



## EMH-Copper Tubes in CuFe2P

**CuFe2P** is a high-copper alloy combining average electrical and thermal conductivity with average strength. Good hardening is achieved by finely dispersed iron precipitation in the structure.

Because of these properties this alloy is used for electronic devices such as contacts and circuit elements.

### Chemical Composition \*

Cu	balance
Fe	2.25 %
P	0.02 %

\* Standard values in % by weight

### Material Description

EN	CuFe2P, CW107C
UNS	C19400
DIN*	CuFe2P, 2.1310
BS*	not standardized
NF*	not standardized

\* former national standards

### Physical Properties \*

#### Electrical conductivity

MS/m	35
% IACS	60

#### Thermal conductivity

W/(m*K)	260
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#### Thermal expansion coefficient

(0 – 300 °C) 10 <sup>-6</sup> /K	17.6
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#### Density

g/cm <sup>3</sup>	8.91
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#### Modulus of elasticity

GPa	123
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\* Standard values at room temperature  
1 GPa = 1 kN/mm<sup>2</sup>  
1 MS/m = 1 m/Ω · mm

### Processing Properties

#### Forming

Machinability (CuZn39Pb3 = 100%)	25 %
Cold forming	excellent
Hot forming	fair

#### Joining

Resistance welding	good
Inert gas shielded arc welding	excellent
Hard soldering	excellent
Soft soldering	excellent

#### Surface Treatment

##### Polishing

mechanical	good
electrolytical	fair

##### Electroplating

good

### Heat Treatment

Melting point	1,080 – 1,090 °C
Hot forming	800 – 900 °C
Soft annealing	450 – 700 °C, 1-3 h
Thermal stress-relieving	200 – 300 °C, 1-3 h

### Corrosion Resistance

Pure copper and high-copper alloys generally show good corrosion resistance due to their inert character and are practically insensitive to stress corrosion cracking.

### Mechanical Properties (attainable values, depending on the dimension and form)

Standard values	from (soft)	to (hard)
R <sub>m</sub> [MPa]	300	550
R <sub>p0.2</sub> [MPa]	140	510
A <sub>5</sub> [%]	25	3
HB	25	150

