CARPENTER ADDITIVE®

DATASHEET

PowderRange GRCop-42

Type analysis

Single figures are nominal except where noted.

Copper	Balance	**Chromium**	3.1–3.4%	**Niobium**	2.7–3.0%
Aluminum	0.06 %	**Oxygen**	0.04%	**Silicon**	0.035%
Iron	0.025 %				

Description

GRCop-42 is a copper-chromium-niobium, high-performance alloy with high thermal conductivity, excellent creep resistance, low-cycle fatigue life, and the ability to retain strength at elevated temperatures.

GrCop-42 is the preferred alloy for space flight companies in the production of components for liquid rocket engines and other combustion devices.

Key Properties:

- High thermal conductivity
- Excellent creep resistance
- Low-cycle fatigue life
- Strength retention at elevated temperatures

Markets:

- Aerospace
- Defense

Applications:

- Liquid rocket engine components

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NASA references (publicly available)

Three-Dimensional Printing GRCop-42

GRCop-42 Development and Hot-fire Testing Using Additive Manufacturing Powder Bed Fusion for Channel-Cooled Combustion Chambers

For additional information, please contact your nearest sales office:
info@carpenteradditive.com | 610 208 2000

The mechanical and physical properties of any additively-manufactured material are strongly dependent on the processing conditions used to produce the final part. Significantly differing properties can be obtained by utilizing different equipment, different process parameters, different build rates and different geometries. The properties listed are intended as a guide only and should not be used as design data.

The information and data presented herein are typical or average values and are not a guarantee of maximum or minimum values. Applications specifically suggested for material described herein are made solely for the purpose of illustration to enable the reader to make his/her own evaluation and are not intended as warranties, either express or implied, of fitness for these or other purposes. There is no representation that the recipient of this literature will receive updated editions as they become available.

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