



C72500

Copper Nickel Tin

Chemical Composition

(%max., unless shown as range or min.)

	Cu ⁽¹⁾	Fe	Pb	Mn	Ni ⁽²⁾	Sn	Zn
Min./Max.	Rem.	0.6	0.05	0.2	8.5-10.5	1.8-2.8	0.5
Nominal	88.2	-	-	-	9.5	2.3	-

(1) Cu value includes Ag.

(2) Ni value includes Co.

Note: Cu + Sum of Named Elements, 99.8% min.

Applicable Specifications

Product	Specification
Bar	ASTM B122
Plate	ASTM B122
Sheet	ASTM B122
Strip	ASTM B122

Common Fabrication Processes

Blanking, Brazing, Coining, Drawing, Etching, Forming and Bending, Heading and Upsetting, Roll Threading and Knurling, Shearing, Spinning, Squeezing and Swaging, Stamping and Swaging

Millard Wire & Specialty Strip Co.

449 Warwick Industrial Drive • Warwick, RI 02886

Phone: (401) 737-9330 • Fax: (401) 737-9340

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Fair
Gas Shielded Arc Welding	Good
Coated Metal Arc Welding	Good
Spot Weld	Excellent
Seam Weld	Good
Butt Weld	Excellent
Capacity for Being Cold Worked	Excellent
Capacity for Being Hot Formed	Excellent
Machinability Rating	20

Thermal Properties

Treatment	Temp./Time – US	Temp./Time – SI
Stress Temperature		
Solution Minimum		
Solution Maximum		
Solution Time		
Solution Medium	None	
Precipitation Value		
Precipitation Time		
Precipitation Medium	None	
Annealing Minimum	1200	649
Annealing Maximum	1475	802
Annealing Time		
Hot Works Minimum	1550	844
Hot Works Maximum	1750	955



Mechanical Properties

(Measured at Room Temperature, 68°F (20°C))

	Section Size	Cold Work	Typ/Min	Temp	Tensile Strength	Yield Strength (0.5% ext. under load)	Yield Strength (0.2% offset)	Yield Strength (0.05% offset)	EI	Rockwell Hardness				Vickers Hardness	Brinell Hardness	Shear Strength	Fatigue Strength	Izod Impact Strength	
	in. mm.	%		F C	ksi MPa	ksi MPa	ksi MPa	ksi MPa	%	B	C	F	30T	500	500	3000	ksi MPa	ksi MPa	ft-lb J
Wire																			
H14	0.08	99	TYP	68	120	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	2			20	827	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Flat Products																			
H06	0.04	0	TYP	68	87	81	86	-	2	88	-	-	-	-	-	-	-	-	0
	1			20	600	558	593	-	2	88	-	-	-	-	-	-	-	-	0
H00	0.04	0	TYP	68	58	-	43	-	29	65	-	-	60	-	-	-	-	-	0
	1			20	400	-	296	-	29	65	-	-	60	-	-	-	-	-	0
H04	0.04	0	TYP	68	83	75	81	-	3	85	-	-	-	-	-	-	-	-	0
	1			20	572	517	558	-	3	85	-	-	-	-	-	-	-	-	0
H03	0.04	0	TYP	68	77	-	75	-	5	81	-	-	-	-	-	-	-	-	0
	1			20	531	-	517	-	5	81	-	-	-	-	-	-	-	-	0
H01	0.04	0	TYP	68	65	53	58	-	18	71	-	-	-	-	-	-	-	-	0
	1			20	448	365	400	-	18	71	-	-	-	-	-	-	-	-	0
H14	0.04	0	TYP	68	112	83	108	-	1	99	-	-	-	-	-	-	-	-	0
	1			20	772	572	745	-	1	99	-	-	-	-	-	-	-	-	0
Wire																			
H01	0.08	20	TYP	68	80	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	2			20	552	-	-	-	-	-	-	-	-	-	-	-	-	-	0
OS015	0.08	0	TYP	68	60	25	-	-	-	-	-	-	-	-	-	-	-	-	0
	2			20	414	172	-	-	-	-	-	-	-	-	-	-	-	-	0
H06	0.08	75	TYP	68	100	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	2			20	689	-	-	-	-	-	-	-	-	-	-	-	-	-	0
H02	0.08	45	TYP	68	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	2			20	621	-	-	-	-	-	-	-	-	-	-	-	-	-	0
H10	0.08	90	TYP	68	110	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	2			20	758	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Rod																			
H08	0.04	0	TYP	68	91	83	90	-	1	90	-	-	-	-	-	-	-	-	0
	1			20	627	572	621	-	1	90	-	-	-	-	-	-	-	-	0
H02	0.04	0	TYP	68	71	65	69	-	6	78	-	-	-	-	-	-	-	-	0
	1			20	490	448	476	-	6	78	-	-	-	-	-	-	-	-	0
OS015	0.04	0	TYP	68	55	22	22	-	35	42	-	-	44	-	-	-	-	-	0
	1			20	379	152	152	-	35	42	-	-	44	-	-	-	-	-	0

*Fatigue Strength: 100×10^6 cycles, unless indicated as [N]X 10^6 .

Physical Properties

Property	US Customary	Metric
Melting Point - Liquidus	2065° F	1129° C
Melting Point - Solidus	1940° F	1060° C
Density	0.321 lb/in ³ at 68° F	8.89 gm/cm ³ @ 20° C
Specific Gravity	8.89	8.89
Electrical Resistivity	94.30 ohms-cmil/ft @ 68° F	15.68 microhm-cm @ 20° C
Electrical Conductivity	11 %IACS @ 68° F	0.064 MegaSiemens/cm @ 20° C
Thermal Conductivity	31 Btu·ft/(hr·ft ² ·°F) at 68°F	53.7 W/m·°K at 20° C
Coefficient of Thermal Expansion	$9.20 \cdot 10^{-6}$ per °F (68-572° F)	$16.6 \cdot 10^{-6}$ per °C (20-300° C)
Specific Heat Capacity	0.090 Btu/lb/°F at 68° F	377.1 J/kg·°K at 293° K
Modulus of Elasticity in Tension	20000 ksi	138000 MPa
Modulus of Rigidity	7500 ksi	51700 MPa

Tempers Most Commonly Used

Flat Products	
PLATE	M20
SHEET	H00, H01, H02, H03, H04, H06, H08, H10, OS015, OS025, OS035
STRIP, ROLLED	H00, H01, H02, H03, H04, H06, H08, H10, OS015, OS025, OS035, OTHER
WIRE, ROLLED	H10, OS015, OS025, OS035, OTHER

Other	
ROD	H04, OS015, OS025, OS035
TUBE	H55, OS015, OS025, OTHER
WIRE	H04, H06, H08, H10, OS015, OS025, OS035

Typical Uses

Electrical

Electronic Contacts, Telecommunications Connectors, Relays, Switch Springs, Connectors, Lead Frames, Control and Sensing Bellows

Industrial

Brazing Alloy

Casting Characteristics

No casting characteristics available for this alloy.