

## METAL SOLUTIONS

# EOS StainlessSteel 316L-4441

## Material Data Sheet

**EOS STAINLESSSTEEL 316L-4441**

EOS StainlessSteel 316L-4441 is a high performance marine-grade austenitic stainless steel that is molybdenum alloyed for enhanced corrosion resistance in chloride environments. 316L is a standard material for numerous applications in process, energy, paper, transportation and other industries. EOS StainlessSteel 316L is a stainless steel powder intended for manufacturing parts on EOS metal systems with EOS DMLS processes.

**MAIN CHARACTERISTICS**

- High ductility and toughness
- High strength
- High corrosion resistance
- Available in 10 kg drum and 500 kg Big Bag packaging

**Download Process Data Sheet (PDF)** →

**TYPICAL APPLICATIONS**

- Chemical industry
- Food processing
- Medical devices

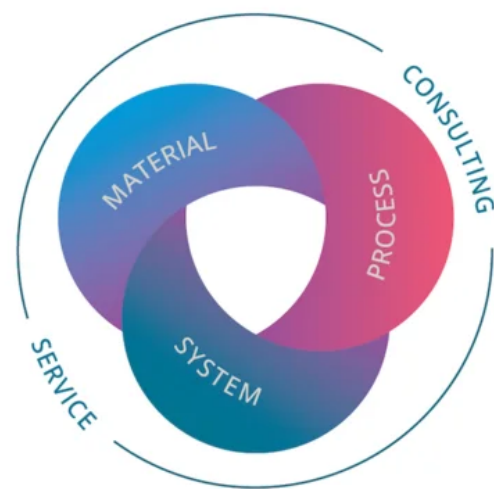
# The EOS Quality Triangle

EOS uses an approach that is unique in the AM industry, taking each of the three central technical elements of the production process into account: the system, the material and the process. The data resulting from each combination is assigned a Technology Readiness Level (TRL) which makes the expected performance and production capability of the solution transparent.

EOS incorporates these TRLs into the following two categories:

- Premium products (TRL 7-9): offer highly validated data, proven capability and reproducible part properties.
- Core products (TRL 3 and 5): enable early customer access to newest technology still under development and are therefore less mature with less data.

All of the data stated in this material data sheet is produced according to EOS Quality Management System and international standards



## POWDER PROPERTIES

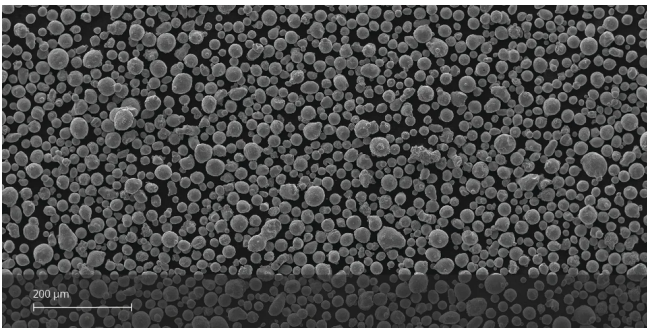
The chemical composition of EOS StainlessSteel 316L corresponds to ASTM F138 material standard for Surgical Implants (UNS S31673).

### Powder Chemical Composition (wt.-%)

Element	Min.	Max.
Fe		Balance
Cr	17	19
Ni	13	15
Mo	2.25	3
C	-	0.03
N	-	0.1

### Powder Particle Size

GENERIC PARTICLE SIZE DISTRIBUTION	20 - 65 µm
------------------------------------	------------



SEM micrograph of EOS StainlessSteel 316L powder

# HEAT TREATMENT

## Description

Heat treatment according to AMS 2759 is optional.

## Steps

**Stress relief:** Hold temperature 900 C, hold time minimum 2 h when thoroughly heated, water quenching or high speed gas quenching. Cooling rate to be high enough to prevent chromium carbide precipitation.

**Solution annealing:** Hold temperature 1150 C, hold time minimum 1,5 h when thoroughly heated, water quenching or high speed gas quenching. Cooling rate to be high enough to prevent chromium carbide precipitation.



## HEADQUARTERS

**EOS GmbH**  
**Electro Optical Systems**

Robert-Stirling-Ring 1  
82152 Krailling / Munich  
Germany

Tel.: +49 89 893 36-0  
Email: [info@eos.info](mailto:info@eos.info)  
URL: [www.eos.info](http://www.eos.info)

---

This powder has not been developed, tested or certified as a medical device according to Directive 93/42/EEC (MDD) or Regulation (EU) 2017/745 (MDR) and is not intended to be used as a medical device, in particular for the purposes specified in Art. 2 No. 1 MDR. Insofar as you intend to use the powder as raw material for the manufacture of pharmaceutical products or medical devices (e.g. as raw material which as a material must meet the requirements of Annex 1, Chapter II MDR), the responsibility and liability for all analyses, tests, evaluations, procedures, risk assessments, conformity assessments, approval and certification procedures as well as for all other official and regulatory measures required for this purpose shall lie solely with you both with regard to the pharmaceutical product and/or medical device manufactured by you and with regard to the properties, suitability, testing, evaluation, risk assessment, other requirements for use of the powder as raw material. In this respect, the limitations of liability pursuant to our General Terms and Conditions and the system sales or material contracts shall apply.

**Part properties are provided for information purposes only and EOS makes no representation or warranty, and disclaims any liability, with respect to actual part properties achieved.** Part properties are dependent on a variety of influencing factors and therefore, actual part properties achieved by the user may deviate from the information stated herein. This document does not on its own represent a sufficient basis for any part design, neither does it provide any agreement or guarantee about the specific properties of a material or part or the suitability of a material or a part for a specific application.

**The achievement of certain part properties as well as the assessment of the suitability of this material for a specific purpose is the sole responsibility of the user. Any information given herein is subject to change without notice.**

---

Status as of 30.04.2025. Subject to technical modifications. EOS is certified according to ISO 9001.

EOS®, Additive Minds®, Alumide®, AMQ®, CarbonMide®, DirectMetal®, DMLS®, EOSAME®, EOSINT®, EOSIZE®, EOSPACE®, EOSPRINT®, EOSTATE®, EOSTYLE®, FORMIGA®, LaserProFusion®, PA 2200®, PrimeCast® and PrimePart® are registered trademarks of EOS GmbH Electro Optical Systems in some countries. For more information visit [www.eos.info/trademarks](http://www.eos.info/trademarks).