OptiPowder M247/M247LC: High-Performance Nickel Alloy for Advanced 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% reclaimed feedstock and green energy sources, this process significantly reduces the carbon footprint while delivering exceptional material performance.

Material Overview

Nickel superalloy M247 is a precipitation-strengthened Ni-based alloy with significant additions of chromium, aluminum, tantalum and tungsten, designed for extreme high-temperature applications up to 1,000°C. It offers superior oxidation and corrosion resistance, exceptional creep strength, and high-temperature stress rupture properties. This alloy is primarily found in applications where high temperature corrosion resistance is required such as gas turbine components.

M247 is widely used in aerospace, industrial gas turbines, and energy applications, particularly for components subjected to extreme thermal and mechanical stress under corrosive atmospheres. The low-carbon version (M247LC) is specifically designed for rotating components such as turbines and impellers, where extended fatigue life is critical.

Key Benefits of OptiPowder M247

• Exceptional High-Temperature Strength: Withstands extreme thermal environments in aerospace and power generation

• Superior Oxidation and Corrosion Resistance: Reliable performance under prolonged exposure to high temperatures

• Enhanced Creep Resistance: Maintains structural integrity over extended operating periods

• Precision-Engineered for Additive Manufacturing: Optimized for LPBF systems, ensuring consistent and high-quality part production

• Sustainability Focused: 100% reclaimed metal powder, reducing raw material dependency and supporting circular economy initiatives

M247 Nominal Composition (wt%)		
Element	Wt%	
	Min	Max
C	0.13	0.20
Co	9.00	10.00
Cr	7.50	8.50
Hf	1.30	1.70
Ni	Balance	
Ta	2.50	3.50
Ti	0.75	1.25
W	9.00	10.50
Al	5.00	6.00

M247LC Nominal Composition (wt%)		
Element	Wt%	
	Min	Max
C	0.04	0.09
Co	8.50	9.50
Cr	8.00	9.00
Hf	1.00	1.60
Ni	Balance	
Ta	3.0	3.50
Ti	0.50	1.00
W	9.00	10.50
Al	5.00	6.00

Physical Properties*	
Apparent Density	>4.0 g/cc
Hall Flow Time	<25 s/50g

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*For LPBF PSD of 15-45 µm. Other PSDs including for MIM, Binderjetting or custom, available on request

Continuum provides a range of particle size distributions (PSD) tailored for Laser Powder Bed Fusion (LPBF) applications. Additional PSD options are available for Electron Beam Melting (EBM), Direct Energy Deposition (DED), Metal Binder Jetting (MBJ), and custom requirements upon request.

Contact us to receive a quote and learn more about how OptiPowder M247/M247LC can improve your advanced manufacturing projects.

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