

Wieland-K42

CuZn0.5 | CW119C

CuZn0.5 is a micro-alloyed copper that has largely the same physical and mechanical properties as pure coppers but with less requirements on purity. This makes the alloy a preferred candidate for use in the construction industry for roofing applications where its excellent corrosion resistance is a valuable contribution to sustainability. CuZn0.5 is also used for various metal goods and in the apparatus industry.

Chemical composition (Reference)

Zn	0.7 %
Cu	remainder

Physical properties (Reference values at room temperature)

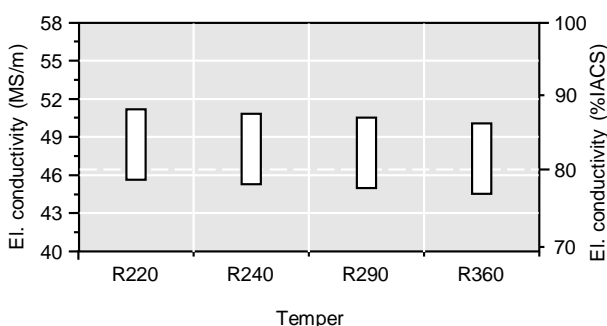
Electrical conductivity	48 MS/m	83 %IACS
Thermal conductivity	350 W/(m·K)	202 Btu·ft/(ft ² ·h·°F)
Coefficient of electrical resistance*	3.2 10 ⁻³ /K	1.8 10 ⁻³ /°F
Coefficient of thermal expansion*	17.7 10 ⁻⁶ /K	9.8 10 ⁻⁶ /°F
Density	8.90 g/cm ³	0.322 lb/in ³
Modulus of elasticity	115 GPa	17,000 ksi
Specific heat	0.386 J/(g·K)	0.092 Btu/(lb·°F)
Poisson's ratio	0.34	0.34

* Between 0 and 300 °C

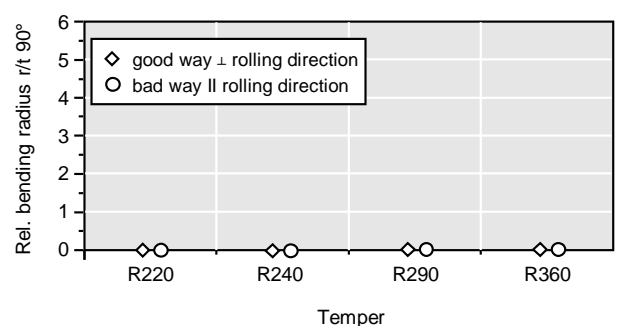
Mechanical properties (values in brackets are for information only)

Temper	Tensile strength R _m		Yield strength R _{p0.2}		Elongation A ₅₀ %	Hardness HV
	MPa	ksi	MPa	ksi		
R220	220-260	32-38	≤ 140	≤ 20	≥ 33	(45-70)
R240	240-300	35-44	≥ 180	≥ 26	≥ 8	(65-95)
R290	290-360	42-52	≥ 250	≥ 36	-	(85-115)
R360	≥ 360	≥ 52	≥ 320	≥ 46	-	(≥ 110)

Electrical conductivity



Bendability (Strip thickness t ≤ 0.5 mm)



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Fatigue strength

The fatigue strength is defined as the maximum bending stress amplitude which a material withstands for 10^7 load cycles under symmetrical alternate load without breaking. It is dependent on the temper tested and is about 1/3 of the tensile strength R_m .

Types and formats available

- Standard coils with outside diameters up to 1,400 mm
- Traverse-wound coils with drum weights up to 1.5 t
- Multicoil up to 5 t
- Hot-dip tinned strip
- Contour-milled strip

Dimensions available

- Strip thickness from 0.10 mm, thinner gauges on request
- Strip width from 3 mm, however min. 10 x strip thickness

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