

m4p Fe-4542

Stainless steel powder for laser-based powder bed fusion

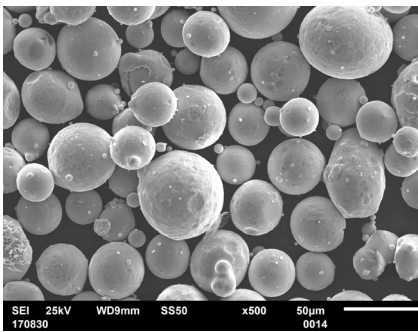
Description and properties

m4p™ Fe-4542 is a hardenable, stainless alloy with excellent strength properties. The commonly used short name 17-4PH comes from the AISI standard.

Low carbon contents limit the tendency to intergranular corrosion and ensure optimum strength properties. Additional levels of niobium are used to stabilize the material and to exclude negative effects of carbon.

Due to its excellent strength properties, the material is often used for the most demanding applications in engineering, automotive, medical or aerospace industries.

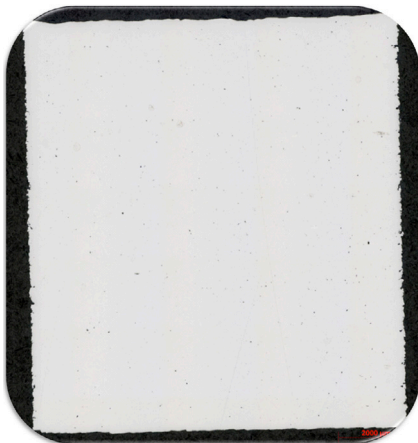
Powder characteristics



Chemical analysis [wt%]

Element	Min	Max
C		<0,07
Si		<1,0
Mn		<1,0
Cr	15,0	17,0
Ni	3,0	5,0
Cu	3,5	5,0
Nb	<[5x%C]	0,45
Fe		Base

Additive manufacturing and strength properties



Mechanical characteristics of this alloy¹:

Tensile strength ²	R _m =	1044 ± 15 MPa
Yield strength ²	R _e =	711 ± 9 MPa
Elongation at break ²	A ₅ =	12 ± 5%

¹ Samples built with 7.79g / cc density / P = 190W and 2.4mm³ / s

² Condition: **as-built**

Further characteristics (as-built, heat-treated), heat treatment parameters and instructions available on request

Relative density achieved after printing: **99,9%**

Archimedean density achieved after printing: **7,81g/cm³**

INTERNATIONAL

m4p material solutions GmbH · Austria
 Gewerbestraße 4, 9181 Feistritz i. R.
 T +43 4228 93053-0
 E sales@metals4printing.com

GERMANY

m4p material solutions GmbH · Deutschland
 Mittelweg 13, 39130 Magdeburg
 T +49 391 72149-40
 E sales@metals4printing.com

www.metals4printing.com