

OptiPowder Ti-6Al-4V Grade 23

High-Performance Titanium Alloy for Advanced Manufacturing

Overview

OptiPowder Ti-6Al-4V Grade 23 (UNS R56401) is a premium $\alpha+\beta$ titanium alloy powder developed for applications that need the strength of Ti64 with improved toughness and ductility. Compared to Grade 5, Grade 23 features tighter interstitial limits—especially lower oxygen and hydrogen—helping support enhanced fracture toughness and more forgiving performance in critical components.

OptiPowder Grade 23 is produced using Continuum’s proprietary M2P Gas Atomization System, a plasma-based melt-to-powder process that transforms reclaimed revert streams into spherical, additively-ready powder in a single step. With production powered by green energy, OptiPowder Grade 23 helps manufacturers pursue high-performance titanium parts while supporting sustainability and circular-material objectives.

Built for additive manufacturing, OptiPowder Ti-6Al-4V Grade 23 is an excellent fit for LPBF programs, particularly where added toughness margins matter, while also supporting DED repair workflows for high-value components.

Typical Applications

OptiPowder Ti-6Al-4V Grade 23 is engineered for high-integrity advanced manufacturing applications where added ductility and fracture toughness margins are critical, including:



Aerospace components where reliability and damage tolerance are prioritized.



Defense programs requiring consistent mechanical performance in demanding environments.



Industrial lightweighting parts that benefit from strength plus improved ductility.



LPBF production builds needing repeatable performance for qualified parts.

Nominal Composition (wt.%)

Element	Min	Max
Al	6.00	6.75
V	3.50	4.50
Fe	-	0.40
O	0.05	0.13
H	-	0.0125
C	-	0.08
Ti	Remainder	

Data Representative of 15-45 μm .

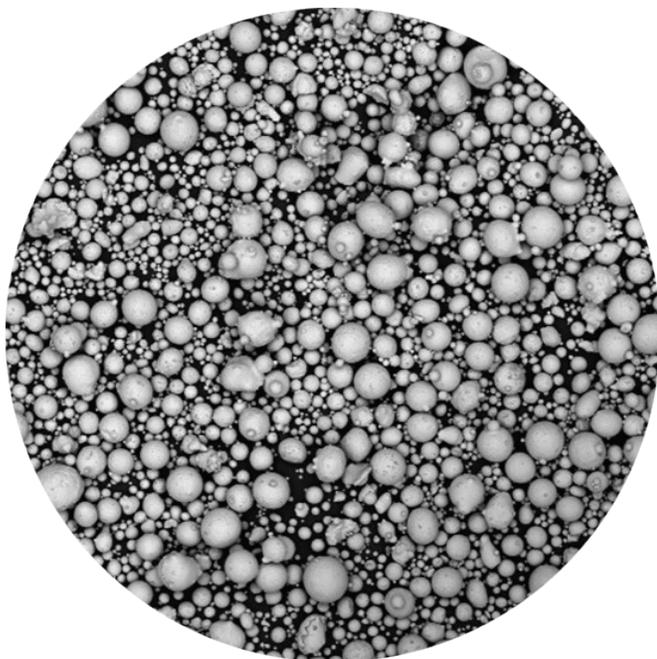
Powder Physical Properties

Property	Unit	Max
Flow (Hall)	Conforms to ASTM B213 or ASTM B964	
Apparent Density (Hall)	Conforms to ASTM B212	
+63 μm	wt. %	0
+53 μm	wt. %	≤ 1
+45 μm	wt. %	≤ 5
- 15 μm		$\leq 5 \text{ vol}\%$

Data Representative of 15–45 μm .

Available PSDs & Customization

OptiPowder TiG23 is available in multiple particle size distributions tailored to specific platforms and processes (for example, 15–45 μm and 15–53 μm for LPBF/EBM, and coarser cuts for binder jetting or HIP). Custom PSDs, blends, and program-based supply arrangements are available on request to support unique process windows or qualification requirements.



Morphology

Powder morphology is generally spherical with minimal satellites. Powder is free from hollow particles, excessive agglomeration, and foreign object defects visible in micrographs at $\sim 300\times$ magnification. Representative acceptable morphology is shown in the accompanying figure.

Blending

Several heats are allowed to be blended into a single lot provided individual heats meet the chemical and interstitial composition. The individual heats shall have similar PSD. Composition adjustment by blending is not allowed.

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.



For detailed specifications, current availability,
or to discuss custom PSDs and program-based supply:

✉ continumpowders.com/contact

🌐 info@continumpowders.com