

# C103

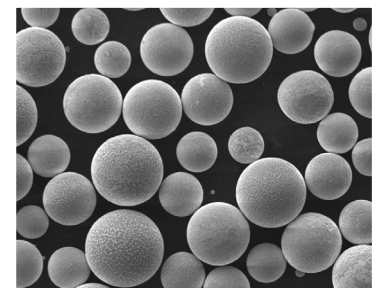
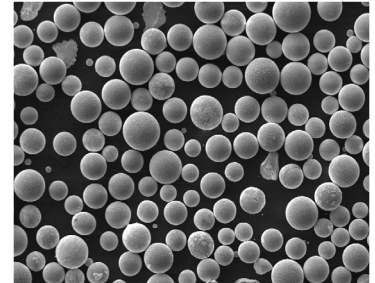
## Niobium Alloy Powder



### HIGH PERFORMANCE PARTS START WITH HIGH PERFORMANCE POWDER

From 6K's UniMelt® process, the world's only microwave plasma production system comes the highest performing and most versatile set of powders. C103 is a complex refractory alloy with exceptional mechanical strength and stability across a huge temperature range. C103 is among the leading refractory metals used in propulsion and space exploration technologies because of its exceptional high-temperature strength. 6K's C103 spherical powders deliver excellent material properties that enable designers to take advantage of the design freedom of additive manufacturing.

C103 properties make this alloy ideal for challenging aerospace or hypersonic applications. C103 is available in two size distribution, 20-63µm and 45-106µm.



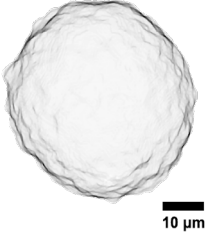
Nominal Chemistry	20-63 µm	45-106 µm
Nb	Balance	Balance
Hf	9.0 -11.0%	9.0 -11.0%
Ti	0.7% -1.3%	0.7% -1.3%
Ta	0.5%	0.5%
W	0.5%	0.5%
Zr	0.7%	0.7%
C	0.015%	0.015%
O	≤0.05%	≤0.05%
N	0.01%	0.03%
H	0.0015%	0.0015%

### 6K Premium C103 Powders

- Ultra Clean
- No Satellites
- High Sphericity
- High Flowability
- High Apparent Density
- Low Interstitials
- Zero Porosity

### Physical Properties

Apparent Density	4.90 (g/cm <sup>3</sup> )
Tap Density	5.29 (g/cm <sup>3</sup> )
Flow	12 (s/50g)
Sphericity	0.981
D10	27.7 µm
D50	38.0 µm
D90	54.1 µm



### HIGH DENSITY POWDER

Unlike competitive technologies, 6K's process delivers highly dense, highly spherical powders without satellites, as shown in microCT of the particle.



### DERIVED FROM SUSTAINABLE SOURCES

At 6K our powders are produced from sustainable sources including used powders and machine turnings. We leverage these input streams as feedstock for the UniMelt process, essentially turning scrap into high value AM powder. This process enables your organization to get value back from your past powder investment by participating in 6K Additive's powder buy-back program. We will buy your used powder, provide you a credit towards new premium powder for a wide variety of applications.



### HIGH UNIMELT YIELD AND TUNABLE PSD

6K's UniMelt process can deliver the highest yield in the industry for your target PSD. With our unique microwave plasma technology our production run can be tailored for any additive manufacturing (AM) platform including powder bed fusion, EBM, Binder Jet, direct energy deposition and cold spray plus PM processes like MIM and HIP.

With 6K's UniMelt breakthrough technology we have the capability of producing almost limitless material combinations, allowing you to design with infinite possibilities for your application.

### Key Properties

- Exceptional high temperature strength
- Lightweight
- Stability with high temp range
- Corrosion resistance

### Industries

- Aerospace & Defense
- Hypersonics
- Rocket Propulsion
- Jet Engine
- Satellite

6K Additive's production team has extensive experience in powder production, alloys and metal reclamation. Our 80,000 sq. ft. facility is ISO9001 certified and AS9100 certification is in process.

#### 6K CORPORATE HEADQUARTERS

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#### 6K ADDITIVE GLOBAL MANUFACTURING CENTER

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