

THERMAL SPRAY WIRES

Pure Metals

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA101	Aluminum Al 99.5 <i>1350 Alloy</i>	10101-1	1/8", 1/16" 3/16", 11, 15 Gauge	Tafa 01T Praxair Aluminum Metco Aluminum Metco Aluminum AW	MIL-W-6712C PWA 1320F SNECMA DMR33-12 Garrett FP5045 GECF6	30-75 Rb 4379 PSI	<ul style="list-style-type: none"> Corrosion and chemical resistance Electrical conductivity Used in capacitor industry
HA111	Aluminum 99.0 Min, 1.0Si Max + Fe <i>1100 Alloy</i>	10111	1/8", 1/16"	Praxair 1100	MIL-W-6712	35-55 Rh 4379 PSI	<ul style="list-style-type: none"> Corrosion resistant Better corrosion resistance than pure aluminum
HA405	Copper Cu 98.7	10405	1/8", 1/16"	Tafa 05T Praxair Copper Metco Copper Metco Copper AW	MIL-R-19631A MIL-W-6712C type II	37 Rb 7324 PSI	<ul style="list-style-type: none"> Electric conductivity Copper reclamation Used as alternate to copper plating
HA613	Molybdenum Mo 99.0+	10613	1/8", 1/16"	Tafa 13T Praxair Moly Metco Sprabond®	PWA 36913 PWA 271-13 Rev D MSSR9507/19 Garrett FP5045 Type I	14-36 Rb 5496 PSI	<ul style="list-style-type: none"> Abrasion resistance Excellent adhesion to steel Excellent in molten metal environment in inert atmospheres
HA706	Nickel Ni 99.0	10706	1/16"	Tafa 06T Praxair Nickel Metco Nickel	MIL-W-6712C	58 Rb 4000 PSI	<ul style="list-style-type: none"> Corrosion protection Excellent machined surface finish Finishes "Bright & Shiny"
HA930	Silver Cu 34Zn 31Ag	10930	1/16"	Tafa 30S	GE B20A4 GE 70-49-44	86-94 Rb 6525 PSI	<ul style="list-style-type: none"> Stationary seals in Aircraft Good rubbing wear characteristics
HA802	Tin Sn 99.8	10802	1/8" 2 mm	Tafa 02W Praxair Tin Metco Tin	MIL-W-6712C	69-71 Rb 2552 PSI	<ul style="list-style-type: none"> Good electrical conductivity Low melting point
HA814	Titanium Ti 99.8	10814	1/16"	Tafa 14T	ASTM B348/Grade I ASTM F67-89/Grade I	70-80 Rb 5700 PSI	<ul style="list-style-type: none"> Spraying in inert atmospheres Medical implants Excellent corrosion
HA902	Zinc Zn 99.9	10902	1/8", 1/16" 3/16", 2mm 11, 15 Gauge	Tafa 02Z Praxair Zinc Metco Zinc PP Metco Zinc AW	MIL-W-6712C	60-73 Rb 1218 PSI	<ul style="list-style-type: none"> Corrosion, EMI/REI shielding Low melting point material Anode protection Excellent bonding to non-metallic surfaces

PURE METAL POWDERS

HAI Name	Powder Type	Product ID	Particle Size	Similar Products	Comparable Specifications	Typical Properties and Applications
HA1030	Aluminum (Al) 99% Gas Atomized	101030	-45 + 5 µm (-325 mesh + 5 µm)	Praxair AL104 Metco 54NS-1	Standard Grade	<ul style="list-style-type: none"> Relatively soft and ductile Corrosion resistant in coastal and industrial atmospheric conditions Good electrical and thermal conductivity Can be used to repair aluminum or magnesium base alloy parts
HA4155	Copper (Cu) 99.5% Gas Atomized	104105	-90 + 38 µm (-170 mesh + 38 µm)	Tafa 1105B	Standard Grade	<ul style="list-style-type: none"> Good electrical and thermal conductivity Coatings are soft, ductile and moderately oxidation resistant
HA4155-1	Copper (Cu) 99.0% Semi-Spherical, Water Atomized	104155	-106 + 45 µm (-140 + 325 mesh)	Praxair CU105 Metco 55	Standard Grade	<ul style="list-style-type: none"> Can be used for build-up and repair on copper base alloys Non-magnetic, can be used for electromagnetic shielding
HA2024	Chromium (Cr) 99.5% Irregular	102024	-45 µm (- 325 mesh)	Irregular	GE B10D5 PMC9753-1	<ul style="list-style-type: none"> Good flowability and high density Used for welding electrodes and wires; electrode hardeners, and chromizing applications
HA5000	Iron (Fe) 99.5% Water Atomized	105000	-106 + 15 µm (-140 mesh +15 µm)		Standard Grade	<ul style="list-style-type: none"> Tough, hard coatings with excellent sliding properties and wear resistance
HA6103	Molybdenum (Mo) 99% Sintered, Spherical	106103	-45 + 5 µm (-325 mesh + 5 µm)	Praxair MO103	PWA 1338 CPW 248	<ul style="list-style-type: none"> High density coatings that require grinding to finish Resistant to electric arc erosion in oxidizing or atmospheric conditions May be used as a bond coat Used for pump parts, diesel engine fuel injectors, piston rings, synchronizing rings, press fits, valves, gears, cam followers
	Molybdenum (Mo) 99+% Spray-Dried, Sintered	106193	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1193F	PWA 1313D	
HA6102	Molybdenum (Mo) 99% Spherical	106102	-90 + 45 µm (-170 + 325 mesh)	Praxair MO102 Metco 63NS Amdry 313X	PWA 1313 MSRR 9507/19 CPW 213 Garrett EMS 56705	
HA7400	Niobium (Nb) Angular Cast and Crushed	107400	-30 + 5 µm (-500 mesh + 5 µm)		Standard Grade	<ul style="list-style-type: none"> Good heat resistance in non-oxidizing atmospheres
HA7156	Nickel (Ni) 99.0% Spherical, Gas Atomized	107100	-45 + 10 µm (-325 mesh + 10 µm)	Praxair NI101	GE B50TF17 Class B US MIL Comp J, Type I Class A/B	<ul style="list-style-type: none"> Readily machineable coatings that bonds well to steel Can be used for salvage and build-up of nickel base alloys components which have been damaged or mis-machined
HA7166	Nickel (Ni) 99.3+% Precipitated	107166	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1166F	Standard Grade	
HA9197	Silicon (Si) 99.9% Angular	109197	-45 + 5 µm (-325 mesh + 5 µm)		Standard Grade	<ul style="list-style-type: none"> Typically used for semiconductor equipment component protection
HA9106	Tungsten (W) 99.5%	109106	-45 (-325)	Praxair AI1061F	Standard Grade	<ul style="list-style-type: none">
HA9106-1	Tungsten (W) 99.5%	109106	-75+45 (-200+325)	Praxair AI1061	Standard Grade	
HA9918	Titanium (Ti) 99% Spherical, Dense	109918	-63 µm (-230 mesh)		Standard Grade	<ul style="list-style-type: none"> Very dense coatings for corrosion resistance in sea water, chloride salt solutions and oxidizing acid solutions (except for pure HCl and pure H₂SO₄) Is a highly purity material, recommended for porous titanium coatings on medical implants. Also suitable as a bond coat for hydroxylapatite coatings
HA9918-1	Titanium (Ti) 99% Spherical, Dense	109918-1	-106 µm (-140 mesh)		Standard Grade	
HA9918-2	Titanium (Ti) 99.4% Irregular	109918-2	-90 + 11 µm (-170 mesh + 11µm)		Standard Grade	
HA9300	Zinc, 99%	109930				<ul style="list-style-type: none">

ALUMINUM BASE POWDERS

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
HA1020-1	Al 12Si Spherical, Gas Atomized	21111 1	-45 + 5 µm (-325 mesh + 5 µm)	Praxair AL111	PWA 1335	<ul style="list-style-type: none"> General purpose material for repair and build-up of aluminum and magnesium base components, including jet engine parts Harder than pure aluminum
HA1020	Al 12Si Spherical, Gas Atomized	21110 2	-106 + 45 µm (-140 + 325 mesh)	Praxair AL102	Garrett EMS 57742 PWA 1335 CPW 235	
HA1020-2	Al 12Si Spherical, Gas Atomized	21102 0	-125 + 45 µm (-120 + 325 mesh)		Mil-P-85856 Type 1, Class II, Comp E Rev 4	

COBALT BASE POWDERS

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
HA1101	Co 19Cr 7.5W 13.5Ni 3Fe Spherical, Gas Atomized	221136	-106 + 45 µm (-140 + 325 mesh)		Standard Grade	<ul style="list-style-type: none"> High temperature hardness and high resistance to cavitation erosion Self-fluxing, machineable Used for applications involving abrasion and solid particle erosion
HA1106	Co 19Cr 9W 13Ni 3Fe Spherical, Gas Atomized	221137	-106 + 45 µm (-140 + 325 mesh)		Standard Grade	
HA1112	Co 19Cr 13W 13Ni 3Fe Spherical, Gas Atomized	221112	-106 + 45 µm (-140 + 325 mesh)		Standard Grade	
HA1132	Co 25Cr 12W 22Ni 3Fe Spherical, Gas Atomized	221132	-150 + 45 µm (-100 + 325 mesh)		Standard Grade	<ul style="list-style-type: none"> Resistant to corrosive products of internal combustion engines Used to protect the seat faces of combustion engine exhaust valves
HA1132-1	Co 25Cr 12W 22Ni 3Fe Spherical, Gas Atomized	221132-1	-180 + 53 µm (-80 + 270 mesh)		Standard Grade	
HA1130	Co 25Cr 10Ni 7Al 5Ta Spherical, Gas Atomized	221310	-45 + 5 µm (-325 mesh + 5 µm)		Standard Grade	<ul style="list-style-type: none"> Resistance to abrasive wear, sliding wear, fretting and cavitation Excellent oxidation resistance Suitable for repair and build-up of parts made of cobalt base alloys
HA1103	Co 25Cr 10Ni 7.5W Spherical, Gas atomized	221103	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CO103 Metco 45VF-NS	Garrett EMS 52432 Class XXIII MSRR 9507/23 PWA 1316 CPW 236 DMR 38.008	<ul style="list-style-type: none"> Resistant to abrasive wear, sliding wear, fretting and cavitation Excellent oxidation resistance Produces a thinner, smoother coating, requiring less finishing Suitable for repair and build-up of parts exposed to wear at high temperatures, e.g. forging dies, rolls, exhaust valves
HA1105	Co 25Cr 10Ni 7.5W Spherical, Gas Atomized	221105	-90 + 45 µm (-170 + 325 mesh)	Praxair CO105 Metco 45C-NS	MSRR 9507/3 PWA 1318 BMW 10-67-9 DMR 33.007	
HA1245	Co 28Cr 11Ni 8W 2Fe Gas Atomized	221245	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1245F	Standard Grade	<ul style="list-style-type: none"> Resists abrasion, fretting and hard particle erosion at high temperatures
HA1121	Co 27Cr 5.5Mo 2.8Ni 2Fe Spherical, Gas Atomized	221121	-45 + 10 µm (-325 mesh + 10 µm)	Stellite 21	GE B50A675C	<ul style="list-style-type: none"> Excellent high temperature strength and stability Resistance to galling (under self-mated conditions), cavitation erosion, and corrosion Useful as a hot die material. Popular as fluid valve seat facing alloy
HA1121-1	Co 27Cr 5.5Mo 2.8Ni 2Fe Spherical, Gas Atomized	221121-1	-150 + 45 µm (-100 + 325 mesh)	Stellite 21	GE B50A675C	
HA1121-2	Co 27Cr 5.5Mo 2.8Ni 2Fe Spherical, Gas Atomized	221121-2	-180 + 53 µm (-80 + 270 mesh)	Stellite 21	Standard Grade	
HA1716	Co 28Cr 8Mo 1.7Ni 1.9C Spherical, Gas Atomized	221279	-150 + 45 µm (-100 + 325 mesh)	Stellite 716	Standard Grade	<ul style="list-style-type: none"> High temperature hardness and high resistance to cavitation erosion Useful to protect the surfaces of fluid valve seats
HA1106	Co 28Cr 4W 3Fe 3Ni Spherical, Gas Atomized	221106	-45 + 10 µm (-325 mesh + 10 µm)	Stellite 6	Standard Grade	<ul style="list-style-type: none"> Outstanding self-mated anti-galling properties High temperature hardness and high resistance to cavitation erosion Excellent resistance to many forms of mechanical and chemical degradation over a wide temperature range Useful as a valve seat material
HA1106-1	Co 28Cr 4.5W 3Fe 3Ni Spherical, Gas Atomized	221106-1	-45 + 16 µm (-325 mesh + 16 µm)	Stellite 6	Standard Grade	

COBALT BASE POWDERS

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
HA1106-2	Co 28Cr 4W 3Fe 3Ni Spherical, Gas Atomized	221106-2	-53/D μm (-270/D mesh)	Stellite 6/JK576	Standard Grade	
HA1256	Co 28Cr 4W 3Fe 3Ni Gas Atomized	221256	-53 + 20 μm (-270 mesh +20 μm)	Tafa 1256F	Standard Grade	
HA1106-4	Co 28Cr 4W 3Fe 3Ni Spherical, Gas Atomized	221106-3	-150 + 45 μm (-100 + 325 mesh)	Stellite 6	Standard Grade	
HA1106-3	Co 28Cr 4W 3Fe 3Ni Spherical, Gas Atomized	21106-3	-180 + 53 μm (-80 + 270 mesh)	Stellite 6 PTA WM Hoganas 6	Standard Grade	
HA1114	Co 28Cr 20W 5Ni 1V Spherical, Gas Atomized	221114	-90 + 45 μm (-170 + 325 mesh)	Praxair CO114-2	GEB50A842 Class A	<ul style="list-style-type: none"> • Excellent high temperature wear and oxidation resistant coatings • Hard dense deposits suitable for dimensional restoration
HA1112	Co 29Cr 8W 3Fe 3Ni Spherical, Gas Atomized	221112	-150 + 45 μm (-100 + 325 mesh)	Stellite 12	Standard Grade	<ul style="list-style-type: none"> • Excellent wear, abrasion, and cavitation resistance, excellent sliding properties • Oxidation and corrosion resistance • Used for steam turbine components
HA1112-1	Co 29Cr 8W 3Fe 3Ni Spherical, Gas Atomized	221112-1	-180 + 53 μm (-80 + 270 mesh)	Stellite 12	Standard Grade	
HA1101-2	Co 30Cr 12.5W 3Fe 3Ni Spherical, Gas Atomized	221101-2	-45 + 10 μm (-325 mesh + 10 μm)	Stellite 1	Standard Grade	
HA1101	Co 30Cr 12.5W 3Fe 3Ni Spherical, Gas Atomized	221101	-150 + 45 μm (-100 + 325 mesh)	Stellite 1	Standard Grade	
HA1101-3	Co 30Cr 12.5W 3Fe 3Ni Spherical, Gas Atomized	221101-3	-180 + 53 μm (-80 + 270 mesh)	Stellite 1	Standard Grade	
HA1900	Co 22Mo 17Cr 16.7Ni 2.9Si Spherical, Gas Atomized (Tribaloy 900)	221739	-150 + 45 μm (-100 + 325 mesh)	Stellite T900	Standard Grade	
HA1109	Co 28Mo 8.5Cr 2.6Si Spherical, Gas Atomized (Tribaloy 400)	221109	-45 + 10 μm (-325 mesh + 10 μm)	Praxair CO109 Metco 66F-NS	GE B50TF155 Class A Garrett EMS 52432 XVI BMS 10-67-15	<ul style="list-style-type: none"> • Excellent mechanical wear resistance with good corrosion resistance • Good hot hardness with both hot corrosion and oxidation properties • Low coefficient of friction • Smooth as-sprayed • Can be used for wear surfaces for bearing, brakes, compressor rods, pistons, and valve parts
HA1400	Co 28.5Mo 8.5Cr 2.6Si .08C Spherical, Gas Atomized (Tribaloy 400)	221735	-45 + 10 μm (-325 mesh + 10 μm)	Stellite T400	GE B50TF155 Class A CL XVI	
HA1244	Co 28.5Mo 8.5Cr 2.5Si Gas Atomized (Tribaloy 400)	221244	-53 + 20 μm (-270 mesh +20 μm)	Tafa1244F	Standard Grade	
HA1400-2	Co 28.5Mo 8.5Cr 2.6Si .08C Spherical, Gas Atomized (Tribaloy 400)	221735-2	-150 + 45 μm (-100 + 325 mesh)	Stellite T400	Standard Grade	
HA1400-3	Co 28.5Mo 8.5Cr 2.6Si .08C Spherical, Gas Atomized (Tribaloy 400)	221735-3	-180 + 53 μm (-80 + 270 mesh)	Stellite T400	Standard Grade	•
HA1248	Co 28.5Mo 17.5Cr 3.5Si Spherical, Gas Atomized (Tribaloy 800)	221738	-45 + 10 μm (-325 mesh + 10 μm)	Tafa 1248T Stellite T800 JK558H	GE B50TF190 DMR 33.021 MSRR 9507/58	<ul style="list-style-type: none"> • Higher chromium content than T-400 for improved oxidation and corrosion resistance. • Low coefficient of friction • Smooth as-sprayed
HA1800	Co 28.5Mo 17.5Cr 3.4Si .08C Spherical, Gas Atomized (Tribaloy 800)	221738-1	-53/D μm (-270/D mesh)	Stellite T800	Standard Grade	
HA1800-2	Co 28.5Mo 17.5Cr 3.4Si .08C Spherical, Gas Atomized (Tribaloy 800)	221738-2	-150 + 45 μm (-100 + 325 mesh)	Stellite T800 JK558P	Standard Grade	

