

## METAL SOLUTIONS

# EOS StainlessSteel PH1

## Material Data Sheet

**EOS STAINLESSSTEEL PH1**

EOS StainlessSteel PH1 is a pre-alloyed stainless steel in fine powder form. The chemistry of EOS StainlessSteel PH1 conforms to the compositions of DIN 1.4540 and UNS S15500. This kind of steel is characterized by having good corrosion resistance and excellent mechanical properties, especially in the precipitation hardened state. This type of steel is widely used in variety of engineering applications requiring high hardness, strength and corrosion resistance. This material is ideal for many part-building applications (DirectPart) such as functional metal prototypes, small series products, individualised products or spare parts. Standard processing parameters use full melting of the entire geometry with 20 µm layer thickness. Using standard parameters the mechanical properties are fairly uniform in all directions. Parts made from EOS StainlessSteel PH1 can be machined, spark-eroded, welded, micro shot-peened, polished and coated if required.

**MAIN CHARACTERISTICS**

- High strength and hardness
- Corrosion resistant
- For mildly corrosive environments

**TYPICAL APPLICATIONS**

- Engineering applications including functional prototypes, small series products, individualised products or spare parts
- Parts requiring high corrosion resistance, sterilisability, etc.
- Parts requiring particularly high hardness and strength

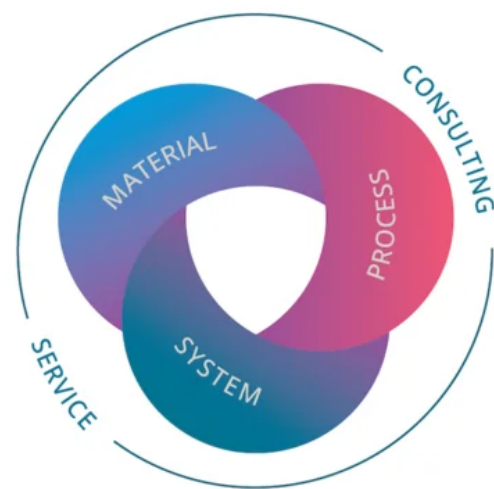
# The EOS Quality Triangle

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

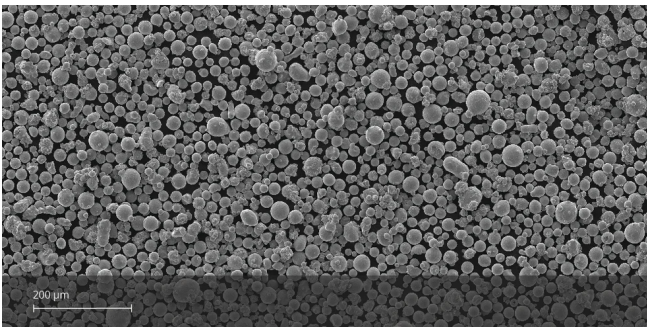
The chemistry of EOS StainlessSteel PH1 conforms to the compositions of DIN 1.4540 and UNS S15500.

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

Element	Min.	Max.
Cr	14	15.5
Ni	3.5	5.5
Cu	2.5	4.5
Mn	-	1
Si	-	1
C	-	0.07
Mo	-	0.5
Nb	0.15	0.45

### Powder Particle Size

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



# HEAT TREATMENT

## Description

Hardening of EOS StainlessSteel PH1 done using modified H900 heat treatment

## Steps

Soaking time at precipitation hardening temperature 525°C elongated for 4 hours

## 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 03.09.2024. 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).