VDM Metals

A company of ACERINOX

VDM® Powder 59

Material Data Sheet No. 2007 **Revision 02**
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VDM® Powder 59

VDM® Powder 59 is the powder variant of a nickel-chromium-molybdenum alloy developed by VDM Metals, which has particularly low concentrations of carbon and silica and is characterized by excellent corrosion resistance.

VDM® Alloy 59 is characterized by:

- Spherical particles
- High purity
- Low oxygen content
- Excellent resistance against a multitude of corrosive media under oxidizing and reducing conditions,
- Very good weldability

Designations

Standard	Material Designation
EN	2.4605 – NiCr23Mo16Al
ISO	15156/MR 0175
UNS	N06059

Table 1 – Designations based on designations of VDM® Alloy 59

Chemical composition

	Fe	Cr	Ni	Mo	C	S	Mn	Si	Cu	P	Al	Co
Min.		22,0	Bal.	15,0							0,1	
Max.	1,5	24,0		16,5	0,01	0,01	0,5	0,1	0,5	0,015	0,4	0,3
Due to technical reasons the alloy may contain other elements then listed												

Table 3 – Chemical composition (%) based on VDM® Alloy 59 according to VdTÜV data sheet 505

Physical properties

Density	Melting range
8,6 g/cm³ bei 20 °C	1.310 bis 1.360 °C
537 lb/ft³ at 68 °F	(710 – 738 °F)

Microstructural properties

VDM® Alloy 59 has a cubic, face-centered crystal structure

Corrosion resistance

The corrosion resistance depends on the processing and heat treatment of the material.
The conventionally produced VDM Alloy 59 has no propensity for grain boundary dispersions in hot forming or welding. The alloy can therefore be used in many chemical processes with oxidizing and reducing media.
Furthermore, VDM® Alloy 59 is more resilient against chloride ion attack due to its high nickel, chromium and molybdenum concentrations.

Applications

VDM® Powder 59 is suitable for a wide spectrum of applications in chemistry, petro chemistry, energy and environmental engineering. Typical applications are:

- Plant components for organic chemistry processes with media containing chloride, especially where catalytic systems on chloride basis are used.
- Plant parts in active substance preparation and the pharmaceuticals industry
- Components for seawater and concentrated brines
- Equipment and components for geothermal energy and acid gas applications and for flue gas desulfurization (FGD) in fossil fuel power plants and waste incineration plants

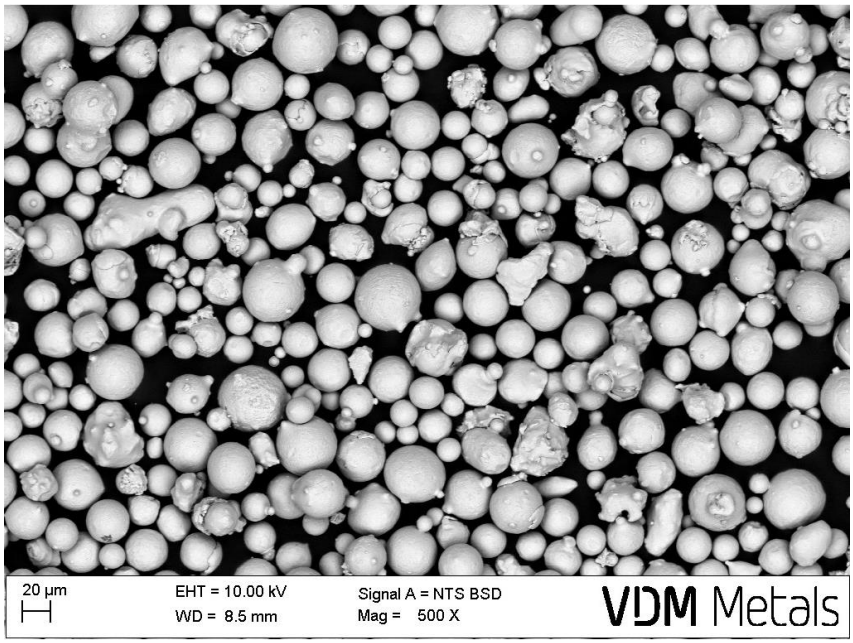
Availability

According to the AM process requirements of our customers, VDM® Powder 59 is available in a wide range of particle fractions from 15 to 250 µm.

Standard particle fractions

Particle size distribution µm	Typical oxygen content %	Typical porosity < 10µ (pore area) %
15-53	< 0.03	< 0.5
53-150		

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



The picture shows a typical micrograph of VDM® Powder 59 as an example.

Legal notice

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Disclaimer
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