

# Technical Bulletin

Amperit 633.001, FeCrNiMo

## A Fe-base powder engineered for sustainable Corrosion Protection

**Amperit 633.001** is a stainless, austenitic chromium-nickel-molybdenum alloy powder that offers good resistance to non-oxidizing acids and chlorine-containing media. Due to its chemical composition, powder morphology, and particle size distribution, it has superior corrosion and pitting resistance compared to other stainless metal alloys. The combination of its unique production route and chemical composition makes this material one of the most sustainable options for various corrosion protection applications.

**Amperit 633.001** can be used as a bond coat for ceramic top layers in industrial applications, such as process rollers in the printing and paper industries, as well as in single-layer applications, e.g., for corrosion-resistant dimensional restoration. Preferredly applied by HVOF or HVOF, the resulting coatings outperform typical 316L-type HVOF coatings in terms of corrosion resistance.

In addition, **Amperit 633.001** addresses all the sustainability drawbacks of conventionally used Ni-base materials. By utilizing a two-step production route and an innovative alloy design, the environmental impact and CO<sub>2</sub> footprint can be reduced by up to 40% compared to conventional gas-atomized Ni 20Cr powders.

When it comes to corrosion protection and bond coat capabilities, Amperit 633.001 HVOF and HVOF coatings offer properties comparable to APS-sprayed Ni-based coatings.

### Particle Morphologies

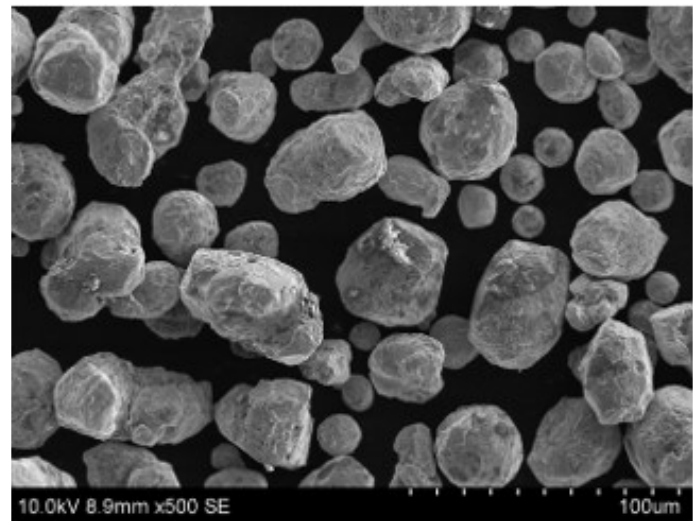


Figure 1: Morphology of Amperit 633.001 powder

## Coating microstructure

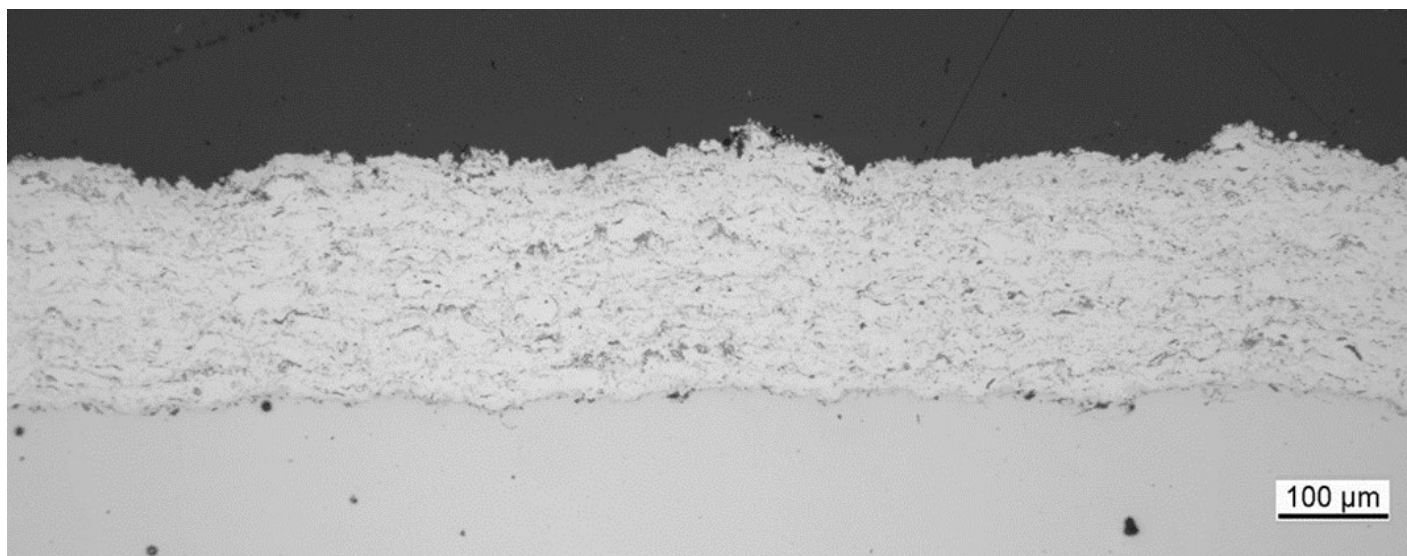


Figure 2: Microsection of Amperit 633.001 coating; Gas-Fueled HVOF- sprayed

### Powder characteristics

Typical Chemical Properties (wt%)	
Fe	Balance
Cr	28
Ni	16.5
Mo	4.5
C	< 0.2

Particle sizes	
Amperit 633.001	45/22 μm, other sizes available upon request

### Coating characteristics

Typical Chemical Properties (wt%)*	
Deposition Efficiency:	> 60%
Microhardness:	< 450 HV0.3
Porosity:	< 1%
Corrosion acc. ASTM B117; ISO 10289 rating:	336h; > 6M
As-sprayed surface roughness Ra:	4–6 μm
Sprayability	Excellent
Bond Strength (acc. ASTM C633)	> 60MPa

\*Typical data. For more details, please contact us at: [www.hoganas.com/en/contact/](http://www.hoganas.com/en/contact/).

## Corrosion Resistance in Neutral Salt Spray (NSS)

Amperit 633.001 provides stable and decelerated corrosion propagation. Typical failure modes of other HVOF- sprayed Fe-base coatings are prevented through careful alloy and particle size distribution (PSD) selection. By choosing the right parameters, dense, and even gas-tight coatings can be achieved.



## Related Products

- » Fe-base powders for HVOF, HVOF, or APS applications, such as 316L (FeCrNi) for general corrosion protection or build-up, and 3650-02 or 3.50 (FeCrNiC) for higher hardness and enhanced wear protection.
- » Ni-base powders for HVOF, HVOF, or APS applications, including Hastalloy-type or Inconel-type powders for applications with specific corrosion requirements. Amperit 175/176 (pure Ni) and Amperit 250/251 (Ni 20Cr) serve as general bond coats, while Amperit 280/281 (Ni 5Al) offers oxidation and corrosion protection.
- » Laser Cladding powders, such as 3.33LC, serve as Hard Chrome alternatives for Roof Support Cylinders, applications in the steel Industry, or for dimensional build-up.

## Handling and Safety Recommendations

- » Store in dry location.
- » Open containers should be stored in a drying oven to prevent moisture pickup.
- » Tumble powder prior to use to prevent segregation.
- » For information related to health, safety and the environment, please refer to the respective Safety Data Sheets.

More info: scan or click the QR Code



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