

# Product Technical Information

## Sprayable Superfine Tungsten Carbide/Metal Alloy Infralloy™ F7450 Thermal Spray Powder

[U.S. Patent Nos. 6,277,774 ; 6,287,714; 6,576,036;  
7,238,219; 7,537,636; 7,625,542 ]

### Thermal Spray Grade

Tungsten carbide/metal alloy is a metal-ceramic- (cermet) combined with a fluxed alloy composite material used as a high performance wear, erosion, impact, and corrosion resistant coating. The alloyed form gives superior hardness. Infralloy™ F7450 cermet powder is made from tungsten carbide nanoparticles (0.1-1 μm) alloyed with a cobalt binding matrix phase, followed by blending with a metal alloy flux phase to ensure high hardness and density coatings.

Infralloy™ F7450 powder is available as agglomerated particles with dimension  $15 < \Phi < 45 \mu\text{m}$  with high flowability for HVOF thermal spray applications.

### Infralloy™ F7450 Powder

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#### Chemistry

WC	44 wt%
Co	6wt%
Cr	7.2wt%
Fe	2.3wt%
Si	2.2wt%
B	1.6wt%
Ni	Rem
Other alloy additives	<1%wt%

#### Other properties

Particle size (μm)	0.1-0.5
Agglomerate size (μm)	-45 to +15
Hardness (VHN)	650-900

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

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

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### Suggested Applications

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Infralloy™ F7450 tungsten carbide/cobalt blended with flux metal-alloy powder is a superior coating material providing wear-, erosion-, and corrosion-, and impact-resistant surfaces where excellent to exceptional fracture toughness is required. Compared to F7435, it has a higher tungsten carbide hard particle phase, attributing to better hardness and wear/erosion resistance.

It is considered for heavy duty equipment coatings, such as still mills, petroleum drilling tools, and automotive parts, where high wear, erosion, and corrosion resistant properties are paramount.

The Thermal Spray Grade material can be applied with DC Arc plasma, HVOF, or an old-fashioned handguns.

The processed coatings can also be post treated by fusing via a fusing torch adjusted at neutral flame. After fusing, the coating will be extremely dense with near pore or defect free coatings or metallurgical bonds between splats.

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### Contact Information

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