

## Cu-Fe 2 P

## OLIN COPPER 194

### CHEMICAL COMPOSITION :

Iron	2.40%
Phosphorus	0.03%
Zinc	0.12%
Copper	balance

### ALLOY DENOMINATIONS :

MATERIAL N° EN :	CW107
WN/MATERIAL N° DIN :	2.1310
ROBERT LAMINAGE :	130
EN :	Cu-Fe2P
DIN :	Cu-Fe2P
AFNOR :	Cu-Fe2P
UNS* :	C 19400

\*Unified Numbering System (USA)

### PHYSICAL PROPERTIES :

Density 20° C	8.78	Kg/dm <sup>3</sup>
Melting point	~ 1100	°C
Modulus of elasticity, longitudinal	123	GPa
Thermal Conductivity	280	W/M . K
Electrical Conductivity	≥ 35	M/Ω mm <sup>2</sup>
Electrical resistivity	≤ 0.02857	Ω mm <sup>2</sup> /M
Coefficient of linear expansion from 20 up to 300°C	17.6 x 10 <sup>-6</sup>	K-1
IACS (International Annealed Copper Standard)	≥ 60	%

### WORKABILITY :

Coldworking	Very good
Hotworking	Good (750-950°C)
Machining	Poor
Soldering, brazing	Very good
Tin soldering	Good
Polishing	Good
Annealing temperature	350-500°C
Stress relieving heat treatment temperature	150-200°C

### MAIN APPLICATIONS :

Various electrical components,  
Collector strips, conductors  
Deep drawing, stamping

### CONDITIONING :

- In coils
- Cut to length, from 0.5 up to 3 m

### AVAILABLE SIZES :

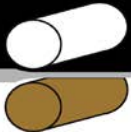
Widths	from 2 up to 350mm
Thickness	from 0.01up to 2.5mm

### TOLERANCES :

Depending on product

### QUALITY OF EDGES :

Slit edges



**MECHANICAL PROPERTIES :**

**Cu-FE 2 P**

**EN NORM 1758**

TEMPER	THICKNESS		Rm (MPa)		ELONGATION A50 % min	Vickers HARDNESS		GRAIN SIZE
			min	max		min	max	
R370*) H120*)	0.10	2.0	370	430	6	-	-	-
			-	-	-	120	140	-
R420 H130	0.10	2.0	420	480	3	-	-	-
			-	-	-	130	150	-
R470 H140	0.10	1.0	470	530	-	-	-	-
			-	-	-	140	160	-
R520 H150	0.10	1.0	520	580	-	-	-	-
			-	-	-	150	170	-

(For reference only)

**AFNOR NORM**

TEMPER	Vickers HARDNESS		Rm (MPa)		Rp 0.2 (Mpa)	ELONGATION 0.10 up to 2.5 mm A50 % min
	min	max	min	max		
annealed	90	120	330	390	< 240	28
H12	120	140	370	430	> 330	4
H14.1	140	160	470	530	> 440	-

**ASTM NORM B 465**

TEMPER	THICKNESS	Rm (MPa)		Rp 0.2 (Mpa)	ELONGATION A10 % min	Brinell* HARDNESS
		min	max			
annealed	0.20-2.50	300	360	< 300	> 27	85
		-	-			
1/2 hard	0.15-2.00	360	430	> 300	> 10	110
		-	-			
hard	0.15-1.70	410	480	> 370	> 4	130
		-	-			
spring	0.10-1.00	480	550	> 450	> 2	140
		-	-			
double spring	0.10-0.80	550*	-	> 520	> 1	150
		-	-			

\* approximate reference