COBALT BASE POWDERS

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
HA1800-3	Co 28.5Mo 17.5Cr 3.4Si .08C Spherical, Gas Atomized (Tribaloy 800)	221738-3	-180 + 53 µm (-80 + 270 mesh)	Stellite T800	Standard Grade	
HA1111	Co 32Mo 15Cr 3Si Gas Atomized (Tribaloy 800)	221111	-45 + 10 µm (-325 mesh + 10 µm)	Praxair CO111 Metco 68NF-NS-1	GE B50TF190 Class A EMS 52432 XV PM 819-15	
HA1110		221110		Praxair CO110		<ul style="list-style-type: none"> • • For demanding aerospace applications • Used for protective plasma spray coatings in hot corrosive or oxidizing environments
HA1211-1	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221211-1	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CO211-1 Discontinued	MSRR 9537/1A	
HA2195	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221195	-45 + 10 µm (-325 mesh + 10 µm)	Praxair CO210-10 Amdry 9954 Stark 415.288	GE B50TF195 Class A DMR 33.095 Garrett EMS57741	
HA1211	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221211	-45 + 22 µm (-325 mesh + 22 µm)	Praxair CO211 Amdry 995C Starck 415.1	MSRR 9507/47 PM 819-58 Garrett EMS 57741	
HA1217	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221127	-53 + 5 µm (-270 mesh + 5 µm)	Praxair CO127	CPW 528-1	
HA1241	Co 32Ni 21Cr 8Al 0.5Y Gas Atomized	221241	-53 + 20 µm (-270 mesh +20 µm)	Tafa 1241F	Standard Grade	
HA1159	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221159	-75 + 38 µm (-200 + 400 mesh)	Praxair CO159	CPW 528-2	
HA1211-2	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221211-2	-150 + 63 µm (-100+ 230 mesh)	Praxair CO211-3	MSRR 9537/1C MSRR 9507/57	

COPPER BASE POWDERS

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
HA4104	Cu 10Al 1Fe Aluminum Bronze Spherical, Gas Atomized	22410 4	-125 + 45 µm (-120 + 325 mesh)	Praxair CU104 Metco 51F-NS	GE B50TF161 Class A	<ul style="list-style-type: none"> Moderate oxidation, wear and fretting resistance at low temperatures, good emergency running properties Can be used for repair and build-up of copper base alloy parts Typical parts which may be coated are pumps (cavitation resistance), piston guides (soft bearing surfaces), shifter forks and compressor air seals
HA4102	Cu 36Ni 5In Spherical, Gas Atomized	22410 2	-90 + 45 µm (-170 + 325 mesh)	Praxair CU102 Amdry 500C Metco 58NS	GE B50TF72 Class A MSRR 9507/31 SNECMA DMR 33.016 BMS 10-67-14	<ul style="list-style-type: none"> Produces dense coatings with good resistance to galling and fretting Typical applications include jet engine parts such as turbine blade roots
HA4103	Cu 38Ni Spherical, Gas Atomized	22410 3	-75 + 45 µm (-200 + 325 mesh)	Praxair CU103 Metco 57NS	GE B50TF42 Class A PWA 1369 SNECMA DMR 33.015 PM 819-42	<ul style="list-style-type: none"> Produces dense coatings for protection against fretting and cavitation, e.g. in turbines or pumps

IRON BASE POWDERS

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
HA5108	Fe 12.5Cr .15C Mn Si Spherical, Gas Atomized	23510 8	-90 + 45 µm (-170 + 325 mesh)	Praxair FE108-2	Standard Grade	<ul style="list-style-type: none"> Moderately hard coating Protects against fretting, cavitation and particle erosion Very good corrosion resistance
HA5420	Fe 12.5Cr Gas Atomized 420 Stainless Steel	23542 0	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1234F Anval 420 SS	Standard Grade	<ul style="list-style-type: none"> Hardness with some corrosion resistance
HA5211	Fe 13.5Cr .15C Mn Si Spherical, Gas Atomized 410 Stainless Steel	23521 1	-45 + 15 µm (-325 + 15 µm)	Praxair FE211-1	Standard Grade	<ul style="list-style-type: none"> Fairly hard coating Protects against fretting, cavitation and particle erosion Good corrosion resistance Requires grinding
HA5431	Fe 15.6Cr 1.8Ni .51Mn .41Si 431 Stainless Steel	23543 1	-106 + 45 µm (-140 + 325 mesh)	Amatek		<ul style="list-style-type: none">
HA8525	Fe 17Cr 11Ni 2.5Mo 2.3Si Spherical, Gas Atomized 316 Stainless Steel	23531 6	-45 + 10 µm (-325 mesh + 10 µm)	Tafa 316L SS Dimalloy 1003	RR 9507/22	<ul style="list-style-type: none"> Very good corrosion resistance Smooth coatings, easily machined Protects against fretting, cavitation and particle erosion Good for dimensional repair and build-up
HA5513-1	Fe 17Cr 12Ni 2.5Mo .8Si Spherical, Gas Atomized 316 Stainless Steel	23510 1	-45 + 15 µm (-325 mesh + 15 µm)	Praxair FE101 Dimalloy 1003 Stellite JK513	Standard Grade	
HA5236	Fe 17Cr 12Ni 2.5Mo Gas Atomized	23523 6	-52 + 20 µm (-270 mesh + 20 µm)	Tafa 1236F	Standard Grade	
HA5281	Fe 32Cr 25Ni 4Mo 4B Gas Atomized	23528 1	-45 + 15 µm (-325 + 15 µm)	Tafa 1281V	Standard Grade	
HA5280	Fe 44Cr 6B 2Si Gas Atomized	23528 0	-45 + 15 µm (-325 + 15 µm)	Tafa 1280V	Standard Grade	<ul style="list-style-type: none"> Produces smooth, hard surface offering excellent erosion resistance Non-rusting with good performance in salt water, acids, and basis solutions

NICKEL BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA7357-1	Ni 5Al Spherical, Gas Atomized	257357-1	-45 + 16 µm (-325 mesh + 16 µm)	Praxaire NI357-1 Dimalloy 4008S	Standard Grade	<ul style="list-style-type: none"> The coatings are dense and resistant to oxidation and abrasion Is a self-bonding material which exhibits an exothermic reaction during spraying, resulting in a good bond Readily machinable
HA7266	Ni 5Al Agglomerated, Sintered	257266	-90 + 38 µm (-170 + 400 mesh)	Tafa 1266M Metco 480NS	Standard Grade	
HA7185	Ni 5Al Irregular, Water Atomized	257185	-106 + 45µm (-140 + 325 mesh)	Praxair NI185 Starck 281.45	Standard Grade	
HA7357	Ni 5Al Spherical, Gas Atomized	257357	-106 + 45µm (-140 + 325 mesh)	Praxair NI357	Standard Grade	
HA7266-1	Ni 5Al Agglomerated, Sintered	257266-1	-106 + 45 µm (-140 + 325 mesh)	Metco 450NS Anval 95/5	Standard Grade	
HA7261	Ni 5Al 5Mo Agglomerated, Sintered	257261	-90 + 38 µm (-170 + 400 mesh)	Tafa 1261M	Standard Grade	<ul style="list-style-type: none"> Tough, moderate resistance to erosion and sliding wear, medium hardness High bond strength Used for protection of machine elements, bearing seats and valves
HA7261-1	Ni 5Al 5Mo Agglomerated, Sintered	257261-1	-125 + 45 µm (-120+325 mesh)	Praxair NI453	Standard Grade	
	Ni 10.5Cr 3.3Si 2.0Fe 2B Spherical, Gas Atomized	257004	-106 + 45 µm (-140 + 325 mesh)	Amateck PF35	Standard Grade	<ul style="list-style-type: none"> For coatings requiring immediate hardness Excellent machinability and resistance to corrosion, heat, and cracking Use as shaft, sleeves, and wear surfaces
HA7040-2		257240		Stellite 40		
HA7050	Ni 11Cr 4Si 2.4B 3Fe Spherical, Gas Atomized	257255	-45 + 10 µm (-325 mesh + 10 µm)	Stellite 50	Standard Grade	<ul style="list-style-type: none"> Produces hard, machinable as-sprayed for fused coating Resists wear by abrasive grains, hard surfaces, fretting, cavitation and erosion
HA7274	Ni 11Cr 4Si 3Fe 2.5B Gas Atomized	257274	-63 + 25 µm (-230 mesh + 25 µm)	Tafa 1274H	Standard Grade	
HA7050-1	Ni 11Cr 4Si 2.4B 3Fe Spherical, Gas Atomized	257255-1	-106 + 45 µm (-140 + 325 mesh)	Stellite 50	Standard Grade	
HA7050-2	Ni 11Cr 4Si 2.4B 3Fe Spherical, Gas Atomized	257255-2	-150 + 45 µm (-100 + 325 mesh)	Stellite 50	Standard Grade	Continued From Previous Page
HA7050-3	Ni 11Cr 4Si 2.4B 3Fe Spherical, Gas Atomized	257255-3	-180 + 53 µm (-80 + 270 mesh)	Stellite 50	Standard Grade	
HA7272	Ni 12Cr 4Fe 3.5Si 3B Gas Atomized	257272	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1272F	Standard Grade	<ul style="list-style-type: none"> Coatings are hard and wear resistant with low oxide content Fusible
HA7277	Ni 14Cr 6Al 4Mo 2 (Nb + Ta) 1Ti Gas atomized	257277	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1277F	Standard Grade	<ul style="list-style-type: none"> Heat and oxidation resistant Repair of turbine engine components
HA7116	Ni 14Cr 4.5Fe 4.5Si 3.0B Spherical, Gas Atomized	257167	-106 + 45 µm (-140 + 325 mesh)	Praxair NI167 Starck 335.063	Standard Grade	<ul style="list-style-type: none"> Fused coatings, is very hard and wear resistant Exhibit moderate shrink with low oxide content
HA7050-4	Ni 15Cr 3.8Si 4.2Fe 2.8B Spherical, Gas Atomized	257255-4	-106 + 45 µm (-140 + 325 mesh)	Amatek PF50	Standard Grade	<ul style="list-style-type: none"> Intermediate hardness Excellent weldability and crack resistance. Use on polish rods, liners, shafts, valve gates, and coupling
HA7276	Ni 15Cr 17W 4Si 3.5Fe Gas Atomized	257276	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1276F Hoganas HA8088	Standard Grade	<ul style="list-style-type: none"> Good deposit efficiency Withstands abrasion and extreme temperatures High oxidation resistance Used for wear resistance coatings and component restoration
HA7115-1	Ni 15.5Cr 4.3Si 4Fe 3.5B Spherical, Gas Atomized	257256	-45 + 10 µm (-325 mesh + 10 µm)	Deloro 60	Standard Grade	
HA7115	Ni 15.5Cr 4.3Si 4Fe 3.5B Spherical, Gas Atomized	257256-1	-106 + 45 µm (-140 +325 mesh)	Deloro 60 Hoganas	AMS4775	

NICKEL BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA7115-2	Ni 15.5Cr 4.3Si 3.5B 4Fe Spherical, Gas Atomized	257256-3	-150 + 45 µm (-100 + 325 mesh)	Deloro 60	Standard Grade	
HA7115-3	Ni 15.5Cr 4.3Si 3.5B 4Fe Spherical, Gas Atomized	257256-4	-180 + 53 µm (-80 + 270 mesh)	Deloro 60	Standard Grade	
HA7125	Ni 15.5Cr 32.5Mo 3.5Si Spherical, Gas Atomized	257125	-45 + 15 µm (-325 mesh + 15 µm)	Praxair Ni 125	Standard Grade	<ul style="list-style-type: none"> Coatings have good oxidation and corrosion resistance Laves phases contribute to high hardness and wear resistance
HA7126		257126				<ul style="list-style-type: none">
HA7236		257236		JK2236		<ul style="list-style-type: none">
HA7276	Ni 15.5Cr 16.0Mo .8Si 6.0Fe Spherical, Gas Atomized	257273-2	-75 + 45 µm (-200 + 325 mesh)	Hastelloy C-276	Standard Grade	<ul style="list-style-type: none"> Good oxidation and corrosion resistance Good machinability
HA1275	Ni 16Cr 4Si 4Fe 3.5B Gas Atomized	257275	-63 + 25 µm (-230 mesh + 25 µm)	Tafa 1275H	Standard Grade	<ul style="list-style-type: none"> Resists abrasive grains, hard surfaces, cavitation, particle erosion and fretting Corrosion resistant Produces dense, hard, fusible, oxide-free coatings
HA7591	Ni 16.5Cr 17Mo 6Fe 4.5W Spherical, Gas Atomized	257273	-45 + 10 µm (-325 mesh + 10 µm)	Stellite C/JK591P	Standard Grade	<ul style="list-style-type: none"> High deposit efficiency, fusible powder Withstands abrasion and extreme temperatures Pump plungers and sleeves, valve seats
HA7591-1	Ni 16.5Cr 17Mo 6Fe 4.5W Spherical, Gas Atomized	257273-1	-53/D µm (-270/D mesh)	Stellite C	Standard Grade	
HA7591-2	Ni 16.5Cr 17Mo 6Fe 4.5W Spherical, Gas Atomized	257273-2	-150 + 45 µm (-100 + 325 mesh)	Stellite C	Standard Grade	
HA		256235		JK6235		
HA7591-3	Ni 16.5Cr 17Mo 6Fe 4.5W Spherical, Gas Atomized	257273-3	-180 + 53 µm (-80 + 270 mesh)	Stellite C	Standard Grade	
HA7365-2	Ni 18Cr 10Co 6.5Al 6Ta Spherical, Gas Atomized Coarse Cut	257365-2	-53 + 10 µm (-270 + 10 µm)	Praxair Ni365-2	GE B50TF271 Class C	<ul style="list-style-type: none"> Useful for thick build-up coatings on critical "superalloy" components
HA7365-3	Ni 18Cr 10Co 6.5Al 6Ta Spherical, Gas Atomized Fine Cut	257365-3	-90 + 45 µm (-170 + 325 mesh)	Praxair Ni365-3	GE B50TF271 Class B	
HA7278	Ni 19Cr 19Fe 5Nb 3Mo Gas Atomized	257278	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1278F	Standard Grade	<ul style="list-style-type: none"> Dimensional restoration of airfoils, combustors, blades or vanes in turbines Highly oxidation resistant
HA7243	Ni 19Cr 5Al Agglomerated, Sintered	2572243	-90 + 38 µm (-170 + 400 mesh)	Tafa 1243M	PWA1347D	<ul style="list-style-type: none"> Excellent corrosion and oxidation resistance
HA7105	Ni 20 Cr Spherical, Gas Atomized Very Fine Cut	257105	-45 + 5 µm (-325 mesh + 5 µm)	Praxair Ni 105 Metco 43VF-NS	PWA 1319	<ul style="list-style-type: none"> Produces thin, dense, bright, clean, smooth coatings Exhibits good bonding characteristics Resists oxidation and corrosive gases Suitable for repair and build-up
HA7105-1	Ni 20 Cr Gas Atomized	257262	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1262F	Standard Grade	
HA7105-2	Ni 20 Cr Spherical, Gas Atomized Fine Cut	257106	-90 + 10 µm (-170 mesh + 10 µm)	Praxair Ni 106 Metco 43F-NS	GE B50TF40 Class B MSRR 9507/27 PWA 1317	

