Copper Alloy GRCop-42

GRCop-42 · Cu-Cr-Nb

Dispersion-strengthened Cu-Cr-Nb powder for rocket combustion chambers, nozzles, and high-heat-flux heat exchangers.

Designations: GRCop-42 · Cu-4Cr-2Nb · Cu-Cr-Nb alloy

Supply

Item	Value
Particle-size cuts	15–45 µm · 15–53 µm
Processes	LPBF
Minimum pack	1 kg (paid samples)
Packaging	Aluminium-foil bag · 1 kg sealed pack · Drum
Documents	Lot-specific COA · Particle-size report · Safety data sheet · Chemistry report
List price	Price on request

Chemical composition, wt.%

Element	Limit
Cu	Balance
Cr	3.1–3.4
Nb	2.7–3.0
O	≤0.04
Fe	<0.005
Si	<0.01
Al	<0.01

Typical partner-plant datasheet limits, wt.%. The quoted lot COA governs.

Powder properties · LPBF screening window

Property	Value	Note
D10	≥15 µm	
D50	30–40 µm	
D90	≤60 µm	
Sphericity	≥0.90	Method to be confirmed
Apparent density	≥4.3 g/cm³	
Tap density	≥5.0 g/cm³	
Flow	≤25 s/50 g	Method and conditioning to be confirmed

A partner-plant datasheet screening basis for this grade; the delivered lot COA remains controlling.

Typical mechanical properties

Condition	Temperature	Tensile	Yield	Elongation	Note
Heat treated	Room temperature	≥350 MPa	≥180 MPa	≥30%	Thermal conductivity ≥330 W/(m·K), ≥85% IACS per datasheet

Partner-plant datasheet values for LPBF test bars at room temperature unless stated. Printed-part properties depend on machine, parameters, orientation, and post-processing.

Related Cu-Cr-Nb powder from a second partner

Item	Value
Cr	3.0–3.5 wt.%
Nb	2.0–3.0 wt.%
Fe, Si (each)	<0.01 wt.%
O	<0.05 wt.%
Apparent density	≥4.50 g/cm³
Flow	≤25 s/50 g

Datasheet window of a second partner's Cu-Cr-Nb powder developed for rocket propulsion parts. Its Nb range is wider and lower than the GRCop-42 chemistry on this page, so treat it as a related alloy and confirm the governing chemistry before quoting.

Typical values, not a lot certificate. The certificate of analysis for the quoted lot governs. Formal quotations and commercial terms are valid only when issued from our official corporate email.

Request a quote: https://metal3dpowder.com/rfq/?product=grcop-42 · Grade page: https://metal3dpowder.com/products/grcop-42/
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