



# CuNi 70/30 OptiPowder C96400: Corrosion-Resistant Copper-Nickel Alloy for Marine and Industrial Applications

## Overview

CuNi 70/30 OptiPowder C96400 is a copper-nickel alloy powder designed for excellent corrosion resistance, strength, and durability in demanding environments. The alloy performs well in seawater and brackish conditions, offering strong resistance to corrosion, stress-corrosion cracking, and erosion in high-velocity, turbulent flow.

OptiPowder C96400 is produced using Continuum's M2P gas atomization system, a plasma-based process that converts qualified reclaimed metal into high-quality spherical powder in a single step. Powered by green energy and tightly controlled process conditions, this approach reduces the carbon footprint of powder production while delivering consistent chemistry, flowability, and particle morphology from lot to lot.

## Typical Applications

OptiPowder C96400 is engineered for components operating in corrosive and high-flow environments, including:



Marine and offshore systems exposed to seawater and brine



Heat exchangers, condensers, and piping systems



Energy and desalination infrastructure



Industrial components exposed to high-velocity fluid flow

## Nominal Composition (wt.%)

| Element | Min     | Max     |
|---------|---------|---------|
| Cu      | Balance | Balance |
| Ni      | 28.0    | 32.0    |
| Fe      | 0.25    | 1.5     |
| C       | -       | 0.15    |
| Mn      | -       | 1.5     |

| Element | Min  | Max  |
|---------|------|------|
| Nb      | 0.50 | 1.5  |
| Si      | -    | 0.50 |
| P       | -    | 0.02 |
| S       | -    | 0.02 |
| Pb      | -    | 0.01 |

*Aligned with CDA C96400 CuNi 70/30 specification (values may be adjusted per customer requirements).*

## Powder Physical Properties

| Property         | Unit      | Max            |
|------------------|-----------|----------------|
| Apparent Density | g/cc      | 4.5            |
| Tapped Density   | g/cc      | 5.5            |
| Morphology       | Spherical | Satellite-free |
| Hall Flow Time   | s/50g     | <20            |

Data representative of 15–45  $\mu\text{m}$  PSD.

## Additive Manufacturing Process Compatibility

OptiPowder C96400 supports a range of AM and advanced manufacturing processes, including:

### Laser Powder Bed Fusion (LPBF):

Corrosion-resistant components with complex geometries

### Electron Beam Processing (EBM) and HIP:

For larger or consolidated structures

### Binder Jetting (MBJ):

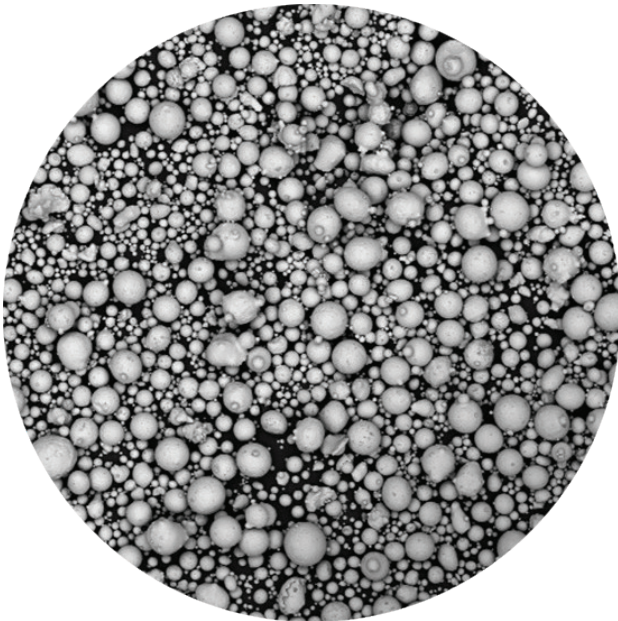
Cost-effective production of larger components

### Directed Energy Deposition (DED):

Repair and build-up of corrosion-resistant parts

## Available PSDs & Customization

OptiPowder C96400 is available in multiple particle size distributions, including 15–45  $\mu\text{m}$ , 45–106  $\mu\text{m}$ , and HIP-grade material, with custom PSDs, blended distributions, and program-based supply available on request to support specific process requirements and qualification needs.



### Morphology

Powder morphology is predominantly spherical with minimal satellites, with no hollow particles, excessive agglomeration, or foreign-object defects visible at  $\sim 300\times$  magnification.

### Blending

Multiple heats may be blended into a single lot when each heat independently meets all chemical and PSD requirements.

### Certification

Each shipment includes a certificate of analysis reporting chemical composition, particle size distribution, and any additional agreed-upon test results demonstrating conformance to specifications.