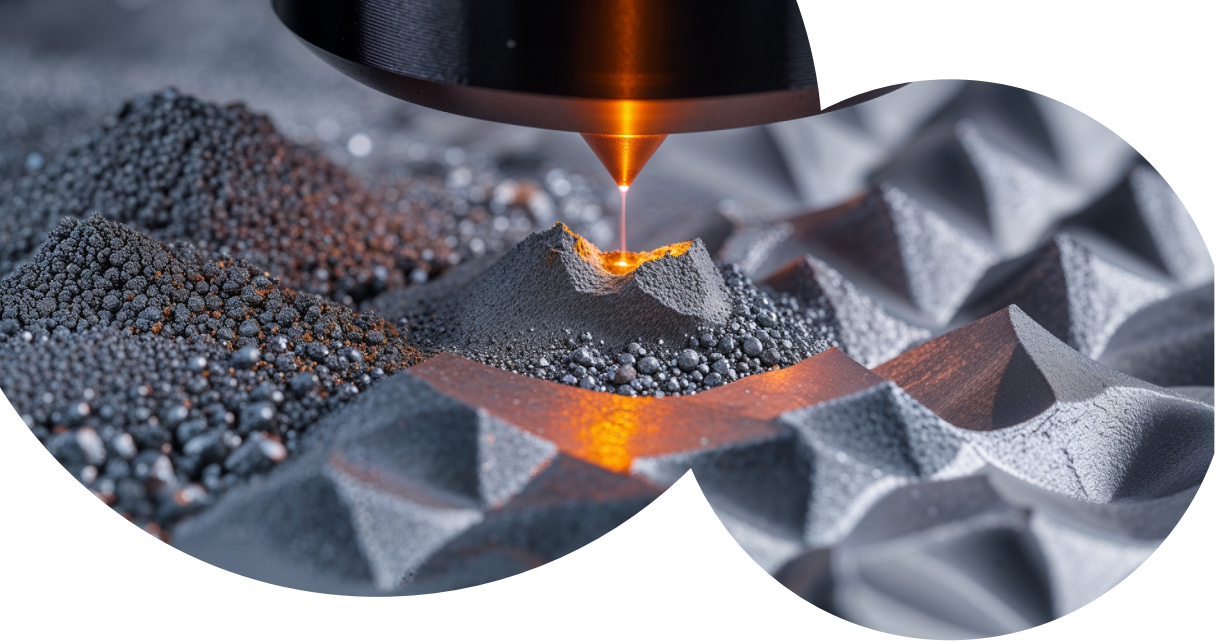

OptiPowder SS17-4PH:
Precipitation-Hardening Stainless Steel Powder for Additive Manufacturing

Continuum OptiPowders are produced by our proprietary M2P Gas Atomization System. This advanced plasma-based process transforms metal revert streams into high-quality spherical powder in a single step. By utilizing 100% recycled feedstock and green energy sources, this process significantly reduces the carbon footprint while delivering exceptional material performance.

Material Overview

OptiPowder SS17-4PH is a precipitation-hardening martensitic stainless steel powder developed by Continuum Powders for additive manufacturing applications requiring high strength, good toughness, and corrosion resistance. The alloy is based on UNS S17400 (AISI 17-4 PH) and is designed to deliver consistent performance across additive manufacturing platforms.

Nominal Composition (wt%)[1]		
Element	Min	Max
Chromium (Cr)	15.0	17.5
Nickel (Ni)	3.0	5.0
Copper (Cu)	3.0	5.0
Niobium + Tantalum (Nb + Ta)	0.15	0.45
Manganese (Mn)	≤ 1.0	
Silicon (Si)	≤ 1.0	
Carbon (C)	≤ 0.07	
Phosphorus (P)	≤ 0.04	
Sulfur (S)	≤ 0.03	
Iron (Fe)	Balance	
Oxygen	<0.1	
Nitrogen	<0.03	

1. Typical chemistry aligned with UNS S17400 and AMS 7012 Class C.

Typical Physical Properties[2]	
Property	Specification
PSD percentile	D_{10}, D_{50}, D_{90} will be reported
Apparent density (g/cc)	Measured according to ASTM B212[3] and reported
Hall flow (s/50g)	Measured according to ASTM B213[4] and reported

Key Benefits of OptiPowder SS17-4PH

- **High strength and hardness**: Delivers excellent mechanical performance, especially after heat treatment
- **Good corrosion resistance**: Provides improved corrosion resistance compared to conventional martensitic stainless steels
- **Excellent heat-treat response**: Supports single-step age hardening to achieve targeted strength and toughness
- **Consistent powder flowability**: Enables reliable flow, spreadability, and repeatable layer deposition
- **Supports complex geometries**: Ideal for near-net-shape builds and intricate features with reduced machining
- **Additive-ready performance across industries**: Used in aerospace/defense, tooling and molds, oil and gas, medical/dental (non-implant), and firearm/hearing-protection applications

Available PSDs & Customization

Continuum Powders offers OptiPowder SS17-4PH with custom particle size distributions available upon request, supplied under controlled conditions to preserve powder quality, and tailored to your specific AM process and platform.

2. Testing of powder will fulfill certification requirements to Nadcap Materials Testing and ISO/IEC 17025 Chemical, per relevant ASTM procedures

3. ASTM B212 Standard Test Method for Apparent Density of Free-Flowing Metal Powders Using the Hall Flowmeter Funnel

4. ASTM B213 Standard Test Method for Flow Rate of Metal Powders Using the Hall Flowmeter Funnel

For more information or to request a custom specification, visit www.continuumpowders.com/contact or reach out to our sales team.

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