

# CuSn0.15

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Comparable standards: UNS C14415 • EN CW117C  
 Aurubis designations: C14415 • SM 0702 • CuSn0.15 • PNA 216

**Description** CuSn0.15 is solid solution strengthened by a small tin addition. It has increased strength as well as good electrical (min. 81% IACS) and thermal conductivity. Moreover the alloy exhibits an increased temperature stability compared to highest conductive copper alloys. The alloy can be well formed, exhibits a good corrosion resistance and is suited for soldering, brazing and welding. Fields of application are automotive, electrical engineering, leadframes and plug-in connector pins.

**Composition**

Cu	Sn
[%]	[%]
rem	0.10-0.15

Composition of this alloy is in accordance with RoHS for electric & electronic components and ELV for the automotive industry.

**Physical properties**

Melting point	Density	c <sub>p</sub> @ 20°C	Young's modulus	Thermal cond.	Electrical cond.		α @20-300°C
					[MS/m]	[%IACS]	
[°C]	[g/cm <sup>3</sup> ]	[kJ/kgK]	[GPa]	[W/mK]			[10 <sup>-6</sup> /K]
1081	8.93	0.385	130	340	≥ 47	≥81	17.3

Note: The specified conductivity applies to the soft condition only.

c<sub>p</sub> specific heat capacity  
 α coefficient of thermal expansion

**Mechanical properties**

	Tensile Strength	Yield Strength	Elongation A <sub>50</sub>	Hardness HV	Bend ratio 90° [r]		Bend ratio 180° [r]	
					GW	BW	GW	BW
	[MPa]	[MPa]	[%]	[-]				
R250	250-320	≥ 200	≥ 9	60-90	0	0	0	0
R300	300-370	≥ 250	≥ 4	85-110	0	0		
R360	360-430	≥ 300	≥ 3	105-130	0	0		
R420	420-490	≥ 350	≥ 2	120-140	1	1		

r = x \* t (thickness t ≤ 0.5mm)  
 GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction.

**Fabrication properties**

Cold formability	excellent
Hot formability	excellent
Soldering	excellent
Brazing	excellent
Oxyacetylene welding	fair
Gas shielded arc welding	good
Resistance welding	not recommended
Machinability	not recommended

**Electrical conductivity**

The electrical conductivity depends on chemical composition, the level of cold deformation and the grain size. A high level of deformation as well as a small grain size decrease the conductivity.

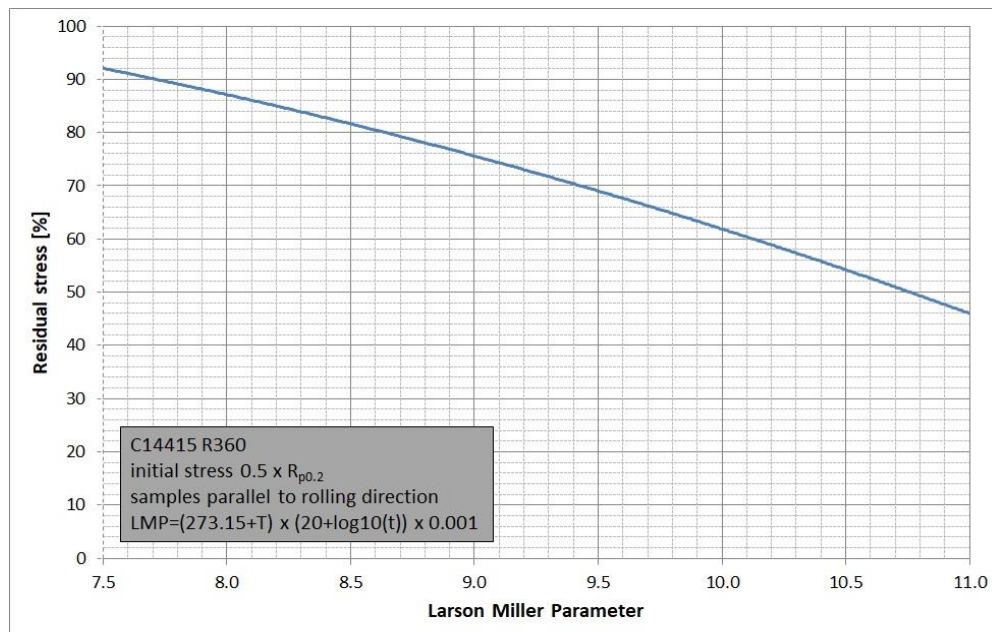
**Corrosion Resistance**

Copper is resistant to: Natural and industrial atmospheres as well as maritime air, drinking and service water, non oxidizing acids, alkaline solutions and neutral saline solutions.  
 Copper is not resistant to: Ammonia, halogenide, cyanide and hydrogen sulfide solutions and atmospheres, oxidizing acids and sea water (especially at high flow rates).  
 CuSn0.15 has an improved resistance to pitting- and erosion corrosion compared to Cu-DHP.

**Typical uses**

Automotive, components of electrical engineering, connectors, leadframes

**Relaxation Behaviour**



Stress relaxation data shown as residual stress against Larson Miller Parameter. The Larson Miller Parameter represents temperature and time.  
 Test method: Mandrel test according to ASTM E328.

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