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PRODUCT DATA SHEET

Engraving Brass Alloy 370

Copper Alloys

UNS C37000

Also known as Free-cutting Muntz Metal

Composition, AS2738.2 - 1984, Compositions & designations

Copper		Lead		Iron	Zinc
Min	Max	Min	Max	Max	
59.0	62.0	0.9	1.4	0.15	Remainder

Equivalent Alloy Specifications

Specification	Designation
UNS	C37000
ISO	CuZn39Pb1
BSI	-

Australian Product Specifications

Specification	Product Form
AS1566	Rolled flat products
AS2738	Compositions & designations

Mechanical Properties

	Units	Annealed (Soft)	Hard	Quarter hard	Half hard	Three Quarter hard	Extra hard	
		O3	H	¼H	½H	¾H	EH	
AS1567, Rolled flat products	Tensile Strength	MPa	310*	570	-	-	510	-
	minimum							
	Elongation	%	25*	3	-	-	5	-
	minimum							
	Hardness	HV	85	140 -	80 - 100	110 -	130 -	150 -
	maximum			165		140	150	170

Notes: 1. Properties marked * are typical, for information only
2. Annealed and hard tempers are available from stock. Other tempers available for sufficient quantity on request.

Available Forms Austral Wright Metals can supply this alloy as plate, coil, sheet

General Description Engraving brass is traditionally used for machine engraved name plates due to its combination of high strength and free machining characteristics. It is an alpha / beta brass with a duplex structure which renders it unsuitable for acid etched work, for which the single phase brasses such as C26000 (70/30 brass) are preferable.

C37000 weathers to the warm brown bronze tone which is desirable for name plates.

C35600 is also available, with higher (2–3%) lead content for even better free cutting properties.

Typical applications are engraved name plates and plaques, appliance trim, clock components, builders hardware, gear meters, free machining sheet and plate.

PHYSICAL PROPERTIES

Property	Metric Units	Imperial Units
Melting Point (Liquidus)	900°C	1650°F
Melting Point (Solidus)	885°C	1630°F
Density	8.41 gm/cm ³ @ 20°C	0.304 lb/in ³ @ 68°F
Specific Gravity	8.41	8.41
Coefficient of Thermal Expansion	20.8 x 10 ⁻⁶ /°K (20 - 300°C)	11.6 x 10 ⁻⁵ /°F (68 - 572°F)
Thermal Conductivity	121 W/m.°K @ 20°C	69 BTU/ft ³ /ft/hr/°F @ 68°F
Thermal Capacity (Specific Heat)	377 J/kg.°K @ 20°C	0.09 BTU/lb/°F @ 68°F
Electrical Resistivity (Annealed)	6.39 microhm.cm @ 20°C	38.4 ohms (circ mil/ft) @ 68°F
Electrical Conductivity (Annealed)	0.156 microhm ⁻¹ .cm ⁻¹ @ 20°C	27% IACS
Modulus of Elasticity (tension)	105 GPa @ 20°C	15.0 x 10 ⁶ psi @ 68°F
Modulus of Rigidity (torsion)	39 GPa @ 20°C	5.6 x 10 ⁶ psi @ 68°F
Poisson's Ratio	0.34	0.34

FABRICATING PROPERTIES

Cold Working Capacity	Fair
Hot Working Capacity	Good
Hot Working Temperature	625 - 800°C
Annealing Temperature	425 - 600°C
Stress Relieving Temperature	250 - 300°C
Machinability Rating	80% of free cutting brass (C36000)
Polishing/Electroplating Finish	Good

JOINING PROPERTIES

Soldering	Excellent
Brazing	Good
Oxy-Acetylene Welding	Not recommended
Gas Shielded Arc Welding (GTAW/TIG, GMAW/MIG)	Not recommended
Coated Metal Arc Welding (Manual electrodes)	Not recommended
Resistance Welding	Not recommended

Corrosion Resistance

C37000 has good corrosion resistance to weathering and fair resistance to many waters.

C37000 should not be used in contact with ammonia, ammonia compounds or amines, as it may suffer stress corrosion cracking. It is more susceptible to stress corrosion and dezincification than the single phase high copper brasses, but these are seldom a serious problem in atmospheric conditions.

Please consult Austral Wright Metals for advice on your specific application.

Phase Diagram & Mechanical Properties of the Brasses