NICKEL BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA7105-3	Ni 20 Cr Spherical, Gas Atomized	257106-1	-106 + 45 µm (-140 + 325 mesh)	Metco 43C-NS Anaval 80/20	PWA 1315 GE B50TF40 Class A MSRR 9507/8	
HA7105-4	Ni 20 Cr Spherical, Gas Atomized Coarse Cut	257107	-125 + 45 µm (-120 + 325 mesh)	Praxair Ni 107 Metco 43C-NS	GE B50TF40 Class A MSRR 9507/8 PWA 1315	
HA7328	Ni 20Cr 9Mo 3.2Nb 3.8Ta Spherical, Gas Atomized Fine Cut Inconel 625	257328	-45 + 10 µm (-325 mesh + 10 µm)	Praxair Ni 328 Amdry 1005	Standard Grade	<ul style="list-style-type: none"> • Oxidation and corrosion resistant • Excellent choice for nickel and cobalt component restoration • Can be used to combat sea water or dilute acid corrosion
HA7328-1	Ni 20Cr 9Mo 3.2Nb 3.8Ta Spherical, Gas Atomized Fine Cut Inconel 625	257328-1	-90 + 45 µm (-170 + 325 mesh)	Praxair Ni 328-1 Amdry 625	Standard Grade	
HA7265	Ni 21Cr 9Mo 2.5Fe 4Nb Gas Atomized	257265	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1265F	Standard Grade	<ul style="list-style-type: none"> • Dimensional restoration of airfoils, combustors, blades or vanes in turbines • Highly corrosion resistant
HA7625	Ni 21Cr 9Mo 3Mn .3Si Spherical, Gas Atomized	257265	-53/D µm (-270/D mesh)	Stellite JK625	Standard Grade	<ul style="list-style-type: none"> • Resists localized corrosion, oxidizing acids with Chloride ions and industrial chemicals • Highly corrosion resistant
HA7625-1	Ni 21Cr 9Mo 3Mn .3Si Spherical, Gas Atomized	257265-1	-45 + 10 µm (-325 mesh + 10 µm)	Stellite JK625	Standard Grade	
HA7625-3	Ni 21Cr 9Mo 3Mn .3Si Spherical, Gas Atomized	257265-3	-150 + 45 µm (-100 + 325 mesh)	Stellite JK625	Standard Grade	
HA7625-4	Ni 21Cr 9Mo 3Mn .3Si Spherical, Gas Atomized	257265-4	-180 + 53 µm (-80 + 270 mesh)	Stellite JK625	Standard Grade	
HA7022	Ni 21.5Cr 14Mo 5Fe 3W Spherical, Gas Atomized	257273-4	-45 + 16 µm (-325 mesh + 16 µm)	Anval C22	Standard Grade	
HA7270	Ni 21Cr 13Mo 4Fe 3W Gas Atomized	257270	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1270F	Standard Grade	
HA7244	Ni 22Cr 10Al 1.0Y Spherical, Gas Atomized	257244	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1244F	Standard Grade	<ul style="list-style-type: none"> • Used as protective plasma spray coatings in hot corrosive or oxidizing environments at high temperatures, e.g. to protect gas turbine blades or valve stems and valve chambers in marine diesel engines or bond coats for thermal barrier zirconia coatings
HA7244-1	Ni 22Cr 10Al 1.0Y Spherical, Gas Atomized	257164	(-140 + 270 mesh)	Praxair Ni164	GE B50TF162 & B50TF192 Class A DMR 33.090 PM819-44	
HA7244-2	Ni 22Cr 10Al 1.0Y Spherical, Gas Atomized	257211	-106 + 53	Praxair Ni211 Amdry 962	GE B50TF162 & B50TF192 Class A DMR 33.090 PM819-44	
HA7246	Ni 31Cr 11Al .4Y Spherical, Gas Atomized	257246	-90 + 38 µm (-170 + 400 mesh)	Praxair Ni246-4 Amdry 964	EMS 57737 EMS 52432 Class XXI PM819-29	<ul style="list-style-type: none"> • Excellent oxidation resistance and diffusional stability • Exclusively used in gas turbine applications
HA7260	Ni 50Cr Gas Atomized	257260	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1260F	Standard Grade	<ul style="list-style-type: none"> • Coatings are resistant to corrosive gases in boiler temperatures • Superior bond
HA7202	Ni 19Co 17Fe 3Mo 5Nb Spherical, Gas Atomized Course Cut Inconel 718	257202	-125 + 45 µm (-120 + 325 mesh)	Praxair Ni 202	GE B50TF202 Class A	<ul style="list-style-type: none"> • Machinable • Good dimensional restoration
HA7202-1	Ni 19Co 17Fe 3Mo 5Nb Spherical, Gas Atomized Intermediate Cut Inconel 718	257202-1	-90 + 45 µm (- 170 + 325 mesh)	Praxair Ni 202-1 Amdry 718	GE B50TF202 Class B	

NICKEL BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA7202-2	Ni 19Co 17Fe 3Mo 5Nb Spherical, Gas Atomized Very Fine Cut Inconel 718	257202-2	-45 + 10 µm (-325 mesh + 10 µm)	Praxair Ni 202-2	Standard Grade	
HA7202-3	Ni 19Co 17Fe 3Mo 5Nb Spherical, Gas Atomized Fine Cut Inconel 718	257202-3	-45 + 20 µm (-325 mesh + 20 µm)	Praxair Ni 202-3	GE B50TF202 Class D	
HA7171	Ni 21Co 17Cr 12Al .6Y Spherical, Gas Atomized	257171	-75 + 38 µm (-200 + 400 mesh)	Homogeneous Metal Inc.	PWA 1365-2 CPW 387 Pm-819-51	<ul style="list-style-type: none"> Resistant to oxidation and corrosion at high temperatures Utilized at bond coats under stabilized zirconia coatings
HA7242	Ni 23Co 20Cr 8.5Al 4Ta Gas Atomized	257242	-53 + 20 µm (-270 mesh + 20µm)	Tafa 1242F	Standard Grade	<ul style="list-style-type: none"> Protects in hot corrosive or oxidizing environments TBC bond coat for turbine and engine components Good high temperature oxidation resistance
HA7264	Ni 31Cu Gas Atomized	257264	-63 + 20 µm (-230 mesh + 20 µm)	Tafa 1264I	Standard Grade	<ul style="list-style-type: none"> For marine applications Highly resistant to salt water corrosion Dimensional restoration; readily machinable
	Ni 61.5Cu .4Fe Spherical, Gas Atomized	257038	-53 + 15 µm (-270 + 15 µm)		Standard Grade	<ul style="list-style-type: none"> Very dense coating Corrosion resistant For use on printing rolls
HA7269	Ni 16Mo 15Cr 5Fe 3W Gas Atomized	257269	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1269F	Standard Grade	<ul style="list-style-type: none"> Resistant to strong oxidizers, hot contaminated mineral acids, sea water, and brine Highly corrosion resistant
HA7268	Ni 17Mo 16Cr 5Fe 4W Gas Atomized	257268	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1268F	Standard Grade	<ul style="list-style-type: none"> Resists oxidation Digesters, boiler tubes, pump parts, valve parts Guide rolls, fan and blower blades
HA7171	Ni MCrAlYs Spherical, Gas Atomized	257171	Proprietary	Praxair Ni 171 Amdry 365-2	CPW 387 PWA 1365-2 PM 819-51	<ul style="list-style-type: none">

CHROMIUM CARBIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
HA2210	Cr ₃ C ₂ 10% NiCr Mechanically Blended	312210	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CRC 210-1	GE B50TF281 Class A	<ul style="list-style-type: none"> Resistant to sliding wear, fretting, abrasion and particle erosion Can be used for pump housings, hydraulic valves and similar applications Good hot gas corrosion resistance
HA2373	Cr ₃ C ₂ 20% NiCr Densified	312373	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1373V	Standard Grade	<ul style="list-style-type: none"> Coatings are wear resistant at elevated temperatures Good hot gas and corrosion
HA2135-2	Cr ₃ C ₂ 25% NiCr	312135	-53/D (-270/D mesh)	Stellite JK135	Standard Grade	<ul style="list-style-type: none"> Good abrasion, particle erosion, cavitation, and fretting resistance Good sliding and corrosion resistance properties Good hot gas corrosion resistance, particularly in sulphurous gases Typical applications include fuel rod mandrels and hot forming dies, hydraulic valves, tooling, machine parts, pump housings and wear protection of aluminum parts
HA2380	Cr ₃ C ₂ 25% NiCr Two Component Blend	312380	-20 + 5 µm	Tafa 1380Q	AMS 7875B	
HA2106	Cr ₃ C ₂ 25% NiCr Mechanically Blended	312106	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CRC 106 Metco 81VF-NS	AMS 7875 GE B50TF137 Class A MSRR 9507/17 DMR 33.006 M3965 PM 819-05	
HA2106-1	Cr ₃ C ₂ 25% NiCr Mechanically Blended	312380-1	-106 + 15 µm (-140 mesh + 15µm)	Tafa 1380E	PWA 1307F	
HA2106-2	Cr ₃ C ₂ 25% NiCr Mechanically Blended	312108	-106 + 45 µm (-140 + 325 mesh)	Praxair CRC 108 Metco 81NS	Garrett EMS 52432 Class II GE B50TF137 Class B MSRR 9507/2 MTS 1024 PWA 1307 CPW 207 DMR 33.005	
HA2375	Cr ₃ C ₂ 25% NiCr Spray-Dried, Sintered	312375	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1375VM	Standard Grade	
HA2376	Cr ₃ C ₂ 25% NiCr Agglomerated, Sintered	312376	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1376Y	Standard Grade	
HA2375-1	Cr ₃ C ₂ 25% NiCr Densified	312375-1	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1375V	Standard Grade	
HA2410	Cr ₃ C ₂ 30% NiCr Reacted	312410	-53 + 16 µm (-270 mesh + 16 µm)	Praxair CRC410	Standard Grade	<ul style="list-style-type: none"> High volume of big carbide crystallites Good homogeneity with low stress
HA2410-1	Cr ₃ C ₂ 30% NiCr Reacted	312410-1	-45 + 16 µm (-325 mesh + 16 µm)	Praxair CRC410-1	Standard Grade	
HA2410-2	Cr ₃ C ₂ 30% NiCr Reacted	312410-2	-106 + 45 µm (-140 + 325 mesh)	Praxair CRC410-2	Standard Grade	
HA2425	Cr ₃ C ₂ 40% NiCr Reacted	312425	-53 + 16 µm (-270 mesh + 16 µm)	Praxair CRC425	Standard Grade	<ul style="list-style-type: none"> Moderate dispersion of carbide of average size Good ductility combined with wear resistance
HA2425-1	Cr ₃ C ₂ 40% NiCr Reacted	312425-1	-45 + 16 µm (-325 mesh + 16 µm)	Praxair CRC425-1	Standard Grade	
HA2425-2	Cr ₃ C ₂ 40% NiCr Reacted	312425-2	-106 + 45 µm (-140 + 325 mesh)	Praxair CRC425-2	Standard Grade	
HA2415	Cr ₃ C ₂ 65% NiCr Reacted	312415	-45 + 16 µm (-325 mesh + 16 µm)	Praxair CRC415	Standard Grade	<ul style="list-style-type: none"> Low concentration of carbide which appear small Good ductility, toughness and corrosion resistance
HA2415-1	Cr ₃ C ₂ 65% NiCr Reacted	312415-1	-53 + 16 µm (-270 mesh + 16 µm)	Praxair CRC415-1	Standard Grade	
HA2415-2	Cr ₃ C ₂ 65% NiCr Reacted	312415-2	-106 + 45 µm (-140 + 325 mesh)	Praxair CRC415-2	Standard Grade	
HA2107	Cr ₃ C ₂ 99.0%+ Sintered, Irregular	312107	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CRC107	PWA 1304	<ul style="list-style-type: none"> Hard, wear resistant coatings Usually blended with a low melting alloy for spraying

CHROMIUM CARBIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
HA2107-1	Cr ₃ C ₂ 99.0%+ Sintered, Irregular	312105	-106 + 45 μm (-140 + 325 mesh)	Praxair CRC105	Standard Grade	

TUNGSTEN CARBIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA8350	WC 10Co 4Cr Spray-Dried and Sintered	328350	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1350VM	Standard Grade	<ul style="list-style-type: none"> Resistant to erosion and abrasion, recommended for use in water based solution. The CoCr matrix provides higher abrasion and corrosion resistance than WC-Co Used in the paper industry for protecting rolls against wear in wet corrosive environments Excellent wear properties at low temperatures
HA8436-1	WC 10Co 4Cr Sintered, Irregular	328436	-45 + 15 µm (-325 mesh + 15 µm)	Praxair WC436-1	Standard Grade	
HA8436	WC 10Co 4Cr Sintered, Irregular	328113	-45 + 5 µm (-325 mesh + 5 µm)	Praxair WC113 Stellite JK122	Standard Grade	
HA 8119		328119		Stellite JK119		
HA8120		328120	-325/D	Stellite JK120		
HA8120-1		328121		Stellite JK120P		
HA8120-2		328120-2		Stellite JK120H		
HA8125	WC 22Cr 6.4C 6.6ni	328125	-325/D	Stellite JK125	Standard Grade	
HA8320	WC 11Co Cast-Type	328320	-20 + 5 µm	Tafa 1320Q	AMS 7879C	<ul style="list-style-type: none"> Resistant to abrasion, erosion, and adhesion
HA8320-1	WC 11Co Cast-Type	328320-1	-106 + 45 µm (-140 + 325 mesh)	Tafa 1320C	PWA 1302E	
HA8106	WC 12Co Cast/crushed Irregular	328106	-45 + 5 µm (-325 mesh + 5 µm)	Praxair WC106 Metco 71VF-NS Amdry 301	AMS 7879 PWA 1379-2 BMS 10-67-1	<ul style="list-style-type: none"> Resistant to abrasion, erosion and certain levels of hammer wear loading Good fretting resistance Coatings are hard and dense, with high bond strength Used for machine parts, and pump housing Provides a gripping surface as-sprayed Finish to low RMS for sliding wear Finish by grinding
HA8001	WC 12Co Sintered, Crushed Irregular			Praxair Al1001		
HA8114-1	WC 12Co Sintered, Crushed Irregular	328114	-45 + 10 µm (-325 mesh + 10 µm)	Praxair WC114	Standard Grade	
HA8114-2	WC 12Co Sintered, Crushed Irregular	328489	-45 + 15 µm (-325 mesh + 15 µm)	Praxair WC489-1 Starck 518.28	GE B5OTF27 Class A PM 819-25	
HA8342	WC 12Co Spray-Dried, Sintered	328342	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1342VM	Standard Grade	
HA8342-2	WC 12Co Agglomerated, Sintered	328342-1	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1342V	Standard Grade	
HA8342-3	WC 12Co Spherical, Densified	328616	-53 + 11 µm (-270 mesh + 11µm)	Praxair WC616 SM 5810 Stellite JK112	Standard Grade	
HA8104	WC 12Co Sintered, Irregular	328104	-75 + 45 µm (-200 + 325 mesh)	Praxair WC104	Garrett EMS 57745 PWA 1302 Garrett EMS 52432 IX	
HA8334	WC 12Co 50Ni SF Two Component Blend	328334	-53 + 20 µm (-270 mesh + 20µm)	Tafa 1334	Standard Grade	<ul style="list-style-type: none"> Produces thin, hard dense, smooth coatings Wear and corrosion resistant
HA8516	WC 17 Co Sintered, Irregular	328516	-45 + 10 µm (-325 mesh + 10µm)	Praxair WC516	Standard Grade	<ul style="list-style-type: none"> Hard, tough coatings Used to protect against sliding wear, hammer wear, abrasion and fretting Increased cobalt offers toughness, anti-fretting and resistance to impact Good finish as-sprayed and/or lapped
HA8559	WC 17 Co Spherical, Densified	328559	-45 + 15 µm (-325 mesh + 15 µm)	Praxair WC559 Stellite JK117	Standard Grade	
HA8343	WC 17 Co Agglomerated, Sintered	328343	-45 + 15 µm (-325 mesh + 15µm)	Tafa 1343V	Standard Grade	
HA8128	WC 17 Co Spray-Dried, Sintered	328343-1	-45 + 15 µm (-325 mesh + 15µm)	Tafa 1343VM Metco 73F	Standard Grade	

TUNGSTEN CARBIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA8616	WC 17 Co Spherical, Densified	32816 9	-53 + 11 μm (-270 mesh +11 μm)	Praxair WC616 Metco 5810	Standard Grade	
HA8636	WC 10Ni Sintered, Irregular	32851 5	-53 + 10 μm (-270 mesh + 10 μm)	Praxair WC636	Standard Grade	<ul style="list-style-type: none"> • Hard dense coatings with good adhesive strength • Better corrosion resistance than Cobalt containing carbide powders in some environments
HA8310	WC 17Ni Spherical, Densified	32862 4	-53 + 10 μm (-270 mesh + 10 μm)	Tafa 1310VM	Standard Grade	<ul style="list-style-type: none"> • The nickel matrix provides better corrosion resistance than cobalt • Can be used in radioactive environments, where cobalt is not suitable
HA83496	WC 20Cr 6Ni Sintered, Irregular	32849 6	-45 + 15 μm (-325 mesh + 15 μm)	Praxair WC496	Standard Grade	<ul style="list-style-type: none"> • Hard, dense coating with good bond strength • Excellent choice for chemical service

