Specification Sheet

Last Modified: May 13, 2017

C15100

Zirconium Copper

Chemical Composition

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

	Cu[1]	Zr
Min./Max.	99.80 min	.05-.15
Nominal	-	0.1

(1) Cu value includes Ag.

Note: Cu + Sum of Named Elements, 99.9% min.

Applicable Specifications

Product	Specification
Sheet	ASTM B747
Strip	ASTM B888, B747

Common Fabrication Processes

Blanking, Cupping, Deep Drawing, Forming, Piercing, Stamping

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	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Not Recommended
Coated Metal Arc Welding	Not Recommended
Spot Weld	Not Recommended
Seam Weld	Not Recommended
Butt Weld	Good
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		
Annealing Maximum		
Annealing Time		
Hot Works Minimum		
Hot Works Maximum		

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

Temper	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)	El	Rockwell Hardness				Vickens Hardness	Brinell Hardness		Shear Strength	Fatigue Strength	Izod Impact Strength
	in.	%		F	ksi	ksi	ksi	ksi	%	B	C	F	30T	500	500	3000	ksi	ksi	ft-lb
	mm.			C	MPa	MPa	MPa	MPa									MPa	MPa	J
Flat Products																			
H04	0.04	0	TYP	68	57	-	55	-	4	57	-	59	61	-	-	-	-	-	0
	1.02			20	393	-	379	-	4	57	-	59	61	-	-	-	-	-	0
H08	0.04	0	TYP	68	68	-	66	-	2	64	-	-	65	-	-	-	-	-	0
	1.02			20	469	-	455	-	2	64	-	-	65	-	-	-	-	-	0
H06	0.04	0	TYP	68	63	-	61	-	3	62	-	-	64	-	-	-	-	-	0
	1.02			20	434	-	421	-	3	62	-	-	64	-	-	-	-	-	0
H02	0.04	0	TYP	68	47	-	45	-	9	37	-	87	56	-	-	-	-	-	0
	1.02			20	324	-	310	-	9	37	-	87	56	-	-	-	-	-	0
H03	0.04	0	TYP	68	51	-	49	-	6	47	-	90	59	-	-	-	-	-	0
	1.02			20	352	-	338	-	6	47	-	90	59	-	-	-	-	-	0
H01	0.04	0	TYP	68	42	-	37	-	13	30	-	81	48	-	-	-	-	-	0
	1.02			20	290	-	255	-	13	30	-	81	48	-	-	-	-	-	0
OS015	0.04	0	TYP	68	38	-	10	-	36	47	-	-	-	-	-	-	-	-	0
	1.02			20	262	-	69	-	36	47	-	-	-	-	-	-	-	-	0

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

Physical Properties

Property	US Customary	Metric
Melting Point - Liquidus	2008° F	1098° C
Melting Point - Solidus	1886° F	1030° C
Density	0.323 lb/in^3 at 68° F	8.94 gm/cm^3 @ 20° C
Specific Gravity	8.94	8.94
Electrical Resistivity	11.50 ohms-cmil/ft @ 68° F	1.91 microhm-cm @ 20° C
Electrical Conductivity	95 %IACS @ 68 F	0.551 MegaSiemens/cm @ 20° C
Thermal Conductivity	208 Btu·ft/(hr·ft2·°F)at 68°F	360.0 W/m·°K at 20° C
Coefficient of Thermal Expansion	9.80·10^{-6} per °F (68-212° F)	17.6·10^{-6} per °C (20-100° C)
Coefficient of Thermal Expansion	9.80·10^{-6} per °F (68-392° F)	17.6·10^{-6} per °C (20-200° C)
Coefficient of Thermal Expansion	9.80·10^{-6} per °F (68-572° F)	17.6·10^{-6} per °C (20-300° C)
Specific Heat Capacity	0.092 Btu/lb/°F at 68° F	385.5 J/kg·°K at 293° K
Modulas of Elasticity in Tension	17500 ksi	121000 MPa
Modulus of Rigidity	6730 ksi	46400 MPa
Poisson's Ratio	0.3	0.3

Tempers Most Commonly Used

Flat Products	
SHEET	H01, H02, H03, H04, H06, H08, OS015
STRIP, ROLLED	H01, H02, H03, H04, H06, H08, OS015

Typical Uses

Electrical

Electronic Circuits, Electrical Connectors, Lead Frames, Switches, Switch Blade Jaws, Commutators for Power Transmitters, Basses for Power Transmitters, Rectifiers, Soldering and Welding Tips, Circuit Breakers, High Temperature

Casting Characteristics

No casting characteristics for this alloy.