Technical Bulletin

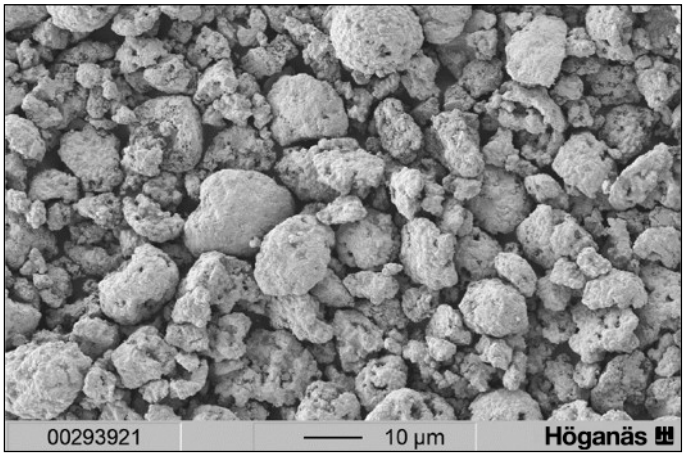
Amperit 658, WC 10Co 4Cr

A versatile WC 10Co 4Cr powder engineered for Ultimate Reliability

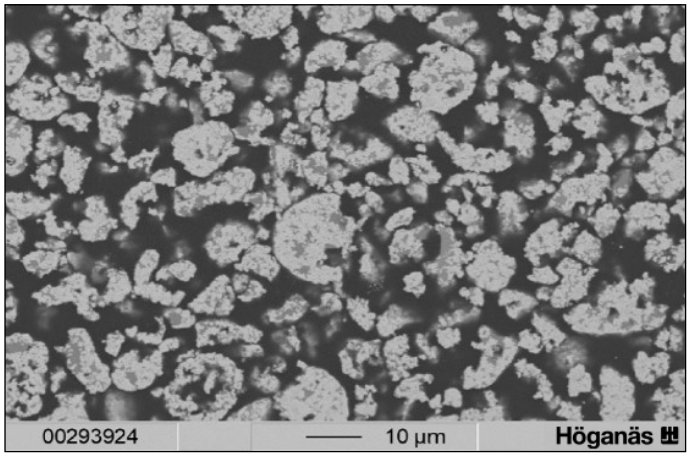
Amperit 658 is a carbide-based powder material designed for thermal spray processes. It is used to produce long-lasting wear and corrosion protection, offering improved process efficiency and contributing to more sustainable coating solutions. **Amperit 658** is a powder tailored specifically for High Velocity Air Fuel (HVAF) and High Velocity Oxygen Fuel (HVOF) applications, with the purpose of producing thin, wear- and corrosion-resistant "Net Shape Coatings" or "Near Net Shape Coatings". **Amperit 658** coatings can be extremely dense to meet industry demands for wear and/or corrosion protection.

Amperit 658 can be used as hard chrome replacement, for example, on hydraulic piston rods or rolls. The mechanical properties, such as hardness and wear/scratch resistance, exceed those of both HVOF-sprayed coatings with conventional WC 10Co 4Cr and electroplated hard chrome. The lower coating thickness, typically 50 µm or less, and the low as-sprayed surface roughness, in the range of Ra = 1.5 µm, combined with very low thickness deviation, significantly affect and reduce the total process costs of the coating. In addition, the low roughness minimizes the effort required for subsequent intense finish machining on the coating.

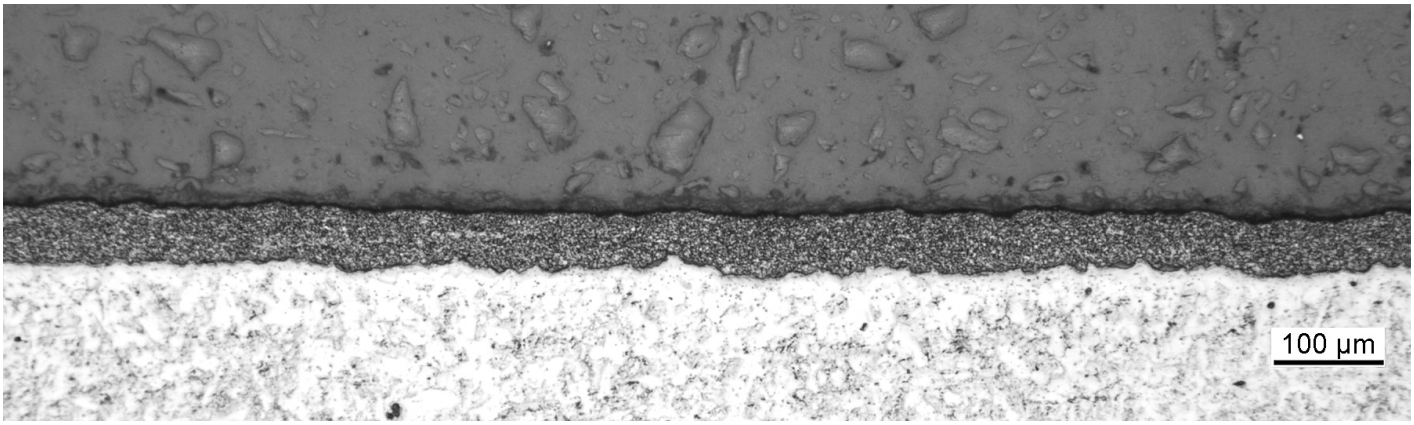
Amperit 658 coatings can also serve as replacements for standard HVOF-sprayed WC 10Co 4Cr and CrC-NiCr coatings when a thinner coating is preferred, and service temperatures do not exceed 500 °C.



Morphology of Amperit 658.067 powder



Microcut of Amperit 658.067 powder



Typical microstructure of a HVAF-sprayed Amperit 658.067 coating

Powder Characteristics

Nominal Chemistry[1] (Mass Fraction in %)	
Co	8.5–11.0%
Cr	3.0–5.0%
C	5.0–6.0%
W	balance
Particle Sizes	
Amperit 658.067	15/5 µm. other sizes available upon request

**Typical data. For more details please contact us at: www.hoganas.com/contact/*

Coating Characteristics

Typical Properties of HVAF-Sprayed Amperit 658.067	
Microhardness:	1400–1500 HV0.3
Porosity:	< 1%
Gas Permeability:	0 ml/min @ 18 bar
Corrosion acc. ASTM B117:	passed 1008 h
Abrasion acc. ASTM G65, B:	11–14 mg
Abrasion acc. JIS H8503:	9–11 mg
As-Sprayed Surface Roughness R_a:	1.4–1.9 µm

**Typical data. For more details please contact us at: www.hoganas.com/contact/*

More info: scan or click the QR Code