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Infralloy™ S7412 Tungsten Carbide/Cobalt 88WC/12Co Thermal Spray Powder

SUMMARY

Infralloy™ S7412 is a tungsten carbide/cobalt (WC/Co) powder. Its chemistry is 88wt% WC and 12wt% Co. Particle size is in the range of:

Praxair JP5000 system:	-45 to +15 microns
Metco DJ 2700 hybrid:	-45 to +5 microns

Other particle size for plasma spray gun system can also be obtained, *e.g.*, -45 to +10 microns, can be obtained depending on customers' specific needs.

SUGGESTED COATING SPRAY SYSTEMS

Metco DJ 2700, Praxair JP5000, or detonation, etc.

SUGGESTED APPLICATIONS

Coatings of Infralloy™ S7412 are recommended for the following applications

Typical Applications

Wear resistance	Bearing surfaces, knife edges, conveyor screws, thread guides, impeller shafts, anti-galling sleeves, exhaust fans, oil field ball/gate valves, aircraft flap tracks, turbine compressor stators, turbine mid-span supports (fan blades), turbine fan duct segments, rollers (steel making or printing)
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POWDER CHARACTERISTICS

Typical Composition:	WC : Co wt ratio	88 : 12
	Alloy elements	<1%
Particle size:	-45 to +5 microns for DJ 2700 Metco Or -45 to +15 microns for Praxair JP5000	
Eutectic Temperature	1320°C	



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TYPICAL PHYSICAL PROPERTIES OF THE COATINGS

Textures of as-sprayed	120-200 microinches
Ground surface	2-4 microinches
Cross Section Microhardness	1050-1250 VHN ₃₀₀
Bond strength (low carbon steel coupons)	>12,000 psi

WEAR RESISTANCE

This coating is suitable for high wear resistant surface application where high toughness is required

POST SPRAY FINISHING

Coatings of Infralloy™ S7412 are best finished by grinding. Finishing of 2-4 micron inch of surface can be achieved

TYPICAL STARTING SPRAYING PARAMETERS

Hybrid DJ 2700 using Propylene

Hardware	Pressure psig			Folwmeter Reading (FMR)			Flow (SCFH)			Powder Feeder (DJP)			Spray	
	O ₂	C ₃ H ₆	Air	O ₂	C ₃ H ₆	Air	O ₂	C ₃ H ₆	Air	N ₂ FMR	N ₂ SCFH	Air psig	Rate lbs/h	Dist inch
DJ2701	150	100	100	40	40	48	578	176	857	55	28.5	20	5	8-10

Hybrid DJ2600 using hydrogen

Hardware	Pressure psig			Folwmeter Reading (FMR)			Flow (SCFH)			Powder Feeder (DJP)			Spray	
	O ₂	H ₂	Air	O ₂	H ₂	Air	O ₂	H ₂	Air	N ₂ FMR	N ₂ SCFH	Air psig	Rate lbs/h	Dist inch
DJ2603	170	140	100	32	62	44	489	1450	786	55	28.5	20	5	8-10

Standard DJ 9A using Propylene

Hardware	Pressure psig			Folwmeter Reading (FMR)			Flow (SCFH)			Powder Feeder (DJP)			Spray	
	O ₂	C ₃ H ₆	Air	O ₂	C ₃ H ₆	Air	O ₂	C ₃ H ₆	Air	N ₂ FMR	N ₂ SCFH	Air psig	Rate lbs/h	Dist inch
DJ3-9	150	80	75	43	42	47	620	167	742	55	26.3	20	5	6-8



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Standard DJ8A using hydrogen

Hardware	Pressure psig			Folwmeter Reading (FMR)			Flow (SCFH)			Powder Feeder (DJP)			Spray	
	O ₂	H ₂	Air	O ₂	H ₂	Air	O ₂	H ₂	Air	N ₂ FMR	N ₂ SCFH	Air psig	Rate lbs/h	Dist inch
DJ3-8	160	125	75	41	64	45	610	1422	710	55	26.3	20	5	6

POWDER HANDLING

Wear a mask and gloves when pouring powders into the feeder or discharging from the feeder

SAFETY MEASURES IN SPRAYING

Thermal (plasma) spray is a completely safe process when performed in accordance with Equipment Safety Measures. Familiarize with yourself with local safety regulations before start spray operations. When spraying it is recommended always have at least two personnel on sight.

DISREGARDING TO THESE SAFETY INSTRUCTION MAYBE DANGEROUS TO YOUR HEALTH