

# CuCr<sub>1</sub>Zr

## Cu-based Alloy Powder for Additive Manufacturing 90/45 μm, Gas Atomized Designed for LMD

**Chemical composition similar to DIN 17666 2.1293, CW106C, UNS.C18150**

### DESCRIPTION

MA-CuCr<sub>1</sub>Zr-3-GA is a gas atomized copper alloy powder engineered for Additive Manufacturing (AM). This high-performance precipitation-hardened alloy delivers an excellent combination of electrical and thermal conductivity with enhanced mechanical strength.

The material exhibits outstanding thermal stability and resistance to softening, ensuring consistent performance under prolonged high-temperature conditions. CuCr<sub>1</sub>Zr is ideally suited for applications that demand high conductivity, strength retention, and durability under thermal and mechanical loads. Its balanced set of properties makes it a preferred material across industries requiring efficient heat and electrical transfer with reliable structural integrity.

### KEY PROPERTIES

- High electrical conductivity
- High thermal conductivity
- Good softening resistance at elevated temperatures

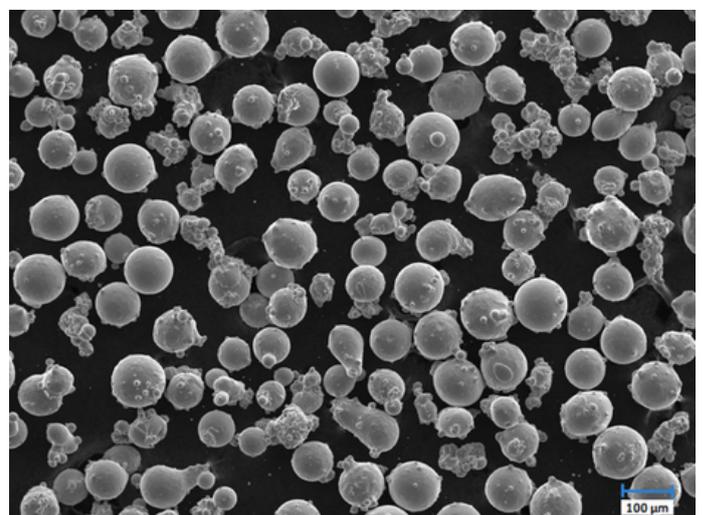
### APPLICATIONS

- Resistance welding electrodes
- Electrical connectors
- Soft soldering, brazing
- Heat dissipation components

### POWDER CHEMICAL COMPOSITION

Element	Min. (wt%)	Max. (wt%)
Cu	-	Bal.
Cr	0.50	1.50
Zr	0.02	0.30
Si	-	0.10
Fe	-	0.10

### SEM IMAGE



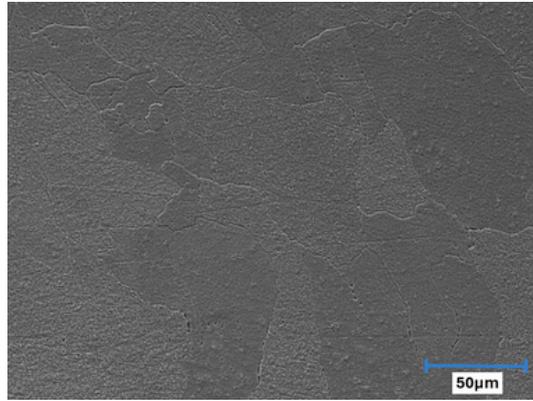
## POWDER PROPERTIES (ISO 4490, ISO 3923-1)

Particle Size Distribution ( $\mu\text{m}$ )	Hall Flow (s/50g)	Apparent Density (g/cm <sup>3</sup> )
45 - 90	16.8	5.20

## MICROGRAPHS



Polished Surface



Microstructure

## PHYSICAL PROPERTIES (ISO 3369)

### Average Defect Percentage (%)

< 0.10

## MELTING POINT

### Celsius (°C) Fahrenheit (°F)

1070 - 1080

1958 - 1976

## HARDNESS

### HV<sub>0.5</sub>

112

## MECHANICAL PROPERTIES (ISO 6507-1, ISO 6508-1)

Orientation	Ultimate Tensile Strength (MPa)	0.2% Yield Stress (MPa)	Elongation at break (%)
Horizontal	384	297	14
Vertical	317	247	27

## PROCESS INFORMATION:

The properties reported in this Technical DataSheet are applicable to Makino AM powders tested and distributed by Makino and processed on Makino LMD machine utilizing parameters in accordance with relevant operating guidelines (inclusive of setup conditions and maintenance). The properties are obtained by following recommended protocols. Further information regarding the methods used by Makino can be provided upon inquiry.

## DISCLAIMER:

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## CONTACT US:

Our Safety Datasheet (SDS) is available upon request. For more information or support please contact Makino at [sales-am@makino.com.sg](mailto:sales-am@makino.com.sg) or visit [www.makino.com.sg](http://www.makino.com.sg)

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