

Material Description

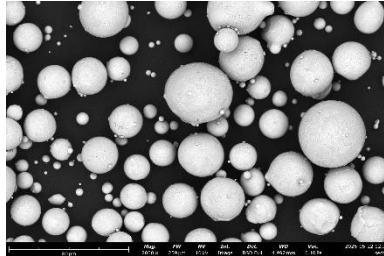
GMP 316L metal powders have been specifically designed and optimised for use in Additive Manufacturing (AM).

GMP 316L metal powders are widely used and successfully proven in AM. **GMP 316L** processes well across the broad spectrum of AM machines and technologies due to their excellent fusion and melting characteristics in PBF and EBM applications.

GMP 316L is an austenitic, low carbon stainless steel, which offers good corrosion resistance. Often used in medical settings and where corrosion resistance is required, **GMP 316L** delivers excellent mechanical properties without requiring heat treatment.

Powder Images

Typical microscopy image of **GMP 316L -45+15**



Powders are supplied in a variety of standard and custom sizes.

Part Example

Awaiting part image

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

item no.	GMP 316L -45+15		
PSD	15-45µm	Application	PBF
item no.	GMP 316L -53+20		
PSD	20-53µm	Application	PBF
item no.	GMP 316L -53+15		
PSD	15-53µm	Application	PBF
item no.	GMP 316L -150+45		
PSD	45-150µm	Application	DED
item no.	GMP 316L -106+45		
PSD	45-106µm	Application	EBM
item no.	GMP 316L -300		
PSD	<300µm	Application	HIP
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

- wt%

Industry Powder Names

Generic name	316L
Generic name	1.4404
Colibrium (GE)	316L
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
- Very few satellites
- Excellent flowability

Applicable Specification

- DIN 1.4404
Other specifications: ASTM F3184, ISO 5832-1, 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 room temperature data

Physical Properties*

True Density	8.0 g/cm ³
Thermal Conductivity	16.2 W/mK
Melting Point	1411°C - 1437°C
Coefficient of thermal expansion	16 10 ⁻⁶ K ⁻¹

*typical data

Heat Treatment

Heat treatment for **GMP 316L** is not applicable for strengthening. Other traditional post processing techniques can be deployed including general machining, grinding etc. Further information can be provided by our technical experts by contacting: gmp@globusmetalpowders.com

Contact

Globus Metal Powders is committed to providing our global customers with world-beating customer service through direct support, metallurgy and AM experts, and a family of authorised distribution partners.

Globus Metal Powders 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 includes steel, stainless steel, nickel, cobalt and bespoke alloys.

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Further information available at www.globusmetalpowders.com

Mechanical and physical properties are provided for guidance only and depict typically achievable properties and are not provided as guaranteed values or design data. Results achieved can vary significantly depending on AM processes, parameters, and part design/geometry.

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