VDM Metals

A company of ACERINOX

VDM® Powder X

Material Data Sheet No. 2003 **Revision 03**
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VDM® Powder X

VDM® Powder X is the powder variant of a nickel-chromium-molybdenum-iron alloy with cobalt and tungsten additions.

VDM® Powder X is characterized by:

- Spherical particles
- High purity
- Low oxygen content
- Excellent oxidation resistance up to 1,200 °C (2,190 °F)
- High-temperature strength
- Good resistance to stress corrosion cracking

Designations and standards (based on VDM® Alloy X)

Standard	Material designation
EN	2.4665 – NiCr22Fe18Mo
ISO	NiCr21Fe18Mo9
UNS	N06002
AFNOR	NC22FeD

Table 1 – Designations and standards

Chemical composition

	Ni	Cr	Fe	Mo	Co	W	C	Si	Mn	P	S
Min	bal.	20.5	17.0	8.0	0.5	0.2	0.05				
Max		23.0	20.0	10.0	2.5	1.0	0.15	1.0	1.0	0.04	0.03

Table 2 – Chemical composition (%)

VDM® Powder X contains low amounts of oxygen of up to 0.03%.

Physical properties

Density	Melting range
8.3 g/cm³ at 20 °C	1.260 – 1.355 °C
0.3 lb/in³ at 68 °F	2,300 – 2,470 °F

Microstructural properties

VDM® Powder X has a face-centered cubic structure.

Corrosion resistance

The corrosion resistance depends on the processing and heat treatment of the material. The conventionally produced VDM® Alloy X usually shows excellent oxidation resistance up to 1,200 °C (2,190 °F) and can be used in neutral as well as in reducing atmospheres. VDM® Alloy X is resistant in carburizing and nitriding atmospheres.

Applications

Due to its corrosion resistance in various atmospheres up to very high temperatures, and excellent high-temperature strength, VDM® Powder X finds wide application in high-temperature services.

Typical applications include:

- Components for industrial and aircraft gas turbines (combustion chambers, honeycombs, housings etc.)
- Industrial furnace parts, support rolls, grids, wire belts and radiant tubes
- Pigtails in petrochemical furnaces
- High-temperature gas cooled nuclear reactors

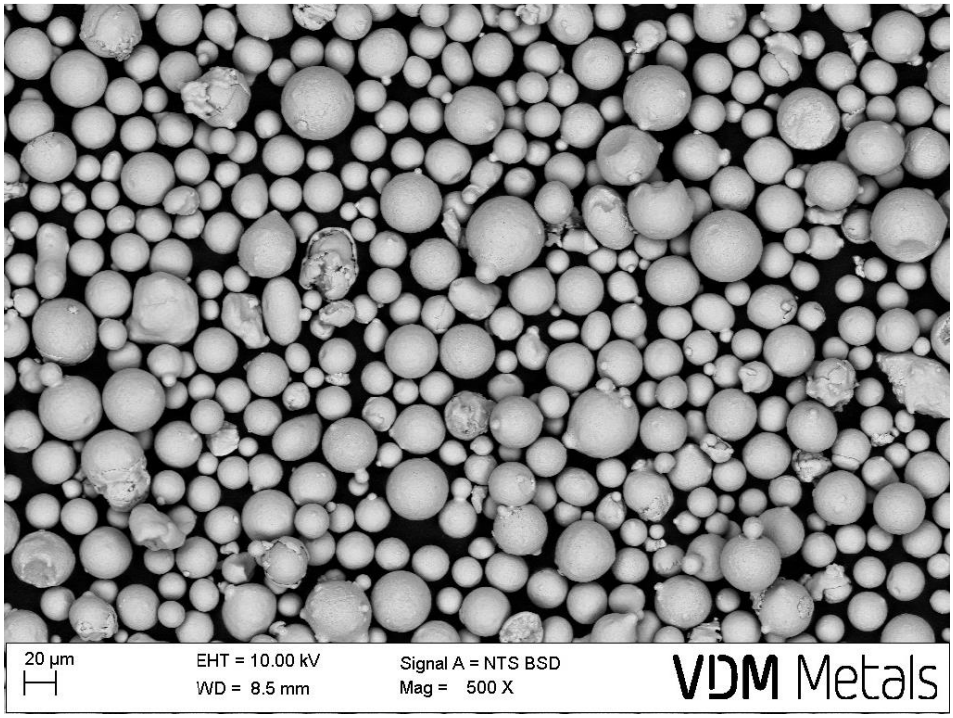
Availability

According to the AM process requirements of our customers, VDM® Powder X is available in a wide range of particle fractions from 15 to 250 µm.

Standard particle fractions

Particle size distribution µm	Oxygen content %	Porosity < 10µ (pore area) %
15-53 53-150	< 0,03	< 0,5

Additional particle fractions are available on request. Please contact us.



The picture shows a typical micrograph of VDM® Powder X as an example.

Legal notice

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Disclaimer
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