ALUMINUM OXIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA1010-5	Al ₂ O ₃ 99+% Fused, Crushed	41118 3	-15 + 45 μm (-15 μm + 325 mesh)	Norton 183 Norton 153	Standard Grade	<ul style="list-style-type: none"> • Very dense coatings with good dielectric strength • Requires grinding • Good resistance to abrasive wear, sliding wear, friction and oxidation • Should not be used where impact or shock loading occurs • Can be used in many environments, including most acid and alkalis • Used on blade tips, compressor rotors, brush seals, etc. in the aerospace industry • Used on paper rolls for electrical insulation
HA1010	Al ₂ O ₃ 99.5% Fused, Crushed	41115 0	-2 + 12 μm	Norton 150 Metco 105 SFP	Standard Grade	
HA1010-1	Al ₂ O ₃ 99.5% Fused, Crushed	411153	-15 + 45 μm (-15 μm + 325 mesh)	Norton 153 Norton 183	Standard Grade	
HA1010-2	Al ₂ O ₃ 99.5% Sintered, Irregular	41110 1	-45 + 5 μm (-325 mesh + 5 μm)	Praxair ALO101 Amdry 180 Metco 105NS	Garrett EMS 52432 Class VI PWA 1310	
HA1010-3	Al ₂ O ₃ 99.5% Fused	41111 4	-45 μm (-325 mesh)	Praxair AIO114	Standard Grade	
HA1010-4 HA1010-025	Al ₂ O ₃ 99.9+% Ultra Pure Spherical	41119 9	-10 + 75 μm (-10 μm + 200 mesh)	Norton 199 ESK	Standard Grade	
HA1114	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	41111 4-1	-2 + 14 μm	Norton 114	Standard Grade	<ul style="list-style-type: none"> • Good wear resistance • Good dielectric strength at room temperatures • Require grinding • Can be used in many environments, including most acids and alkalis • Less brittle, lower dielectric strength than pure Al₂O₃ coatings • Coatings are smooth and dense • Are particularly suitable for applications in the textile or synthetic fiber manufacturing industries, where surface wear resistance is required on parts used for the guiding and handling of thread
HA1114-1	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	41111 5	-4 + 15 μm	Norton 115	Standard Grade	
HA1114-2	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	41111 7	-5 + 30 μm	Norton 117	Standard Grade	
HA1114-3	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	41111 0-2	-15 + 45 μm	Norton 110GE Starck 742.298	Comp. E Type II, Class 1 Garrett EMS 52432 TYPE XXV BMS 10-67, Type 3 GE A50TF87 Class A MSRR 9507/36 MTU 502	
HA1114-4	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	41111 0	-15 + 45 μm	Metco 101NS Norton 110	Standard Grade	
HA1114-5	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	41111 9	-20 + 45 μm	Norton 119	Standard Grade	
HA1114-6	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	41111 6	-20 + 50 μm	Norton 116	Standard Grade	
HA1112	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	41111 2	-20 + 70 μm	Norton 112 Metco 101B-NS Amdry 187C Starck 742.407	GE A50TF87 Class B PWA 1311 MTU 503	
HA1112-2	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	41141 9	-45 + 15 μm (-325 mesh + 15 μm)	Tafa 1419V Metco 101NS	Standard Grade	
HA1112-3	Al ₂ O ₃ 3% TiO ₂ Sintered, Irregular	41115 9	-106 + 45 μm (-140 + 325 mesh)	Praxair ALO 159 Amdry 187	GE A50TF87 Class B PWA 1311 SENECMA DMR 33.013 CPW 281	
HA1107	Al ₂ O ₃ 13% TiO ₂ Fused, Chemically Uniform	41110 7	-5 + 30 μm (-5 μm + 500 mesh)	Norton 107	Standard Grade	<ul style="list-style-type: none"> • Hard, dense, smooth coatings • Good abrasive wear resistance • Typically used for the protection of hydraulic parts, plungers, shaft sleeves, mechanical seals or textile machine parts • Less brittle, but lower dielectric strength than Al₂O₃ + 3% TiO₂
HA1107-2	Al ₂ O ₃ 13% TiO ₂ Fused, Chemically Uniform	41110 6	-15 + 45 μm (-15 μm + 325 mesh)	Norton 106	Standard Grade	
HA1188	Al ₂ O ₃ 13% TiO ₂ Sintered, Irregular	41118 8	-31 + 5 μm (-500 mesh + 5 μm)	Praxair ALO 188 Metco 130SF	Standard Grade	
HA1188-1	Al ₂ O ₃ 13% TiO ₂ Sintered, Irregular	41118 7	-45 + 10 μm (-325 mesh + 10 μm)	Praxair ALO187 Metco 130	Standard Grade	
HA1107-3	Al ₂ O ₃ 13% TiO ₂ Fused, Crushed	41142 0	-45 + 15 μm (-325 mesh + 15 μm)	Tafa 1420V	Standard Grade	

ALUMINUM OXIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications	
HA1107-4	Al ₂ O ₃ 13% TiO ₂ Fused, Chemically Uniform	41110 3	-45 + 75 μm (-325 + 200 mesh)	Norton 103	Standard Grade		
HA1110	Al ₂ O ₃ 30% TiO ₂ Fused, Crushed	41110 1	-25 + 5 μm	Norton 1010	Standard Grade	<ul style="list-style-type: none"> • Very dense, low porosity coatings with high bond strength • Can be used instead of Al₂O₃ + 13% TiO₂ when grindability is a factor • The polished coatings are used in the chemical industry because of their low degree of wettability for dilute solutions of common acids • Applications include pump components, shaft sleeves, mechanical seals, thread guides and parts in the textile industry • Grinds in low RMS, near friction free 	
HA1109	Al ₂ O ₃ 40% TiO ₂ Fused, Chemically Uniform	41110 9	-5 + 30 μm (-5 μm + 500 mesh)	Amdry 6250 Norton 109	Standard Grade		
HA1109-1	Al ₂ O ₃ 40% TiO ₂ Fused, Chemically Uniform	41110 8	-15 + 45 μm (-15 μm + 325 mesh)	Amdry 6254 Norton 108	Standard Grade		
HA1121	Al ₂ O ₃ 40% TiO ₂ Fused, Irregular	41112 1	-45 + 5 μm (-325 mesh + 5 μm)	Praxair ALO121 Metco 131VF	Standard Grade		
HA1421	Al ₂ O ₃ 40% TiO ₂ Fused, Crushed	41142 1	-45 + 15 μm (-325 mesh + 15 μm)	Tafa 1421V	Standard Grade		
HA1170	Al ₂ O ₃ 28% MgO Spinal, Spherical	411170	-10 + 75 μm (-10 μm + 200 mesh)	Norton 170	Standard Grade		<ul style="list-style-type: none"> • Good abrasion and wear resistance
HA1171	Al ₂ O ₃ 28% MgO Spinal, Spherical	411171	-15 + 45 μm (-15 μm + 325 mesh)	Norton 171	Standard Grade		

CHROMIUM OXIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA3440	Cr ₂ O ₃ 99.5% Crystallized	423440	-25 + 5 μm (-500 mesh + 5 μm)	Tafa 1440Q Amdry 6417	Standard Grade	<ul style="list-style-type: none"> • Hard, dense, wear resistant coatings • Excellent resistance to abrasion, erosion, and cavitation • Insoluble in acid, alkali and alcohol • Used for analog print rolls
HA340-1	Cr ₂ O ₃ 99..5% Crystallized	423440-1	-45 + 15 μm (-325 mesh + 15 μm)	Tafa 1440V	Standard Grade	
HA3179	Cr ₂ O ₃ 99% Reacted, Blocky	423179	-31 + 10 μm (-500 mesh + 10 μm)	Praxair CRO179	Standard Grade	
HA3324	Cr ₂ O ₃ 99% Fused, Crushed	423324	-75 + 45 μm (-200 + 325 mesh)	Norton 324	Comp. F Type II, Class 1 Garrett EMS 52432 CL-V PWA 1325	
HA3179-1	Cr ₂ O ₃ 99% Reacted, Blocky	423131	-45 + 5 μm (-325 mesh + 5 μm)	Praxair CRO131	Standard Grade	
HA3179-2	Cr ₂ O ₃ 99% Reacted, Blocky	423167	-45 + 10 μm (-325 mesh + 10 μm)	Praxair CRO167	Standard Grade	
HA3328	Cr ₂ O ₃ 99% Fused, Crushed	423328	-45 + 15 μm (-325 mesh + 15 μm)	Metco 6420 Norton 328	BMS 10-67 Type 4	
HA3179-3	Cr ₂ O ₃ 99% Reacted, Blocky	423167-1	-45 + 15 μm (-325 mesh + 15 μm)	Praxair CRO167-1	Standard Grade	
HA3179-4	Cr ₂ O ₃ 99% Reacted, Blocky	423172	-45 + 22 μm (-325 mesh + 22 μm)	Praxair CRO172 Amdry 6420	Standard Grade	
HA3106	Cr ₂ O ₃ 5% Cr	423030	-45 + 10 μm	Norton 3030 Starck 704.054 Praxair CRO167	Standard Grade	
HA3339	Cr ₂ O ₃ 3% SiO ₂ Fused, Crushed	423339	-45 + 15 μm (-325 mesh + 15 μm)	Norton 339 Praxair CRO 178	Standard Grade	<ul style="list-style-type: none"> • Hard dense coatings • Excellent resistance to wear and corrosion
HA3339-1	Cr ₂ O ₃ 3% SiO ₂ Fused, Crushed	423338	-75 + 45 μm (-200 + 325 mesh)	Norton 338	Standard Grade	
HA3341	Cr ₂ O ₃ 5% SiO ₂ 3%TiO ₂ Fused, Crushed	423341	-45 + 15 μm (-325 mesh + 15 μm)	Norton 341 Metco 136F	Standard Grade	<ul style="list-style-type: none"> • Hard dense coatings • Resistance to abrasive wear and particle erosion • Good friction characteristics
HA3192	Cr ₂ O ₃ 5% SiO ₂ 3%TiO ₂ Agglomerated, Sintered, Irregular	423192	-53 + 11 μm (-270 mesh + 11 μm)	Praxair CRO192 Metco 136F	Standard Grade	
HA3341-1	Cr ₂ O ₃ 5% SiO ₂ 3%TiO ₂ Fused, Crushed	423340	-75 + 45 μm (-200 + 325 mesh)	Metco 136CP Norton 340	Standard Grade	
HA3301	Cr ₂ O ₃ 3% TiO ₂ Metal Free, Sintered	423301	-30 + 10 μm (-500 mesh + 10 μm)	Norton 301	Standard Grade	<ul style="list-style-type: none"> • Hard dense metal-free coatings • Good for wear resistance an laser engraving
HA3301-1	Cr ₂ O ₃ 3% TiO ₂ Metal Free, Sintered	423302	-45 + 22 μm (-325 mesh + 22 μm)	Metco 106F Norton 302	Standard Grade	
HA3301-2	Cr ₂ O ₃ 3% TiO ₂ Metal Free, Sintered	423307	-45 + 15 μm (-325 mesh + 15 μm)	Norton 307	Standard Grade	
HA3301-3	Cr ₂ O ₃ 3% TiO ₂ Metal Free, Sintered	423306	-75 + 45 μm (-200 + 325 mesh)	Norton 306	Standard Grade	

TITANIUM OXIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA4001	TiO ₂ 97% Fused, Crushed	42000 1	-25 + 5 μm (-425 mesh + 5 μm)	Norton 1001	Standard Grade	<ul style="list-style-type: none"> Slightly conductive with moderate abrasive wear resistance Lower hardness than Al₂O₃ + TiO₂
HA4000	TiO ₂ 97% Fused, Crushed	42000 0	-63 + 10 μm (-230 mesh + 10 μm)	Norton 1000	Standard Grade	
HA4142	TiO ₂ 99% Fused, Crushed	42042 4	-45 + 5 μm (-325 mesh + 5 μm)	Tafa 1424V	Standard Grade	<ul style="list-style-type: none"> Moderate wear resistance Low electrical conductivity

ZIRCONIUM OXIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
HA9235	ZrO ₂ 5% CaO Calcina Stabilized	439252	-15 + 45 μm (-15 μm + 325 mesh)	Metco 201NS Norton 252	Standard Grade	<ul style="list-style-type: none"> Thermal barrier (insulative) and erosion resistant coatings Used for furnaces and casting ladles
HA9235-1	ZrO ₂ 5% CaO Calcina Stabilized	439235	-45 + 75 μm (-325 + 200 mesh)	Metco 201B-NS Norton 235	Comp. H Type II, Class 2 Garrett EMS 52432 Class XII BMS 10-67 TYPE 5 Garrett EMS 56720 PWA 1312 MSRR 9507/18 MTU 512 MIL-Z-81572	
HA9484	ZrO ₂ 7% Y ₂ O ₃ Spray-Dried, Sintered	439484	-63 + 20 μm (-230 mesh + 20 μm)	Tafa 1484I	PWA1375H	<ul style="list-style-type: none"> For thermal barrier coatings Heat and thermal shock resistant, erosion resistant Applications include heat treatment equipment, turbine combustors and airfoils, rocket nozzle throats, diesel engine valve heads, pistons and cylinder heads
HA9485	ZrO ₂ 8% Y ₂ O ₃ Spray-Dried, Sintered	439485	-63 + 20 μm (-230 mesh + 20 μm)	Tafa 1485I	Standard Grade	
HA9204	ZrO ₂ 8% Y ₂ O ₃ Yttria Stabilized, Spherical	43920 4	-75 + 10 μm (-200 mesh + 10 μm)	Norton 204	EMS 57750 GE A50TF204 Class C GE A50TF278 Class ABC PWA 1375 MSRR 9507/46 GE P16BAG8 WEST 83336AB	<ul style="list-style-type: none"> For thermal barrier coatings Heat and thermal shock resistant, erosion resistant Applications include heat treatment equipment, turbine combustors and airfoils, rocket nozzle throats, diesel engine valve heads, pistons and cylinder heads
HA9204-1	ZrO ₂ 8% Y ₂ O ₃ Yttria Stabilized, Spherical	43920 4-1	-100 + 44 μm (-140 + 325 mesh)	Metco 204B-NS Norton 204PR	Standard Grade	
HA9113	ZrO ₂ 8% Y ₂ O ₃ Agglomerated, Semi-Spherical	43911 3	-106 + 45 μm (-140 + 325 mesh)	Metco 204NSG Praxair ZRO113/114	GE A50TF204 Class C GE A50TF278 Class B PWA 1375	<ul style="list-style-type: none"> For thermal barrier coatings Heat and thermal shock resistant, erosion resistant Applications include heat treatment equipment, turbine combustors and airfoils, rocket nozzle throats, diesel engine valve heads, pistons and cylinder heads
HA9196	ZrO ₂ 8% Y ₂ O ₃ Densified, Spherical	439196	-106 + 45 μm (-140 + 325 mesh)	Praxair ZRO196	Standard Grade	
HA9113-1	ZrO ₂ 8% Y ₂ O ₃ Agglomerated, Semi-Spherical	439182	-106 + 45 μm (-140 + 325 mesh)	Praxair ZRO182	GE A50TF278 Class B Garrett EMS 57750 T1	<ul style="list-style-type: none"> For thermal barrier coatings Heat and thermal shock resistant, erosion resistant Applications include heat treatment equipment, turbine combustors and airfoils, rocket nozzle throats, diesel engine valve heads, pistons and cylinder heads
HA9202	ZrO ₂ 20% Y ₂ O ₃ Yttria Stabilized, Spherical	43920 2	-10 + 75 μm (-10 μm + 200 mesh)	Norton 202 Metco 202NS	Garrett EMS 57750 GE A50TF204 Class A PWA 36087 M3966B	
HA9110	ZrO ₂ 20% Y ₂ O ₃ Agglomerated, Semi-Spherical	43911 0	-150 + 45 μm (-100 + 325 mesh)	Praxair ZRO110	GE A50TF204 Class A MSRR 9507/37	<ul style="list-style-type: none"> For thermal barrier coatings Heat and thermal shock resistant, erosion resistant Applications include heat treatment equipment, turbine combustors and airfoils, rocket nozzle throats, diesel engine valve heads, pistons and cylinder heads
HA9103	ZrO ₂ 22% MgO Fused, Irregular	439103	-75 + 10 μm (-200 mesh + 10 μm)	Praxair ZRO103	Garrett EMS 52432 Type XXVI GE A50TF155 Class A PWA 1333	
HA9103-1	ZrO ₂ 18-25% MgO Fused, Crushed	43923 3	-15 + 5 μm	Norton 233 Metco 210NS-1	Comp. G Type II, Class 1 Garrett EMS 52432 TYPE XXVI A50TF-155 Class A PWA 1333 MSRR 9507/21 DMR 33.022	<ul style="list-style-type: none"> Thermal barrier coating Resistant to molten metals and particle erosion Heat and thermal shock resistant Erosion resistant Applications include diesel engine pistons, valves, and cylinder heads
HA9222	ZrO ₂ 26% CeO ₂ Stabilized, Spherical	439222	-75 + 10 μm (-200 mesh + 10 μm)	Norton 222	Standard Grade	
HA9119	MgO 35% NiAl 65/35 Blend	43911 9	-106 + 10 μm (-140 mesh + 10μm)	Praxair ZRO119	Standard Grade	<ul style="list-style-type: none"> Composite coating useful in graded application Useful as a cushioning thermal barrier providing thermal shock resistance

