECHANICAL PROPERTIES:

Properties	Metric	Imperial
Tensile strength	420 MPa	60900 psi
Tensile Strength, Yield	380 MPa	55100 psi
Elongation	4%	4%
Elastic modulus	115 GPa	16700 ksi
Shear Modulus	43 MPa	6236 psi
Fatigue Strength	--	--

PHYSICAL DATA :

	Metric Units	Imperial Unit
Melting Point (Liquidus)	1065 °C	1950 °F
Melting Point (Solidus)	993 °C	1820 °F
Density	8.86 g/cc @ 20°C	0.320 lb/in ³ @ 68°F
Specific Gravity	8.86	8.86
Coefficient of Thermal Expansion	18 µm/m°C	10 µin/in°F
Thermal Conductivity	234 W/mK @ 20°C	1620 BTU in/hr.ft ² .°F @ 68°F
Thermal Capacity (Specific Heat):	--	-
Electrical Conductivity	56%	IACS
Electrical Resistivity:	0.00000244 Ω.cm @ 20°C	--
Modulus of Elasticity (tension)	115 GPa @ 20°C	16700 ksi
Modulus of Rigidity (torsion)	44 GPa @ 20°C	6400 ksi
Poisson's Ratio	0.33	0.33

PROCESSING PROPERTIES:

	METRIC	ENGLISH
Annealing Temperature:	425 – 800 °C	797 - 1470 °F
Hot-Working Temperature:	750 - 875 °C	1380 - 1610 °F
Recrystallization Temperature:	370 °C	698 °F

DESCRIPTIVE PROPERTIESD:

	METRIC	ENGLISH
Velocity of Sound:	3780 m/s	--

OTHER PROPERTIES:

Typical Applications	Coinage, Medals, Electrical switches and receptacles, Radiator cores, Fasteners and eyelets, Fuse clips, Jewelry, Architectural components, Deep drawing applications, etc.
Machinability	The machinability of copper UNS C21000 alloy is rated at 20.
Weldability	Welding methods such as soldering and brazing are ideal for this alloy. However, butt welding, oxyacetylene welding and gas shielded arc welding can also be used. Methods like coated metal arc welding, spot welding and seam welding are not recommended.
Heat Treatment	C21000 Copper does not require heat treatment to achieve its desirable properties. However, it can be annealed to soften it and make it easier to work with.
Hot Working	Copper UNS C21000 alloy has good hot working abilities, which include coining, drawing, blanking, piercing and punching, shearing, spinning, squeezing, and swaging, and stamping.
Cold Working	Copper UNS C21000 alloy has excellent cold working properties.
Annealing	Copper UNS C21000 alloy is annealed at temperatures ranging between 427 and 788°C (800 and 1450 °F).
Forging	The forging temperature for copper UNS C21000 alloy ranges between 760 and 871°C (1400 and 1600° F).
Hardening	--

<u>Product</u>	<u>Specification</u>
Bar	ASTM - B36/B36M - BRASS PLATE, SHEET, STRIP AND ROLLED BAR
	SAE - J463 - WROUGHT COPPER AND COPPER ALLOYS
	SAE - J461 - WROUGHT AND CAST COPPER ALLOYS
Plate	ASTM - B36/B36M - BRASS PLATE, SHEET, STRIP AND ROLLED BAR
Rod, Bar & Shapes	ASTM - B927/B927M - BRASS ROD, BAR, AND SHAPES
Sheet	ASTM - B36/B36M - BRASS PLATE, SHEET, STRIP AND ROLLED BAR
	SAE - J461 - WROUGHT AND CAST COPPER ALLOYS
	SAE - J463 - WROUGHT COPPER AND COPPER ALLOYS
Strip	ASTM - B36/B36M - BRASS PLATE, SHEET, STRIP AND ROLLED BAR
	SAE - J461 - WROUGHT AND CAST COPPER ALLOYS
	SAE - J463 - WROUGHT COPPER AND COPPER ALLOYS
Tube	ASTM - B587 - WELDED BRASS TUBE
Wire	ASTM - B134/B134M - BRASS WIRE

APPLICATIONS

Principal Design Features	C21000 Copper is an essential metal used in various industries due to its unique physical and mechanical properties. It is a high-strength copper alloy that offers excellent corrosion resistance, making it ideal for applications in harsh environments. It is crucial to ensure optimal performance in different applications to understand their composition, physical properties, mechanical properties, uses, hardness, heat treatment, welding, and corrosion resistance.
----------------------------------	---

PACKAGING, HANDING & STORAGE:

Package:	Packed in waterproof Kraft, fastened by steel straps on wood pallets, suitable for handling, loading and unloading from the trunks or containers, suitable for export ocean forwarding.
Handling:	Prevent the goods hurting the people who are moving, loading, unloading, especially pay attention to the rolling and dropping for the coils.
Storage:	Stored in indoor area on plain floor, free away from moisture, water, snow, animal oils and dye wastes, avoid storing with acid or basic chemical goods.

