

# Product Technical Information

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

[U.S. Patent Nos. 6,277,774 ; 6,287,714;

### 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-NiFeCr cermet powder is made from tungsten carbide nanoparticles (0.1-1 μm) alloyed with a cobalt binding matrix phase, followed by blending with a nickel alloy metallic phase to ensure high toughness impact resistance, and density coatings.

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

### Infralloy™ F7450-NiFeCr Powder

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#### Chemistry

WC	44 wt%
Co	6wt%
Cr	7.2wt%
Fe	8wt%
Ni	Rem
Other alloy additives	<1wt%

#### Other Properties

WC Particle size (μm)	0.1-0.5
Agglomerate size (μm)	-45 to +15
Hardness (VHN)	600-850

1 micron = 10<sup>-6</sup> meter

1 nanometer = 10<sup>-9</sup> meter

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## Suggested Applications

Infralloy™ F7450-NiFeCr tungsten carbide/cobalt blended with nickel 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 F7450-NiFeCr, it does not have the brittle elements such as B and Si, attributing to better coating toughness and impact 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 and/or HVOF.

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## Contact Information

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