ABRADABLE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
	Al 12Si plus 40% Polyester Blend	507201	-90 + 38 μm (-170 + 400 mesh)		Standard Grade	<ul style="list-style-type: none"> Excellent abrasability, clean rub surface For use in the compressor sections of gas turbines, or in automotive turbochargers No thickness limitation
	Al 12Si plus 40% Polyester Blend	507601	-106 + 11μm (-140 mesh + 11μm)	Tafa 1601M Praxair AL202 Metco 601	GE B50TF222 Class A	

	Ni 15% Graphite Composite	507608	-90 + 38 µm (-170 + 400 mesh)	Tafa 1608M Metco 308NS-1	Standard Grade	<ul style="list-style-type: none"> Used to spray abrasible coatings for the compressor sections of jet engines Self-lubricating, can be used for friction bearings
	Ni 25% Graphite Composite	507607	-90 + 38 µm (-170 + 400 mesh)	Tafa 1607M	PWA 13521L	<ul style="list-style-type: none"> Superior clearance control
	Ni 15C Nickel Graphite Clad Irregular	507115	-125 + 45 µm (-120 + 325 mesh)	Praxair NI115 Metco 308NS-3	GE B50TF52 Class B MSRR 9507/16	<ul style="list-style-type: none"> Plasma coatings are lubricious, suited for use as friction bearings Flame spray coatings offer good abrasibility, useful in sacrificial/clearance control applications 80/20 NiC has better erosion than 75/25 NiC coatings No thickness limitation, readily machinable
	Ni 15C Nickel Graphite Clad Irregular	507126	-90 + 30µm (-170 + 500 mesh)	Praxair NI126 Metco 308NS	PWA 1352-2 Garrett EMS 56755E	
	Ni 20C Nickel Graphite Clad Irregular	507765	-106 + 45µm (-140 + 325 mesh)	Praxair NI765 Metco 309NS-3	GE B50TF172 Class A	
HA7114	Ni 25C Nickel Graphite Clad Irregular	507114	-90 + 30 µm (-170 + 500 mesh)	Praxair NI114	MSRR 9507/6 MSRR 9507/12 Garrett EMS 56754	
Ha7114-1	Ni 25C Nickel Graphite Clad Irregular	507114 -1	-90 + 30 µm (-170 + 500 mesh)	Praxair NI114-1	GE B50TF52 Class B	
HA7114-2	Ni 25C Nickel Graphite Clad Irregular	507120	-90 + 45 µm (-170 + 325 mesh)	Praxair NI120	PWA 1352-1	
	Ni 40C Nickel Graphite Clad Irregular	507766	-106 + 45 µm (-140 + 325 mesh)	Praxair NI766	GE B50TF164 Class A	

THERMAL SPRAY WIRES

Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA101B	Aluminum Silicon Al 12Si	21101-1	1/16"	Tafa 01A	MIL-w-6712C PWA 36935 GE B50TF92S2 CLA SNECMA DMR33-027	72 Rb 4250 PSI	<ul style="list-style-type: none"> • Less corrosion resistance than pure aluminum • Non-galling, finer texture • Dimensional restoration
HA101C	Aluminum Silicon Al 5Si	21101-2	1/8", 1/16"	Tafa 01S Praxair Aluminum S Metco SF Aluminum	MIL-W-6712C	95Rb 4250 PSI	<ul style="list-style-type: none"> • Dimensional restoration • Machines easier and sprays raster than pure Al • Corrosion resistant
HA110	Aluminum Bronze Cu 9Al .5Fe	21110	1/8", 1/16"	Tafa 10T Praxair Al Bronze Metco Sprabronze® AA	MIL-W-6712	65-68 Rb 6744 PSI	<ul style="list-style-type: none"> • Reclamation, cavitation easy to spray • Readily machinable • Dense coatings
HA104	Babbitt Sn 7Sb 3Cu	21104	1/8", 1/16" 3/16", 2 mm	Tafa 04T Praxair Babbitt HT Metco Sprababbitt® A	MIL-W-6712C	32-35 R _{15T} 2871 PSI	<ul style="list-style-type: none"> • Bearing reclamation capacitors • Good electrical conductivity • Dense coatings
HA112	Brass Zn 60Cu .7Sn .06Pb	21112	1/16"	Tafa 12T Praxair Brass	MIL-W-6712C	51 Rb 551 I PSI	<ul style="list-style-type: none"> • Corrosion protection • Sprays fast, machines easy • Produces a smooth machined surface
HA706	Nickel Chrome Ni 20Cr	21706	1/8", 1/16"	Tafa 06C Praxair 80/20 Metco Nickel #33	PWA 1317D MSSR9507/27 SNECMA DMR33-079	90 Rb 7324 PSI	<ul style="list-style-type: none"> • Machinable • Heat Oxidation Resistance • Oxygen barrier under ceramic coatings
HA770	Monel Ni 27Cu 2.0Fe 1.5Mg .25C .25Si .10Al S	21770	1/16"	Tafa 70T Praxair Monel Metco Monel	MIL-W-6712B	80-84 Rb 4307 PSI	<ul style="list-style-type: none"> • Marine corrosion protection • Print rolls
HA116	Modified Silicon Bronze Cu 2.9Si .89Mn	21116	1/16"	Tafa 16T	Standard Grade	29 Rb 4060 PSI	<ul style="list-style-type: none"> • Restoration of Original Surface Condition
HA118	Modified Silicon Bronze Proprietary	21118	1/16"	Tafa 18MXC®	Standard Grade	29 Rb 4060 PSI	<ul style="list-style-type: none"> • Restoration of original Surface condition • Softer, more machinable
HA535	High Carbon Steel Composite	21535	1/16"	Tafa 35MXC®	Standard Grade	60 Rc 8425 PSI	<ul style="list-style-type: none"> • Extreme rough, high profile non-skid coatings
HA538	High Carbon Steel Fe .8C .7Mg .10Si .04P .03S	21538	1/16"	Tafa 38T Praxair Steel #80 Metco Sprabond #80	MIL-W-6712C	23 Rc 8425 PSI	<ul style="list-style-type: none"> • Low shrink material • High wear resistance • ID Fans
HA530	Medium Carbon Steel Fe 1.0Mg .35Si .15C P S	21530	1/16"	Tafa 30T Praxair Steel #25 Metco Sprabond #25	MIL-W-6712C	97-100 Rb 5700 PSI	<ul style="list-style-type: none"> • Dimensional restoration of mismachined and worn parts

THERMAL SPRAY WIRES

Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA560	Stainless Steel Fe 14Cr 1.0Mg 1.0Ni .3C .08Si P S	21560	1/8" 1/16", 3/16" 11 Gauge	Tafa 60T Praxair #2 Stainless Metco Metcoloy® #2	MIL-W-6712C RR OMAT #3/45D	40-43 Rc 4728 PSI	<ul style="list-style-type: none"> • Good wear and corrosion Resistance • Best All Purpose Steel
HA555	Stainless Steel Fe 18Cr 8.0Mg 5.0Ni .08Si .06C P S	21555	1/8", 1/16" , 3/16"	Tafa 55T Praxair #5 Stainless Metco Metcoloy #5	MIL-W-6712C	92-94 Rb 4162 PSI	<ul style="list-style-type: none"> • Reclamation • Corrosion protection • Low shrinkage and good machinability
HA580	Stainless Steel Fe 18Cr 8.0Ni 1.5Mg .5Si .12C P S	21580	1/16"	Tafa 80T Praxair #1 Stainless Metco Metcoloy #1	MIL-W-6712C	93-97 Rb 4100 PSI	<ul style="list-style-type: none"> • Corrosion protection • Dimensional restoration • Print rolls
HA585	Stainless Steel 316 S.S.	21585	1/8", 1/16"	Tafa 85T Metco Metcoloy 4	Standard Grade	93-97 Rb 4100 PSI	<ul style="list-style-type: none"> • Corrosion protection • Dimensional restoration
HA588	Stainless Steel 316L S.S.	21588	1/8", 1/16" 11 Gauge	Tafa 88T Praxair #16 Stainless Metco Metcoloy #16	Standard Grade	93-97 Rb 6744 PSI	<ul style="list-style-type: none"> • Corrosion Protection • Dimensional Restoration • Print Rolls
HA802B	Tin Sn 20Zn	21802-1	2 mm	Tafa 02T	Standard Grade	Dead Soft 2857 PSI	<ul style="list-style-type: none"> • Low melting point • Corrosion resistance • Capacitor end coatings
HA902B	Zinc Aluminum Zn 15Al	21902-1	2 mm	Tafa Tafaloy® 02A	Standard Grade	73 Rb 3683 PSI	<ul style="list-style-type: none"> • Corrosion Protection • Oxidation resistance • Galvanizing

THERMAL SPRAY WIRES

Specialty Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA106	Cobalt Alloy Co 26Cr 10Ni 8W 1C	22106	1/16"	Tafa 106 MXC®	Standard Grade	58-69 Ra 6671 PSI	<ul style="list-style-type: none"> • Erosion and wear resistance • Machinable • Restore cobalt parts
HA206	Cobalt Alloy Co 28Cr 4Fe 3.5W 1.2C	22206	1/16"	Stellite 6	Standard Grade	45Rc 5700 PSI	<ul style="list-style-type: none"> • Excellent galling properties • High bond strength • Excellent corrosion resistance
HA524	Iron Chrome Aluminum Fe 23.5Cr 5.3Al .65Si	22524	1/16"	Tafa 24CA Praxair ALCRO	Standard Grade	88 Rb 7770 PSI	<ul style="list-style-type: none"> • Boiler applications • Excellent machinability • Ability to have featheredge coatings
HA774	Molybdenum Nickel Aluminum Ni 5.5Al 5.0Mo	22774	1/16"	Tafa 74MXC® Metco 8447	MSRR9507/35 GE B50TF166 Garrett FP5045	78 Rb 7454 PSI	<ul style="list-style-type: none"> • Erosion and fretting wear • Salvage and build-up of machinable and gradable carbon steels

THERMAL SPRAY WIRES

Specialty Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA779	Nickel Aluminum Ni 20Al	22779	1/8", 1/16"	Tafa 79B Metco 405-1 Metco 405, 405NS	RR OMAT #3/90A	55-80 Rb 8949 PSI	<ul style="list-style-type: none"> High temperature resistance Oxidation and abrasion resistant Dense coatings
HA775	Nickel Aluminum Bond Arc® Ni 5Al	22775	1/16"	Tafa 75B Bond Arc® Metco 8400 Metco 450	PWA-36937 SNECMA DMR33-011 Garrett FP5045 RR OMAT #3/229	78 Rb 9746 PSI	<ul style="list-style-type: none"> High temperature resistance Oxidation and abrasion resistant Dense coatings
HA711	Nickel Aluminum Bronze Cu 9Al 4Ni 4Fe 1.5Mg	22711	1/16"	Tafa 11T	Standard Grade	60 Rb 9000 PSI	<ul style="list-style-type: none"> Cavitation, reclamation of sliding components Corrosion protection
HA773	Nickel Chrome Aluminum Ni 21Cr 7Al	22573	1/16"	Tafa 73MXC® Metco 8443	Standard Grade	95 Rb 7454 PSI	<ul style="list-style-type: none"> Oxidation and corrosion resistant Self-bonding Salvage and build-up
HA776	Nickel Chrome Aluminum Yttrium Ni 22Cr 10Al 1.0Y	22576	1/16"	Tafa 76MXC®	Standard Grade	52-90 Rb 10964 PSI	<ul style="list-style-type: none"> Bond coat Oxidation resistant
HA798	Nickel Chrome Iron Fe 26Cr 3Ni 1.7C 1.6Mg 1.6Si .8Mo	22798	1/16"	Tafa 98 MXC®	Standard Grade	39-42 Rc 5772 PSI	<ul style="list-style-type: none"> Corrosion and wear resistant Easily machinable Good bond strength
HA771	Nickel Chrome Molybdenum Ni 22Cr 10Mo 2Fe <i>Inconel® 625</i>	22771	1/16"	Tafa 71T Metco 8625	Standard Grade	92 Rb 6970 PSI	<ul style="list-style-type: none"> Caustic stress corrosion Restoration of worn or mismachined components
HA777	Nickel Chrome Molybdenum Ni 20Cr 20Mo 7Fe 4W <i>Hastelloy C-276</i>	22777	1/16"	Tafa 77T	Standard Grade	35 Rc 6990 PSI	<ul style="list-style-type: none"> Acidic and hot gas corrosion Good abrasion and metal-to-metal wear
HA778	Nickel Chrome Molybdenum Ni 18.5Cr 18.5Fe 3.0Mo <i>Inconel® 718</i>	22778	1/16"	Tafa 78T Metco 8718	GE #70-49-45, FAA RDA #000-637	30 Rc 8992 PSI	<ul style="list-style-type: none"> Acidic and hot gas corrosion Restoration of worn or mismachined components
HA745	Nickel Chrome Titanium Fe .63Mg .18C .05P .06S	22745	1/16"	Tafa 45CT	Standard Grade	32 Rc 6961 PSI	<ul style="list-style-type: none"> Extreme resistance to corrosion Boiler applications
HA595	Ultradhard™ Armacor™ M Proprietary High Chrome Steel	22595	1/16"	Tafa 95 MXC®	Standard Grade	70 Rc 5772 PSI	<ul style="list-style-type: none"> Corrosion and wear protection Hard abrasion coatings High chrome finish
HA590	Ultradhard™ Armacor™ C Fe 25Cr 10Ni 4Mo 2B 2Cu	22590	1/16"	Tafa 90 MXC®	Standard Grade	45 Rc 5076 PSI	<ul style="list-style-type: none"> Corrosion and Wear Protection Increased hardness High chrome finish

THERMAL SPRAY WIRES

Specialty Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA596	Ultrahard™ Armacor™ 16 Fe 21Cr 8Ni 3.2Mo 2.5B 2.2Cu 1.8Mg 1.5Si .2C	22596	1/16"	Tafa 96 MXC®	Standard Grade	53 Rc 5772 PSI	<ul style="list-style-type: none">• High temperature corrosion protection and abrasion resistance• High chrome finish

THERMAL SPRAY WIRES

Carbides

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA205	Chrome Carbide Cr ₃ C ₂ 40Fe + FeC	31205	1/16", 2mm	Praxair Chrome Carbide	Standard Grade	45 Rc 5700 PSI	<ul style="list-style-type: none"> • High hardness and wear resistance • For applications above 1000°F
HA840	Tungsten Carbide Fe 41WC/W ₂ C .1Zn	31840	1/16", 2mm		Standard Grade	52 Rc 6700 PSI	<ul style="list-style-type: none"> • Excellent bond strength • Abrasion resistance • Dredge cutter blades
HA597	Ultrahard™ Duocor™ Fe 15Cr 5Ni 2B 1.5Si .7Mg +26WC + 6TiC	31597	1/16", 2mm	Tafa 97 MXC®	Standard Grade	64-69 Rc 5100 PSI	<ul style="list-style-type: none"> • Abrasion and wear resistant • High bond strength • Non-skid surface

