



C51900

Chemical Composition

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

	Cu	Fe	Pb	P	Sn	Zn
Min./Max.	Rem.	0.1	0.05	.03-.35	5.0-7.0	0.3
Nominal	93.8	-	-	0.2	6	-

Note: Cu + Sum of Named Elements, 99.5% min.

Applicable Specifications

Product	Specification
Bar, Rolled	ASTM B103
Plate	ASTM B103
Sheet	ASTM B103
Strip	ASTM B103

Common Fabrication Processes

No information available.

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Fair
Gas Shielded Arc Welding	Good
Coated Metal Arc Welding	Poor
Spot Weld	Good
Seam Weld	Poor
Butt Weld	Excellent
Capacity for Being Cold Worked	Excellent
Capacity for Being Hot Formed	Poor
Machinability Rating	2

Millard Wire & Specialty Strip Co.

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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	700	371
Annealing Maximum	1350	733
Annealing Time		
Hot Works Minimum		
Hot Works Maximum		

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)	EI	Rockwell Hardness				Vickers Hardness	Brinell Hardness			Shear Strength	Fatigue Strength	Izod Impact Strength
										B	C	F	30T		500	500	3000			
	in.	%		F	ksi	ksi	ksi	ksi	%								ksi	ksi	ft-lb	
	mm.			C	MPa	MPa	MPa	MPa									MPa	MPa	J	
Flat Products																				
H04	0.005	0	TYP	68	88	-	85	-	13	-	-	-	-	-	-	-	-	-	0	
	0.127			20	607	-	586	-	13	-	-	-	-	-	-	-	-	-	0	
HR08	0	0	TYP	68	107	-	95	-	10	-	-	-	-	-	-	-	-	-	0	
	0			20	738	-	655	-	10	-	-	-	-	-	-	-	-	-	0	
H10	0	0	TYP	68	111	-	106	-	2	-	-	-	-	-	-	-	-	-	0	
	0			20	765	-	731	-	2	-	-	-	-	-	-	-	-	-	0	
HR10	0	0	TYP	68	111	-	97	-	9	-	-	-	-	-	-	-	-	-	0	
	0			20	765	-	669	-	9	-	-	-	-	-	-	-	-	-	0	
H02	0	0	TYP	68	72	-	63	-	25	-	-	-	-	-	-	-	-	-	0	
	0			20	496	-	434	-	25	-	-	-	-	-	-	-	-	-	0	
OS010	0.005	0	TYP	68	55	-	-	-	45	-	-	-	-	-	-	-	-	-	0	
	0.127			20	379	-	-	-	45	-	-	-	-	-	-	-	-	-	0	
H08	0	0	TYP	68	107	-	103	-	4	-	-	-	-	-	-	-	-	-	0	
	0			20	738	-	710	-	4	-	-	-	-	-	-	-	-	-	0	
HR06	0	0	TYP	68	100	-	89	-	12	-	-	-	-	-	-	-	-	-	0	
	0			20	689	-	614	-	12	-	-	-	-	-	-	-	-	-	0	
H06	0	0	TYP	68	100	-	96	-	6	-	-	-	-	-	-	-	-	-	0	
	0			20	689	-	662	-	6	-	-	-	-	-	-	-	-	-	0	
HR02	0	0	TYP	68	72	-	58	-	30	-	-	-	-	-	-	-	-	-	0	
	0			20	496	-	400	-	30	-	-	-	-	-	-	-	-	-	0	
HR04	0	0	TYP	68	88	-	77	-	17	-	-	-	-	-	-	-	-	-	0	
	0			20	607	-	531	-	17	-	-	-	-	-	-	-	-	-	0	
OS015	0	0	TYP	68	56	-	29	-	45	-	-	-	-	-	-	-	-	-	0	
	0			20	386	-	200	-	45	-	-	-	-	-	-	-	-	-	0	
OS025	0	0	TYP	68	53	-	28	-	56	-	-	-	-	-	-	-	-	-	0	
	0			20	365	-	193	-	56	-	-	-	-	-	-	-	-	-	0	
OS035	0	0	TYP	68	52	-	27	-	61	-	-	-	-	-	-	-	-	-	0	
	0			20	358	-	186	-	61	-	-	-	-	-	-	-	-	-	0	
OS050	0	0	TYP	68	50	-	26	-	66	-	-	-	-	-	-	-	-	-	0	
	0			20	345	-	179	-	66	-	-	-	-	-	-	-	-	-	0	

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



Physical Properties

Property	US Customary	Metric
Melting Point - Liquidus	1900 F	1040 C
Melting Point - Solidus	1700 F	930 C
Density	0.319 lb/in ³ at 68 F	8.84 gm/cm ³ @ 20 C
Specific Gravity	8.84	8.84
Electrical Resistivity	74 ohms-cmil/ft @ 68 F	12.2 microhm-cm @ 20 C
Electrical Conductivity	14 %IACS @ 68 F	0.081 MegaSiemens/cm @ 20 C
Thermal Conductivity	38 Btu · ft/(hr · ft ² · °F) at 68F	65.8 W/m · °K at 20 C
Coefficient of Thermal Expansion	10 · 10 ⁻⁶ per °F (68-212 F)	18.0 · 10 ⁻⁶ per °C (20-100 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	16000 ksi	110300 MPa
Modulus of Rigidity	6000 ksi	41370 MPa

Tempers Most Commonly Used

No information available.

Typical Uses

Electrical

Electronic Connectors, Electrical Flexing Contact Blades, Electrical Connectors

Casting Characteristics

No casting characteristics for this alloy.