

Sandvik launches metal powder for demanding space applications: Osprey® GRCop-42

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Sandvik introduces Osprey® GRCop-42 copper alloy powder engineered with unsurpassed cradle-to-gate traceability to reduce qualification risk in space manufacturing.

Originally designed by NASA, GRCop-42 is a copper-chromium-niobium alloy powder developed for additive manufacturing of space components operating under extreme thermal and mechanical loads. The material combines high thermal conductivity with high strength and the ability to retain its properties at elevated temperatures.

“Osprey® GRCop-42 is developed for advanced space propulsion applications, designed to withstand the harsh environments found in regeneratively cooled rocket engine components”, says Luke Harris, Sales Director Business unit AM, Powder Solutions, Sandvik. “To achieve stable, repeatable powder production, this alloy places exceptionally high requirements on melting practice, impurity control and process discipline.”

This alloy is intended for additive manufacturing of components such as fuel injector faces and combustion chamber linings, where efficient heat transfer, tight tolerances and predictable material behavior are critical throughout qualification and production.

GRCop-42 is widely regarded as one of the most challenging copper alloys to manufacture to specification. In addition to narrow limits on individual alloying elements, the material requires extremely tight control of the chromium-to-niobium ratio and very low impurity levels to ensure high thermal conductivity in service. Significant differences in melting temperature between copper and niobium further increase the complexity of production.

Through extensive metallurgical development and adaptations of its Vacuum Inert Gas Atomization (VIGA) process, Sandvik has established controlled and repeatable production of GRCop-42. The powder is atomized under inert gas using a highly automated production flow that protects the material from oxidation throughout the entire process, resulting in a metallurgically clean powder with consistent batch-to-batch characteristics.

Osprey® GRCop-42 is already supporting customer qualification and production programs, where repeatable powder quality, predictable performance and complete documentation are essential. This experience provides valuable feedback into process control and supports reliable supply for ongoing and future space manufacturing applications.

“GRCop-42 is a material where production control is just as important as alloy design,” says Szymon Kubal, Director of Technology Business unit AM, Powder Solutions, Sandvik. “Customers in the space sector need powder that performs predictably during qualification, printing and in service. Our focus has been to make this demanding alloy available with the consistency, documentation and traceability required for space programs.”

Osprey® GRCop-42 is produced within the company’s AS9100-certified quality system and supported by full cradle-to-gate traceability. Every step – from raw materials and



melting practice to atomization parameters and testing powder batches – is documented, helping customers reduce qualification risk, audit friction and schedule uncertainty.

Now fully integrated into the Sandvik product portfolio, Osprey® GRCop-42 is available in volumes suitable for both qualification activities and ongoing production, supported by the company's long-standing expertise in gas-atomized metal powders and the well-established Osprey® trademark, trusted for premium quality and batch-to-batch consistency.

Main characteristics of Osprey® GRCop-42:

Processability: Produced using the VIGA process, delivering spherical powder morphology with excellent flowability and high packing density for additive manufacturing.

Chemical composition: Dispersion-strengthened copper-chromium-niobium alloy with extremely tight control of alloying elements and impurity levels, supporting stable performance and high thermal conductivity.

Thermal performance: High thermal conductivity combined with strength retention at elevated temperatures (above 500°C), making the alloy suitable for high-heat-flux space applications.

Quality and traceability: Produced under an AS9100-certified quality system with full cradle-to-gate traceability and audit-ready documentation.

Osprey® GRCop-42 is produced in the VIGA plant operated by Sandvik at Sandviken, Sweden.

Read more about Osprey® GRCop-42 metal powder:

[GRCop-42 copper metal powder – Metal powder | Sandvik](#)

[Press kit](#)

For further information, contact VP Marketing and Communication, Powder Solutions, Sandvik, email: greta.ninova@sandvik.com

About Sandvik

Sandvik is a global, industrial technology group providing solutions that enhance productivity, profitability and sustainability for the manufacturing, mining and infrastructure industries. We are at the forefront of digitalization and focus on optimizing our customers' processes. Our world-leading offering includes equipment, tools, services and digital solutions for machining, mining, rock excavation and rock processing. In 2025 the Group had approximately 42,000 employees and revenues of about SEK 121 billion in more than 150 countries.

Sandvik in metal powder – Sandvik is a world-leading developer and manufacturer of gas-atomized metal powder for a range of advanced production technologies, such as Metal Injection Moulding (MIM) and Additive Manufacturing (AM). With our Osprey® range of powder alloys, the widest on the market, we can customize materials to fit every need.