PURE METAL POWDERS

HAI Name	Powder Type	Product ID	Particle Size	Similar Products	Comparable Specifications	Typical Properties and Applications
11030	Aluminum (Al) 99% Gas Atomized	101030	-45 + 5 µm (-325 mesh + 5 µm)	Praxair AL104 Metco 54NS-1	Standard Grade	<ul style="list-style-type: none"> Relatively soft and ductile Corrosion resistant in coastal and industrial atmospheric conditions Good electrical and thermal conductivity Can be used to repair aluminum or magnesium base alloy parts
14155	Copper (Cu) 99.5% Gas Atomized	104105	90 + 38 µm (170 mesh + 38 µm)	Tafa 1105B	Standard Grade	<ul style="list-style-type: none"> Good electrical and thermal conductivity Coatings are soft, ductile and moderately oxidation resistant
14155-1	Copper (Cu) 99.0% Semi-Spherical, Water Atomized	104155	-106 + 45 µm (-140 + 325 mesh)	Praxair CU105 Metco 55	Standard Grade	<ul style="list-style-type: none"> Can be used for build-up and repair on copper base alloys Non-magnetic, can be used for electromagnetic shielding
2024	Chromium (Cr) 99.5% Irregular	102024	-45 µm (- 325 mesh)		GE B10D5 PMC9753-1	<ul style="list-style-type: none"> Good flowability and high density Used for welding electrodes and wires; electrode hardeners, and chromizing applications
5000	Iron (Fe) 99.5% Water Atomized	105000	-106 + 15 µm (-140 mesh +15 µm)		Standard Grade	<ul style="list-style-type: none"> Tough, hard coatings with excellent sliding properties and wear resistance
6103	Molybdenum (Mo) 99% Sintered, Spherical	106103	-45 + 5 µm (-325 mesh + 5 µm)	Praxair MO103	PWA 1338 CPW 248	<ul style="list-style-type: none"> High density coatings that require grinding to finish Resistant to electric arc erosion in oxidizing or atmospheric conditions
	Molybdenum (Mo) 99+% Spray-Dried, Sintered	106193	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1193F	PWA 1313D	<ul style="list-style-type: none"> May be used as a bond coat Used for pump parts, diesel engine fuel injectors, piston rings, synchronizing rings, press fits, valves, gears, cam followers
6102	Molybdenum (Mo) 99% Spherical	106102	-90 + 45 µm (-170 + 325 mesh)	Praxair MO102 Metco 63NS Amdry 313X	PWA 1313 MSRR 9507/19 CPW 213 Garrett EMS 56705	
7400	Niobium (Nb) Angular Cast and Crushed	107400	-30 + 5 µm (-500 mesh + 5 µm)		Standard Grade	<ul style="list-style-type: none"> Good heat resistance in non-oxidizing atmospheres
7156	Nickel (Ni) 99.0% Spherical, Gas Atomized	107100	-45 + 10 µm (-325 mesh + 10 µm)	Praxair NI101	GE B50TF17 Class B US MIL Comp J, Type I Class A/B	<ul style="list-style-type: none"> Readily machineable coatings that bonds well to steel Can be used for salvage and build-up of nickel base alloys components which have been damaged or mis-machined
7166	Nickel (Ni) 99.3+% Precipitated	107166	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1166F	Standard Grade	
9197	Silicon (Si) 99.9% Angular	109197	-45 + 5 µm (-325 mesh + 5 µm)		Standard Grade	<ul style="list-style-type: none"> Typically used for semiconductor equipment component protection
9106	Tungsten (W) 99.5%	109106	-45 (-325)	Praxair AI1061F	Standard Grade	
9106-1	Tungsten (W) 99.5%	109106	-75+45 (-200+325)	Praxair AI1061	Standard Grade	
9918	Titanium (Ti) 99% Spherical, Dense	109918	-63 µm (-230 mesh)		Standard Grade	<ul style="list-style-type: none"> Very dense coatings for corrosion resistance in sea water, chloride salt solutions and oxidizing acid solutions (except for pure HCl and pure H₂SO₄)
9918-1	Titanium (Ti) 99% Spherical, Dense	109918-1	-106 µm (-140 mesh)		Standard Grade	<ul style="list-style-type: none"> Is a highly purity material, recommended for porous titanium coatings on medical implants. Also suitable as a bond coat for hydroxylapatite coatings
9918-2	Titanium (Ti) 99.4% Irregular	109918-2	-90 + 11 µm (-170 mesh + 11µm)		Standard Grade	
9300	Zinc, 99%	109930				

ALUMINUM BASE POWDERS

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
A1020-1	Al 12Si Spherical, Gas Atomized	211111	-45 + 5 µm (-325 mesh + 5 µm)	Praxair AL111	PWA 1335	<ul style="list-style-type: none"> General purpose material for repair and build-up of aluminum and magnesium base components, including jet engine parts Harder than pure aluminum
A1020	Al 12Si Spherical, Gas Atomized	211102	-106 + 45 µm (-140 + 325 mesh)	Praxair AL102	Garrett EMS 57742 PWA 1335 CPW 235	
A1020-2	Al 12Si Spherical, Gas Atomized	211020	-125 + 45 µm (-120 + 325 mesh)		Mil-P-85856 Type 1, Class II, Comp E Rev 4	

COBALT BASE POWDERS

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
A1101	Co 19Cr 7.5W 13.5Ni 3Fe Spherical, Gas Atomized	221136	-106 + 45 µm (-140 + 325 mesh)		Standard Grade	<ul style="list-style-type: none"> High temperature hardness and high resistance to cavitation erosion Self-fluxing, machineable Used for applications involving abrasion and solid particle erosion
A1106	Co 19Cr 9W 13Ni 3Fe Spherical, Gas Atomized	221137	-106 + 45 µm (-140 + 325 mesh)		Standard Grade	
A1112	Co 19Cr 13W 13Ni 3Fe Spherical, Gas Atomized	221112	-106 + 45 µm (-140 + 325 mesh)		Standard Grade	
A1132	Co 25Cr 12W 22Ni 3Fe Spherical, Gas Atomized	221132	-150 + 45 µm (-100 + 325 mesh)		Standard Grade	<ul style="list-style-type: none"> Resistant to corrosive products of internal combustion engines Used to protect the seat faces of combustion engine exhaust valves
A1132-1	Co 25Cr 12W 22Ni 3Fe Spherical, Gas Atomized	221132-1	-180 + 53 µm (-80 + 270 mesh)		Standard Grade	
A1130	Co 25Cr 10Ni 7Al 5Ta Spherical, Gas Atomized	221310	-45 + 5 µm (-325 mesh + 5 µm)		Standard Grade	<ul style="list-style-type: none"> Resistance to abrasive wear, sliding wear, fretting and cavitation Excellent oxidation resistance Suitable for repair and build-up of parts made of cobalt base alloys
A1103	Co 25Cr 10Ni 7.5W Spherical, Gas atomized	221103	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CO103 Metco 45VF-NS	Garrett EMS 52432 Class XXIII MSRR 9507/23 PWA 1316 CPW 236 DMR 38.008	<ul style="list-style-type: none"> Resistant to abrasive wear, sliding wear, fretting and cavitation Excellent oxidation resistance Produces a thinner, smoother coating, requiring less finishing Suitable for repair and build-up of parts exposed to wear at high temperatures, e.g. forging dies, rolls, exhaust valves
A1105	Co 25Cr 10Ni 7.5W Spherical, Gas Atomized	221105	-90 + 45 µm (-170 + 325 mesh)	Praxair CO105 Metco 45C-NS	MSRR 9507/3 PWA 1318 BMW 10-67-9 DMR 33.007	
A1245	Co 26Cr 11Ni 8W 2Fe Gas Atomized	221245	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1245F	Standard Grade	<ul style="list-style-type: none"> Resists abrasion, fretting and hard particle erosion at high temperatures
A1121	Co 27Cr 5.5Mo 2.8Ni 2Fe Spherical, Gas Atomized	221121	-45 + 10 µm (-325 mesh + 10 µm)	Stellite 21	GE B50A675C	<ul style="list-style-type: none"> Excellent high temperature strength and stability Resistance to galling (under self-mated conditions), cavitation erosion, and corrosion Useful as a hot die material. Popular as fluid valve seat facing alloy
A1121-1	Co 27Cr 5.5Mo 2.8Ni 2Fe Spherical, Gas Atomized	221121-1	-150 + 45 µm (-100 + 325 mesh)	Stellite 21	GE B50A675C	
A1121-2	Co 27Cr 5.5Mo 2.8Ni 2Fe Spherical, Gas Atomized	221121-2	-180 + 53 µm (-80 + 270 mesh)	Stellite 21	Standard Grade	
A1716	Co 28Cr 8Mo 1.7Ni 1.9C Spherical, Gas Atomized	221279	-150 + 45 µm (-100 + 325 mesh)	Stellite 716	Standard Grade	<ul style="list-style-type: none"> High temperature hardness and high resistance to cavitation erosion Useful to protect the surfaces of fluid valve seats
A1106	Co 28Cr 4W 3Fe 3Ni Spherical, Gas Atomized	221106	-45 + 10 µm (-325 mesh + 10 µm)	Stellite 6	Standard Grade	<ul style="list-style-type: none"> Outstanding self-mated anti-galling properties High temperature hardness and high resistance to cavitation erosion Excellent resistance to many forms of mechanical and chemical degradation over a wide temperature range Useful as a valve seat material
A1106-1	Co 28Cr 4.5W 3Fe 3Ni Spherical, Gas Atomized	221106-1	-45 + 16 µm (-325 mesh + 16 µm)	Stellite 6	Standard Grade	

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
A1106-2	Co 28Cr 4W 3Fe 3Ni Spherical, Gas Atomized	221106-2	-53/D μm (-270/D mesh)	Stellite 6/JK576	Standard Grade	
A1256	Co 28Cr 4W 3Fe 3Ni Gas Atomized	221256	-53 + 20 μm (-270 mesh +20 μm)	Tafa 1256F	Standard Grade	
A1106-4	Co 28Cr 4W 3Fe 3Ni Spherical, Gas Atomized	221106-3	-150 + 45 μm (-100 + 325 mesh)	Stellite 6	Standard Grade	
A1106-3	Co 28Cr 4W 3Fe 3Ni Spherical, Gas Atomized	21106-3	-180 + 53 μm (-80 + 270 mesh)	Stellite 6 PTA WM Hoganas 6	Standard Grade	
A1114	Co 28Cr 20W 5Ni 1V Spherical, Gas Atomized	221114	-90 + 45 μm (-170 + 325 mesh)	Praxair CO114-2	GE B50A842 Class A	<ul style="list-style-type: none"> Excellent high temperature wear and oxidation resistant coatings Hard dense deposits suitable for dimensional restoration
A1112	Co 29Cr 8W 3Fe 3Ni Spherical, Gas Atomized	221112	-150 + 45 μm (-100 + 325 mesh)	Stellite 12	Standard Grade	<ul style="list-style-type: none"> Excellent wear, abrasion, and cavitation resistance, excellent sliding properties Oxidation and corrosion resistance Used for steam turbine components
A1112-1	Co 29Cr 8W 3Fe 3Ni Spherical, Gas Atomized	221112-1	-180 + 53 μm (-80 + 270 mesh)	Stellite 12	Standard Grade	
A1101-2	Co 30Cr 12.5W 3Fe 3Ni Spherical, Gas Atomized	221101-2	-45 + 10 μm (-325 mesh + 10 μm)	Stellite 1	Standard Grade	
A1101	Co 30Cr 12.5W 3Fe 3Ni Spherical, Gas Atomized	221101	-150 + 45 μm (-100 + 325 mesh)	Stellite 1	Standard Grade	
A1101-3	Co 30Cr 12.5W 3Fe 3Ni Spherical, Gas Atomized	221101-3	-180 + 53 μm (-80 + 270 mesh)	Stellite 1	Standard Grade	
A1900	Co 22Mo 17Cr 16.7Ni 2.9Si Spherical, Gas Atomized (Tribaloy 900)	221739	-150 + 45 μm (-100 + 325 mesh)	Stellite T900	Standard Grade	
A1109	Co 28Mo 8.5Cr 2.6Si Spherical, Gas Atomized (Tribaloy 400)	221109	-45 + 10 μm (-325 mesh + 10 μm)	Praxair CO109 Metco 66F-NS	GE B50TF155 Class A Garrett EMS 52432 XVI BMS 10-67-15	<ul style="list-style-type: none"> Excellent mechanical wear resistance with good corrosion resistance Good hot hardness with both hot corrosion and oxidation properties Low coefficient of friction Smooth as-sprayed Can be used for wear surfaces for bearing, brakes, compressor rods, pistons, and valve parts
A1400	Co 28.5Mo 8.5Cr 2.6Si .08C Spherical, Gas Atomized (Tribaloy 400)	221735	-45 + 10 μm (-325 mesh + 10 μm)	Stellite T400	GE B50TF155 Class A CL XVI	
A1244	Co 28.5Mo 8.5Cr 2.5Si Gas Atomized (Tribaloy 400)	221244	-53 + 20 μm (-270 mesh +20 μm)	Tafa1244F	Standard Grade	
A1400-2	Co 28.5Mo 8.5Cr 2.6Si .08C Spherical, Gas Atomized (Tribaloy 400)	221735-2	-150 + 45 μm (-100 + 325 mesh)	Stellite T400	Standard Grade	
A1400-3	Co 28.5Mo 8.5Cr 2.6Si .08C Spherical, Gas Atomized (Tribaloy 400)	221735-3	-180 + 53 μm (-80 + 270 mesh)	Stelite T400	Standard Grade	
A1248	Co 28.5Mo 17.5Cr 3.5Si Spherical, Gas Atomized (Tribaloy 800)	221738	-45 + 10 μm (-325 mesh + 10 μm)	Tafa 1248T Stellite T800 JK558H	GE B50TF190 DMR 33.021 MSRR 9507/58	<ul style="list-style-type: none"> Higher chromium content than T-400 for improved oxidation and corrosion resistance. Low coefficient of friction Smooth as-sprayed
A1800	Co 28.5Mo 17.5Cr 3.4Si .08C Spherical, Gas Atomized (Tribaloy 800)	221738-1	-53/D μm (-270/D mesh)	Stellite T800	Standard Grade	
A1800-2	Co 28.5Mo 17.5Cr 3.4Si .08C Spherical, Gas Atomized (Tribaloy 800)	221738-2	-150 + 45 μm (-100 + 325 mesh)	Stellite T800 JK558P	Standard Grade	
A1800-3	Co 28.5Mo 17.5Cr 3.4Si .08C Spherical, Gas Atomized (Tribaloy 800)	221738-3	-180 + 53 μm (-80 + 270 mesh)	Stellite T800	Standard Grade	

Product Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
A1111	Co 32Mo 15Cr 3Si Gas Atomized (Tribaloy 800)	221111	-45 + 10 µm (-325 mesh + 10 µm)	Praxair CO111 Metco 68NF-NS-1	GE B50TF190 Class A EMS 52432 XV PM 819-15	<ul style="list-style-type: none"> • For demanding aerospace applications • Used for protective plasma spray coatings in hot corrosive or oxidizing environments
A1110		221110		Praxair CO110		
A1211-1	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221211-1	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CO211-1 Discontinued	MSRR 9537/1A	
A2195	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221195	-45 + 10 µm (-325 mesh + 10 µm)	Praxair CO210-10 Amdry 9954 Stark 415.288	GE B50TF195 Class A DMR 33.095 Garrett EMS57741	
A1211	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221211	-45 + 22 µm (-325 mesh + 22 µm)	Praxair CO211 Amdry 995C Starck 415.1	MSRR 9507/47 PM 819-58 Garrett EMS 57741	
A1217	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221127	-53 + 5 µm (-270 mesh + 5 µm)	Praxair CO127	CPW 528-1	
A1241	Co 32Ni 21Cr 8Al 0.5Y Gas Atomized	221241	-53 + 20 µm (-270 mesh +20 µm)	Tafa 1241F	Standard Grade	
A1159	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221159	-75 + 38 µm (-200 + 400 mesh)	Praxair CO159	CPW 528-2	
A1211-2	Co 32Ni 21Cr 8Al 0.5Y Spherical, Gas Atomized	221211-2	-150 + 63 µm (-100+ 230 mesh)	Praxair CO211-3	MSRR 9537/1C MSRR 9507/57	

COPPER BASE POWDERS

	Powder Type	Product ID	Nominal Particle Size		Comparable Specifications	Typical Properties and Applications
A4104	Cu 10Al 1Fe Aluminum Bronze Spherical, Gas Atomized	224104	-125 + 45 μm (-120 + 325 mesh)	Praxair CU104 Metco 51F-NS	GE B50TF161 Class A	<ul style="list-style-type: none"> Moderate oxidation, wear and fretting resistance at low temperatures, good emergency running properties Can be used for repair and build-up of copper base alloy parts Typical parts which may be coated are pumps (cavitation resistance), piston guides (soft bearing surfaces), shifter forks and compressor air seals
A4102	Cu 36Ni 5In Spherical, Gas Atomized	224102	-90 + 45 μm (-170 + 325 mesh)	Praxair CU102 Amdry 500C Metco 58NS	GE B50TF72 Class A MSRR 9507/31 SNECMA DMR 33.016 BMS 10-67-14	<ul style="list-style-type: none"> Produces dense coatings with good resistance to galling and fretting Typical applications include jet engine parts such as turbine blade roots
A4103	Cu 38Ni Spherical, Gas Atomized	224103	-75 + 45 μm (-200 + 325 mesh)	Praxair CU103 Metco 57NS	GE B50TF42 Class A PWA 1369 SNECMA DMR 33.015 PM 819-42	<ul style="list-style-type: none"> Produces dense coatings for protection against fretting and cavitation, e.g. in turbines or pumps

