METALS FOR PRINTING

m4p Fe-2709

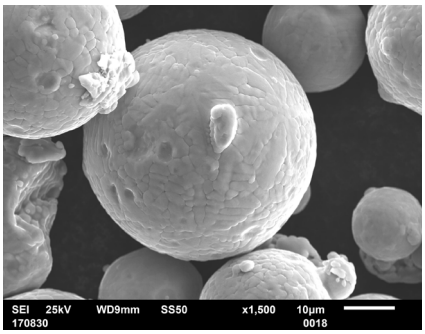
Maraging steel powder for laser-based powder bed fusion

Description, properties and applications

m4p™ Fe-2709 is a high-performance metal powder which belongs to the group of maraging steels. The name „maraging" refers to age-hardening in Fe-Ni martensite. From a metallurgical point of view, the low alloying components of C, Si + Mn, Ti and Al have a major impact on material properties. The material designated in the US standard with 18Ni300 fits the material known in the European Standardization as 1.2709.

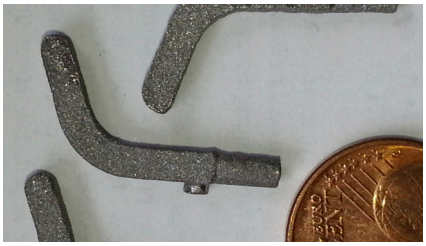
Maraging steels are characterized by very good mechanical properties. Especially in „as-built" a good material processability is already given. Through a simple heat treatment (490 ° C / 6h), extreme strengths or high hardness values can be generated. This hot working steel is used in tool manufacturing and mold construction but also in the manufacturing of high-strength structural parts.

Powder characteristics



Chemical analysis [wt%]		
Element	Min	Max
C	<0,03	
Si	<0,10	
Mn	<0,15	
Co	8,5	10,0
Cr	<0,30	
Ni	17,0	19,0
Mo	4,5	5,2
Ti	0,5	1,2
Al	<0,15	
Fe	Base	

Additive manufacturing and strength properties



Typical characteristics of the tensile test (as-built,>99,8% rel. density)		
Tensile strenght	R_m =	1030-1100 N/mm²
Yield strength	R_e =	810-990 N/mm²
Elongation at break	A_5 =	4-12%

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