

Printdur® Ni625LFe

Nickel alloy for corrosion and high temperature applications

GENERAL INFORMATION

For applications that require outstanding corrosion resistance, the use of our nickel-based metal powders is recommended. With Printdur® Ni625LFe (~2.4856) we are expanding our portfolio of corrosion resistant materials for 3D printing.

Printdur® Ni625LFe has good resistance to mineral acids such as nitric, phosphoric, sulfuric or hydrochloric acid. In addition, it is also corrosion resistant to alkalis and organic acids. Furthermore, the material has a good resistance to hot gas corrosion in the solution heat treated condition and a high creep rupture strength above 600°C.

In comparison to Printdur® Ni625, the iron content of Printdur® Ni625 LFe is significantly lower. This leads to a cleaner material with even better corrosion and oxidation properties.

Our production is certified according to DIN EN ISO 9001 (quality management systems) and IATF 16949 (quality management automotive). Thus, we can guarantee a constant high quality of our metal powder.

POWDER PROPERTIES

The powder is produced by gas atomization. This manufacturing process ensures spherical powder particles in combination with excellent flow characteristics.

Chemical Composition [weight-%]

C	Si	Mn	Cr	Mo	Fe	Co	Nb
< 0.03	0.5	0.5	22.0	9.0	< 0.5	< 0.5	< 3.5

Powder characterization¹

Bulk density	Flow characteristics
4,2 ± 0,4 g/cm ³	16 ± 4 s/50g

¹ The properties were determined in the particle size distribution of 20 - 53 µm. The powder properties may differ due to different particle size distributions.

ADDITIVE MANUFACTURING²

Printdur® Ni625LFe can be processed on LPBF systems. The process parameters are similar to those of alloy 625. Please contact us for further information.

² Process parameters for LPBF systems have been developed for our alloys and can be supplied on request. Depending on the system, it may be necessary to deviate from these recommendations. We would be pleased to support you in the implementation.

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MECHANICAL PROPERTIES³

The mechanical properties listed below were achieved with a particle size distribution of 20 - 53 µm. The used system was an EOS M290 with a layer thickness of 40 µm.

R _{p0.2}	710 MPa ± 50 MPa
R _m	970 MPa ± 50 MPa
A _{5.65}	35 %
A _V	100 J

³ The mechanical properties were determined in vertical direction and thus represent the lower limit of the properties due to the component orientation / print orientation of the alloy. A different - e.g. horizontal - orientation of the specimens / components generally leads to higher mechanical properties.

MICROSTRUCTURE

In printed condition Printdur® Ni625LFe is characterized by an 99 % austenitic microstructure. As a result, the material is non-magnetic ($\mu_r < 1.01$).

We reserve us the right to change/ remove and/or edit the content of our technical datasheets in any time. Errors and missprints reserved.

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