IRON BASE POWDERS

	Powder Type	Product ID	Nominal Particle Size		Comparable Specifications	Typical Properties and Applications
A5108	Fe 12.5Cr .15C Mn Si Spherical, Gas Atomized	235108	-90 + 45 μm (-170 + 325 mesh)	Praxair FE108-2	Standard Grade	<ul style="list-style-type: none"> Moderately hard coating Protects against fretting, cavitation and particle erosion Very good corrosion resistance
A5420	Fe 12.5Cr Gas Atomized 420 Stainless Steel	235420	-53 + 20 μm (-270 mesh + 20 μm)	Tafa 1234F Anval 420 SS	Standard Grade	<ul style="list-style-type: none"> Hardness with some corrosion resistance
A5211	Fe 13.5Cr .15C Mn Si Spherical, Gas Atomized 410 Stainless Steel	235211	-45 + 15 μm (-325 + 15 μm)	Praxair FE211-1	Standard Grade	<ul style="list-style-type: none"> Fairly hard coating Protects against fretting, cavitation and particle erosion Good corrosion resistance Requires grinding
A5431	Fe 15.6Cr 1.8Ni .51Mn .41Si 431 Stainless Steel	235431	-106 + 45 μm (-140 + 325 mesh)	Amatek		<ul style="list-style-type: none">
A8525	Fe 17Cr 11Ni 2.5Mo 2.3Si Spherical, Gas Atomized 316 Stainless Steel	235316	-45 + 10 μm (-325 mesh + 10 μm)	Tafa 316L SS Dimalloy 1003	RR 9507/22	<ul style="list-style-type: none"> Very good corrosion resistance Smooth coatings, easily machined Protects against fretting, cavitation and particle erosion Good for dimensional repair and build-up
A5513-1	Fe 17Cr 12Ni 2.5Mo .8Si Spherical, Gas Atomized 316 Stainless Steel	235101	-45 + 15 μm (-325 mesh + 15 μm)	Praxair FE101 Dimalloy 1003 Stellite JK513	Standard Grade	
A5236	Fe 17Cr 12Ni 2.5Mo Gas Atomized	235236	-52 + 20 μm (-270 mesh + 20 μm)	Tafa 1236F	Standard Grade	
A5281	Fe 32Cr 25Ni 4Mo 4B Gas Atomized	235281	-45 + 15 μm (-325 + 15 μm)	Tafa 1281V	Standard Grade	<ul style="list-style-type: none"> Highly alloyed, low porosity Coatings provide excellent corrosion resistance Performs well in HCL and Chloride solutions
A5280	Fe 44Cr 6B 2Si Gas Atomized	235280	-45 + 15 μm (-325 + 15 μm)	Tafa 1280V	Standard Grade	<ul style="list-style-type: none"> Produces smooth, hard surface offering excellent erosion resistance Non-rusting with good performance in salt water, acids, and basis solutions

MOLYBDENUM BASE POWDERS

Powder Type	Product ID	Nominal Particle Size	Comparable Specifications	Typical Properties and Applications
Mo 4% O ₂ Blocky Cast and Crushed	246484	-30 + 5 μm (-500 mesh + 5 μm)	Standard Grade	<ul style="list-style-type: none"> The coatings are harder, less ductile and more sliding wear resistant due to the higher oxide content
Mo 25% MoCrBSiFe Blend of Gas Atomized Self-fluxing alloy and Agglomerated Mo	246137	-75 + 45 μm (-200 + 325 mesh)	Standard Grade	<ul style="list-style-type: none"> Self-fluxing, produces coatings which have high wear resistance a low coefficient of friction and good scuffing resistance Can be used for hardfacing, hard bearing surfaces and abrasive wear resistant coatings
Mo Si ₂	246049	-45 μm (-325 mesh)	Standard Grade	<ul style="list-style-type: none"> The coatings have good strength Excellent resistant to oxidation and thermal shock. Used mainly for heating elements and protective coatings on gas turbine blades
Mo 25Ni	246205	-75 + 38 μm (-200 + 400 mesh)	Standard Grade	<ul style="list-style-type: none"> Scuff resistant and excellent self-lubricating properties
Mo 30Ni	246203	-75 + 38 μm (-200 + 400 mesh)	Standard Grade	

NICKEL BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A7357-1	Ni 5Al Spherical, Gas Atomized	257357-1	-45 + 16 µm (-325 mesh + 16 µm)	Praxaire NI357-1 Dimally 4008S	Standard Grade	<ul style="list-style-type: none"> The coatings are dense and resistant to oxidation and abrasion Is a self-bonding material which exhibits an exothermic reaction during spraying, resulting in a good bond Readily machinable
A7266	Ni 5Al Agglomerated, Sintered	257266	-90 + 38 µm (-170 + 400 mesh)	Tafa 1266M Metco 480NS	Standard Grade	
A7185	Ni 5Al Irregular, Water Atomized	257185	-106 + 45µm (-140 + 325 mesh)	Praxair NI185 Starck 281.45	Standard Grade	
A7357	Ni 5Al Spherical, Gas Atomized	257357	-106 + 45µm (-140 + 325 mesh)	Praxair NI357	Standard Grade	
A7266-1	Ni 5Al Agglomerated, Sintered	257266-1	-106 + 45 µm (-140 + 325 mesh)	Metco 450NS Anval 95/5	Standard Grade	
A7261	Ni 5Al 5Mo Agglomerated, Sintered	257261	-90 + 38 µm (-170 + 400 mesh)	Tafa 1261M	Standard Grade	<ul style="list-style-type: none"> Tough, moderate resistance to erosion and sliding wear, medium hardness High bond strength Used for protection of machine elements, bearing seats and valves
A7261-1	Ni 5Al 5Mo Agglomerated, Sintered	257261-1	-125 + 45 µm (-120+325 mesh)	Praxair NI453	Standard Grade	<ul style="list-style-type: none"> For coatings requiring immediate hardness Excellent machinability and resistance to corrosion, heat, and cracking Use as shaft, sleeves, and wear surfaces
	Ni 10.5Cr 3.3Si 2.0Fe 2B Spherical, Gas Atomized	257004	-106 + 45 µm (-140 + 325 mesh)	Amateck PF35	Standard Grade	
A7040-2		257240		Stellite 40		<ul style="list-style-type: none">
A7050	Ni 11Cr 4Si 2.4B 3Fe Spherical, Gas Atomized	257255	-45 + 10 µm (-325 mesh + 10 µm)	Stellite 50	Standard Grade	<ul style="list-style-type: none"> Produces hard, machinable as-sprayed for fused coating Resists wear by abrasive grains, hard surfaces, fretting, cavitation and erosion
A7274	Ni 11Cr 4Si 3Fe 2.5B Gas Atomized	257274	-63 + 25 µm (-230 mesh + 25 µm)	Tafa 1274H	Standard Grade	
A7050-1	Ni 11Cr 4Si 2.4B 3Fe Spherical, Gas Atomized	257255-1	-106 + 45 µm (-140 + 325 mesh)	Stellite 50	Standard Grade	
A7050-2	Ni 11Cr 4Si 2.4B 3Fe Spherical, Gas Atomized	257255-2	-150 + 45 µm (-100 + 325 mesh)	Stellite 50	Standard Grade	Continued From Previous Page
A7050-3	Ni 11Cr 4Si 2.4B 3Fe Spherical, Gas Atomized	257255-3	-180 + 53 µm (-80 + 270 mesh)	Stellite 50	Standard Grade	
A7272	Ni 12Cr 4Fe 3.5Si 3B Gas Atomized	257272	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1272F	Standard Grade	<ul style="list-style-type: none"> Coatings are hard and wear resistant with low oxide content Fusible
A7277	Ni 14Cr 6Al 4Mo 2 (Nb + Ta) 1Ti Gas atomized	257277	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1277F	Standard Grade	<ul style="list-style-type: none"> Heat and oxidation resistant Repair of turbine engine components
A7116	Ni 14Cr 4.5Fe 4.5Si 3.0B Spherical, Gas Atomized	257167	-106 + 45 µm (-140 + 325 mesh)	Praxair NI167 Starck 335.063	Standard Grade	<ul style="list-style-type: none"> Fused coatings, is very hard and wear resistant Exhibit moderate shrink with low oxide content
A7050-4	Ni 15Cr 3.8Si 4.2Fe 2.8B Spherical, Gas Atomized	257255-4	-106 + 45 µm (-140 + 325 mesh)	Amateck PF50	Standard Grade	<ul style="list-style-type: none"> Intermediate hardness Excellent weldability and crack resistance. Use on polish rods, liners, shafts, valve gates, and coupling
A7276	Ni 15Cr 17W 4Si 3.5Fe Gas Atomized	257276	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1276F Hoganas HA8088	Standard Grade	<ul style="list-style-type: none"> Good deposit efficiency Withstands abrasion and extreme temperatures High oxidation resistance Used for wear resistance coatings and component restoration
A7115-1	Ni 15.5Cr 4.3Si 4Fe 3.5B Spherical, Gas Atomized	257256	-45 + 10 µm (-325 mesh + 10 µm)	Deloro 60	Standard Grade	<ul style="list-style-type: none"> Used for wear resistance coatings and component restoration

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A7115	Ni 15.5Cr 4.3Si 4Fe 3.5B Spherical, Gas Atomized	257256-1	-106 + 45 µm (-140 +325 mesh)	Deloro 60 Hoganas	AMS4775	
A7115-2	Ni 15.5Cr 4.3Si 3.5B 4Fe Spherical, Gas Atomized	257256-3	-150 + 45 µm (-100 + 325 mesh)	Deloro 60	Standard Grade	
A7115-3	Ni 15.5Cr 4.3Si 3.5B 4Fe Spherical, Gas Atomized	257256-4	-180 + 53 µm (-80 + 270 mesh)	Deloro 60	Standard Grade	
A7125	Ni 15.5Cr 32.5Mo 3.5Si Spherical, Gas Atomized	257125	-45 + 15 µm (-325 mesh + 15 µm)	Praxair Ni 125	Standard Grade	<ul style="list-style-type: none"> Coatings have good oxidation and corrosion resistance Laves phases contribute to high hardness and wear resistance
A7126		257126				<ul style="list-style-type: none">
A7236		257236		JK2236		<ul style="list-style-type: none">
A7276	Ni 15.5Cr 16.0Mo .8Si 6.0Fe Spherical, Gas Atomized	257273-2	-75 + 45 µm (-200 + 325 mesh)	Hastelloy C-276	Standard Grade	<ul style="list-style-type: none"> Good oxidation and corrosion resistance Good machinability
A1275	Ni 16Cr 4Si 4Fe 3.5B Gas Atomized	257275	-63 + 25 µm (-230 mesh + 25 µm)	Tafa 1275H	Standard Grade	<ul style="list-style-type: none"> Resists abrasive grains, hard surfaces, cavitation, particle erosion and fretting Corrosion resistant Produces dense, hard, fusible,oxide-free coatings
A7591	Ni 16.5Cr 17Mo 6Fe 4.5W Spherical, Gas Atomized	257273	-45 + 10 µm (-325 mesh + 10 µm)	Stellite C/JK591P	Standard Grade	<ul style="list-style-type: none"> High deposit efficiency, fusible powder Withstands abrasion and extreme temperatures Pump plungers and sleeves, valve seats
A7591-1	Ni 16.5Cr 17Mo 6Fe 4.5W Spherical, Gas Atomized	257273-1	-53/D µm (-270/D mesh)	Stellite C	Standard Grade	
A7591-2	Ni 16.5Cr 17Mo 6Fe 4.5W Spherical, Gas Atomized	257273-2	-150 + 45 µm (-100 + 325 mesh)	Stellite C	Standard Grade	
A		256235		JK6235		
A7591-3	Ni 16.5Cr 17Mo 6Fe 4.5W Spherical, Gas Atomized	257273-3	-180 + 53 µm (-80 + 270 mesh)	Stellite C	Standard Grade	
A7365-2	Ni 18Cr 10Co 6.5Al 6Ta Spherical, Gas Atomized Coarse Cut	257365-2	-53 +10 µm (-270 + 10 µm)	Praxair Ni365-2	GE B50TF271 Class C	<ul style="list-style-type: none"> Useful for thick build-up coatings on critical "superalloy" components
A7365-3	Ni 18Cr 10Co 6.5Al 6Ta Spherical, Gas Atomized Fine Cut	257365-3	-90 +45 µm (-170+ 325 mesh)	Praxair Ni365-3	GE B50TF271 Class B	
A7278	Ni 19Cr 19Fe 5Nb 3Mo Gas Atomized	257278	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1278F	Standard Grade	<ul style="list-style-type: none"> Dimensional restoration of airfoils, combustors, blades or vanes in turbines Highly oxidation resistant
A7243	Ni 19Cr 5Al Agglomerated, Sintered	2572243	-90 + 38 µm (-170 + 400 mesh)	Tafa 1243M	PWA1347D	<ul style="list-style-type: none"> Excellent corrosion and oxidation resistance
A7105	Ni 20 Cr Spherical, Gas Atomized Very Fine Cut	257105	-45 +5 µm (-325 mesh +5 µm)	Praxair Ni 105 Metco 43VF-NS	PWA 1319	<ul style="list-style-type: none"> Produces thin, dense, bright, clean, smooth coatings Exhibits good bonding characteristics Resists oxidation and corrosive gases Suitable for repair and build-up
A7105-1	Ni 20 Cr Gas Atomized	257262	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1262F	Standard Grade	

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A7105-2	Ni 20 Cr Spherical, Gas Atomized Fine Cut	257106	-90 +10 µm (-170 mesh +10 µm)	Praxair Ni 106 Metco 43F-NS	GE B50TF40 Class B MSRR 9507/27 PWA 1317	
A7105-3	Ni 20 Cr Spherical, Gas Atomized	257106-1	-106 + 45 µm (-140 + 325 mesh)	Metco 43C-NS Anaval 80/20	PWA 1315 GE B50TF40 Class A MSRR 9507/8	
A7105-4	Ni 20 Cr Spherical, Gas Atomized Coarse Cut	257107	-125 + 45 µm (-120 + 325 mesh)	Praxair Ni 107 Metco 43C-NS	GE B50TF40 Class A MSRR 9507/8 PWA 1315	
A7328	Ni 20Cr 9Mo 3.2Nb 3.8Ta Spherical, Gas Atomized Fine Cut Inconel 625	257328	-45 + 10 µm (-325 mesh + 10 µm)	Praxair Ni 328 Amdry 1005	Standard Grade	<ul style="list-style-type: none"> Oxidation and corrosion resistant Excellent choice for nickel and cobalt component restoration Can be used to combat sea water or dilute acid corrosion
A7328-1	Ni 20Cr 9Mo 3.2Nb 3.8Ta Spherical, Gas Atomized Fine Cut Inconel 625	257328-1	-90 + 45 µm (-170 + 325 mesh)	Praxair Ni 328-1 Amdry 625	Standard Grade	
A7265	Ni 21Cr 9Mo 2.5Fe 4Nb Gas Atomized	257265	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1265F	Standard Grade	<ul style="list-style-type: none"> Dimensional restoration of airfoils, comubustors, blades or vanes in turbines Highly corrosion resistant
A7625	Ni 21Cr 9Mo 3Mn .3Si Spherical, Gas Atomized	257265	-53/D µm (-270/D mesh)	Stellite JK625	Standard Grade	<ul style="list-style-type: none"> Resists localized corrosion, oxidizing acids with Chloride ions and industrial chemicals Highly corrosion resistant
A7625-1	Ni 21Cr 9Mo 3Mn .3Si Spherical, Gas Atomized	257265-1	-45 + 10 µm (-325 mesh + 10 µm)	Stellite JK625	Standard Grade	
A7625-3	Ni 21Cr 9Mo 3Mn .3Si Spherical, Gas Atomized	257265-3	-150 + 45 µm (-100 + 325 mesh)	Stellite JK625	Standard Grade	
A7625-4	Ni 21Cr 9Mo 3Mn .3Si Spherical, Gas Atomized	257265-4	-180 + 53 µm (-80 + 270 mesh)	Stellite JK625	Standard Grade	
A7022	Ni 21.5Cr 14Mo 5Fe 3W Spherical, Gas Atomized	257273-4	-45 + 16 µm (-325 mesh + 16 µm)	Anval C22	Standard Grade	
A7270	Ni 21Cr 13Mo 4Fe 3W Gas Atomized	257270	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1270F	Standard Grade	
A7244	Ni 22Cr 10Al 1.0Y Spherical, Gas Atomized	257244	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1244F	Standard Grade	<ul style="list-style-type: none"> Used as protective plasma spray coatings in hot corrosive or oxidizing environments at high temperatures, e.g. to protect gas turbine blades or valve stems and valve chambers in marine diesel engines or bond coats for thermal barrier zirconia coatings
A7244-1	Ni 22Cr 10Al 1.0Y Spherical, Gas Atomized	257164	(-140 + 270 mesh)	Praxair Ni164	GE B50TF162 & B50TF192 Class A DMR 33.090 PM819-44	
A7244-2	Ni 22Cr 10Al 1.0Y Spherical, Gas Atomized	257211	-106 + 53	Praxair Ni211 Amdry 962	GE B50TF162 & B50TF192 Class A DMR 33.090 PM819-44	
A7246	Ni 31Cr 11Al .4Y Spherical, Gas Atomized	257246	-90 + 38 µm (-170 + 400 mesh)	Praxair Ni246-4 Amdry 964	EMS 57737 EMS 52432 Class XXI PM819-29	<ul style="list-style-type: none"> Excellent oxidation resistance and diffusional stability Exclusively used in gas turbine applications
A7260	Ni 50Cr Gas Atomized	257260	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1260F	Standard Grade	<ul style="list-style-type: none"> Coatings are resistant to corrosive gases in boiler temperatures Superior bond
A7202	Ni 19Co 17Fe 3Mo 5Nb Spherical, Gas Atomized Course Cut Inconel 718	257202	-125 + 45 µm (-120 + 325 mesh)	Praxair Ni 202	GE B50TF202 Class A	<ul style="list-style-type: none"> Machinable Good dimensional restoration
A7202-1	Ni 19Co 17Fe 3Mo 5Nb Spherical, Gas Atomized Intermediate Cut Inconel 718	257202-1	-90 + 45 µm (- 170 + 325 mesh)	Praxair Ni 202-1 Amdry 718	GE B50TF202 Class B	

