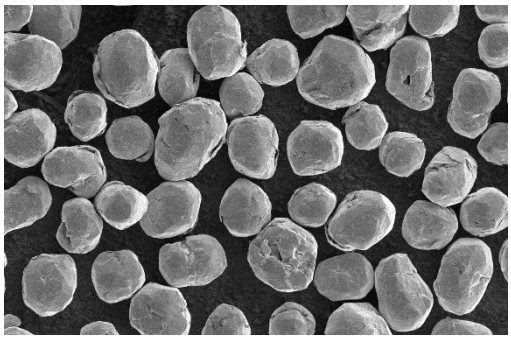
Ultra Metal Powders

316L AM 15-45 µm

ISO X2CrNiMo17-12-2 / EN 1.4404 / AISI 316L

1. Introduction

316L 15–45 µm is a fine austenitic stainless steel powder optimized for LPBF. Its narrow particle size and satellite-free morphology ensure smooth recoating, stable processing, and consistent print quality. The controlled size distribution supports good packing density and reliable layer formation, while the material delivers dense parts with very good corrosion resistance, strength, and ductility.



1.1 Basic facts

Chemistry	**AISI 316L / EN 1.4404**
Form	Powder
Shape / Morphology	Spherical
Size	15-45 µm
Typical apparent density	>4.00 g/cm^3
Flowability	max. 23 s/50g
Purpose	Parts requiring very good corrosion resistance, good mechanical performance, and consistent print quality.
Process	LPBF

1.2 Typical Applications

- Corrosion-resistant functional LPBF parts
- Manifolds, housings, and brackets
- Pumps, valves, and fluid-system components
- Heat exchangers and process equipment
- Tooling, fixtures, and custom industrial parts

2 Material Information

2.1 Chemical composition

Element	Analysis wt. %
C	≤ 0.03
Cr	16.5 – 18.5
Ni	10.0 – 13.0
Mo	2.0 – 2.5
Mn	≤ 2.0
Si	≤ 1.0
P	≤ 0.045
S	≤ 0.015
Fe	Bal.

2.2 Sieve analysis (typical values)

	Analysis wt. %
d_{10}*	19 ± 1
d_{50}*	31 ± 1
d_{90}*	43 ± 1
Underspray <15.0 µm*	max. 2%
Overspray >45.0 µm**	max. 2%

* Static Image Analysis; ** Sieve Analysis

2.3 Additional Material Characteristics

Property	Value (typical)	Unit
Apparent Density *	min. 4.00	g/cm^3
Tap Density **	min. 5.00	g/cm^3
Flowability ***	max. 23.0	s/50g
Shape	Spherical / Spheroidal	-

* according to ASTM B212; ** according to ASTM B527; *** according to ASTM B213

2.4 Mechanical properties

		Horizontal		Vertical	
Property	Unit	Value	Std. dev.	Value	Std. dev.
Young modulus	GPa				
$Rp_{0.2}$	MPa	562	11	517	7
R_m	MPa	696	7	628	4
A_{20}	%	13,8	1,8	29,0	1,3

According to DIN EN ISO 6892-1; n=5

2.5 Recommended processes

- LPBF – Laser Powder Bed Fusion
- BJet -Binder Jetting

2.6 Recommended processing parameters (LPBF)

Parameter	Value	Unit
Layer Thickness	30	µm
Laser Power	190	W
Scan Speed	1100	mm/s
Hatching	177	µm

3 Commercial Information

4.1 Ordering Information and Availability

Product	Package Size	Package Type	Availability	Distribution
316L AM 15-45 µm	10kg	Wide-neck drum UNX	Stock	Europe

4.2 Storage and Handling Guidelines:

- Always store the product in its original container in a dry environment.
- Gently rotate the container before use to ensure even distribution. Avoid aggressive handling to prevent damage to fragile, mechanically clad components.
- Once opened, powder containers should be kept in a drying oven to prevent moisture absorption.
- If a desiccant is present, be sure to remove it prior to using the product.

4.3 Safety Recommendations

Refer to the Safety Data Sheet (SDS). SDS document can be accessed on the Ultra Metal Powders website at www.umpowders.com under Resources → Safety Data Sheets.