METALS FOR PRINTING

m4p Ni-C22

Ni-base for Laser Powder Bed Fusion

Description, properties and applications

m4p™ Ni-C22 is a nickel-chromium-molybdenum alloy based on the composition of "Hastelloy C22" or the material number 2.4602. The alloy is characterized in particular by its outstanding **corrosion resistance** in a variety of aggressive environments, including **oxidizing** and **reductive media**, **chloride-containing solutions** and strong **acids** such as sulphuric acid and nitric acid. This makes m4p™ Ni-C22 one of the most versatile alloys with excellent **resistance** to **pitting**, **crevice corrosion and stress corrosion cracking** - even at elevated temperatures. Applications range from the **chemical industry** to **environmental technology** and **power generation**.

Powder characteristics

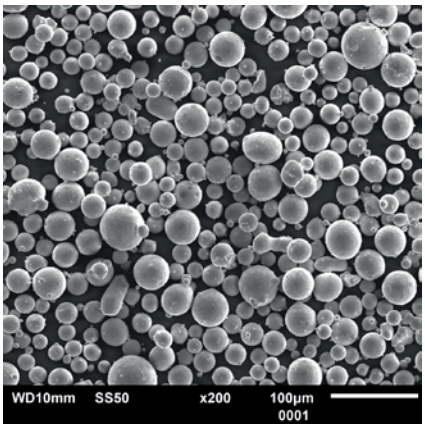

Image: SEM image of an m4p™ Ni-C22 powder

Chemical analysis [wt%]		
Element	Min	Max
C	<0.02	
Si	<0.08	
Mn	<0.50	
Cr	20.00	22.50
Mo	12.50	14.50
Fe	2.00	6.00
W	2.50	3.50
Ni	Base	

Other limited elements: Co, V, O, N, P, S

Additive manufacturing and material characteristics

(rel. density > 99.9%; layer thickness 50µm)

	Tensile strength Rm [N/mm²]	Yield strength Rp0.2 [N/mm²]	Elongation at break A_5 [%]	Young´s modulus [GPa]
as-built Sample orientation ↕ ↔	>780	>520	>34.5	>145
heat-treated Sample orientation ↕ ↔	>840	>490	>39.5	>160
after HIP-process Sample orientation ↕ ↔	>720	>380	>31	>175

www.metals4printing.com

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

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