

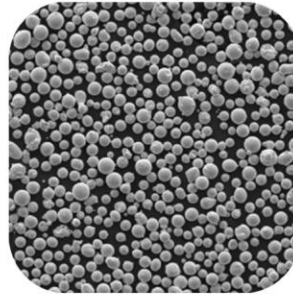
Material Description

Our metal powders have been specifically designed and optimized for use in Additive Manufacturing (AM) environments.

Our metal powders are successfully proven in AM and process well across the full spectrum of AM machines and technologies. The reason for this is our material has excellent melting and fusion properties in both PBF and EBM applications.

316L is an austenitic, low carbon stainless steel, and offers good corrosion resistance. This is particularly useful in medical applications. 316L also has excellent mechanical properties without requiring heat treatment.

Powder SEM



Part Sample



Material Properties

Good corrosion resistance
Good ductility
High impact toughness

Typical Applications

Surgical devices
Corrosion resistant components
Pumps
Tooling

Relevant Sectors

Medical
Marine
Aerospace
Industrial

| Powder Properties | |
|--------------------|------------------------|
| Part no. | 316L |
| PSD | 15-45 µm |
| Application | PBF |
| Part no. | 316L |
| PSD | 20-53 µm |
| Application | PBF |
| Part no. | 316L |
| PSD | 45-150 µm |
| Application | DED |
| Part no. | 316L |
| Application | 45-106 µm |
| PSD | EBM |
| General Properties | |
| PSD | D10, D50, D90 reported |
| Apparent Density | Measured and Reported |
| Flow | Measured and Reported |

| Chemical Composition | |
|----------------------|-------------|
| Fe | Bal. |
| Cr | 16.0 – 18.0 |
| Ni | 10.0 – 14.0 |
| Mo | 2.0 – 3.0 |
| Mn | ≤2.0 |
| Si | ≤1.0 |
| N | ≤0.1 |
| O | ≤0.1 |
| P | ≤0.045 |
| C | ≤0.03 |
| S | ≤0.03 |

Nominal WT%

| Industry Powder Names | |
|-----------------------|---------------|
| Generic name | 316L |
| Generic name | 1.4404 |
| Generic name | SS316L |
| GE Additive | 316L |
| SLM Solutions | 1.4404 (316L) |
| Renishaw | SS316L-0407 |
| EOS | 316L |

Atomisation Process

Vacuum inert gas atomisation
Anti-satellite technology
Argon gas atomised

Powder Quality

Highly Spherical
Excellent flowability

Applicable Specification

ASTM F3184
Other specifications: DIN 1.4404, ISO 5832-16, SAE J405 (316L), UNS S31600/S31603



| Mechanical Properties | | 0.2% Yield Strength (MPa) | Tensile Strength (MPa) | Elongation (%) | E-modulus (GPa) | Impact Toughness (J) | Hardness (HV) |
|-----------------------|------------|---------------------------|------------------------|----------------|-----------------|----------------------|----------------------|
| As Built | Horizontal | 547±3 | 676±2 | 43±2 | 197±4 | 150±28 | 198 HV0.5 ±8hv0.5 |
| | Vertical | 494±14 | 624±17 | 35±8 | 190±10 | 165±10 | 208 HV0.5 ±6HV0.5 |

*typical values

Physical Properties

| Generic Data – Wrought Material | |
|----------------------------------|-------------------------------------|
| Density | 7.99 g/cm ³ |
| Thermal Conductivity | 16.2 W/mK |
| Melting Point | 1371°C - 1399°C |
| Coefficient of thermal expansion | 16 10 ⁻⁶ K ⁻¹ |

*typical values

Heat Treatment

Heat treatment for 316L is not applicable for strengthening. Other traditional processing techniques can be deployed including general machining, grinding etc.

Further information can be provided by our technical experts by contacting sales@broder-powder.com

Contact

Broder Powder is committed to providing our global customers with world-beating customer service through direct support, metallurgy and our AM expertise.

Please contact Broder Powder for additional information.

Broder Powder offers a diverse range of metal powders and alloys for Additive Manufacturing (AM) and Hot Isostatic Pressing (PM-HIP), along with next generation alloy development maximising the potential benefits and solutions that AM and PM-HIP can deliver.

Our core range of metal powders include Stainless Steel, Nickel, Aluminium and Titanium.

Other alloys are available upon request.

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