

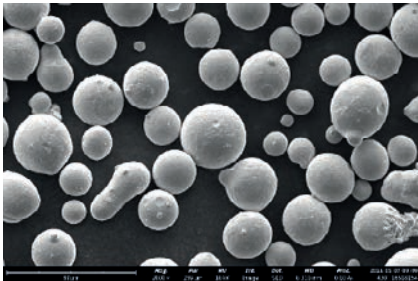
m4p Fe-4016

Ferritic stainless steel powder for laser-based powder bed fusion

Description, properties and applications

m4p™ Fe-4016 is a ferritic, stainless steel with a chromium content of 16.0%-18.0% which ensures good corrosion resistance for medium corrosive demands or rustproof applications in ordinary atmospheres. Compared to stainless, austenitic (Cr-Ni) steel grades, components made of m4p™ Fe-4016 show **ferromagnetic** properties, which leads to a broader range of applications. Another advantage is the **reliable oxidation resistance** - depending on the atmosphere and the exposed temperature cycles. It is important to observe certain temperature regimes during processing and the application itself as embrittlement can occur, especially in the range around 475°C. For additive manufacturing with process-specific high cooling rates, critical temperature ranges can be well controlled and operational components can be produced. Thus laser-based 3D printing can be used to produce stainless, ferritic prototypes and usable products that can fully exploit the advantageous properties of this class of materials: **Corrosion resistance, insensitivity to stress corrosion cracking, magnetic, increased thermal conductivity and lower thermal expansion** (compared to Cr-Ni steels), as well as the **absence of nickel** (allergy, occupational health and safety). Prototypes and components for the food industry, medical technology and general mechanical engineering are manufactured from m4p™ Fe-4016 by laser-based 3D printing.

Powder characteristics



Chemical analysis [wt%]

Element	Min	Max
C		<0,03%
Si		<1,0
Mn		<1,0
Cr	16,0	18,0
Fe	Base	

further limited elements are 0 / N / P / S

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