

IntraMicron, Inc.
368 Industry Dr.
Auburn, AL 36832 USA

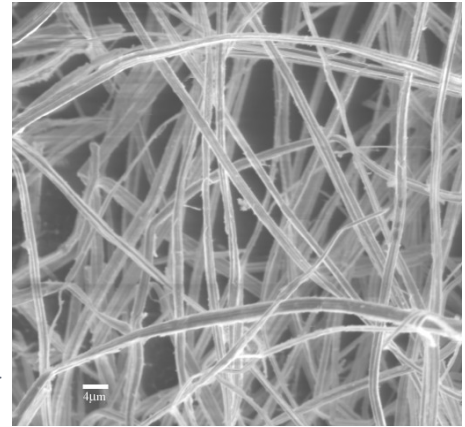
Phone: (334) 502-2973
Fax: (334) 502-2974

Fine Metal Fiber Data Sheet

Alloys: Ni200, 316L S.S., NiChrome,
317L S.S., Copper, Brass, Titanium,
FeCrAl, other corrosion resistant
alloys upon request.



I N T R A M I C R O N



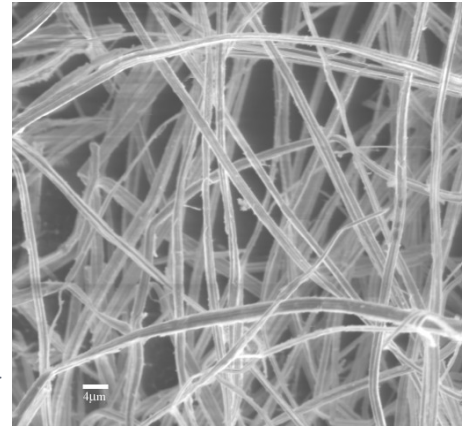
Alloy: Ni200

In principle the alloy is industrially pure Nickel, but due to its size some special properties are exhibited:

- Extremely high surface area to mass ratio
- Our fiber is not round, and therefore has a greater surface area than you would calculate based on a round fiber. In most cases this is a desired feature, and is a property we add to our fiber that is not available elsewhere.
- Our fiber may exhibit a surface area of up to 400% of theoretical depending on actual size of the fiber. The smaller the fiber the greater this effect.
- Even after sintering our fiber some increased surface area over theoretical is exhibited.
- Our fiber will exhibit better bonding & entanglement due to the increased surface area.
- Generally our fiber will behave as if it is smaller than it actually is. Since smaller fiber is more expensive, this is one way our fiber can benefit the bottom line of our customers.
- Our fiber is produced clean and free of contamination that other fibers may have (like PVA or copper).
- Due to the large surface area more oxide should be expected than would be typically seen.
- For wet-lay processes typical fiber over 10um would be ~6mm long, and ~3mm long for 8um and smaller fiber. The fiber would be initially dispersed in a high viscosity fluid using reasonably high shear.
- For air-lay processes typical fiber lengths would be from 25mm to 65mm. The fiber would be carded just prior to dispersion.
- For polymer applications fiber lengths of 0.5mm to 1mm are more common.
- When dispersed in fluid trace amounts of surface metals & oxides may be suspended or dissolved.
- Electrical conductivity of Nickel is 9 uohm-cm, but the oxide will degrade this somewhat.
- Thermal conductivity of Nickel is 260 cal/sec-m-K
- Modulus of elasticity of Nickel is 204 N/m² (MPa)
- Yield Strength of Nickel is 224 N/m² (MPa)
- Ultimate Tensile Strength of Nickel is 483 N/m² (MPa)
- Density of Nickel is 0.3201 Lbs./in³
- Consult factory for further details.

IntraMicron, Inc.
368 Industry Dr.
Auburn, AL 36832 USA

Phone: (334) 502-2973
Fax: (334) 502-2974



Fine Metal Fiber Data Sheet

Alloys: Ni200, 316L S.S., NiChrome,
317L S.S., Copper, Brass, Titanium,
FeCrAl, other corrosion resistant
alloys upon request.

I N T R A M I C R O N

Raw Material, Final Chemistry Specifications

C, Carbon	0.15% Max (typically 0.01% or less)
Cu, Copper	0.25% Max
Fe, Iron	0.40% Max (4.00% Max for Final Product unless otherwise specified) (Typical Iron Content is 0.5 to 2% for most products)
Mo, Molybdenum	Trace
Ni, Nickel	99% Min (95.00% Min for Final Product unless otherwise specified)
P, Phosphorous	Trace
S, Sulfur	0.06% Max (typically 0.02% or less)
Si, Silicon	0.35% Max (typically 0.02% or less)

Notes on Iron content:

We are capable of running these specifications down to 1.5um diameter fiber. We have the capability of running lower Iron content on larger diameter fibers. Due to the nature of our process it is increasingly difficult to hold lower Iron contents when making small diameter fiber. Generally it is not difficult to hold Iron content down in fiber at or above 8um in diameter. There is a trade off between Iron content and cost of the fiber. If you desire very low Iron contents we need to be made aware of this before the fiber is produced, there may be additional costs associated with this depending on the specification. Analysis for Iron content is made only if requested and paid for on a lot-by-lot or order-by-order basis. This generally increases lead times and delay delivery by about a week at a cost starting at \$45 per lot.