

# WC/10%Co/4%Cr Thermal Spray Powder SURPREX W1004

## ■SURPREX W1004

SURPREX W1004 is an agglomerated and sintered composite powder of WC/10%Co/4%Cr for thermal spray.

<Product feature>

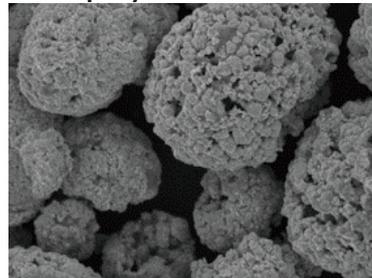
1. Free of spitting by powder classification technology and particle strength control
2. Designed for various types of High-Velocity Flame Spray Guns to achieve higher deposition efficiency

## ■Typical Particle Size Distribution

Type	Size (μm)	+45	+38	+32	-20	-15
J	-45+15	2.6	30.2	33.6	15.1	3.5

FUJIMI has sophisticated classification technology and several types of powder size are available not only SURPREX W1004J but also -53+15μm / -38+10μm. Powder size can also be customized to suit a wide range of application needs.

## ■SEM Image of Spray Powder Particles

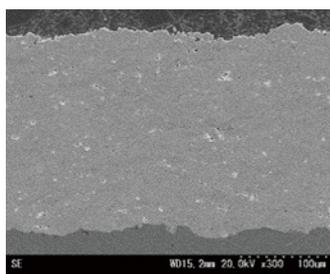


## ■Typical Chemical Composition

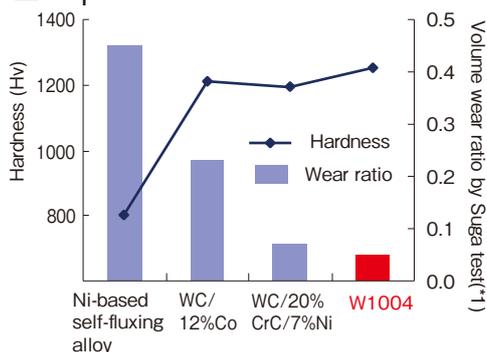
Composition (wt%)				
W	C	Co	Cr	Fe
Bal.	5.9	10.0	4.0	0.1

## Coating Characteristics

### ■Structure of SURPREX W1004



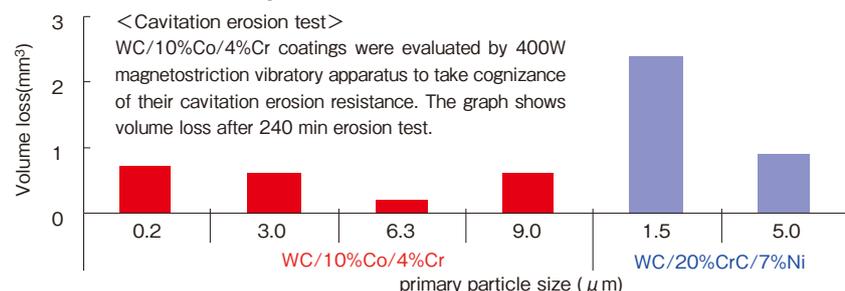
### ■Comparative Wear Ratio of Various Materials



A Comparison is made of wet wear resistance among W1004 and three popular thermal spray coatings. W1004 exhibit high hardness and wet wear resistance.

(\*1) A specimen immersed in a mixture of 40kg of A#8 abrasives and water revolves at 30rpm and orbits at 50rpm. The wear of the specimen is, then, rated against the base value of substrate (STKM12C) tested for 200 hrs.

### ■Influence of Primary Particle Size of WC on cavitation erosion



As a result of the cavitation erosion test, the erosion resistance of WC/10%Co/4%Cr is higher than WC/20%CrC/7%Ni. The primary particle size of WC also influences the properties of WC/10%Co/4%Cr coating, and the erosion resistance of WC/10%Co/4%Cr is highest at 9μm of the primary particle size. In W1004, we have set the size at 3μm with considerations of cost-performance and we can also customized the primary size of WC for higher cavitation erosion resistance.

## Applications

### ■Applications of W1004

<Coating Characteristics>

- Corrosion resistance
- Wear resistance
- High toughness
- Cavitation erosion resistance

<Applications>

- Turbine blades
- Hydro-turbine blades
- Printing machinery parts
- Pump parts
- Film rolls
- Plungers

W1004 is applied in the Iron industry, the paper industry, and the machine industry with W1004 corrosion resistance, wear resistance, and cavitation erosion resistance.