



Belmont
METALS INC.

330 Belmont Avenue, Brooklyn, New York 11207

Phone: 718-342-4900 · FAX: 718-342-0175

Email: mail@belmontmetals.com

Website: www.belmontmetals.com

DATA SHEET

**BELMONT ALLOY 4811
COPPER ALLOY NO. 875
(Cast Silicon Brass)**

Copper Alloy No. 875 is a copper-base casting alloy for applications requiring a combination of high strength and good resistance to corrosion. It cannot be hardened or strengthened by heat treatment. Its many applications include valve parts, small propellers, gears and marine components.

Composition:

	<u>Nominal</u>	<u>Range</u>
Silicon	4	3.0-5.0
Zinc	14	12.0-16.0
Iron	-	0.50 max.
Copper	82	99.5 min.*

*Copper + sum of named elements.

Physical Constants:

Density, lb/ cu in.	0.299
Specific gravity	8.27
Solidification range, °F	1680-1510
Specific heat, Btu/lb/°F (at 68°F) (Approx.)	0.09
Thermal coef. Expansion/°F (68-450°F)	10.8 x 10 ⁻⁶
Thermal conductivity, Btu/ ft ² /ft/hr/°F	15.3
Thermal conductivity, % of copper	6.90
Electrical conductivity, % IACS	6.1
Electrical resistivity, microhm-cm	28.4
Modulus of elasticity, psi	15.5 x 10 ⁶

Castability:

Copper Alloy No. 875 has excellent foundry properties. It melts in the range of 1510°F-1680°F. The pouring temperature is 1900°F-2100°F for light castings and 1750°F-1900°F for heavy castings. The patternmaker's shrinkage is 3/16 in. per foot.

When making castings, the alloy should be melted rapidly under a slightly oxidizing atmosphere to a temperature high enough above the desired pouring temperature to allow for the cooling that takes place during tapping, skimming and transport to the molds. Riser requirements are somewhat larger than that required for red brass; in fact, about half way between red brass and manganese bronze or aluminum bronze. The fluidity is excellent and allows the pouring of relatively large thin castings.

Weldability:

This alloy has good weldability by the oxyacetylene and metallic arc methods. In oxyacetylene welding use a slightly oxidizing flame. In metallic arc welding, flux is not required with bare electrodes of the same composition as the parent metal. For best results a short arc (10-25 volts) should be used with a current sufficiently high to permit satisfactory flow of the metal. Copper Alloy No. 875 has excellent suitability for joining by soldering and by brazing.

Corrosion Resistance:

Copper Alloy No. 875 has excellent resistance to many corrosive environments. It will withstand attack from many industrial chemicals, brackish waters, hydraulic fluids, extreme pressure lubricants and most rural, industrial and marine atmospheres. Prolonged contact with mercury compounds, oxidizing acids, cyanides, moist/ hot ammonia gas and should be avoided.

General Characteristics:

Copper Alloy No. 875 is a casting alloy nominally containing 82% copper, 14% zinc and 4% silicon. It has excellent foundry characteristics with good fluidity and pressure tightness. It is characterized by an excellent combination it can be of strength, ductility, temperature stability, corrosion resistance and machinability. It can be joined readily by soldering, brazing and welding. It cannot be hardened by any heat treatment but has high strength by virtue of its alloy content.