

Material Product Data Sheet

Spherical Cast Tungsten Carbide Powder for Laser Cladding

Laser Cladding Products: MetcoClad 52001

1 Introduction

MetcoClad™ 52001 is a fused tungsten carbide powder with a spherical morphology (CTC-S). For laser cladding and PTA welding applications, it is used as hard phase blend component that is blended with a self-fluxing alloy matrix.

MetcoClad 52001 is produced using a unique melting process. It has a fine non-acicular structure with very high hardness compared to conventional fused and crushed tungsten carbides. High apparent density and increased flowability makes the product an excellent choice for overlay applications that require high wear resistance.

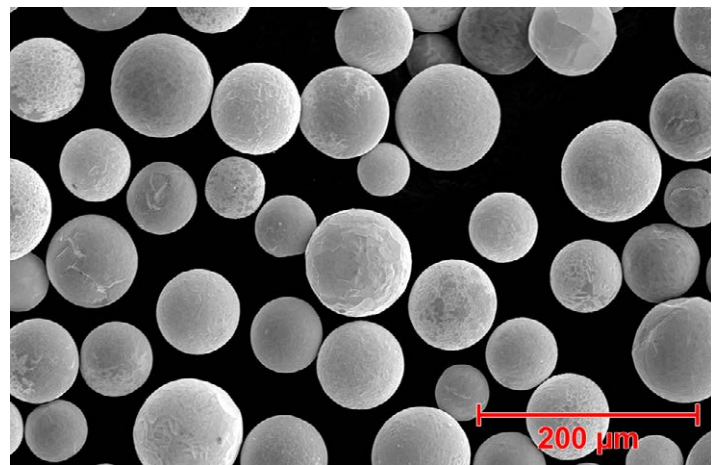
1.1 Typical Uses and Applications:

MetcoClad 52001 is usually blended with a self-fluxing alloy for laser cladding and PTA deposits used for:

- Down hole tools such as stabilizers and drill collars
- Slurry pump impellers
- Conveyor screws used for manufacturing of plastics

Quick Facts

Classification	Carbide, tungsten-based
Chemistry	WC
Manufacture	Gas atomized
Morphology	Spheroidal
Melting Range	1100 °C (2012 °F)
Carbide Hardness	2700 – 3100 HV0.1
Service Temperature	≤ 500 °C (930 °F)
Apparent Density	6.5 – 9.5 g/cm ³
Hardness	2700 – 3500 HV
Purpose	Wear and erosion resistance
Process	Laser Cladding, PTA



Morphology of MetcoClad 52001 tungsten carbide

2 Material Information

2.1 Chemical Composition

Product	Weight Percent (nominal)		
	W	C	Other
MetcoClad 52001	Balance	3.8	0.7

2.2 Particle Size Distribution

Product	Nominal Range μm
MetcoClad 52001	-106 +45

Size analysis using sieve (ASTM B214).

2.3 Key Selection Criteria

- Choose MetcoClad 52001 for as a hard phase constituent, blended with a metallic matrix, for applications where high hardness, wear resistance and resistance to slurry erosion is needed.

2.4 Related Products

- Depending on particle size distribution requirements, Woka 50055, Woka 50057 or Woka 50059 can be used as alternatives to MetcoClad 52001.
- MetcoClad 52052 is a pre-blended product consisting of 60 % MetcoClad 52001 and 40 % of a nickel chromium boron silicon alloy. Use of the pre-blended material insures consistent results and has been optimized for laser cladding applications where high wear resistance and resistance to slurry erosion is required.

3 Commercial Information

3.1 Ordering Information and Availability

Product	Order No.	Package Size	Availability	Distribution
MetcoClad 52001	1075603	5 kg (approx. 11 lb)	Special Order	Global

3.2 Handling Recommendations

- Store in the original container in a dry location.
- Tumble contents prior to use to prevent segregation.
- Open containers should be stored in a drying oven to prevent moisture pickup.

3.3 Safety Recommendations

See the SDS 50-1522 (Safety Data Sheet) in the version localized for the country where the material will be used. SDS are available from the Oerlikon web site at www.oerlikon.com/metco (Resources – Safety Data Sheets).

Information is subject to change without prior notice.