

# Product Technical Information

## Superfine Tungsten Carbide/Cobalt Infralloy™ S7412Z-SR Thermal Spray Powder for Sink Rollers (Zn bath)

[U.S. Patent Nos. 6,277,774; 6,576,036;  
7,238,219 ]

### Thermal Spray Grade

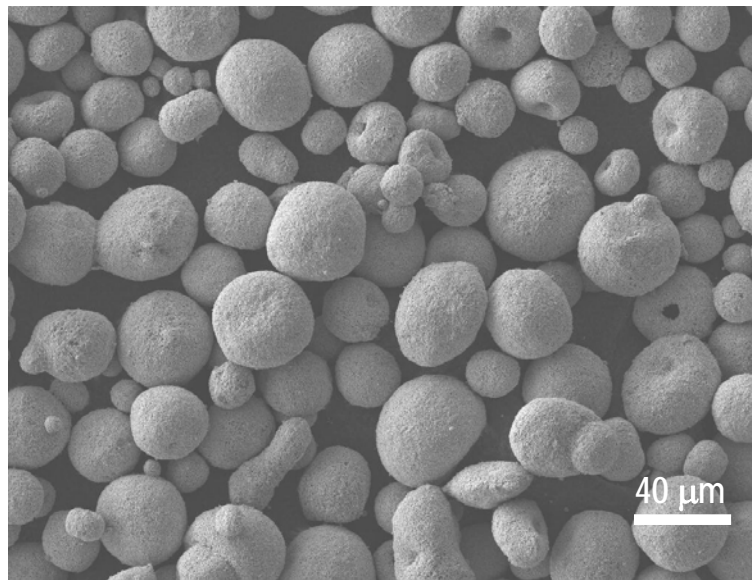
Tungsten carbide/cobalt is a ceramic-metal (cermet) composite material used as a wear resistant coating. The alloyed form gives superior hardness. Infralloy™ powder is made from WC nanoparticles alloyed with a cobalt binding matrix phase.

Infralloy™ S7412Z –SR powder is available as agglomerated particles with dimension  $15 < \Phi < 45 \mu\text{m}$  with high flowability for HVOF grade thermal spray Zn bath sink roller applications.

### Powder Morphology

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SEM micrograph typical of Infralloy™ S7412Z-SR feedstock powder showing spherical geometry with high flowability.



Infralloy™ S7412Z Powder

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WC: Co wt ratio	88: 12	
Alloy content	< 1 %	
Carbon content	4.85-5.15 wt%	
Particle size $\mu\text{m}$	0.1 - 0.5	
Agglomerated size ( $\mu\text{m}$ )	-45 to +15	-
Coating hardness (VHN)	850 -1100	

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1 micron= $10^{-6}$  meter

1 nanometer= $10^{-9}$  meter

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### Suggested Applications

Inframat® Infralloy™ S7412Z is a special HVOF grade powder for sink roller applications in galvanizing steel lines. It is a superior high toughness coating material providing wear-, erosion-, and corrosion-resistant surfaces, especially in aggressive Zn bath environments. The special S7412Z-SR sink roll WC/Co is superior to competitive products due to:

- 1) The composition of the cobalt and carbide phases are specifically formulated to minimize buildup of the dross from the zinc bath
- 2) The nucleation sites of zinc on the surfaces are much smaller than those in traditional micro-grained coatings

When defects occur they are fewer in number and much smaller (3-orders of magnitude smaller) which allows for longer use of the sink roll before replacement.

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