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A7202-2	Ni 19Co 17Fe 3Mo 5Nb Spherical, Gas Atomized Very Fine Cut Inconel 718	257202-2	-45 + 10 µm (-325 mesh + 10 µm)	Praxair Ni 202-2	Standard Grade	
A7202-3	Ni 19Co 17Fe 3Mo 5Nb Spherical, Gas Atomized Fine Cut Inconel 718	257202-3	-45 + 20 µm (-325 mesh + 20 µm)	Praxair Ni 202-3	GE B50TF202 Class D	
A7171	Ni 21Co 17Cr 12Al .6Y Spherical, Gas Atomized	257171	-75 + 38 µm (-200 + 400 mesh)	Homogeneous Metal Inc.	PWA 1365-2 CPW 387 Pm-819-51	<ul style="list-style-type: none"> Resistant to oxidation and corrosion at high temperatures Utilized at bond coats under stabilized zirconia coatings
A7242	Ni 23Co 20Cr 8.5Al 4Ta Gas Atomized	257242	-53 + 20 µm (-270 mesh + 20µm)	Tafa 1242F	Standard Grade	<ul style="list-style-type: none"> Protects in hot corrosive or oxidizing environments TBC bond coat for turbine and engine components Good high temperature oxidation resistance
A7264	Ni 31Cu Gas Atomized	257264	-63 + 20 µm (-230 mesh + 20 µm)	Tafa 1264I	Standard Grade	<ul style="list-style-type: none"> For marine applications Highly resistant to salt water corrosion Dimensional restoration; readily machinable
	Ni 61.5Cu .4Fe Spherical, Gas Atomized	257038	-53 + 15 µm (-270 + 15 µm)		Standard Grade	<ul style="list-style-type: none"> Very dense coating Corrosion resistant For use on printing rolls
A7269	Ni 16Mo 15Cr 5Fe 3W Gas Atomized	257269	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1269F	Standard Grade	<ul style="list-style-type: none"> Resistant to strong oxidizers, hot contaminated mineral acids, sea water, and brine Highly corrosion resistant
A7268	Ni 17Mo 16Cr 5Fe 4W Gas Atomized	257268	-53 + 20 µm (-270 mesh + 20 µm)	Tafa 1268F	Standard Grade	<ul style="list-style-type: none"> Resists oxidation Digesters, boiler tubes, pump parts, valve parts Guide rolls, fan and blower blades
A7171	Ni MCrAlYs Spherical, Gas Atomized	257171	Proprietary	Praxair Ni 171 Amdry 365-2	CPW 387 PWA 1365-2 PM 819-51	<ul style="list-style-type: none">

CHROMIUM CARBIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
A2210	Cr ₃ C ₂ 10% NiCr Mechanically Blended	312210	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CRC 210-1	GE B5OTF281 Class A	<ul style="list-style-type: none"> Resistant to sliding wear, fretting, abrasion and particle erosion Can be used for pump housings, hydraulic valves and similar applications Good hot gas corrosion resistance
A2373	Cr ₃ C ₂ 20% NiCr Densified	312373	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1373V	Standard Grade	<ul style="list-style-type: none"> Coatings are wear resistant at elevated temperatures Good hot gas and corrosion
A2135-2	Cr ₃ C ₂ 25% NiCr	312135	-53/D (-270/D mesh)	Stellite JK135	Standard Grade	<ul style="list-style-type: none"> Good abrasion, particle erosion, cavitation, and fretting resistance Good sliding and corrosion resistance properties
A2380	Cr ₃ C ₂ 25% NiCr Two Component Blend	312380	-20 + 5 µm	Tafa 1380Q	AMS 7875B	<ul style="list-style-type: none"> Good hot gas corrosion resistance, particularly in sulphurous gases
A2106	Cr ₃ C ₂ 25% NiCr Mechanically Blended	312106	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CRC 106 Metco 81VF-NS	AMS 7875 GE B5OTF137 Class A MSRR 9507/17 DMR 33.006 M3965 PM 819-05	<ul style="list-style-type: none"> Typical applications include fuel rod mandrels and hot forming dies, hydraulic valves, tooling, machine parts, pump housings and wear protection of aluminum parts
A2106-1	Cr ₃ C ₂ 25% NiCr Mechanically Blended	312380-1	-106 + 15 µm (-140 mesh +15µm)	Tafa 1380E	PWA 1307F	
A2106-2	Cr ₃ C ₂ 25% NiCr Mechanically Blended	312108	-106 + 45 µm (-140 + 325 mesh)	Praxair CRC 108 Metco 81NS	Garrett EMS 52432 Class II GE B5OTF137 Class B MSRR 9507/2 MTS 1024 PWA 1307 CPW 207 DMR 33.005	
A2375	Cr ₃ C ₂ 25% NiCr Spray-Dried, Sintered	312375	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1375VM	Standard Grade	
A2376	Cr ₃ C ₂ 25% NiCr Agglomerated, Sintered	312376	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1376Y	Standard Grade	
A2375-1	Cr ₃ C ₂ 25% NiCr Densified	312375-1	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1375V	Standard Grade	
A2410	Cr ₃ C ₂ 30% NiCr Reacted	312410	-53 + 16 µm (-270 mesh + 16 µm)	Praxair CRC410	Standard Grade	<ul style="list-style-type: none"> High volume of big carbide crystallites Good homogeneity with low stress
A2410-1	Cr ₃ C ₂ 30% NiCr Reacted	312410-1	-45 + 16 µm (-325 mesh + 16 µm)	Praxair CRC410-1	Standard Grade	
A2410-2	Cr ₃ C ₂ 30% NiCr Reacted	312410-2	-106 + 45 µm (-140 + 325 mesh)	Praxair CRC410-2	Standard Grade	
A2425	Cr ₃ C ₂ 40% NiCr Reacted	312425	-53 + 16 µm (-270 mesh + 16 µm)	Praxair CRC425	Standard Grade	<ul style="list-style-type: none"> Moderate dispersion of carbide of average size Good ductility combined with wear resistance
A2425-1	Cr ₃ C ₂ 40% NiCr Reacted	312425-1	-45 + 16 µm (-325 mesh + 16 µm)	Praxair CRC425-1	Standard Grade	
A2425-2	Cr ₃ C ₂ 40% NiCr Reacted	312425-2	-106 + 45 µm (-140 + 325 mesh)	Praxair CRC425-2	Standard Grade	
A2415	Cr ₃ C ₂ 65% NiCr Reacted	312415	-45 + 16 µm (-325 mesh + 16 µm)	Praxair CRC415	Standard Grade	<ul style="list-style-type: none"> Low concentration of carbide which appear small Good ductility, toughness and corrosion resistance
A2415-1	Cr ₃ C ₂ 65% NiCr Reacted	312415-1	-53 + 16 µm (-270 mesh + 16 µm)	Praxair CRC415-1	Standard Grade	
A2415-2	Cr ₃ C ₂ 65% NiCr Reacted	312415-2	-106 + 45 µm (-140 + 325 mesh)	Praxair CRC415-2	Standard Grade	
A2107	Cr ₃ C ₂ 99.0%+ Sintered, Irregular	312107	-45 + 5 µm (-325 mesh + 5 µm)	Praxair CRC107	PWA 1304	<ul style="list-style-type: none"> Hard, wear resistant coatings Usually blended with a low melting alloy for spraying

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Product	Comparable Specifications	Typical Properties and Applications
A2107-1	Cr ₃ C ₂ 99.0%+ Sintered, Irregular	312105	-106 + 45 μm (-140 + 325 mesh)	Praxair CRC105	Standard Grade	

NICKEL BASE POWDERS

	Powder Type	Product ID	Nominal Particle Size		Comparable Specifications	Typical Properties and Applications
A9305-01	B ₄ C, 99.99%	329305	-63 μm (-230 mesh)		Standard Grade	<ul style="list-style-type: none">• Excellent chemical corrosion resistance and wear resistance• High hardness• Used for applications involving nuclear and electronics

TUNGSTEN CARBIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A8350	WC 10Co 4Cr Spray-Dried and Sintered	328350	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1350VM	Standard Grade	<ul style="list-style-type: none"> Resistant to erosion and abrasion, recommended for use in water based solution. The CoCr matrix provides higher abrasion and corrosion resistance than WC-Co Used in the paper industry for protecting rolls against wear in wet corrosive environments Excellent wear properties at low temperatures
A8436-1	WC 10Co 4Cr Sintered, Irregular	328436	-45 + 15 µm (-325 mesh + 15 µm)	Praxair WC436-1	Standard Grade	
A8436	WC 10Co 4Cr Sintered, Irregular	328113	-45 + 5 µm (-325 mesh + 5 µm)	Praxair WC113 Stellite JK122	Standard Grade	
A 8119		328119		Stellite JK119		
A8120		328120	-325/D	Stellite JK120		
A8120-1		328121		Stellite JK120P		
A8120-2		328120-2		Stellite JK120H		
A8125	WC 22Cr 6.4C 6.6ni	328125	-325/D	Stellite JK125	Standard Grade	
A8320	WC 11Co Cast-Type	328320	-20 + 5 µm	Tafa 1320Q	AMS 7879C	<ul style="list-style-type: none"> Resistant to abrasion, erosion, and adhesion
A8320-1	WC 11Co Cast-Type	328320-1	-106 + 45 µm (-140 + 325 mesh)	Tafa 1320C	PWA 1302E	
A8106	WC 12Co Cast/crushed Irregular	328106	-45 + 5 µm (-325 mesh + 5 µm)	Praxair WC106 Metco 71VF-NS Amdry 301	AMS 7879 PWA 1379-2 BMS 10-67-1	<ul style="list-style-type: none"> Resistant to abrasion, erosion and certain levels of hammer wear loading Good fretting resistance Coatings are hard and dense, with high bond strength Used for machine parts, and pump housing Provides a gripping surface as-sprayed Finish to low RMS for sliding wear Finish by grinding
A8001	WC 12Co Sintered, Crushed Irregular			Praxair AI1001		
A8114-1	WC 12Co Sintered, Crushed Irregular	328114	-45 + 10 µm (-325 mesh + 10 µm)	Praxair WC114	Standard Grade	
A8114-2	WC 12Co Sintered, Crushed Irregular	328489	-45 + 15 µm (-325 mesh + 15 µm)	Praxair WC489-1 Starck 518.28	GE B5OTF27 Class A PM 819-25	
A8342	WC 12Co Spray-Dried, Sintered	328342	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1342VM	Standard Grade	
A8342-2	WC 12Co Agglomerated, Sintered	328342-1	-45 + 15 µm (-325 mesh + 15 µm)	Tafa 1342V	Standard Grade	
A8342-3	WC 12Co Spherical, Densified	328616	-53 + 11 µm (-270 mesh + 11µm)	Praxair WC616 SM 5810 Stellite JK112	Standard Grade	
A8104	WC 12Co Sintered, Irregular	328104	-75 + 45 µm (-200 + 325 mesh)	Praxair WC104	Garrett EMS 57745 PWA 1302 Garrett EMS 52432 IX	
A8334	WC 12Co 50Ni SF Two Component Blend	328334	-53 + 20 µm (-270 mesh + 20µm)	Tafa 1334	Standard Grade	
A8516	WC 17 Co Sintered, Irregular	328516	-45 + 10 µm (-325 mesh + 10µm)	Praxair WC516	Standard Grade	
A8559	WC 17 Co Spherical, Densified	328559	-45 + 15 µm (-325 mesh + 15 µm)	Praxair WC559 Stellite JK117	Standard Grade	
A8343	WC 17 Co Agglomerated, Sintered	328343	-45 + 15 µm (-325 mesh + 15µm)	Tafa 1343V	Standard Grade	
A8128	WC 17 Co Spray-Dried, Sintered	328343-1	-45 + 15 µm (-325 mesh + 15µm)	Tafa 1343VM Metco 73F	Standard Grade	
A8616	WC 17 Co Spherical, Densified	328169	-53 + 11 µm (-270 mesh + 11 µm)	Praxair WC616 Metco 5810	Standard Grade	

	Sintered, irregular		mesh + 10 µm			adhesive strength
A8310	WC 17Ni Spherical, Densified	328624	-53 + 10 µm (-270 mesh + 10 µm)	Tafa 1310VM	Standard Grade	<ul style="list-style-type: none"> Better corrosion resistance than Cobalt containing carbide powders in some environments
A83496	WC 20Cr 6Ni Sintered, Irregular	328496	-45 + 15 µm (-325 mesh + 15 µm)	Praxair WC496	Standard Grade	<ul style="list-style-type: none"> Hard, dense coating with good bond strength Excellent choice for chemical service

ALUMINUM OXIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A1010-5	Al ₂ O ₃ 99+% Fused, Crushed	411183	-15 + 45 μm (-15 μm + 325 mesh)	Norton 183 Norton 153	Standard Grade	<ul style="list-style-type: none"> Very dense coatings with good dielectric strength Requires grinding Good resistance to abrasive wear, sliding wear, friction and oxidation Should not be used where impact or shock loading occurs Can be used in many environments, including most acid and alkalis Used on blade tips, compressor rotors, brush seals, etc. in the aerospace industry Used on paper rolls for electrical insulation
A1010	Al ₂ O ₃ 99.5% Fused, Crushed	411150	-2 + 12 μm	Norton 150 Metco 105 SFP	Standard Grade	
A1010-1	Al ₂ O ₃ 99.5% Fused, Crushed	411153	-15 + 45 μm (-15 μm + 325 mesh)	Norton 153 Norton 183	Standard Grade	
A1010-2	Al ₂ O ₃ 99.5% Sintered, Irregular	411101	-45 + 5 μm (-325 mesh + 5 μm)	Praxair ALO101 Amdry 180 Metco 105NS	Garrett EMS 52432 Class VI PWA 1310	
A1010-3	Al ₂ O ₃ 99.5% Fused	411114	-45 μm (-325 mesh)	Praxair AIO114	Standard Grade	
A1010-4 A1010-025	Al ₂ O ₃ 99.9+% Ultra Pure Spherical	411199	-10 + 75 μm (-10 μm + 200 mesh)	Norton 199 ESK	Standard Grade	
A1114	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	411114-1	-2 + 14 μm	Norton 114	Standard Grade	
A1114-1	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	411115	-4 + 15 μm	Norton 115	Standard Grade	
A1114-2	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	411117	-5 + 30 μm	Norton 117	Standard Grade	
A1114-3	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	411110-2	-15 + 45 μm	Norton 110GE Starck 742.298	Comp. E Type II, Class 1 Garrett EMS 52432 TYPE XXV BMS 10-67, Type 3 GE A50TF87 Class A MSRR 9507/36 MTU 502	
A1114-4	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	411110	-15 + 45 μm	Metco 101NS Norton 110	Standard Grade	
A1114-5	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	411119	-20 + 45 μm	Norton 119	Standard Grade	
A1114-6	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	411116	-20 + 50 μm	Norton 116	Standard Grade	
A1112	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	411112	-20 + 70 μm	Norton 112 Metco 101B-NS Amdry 187C Starck 742.407	GE A50TF87 Class B PWA 1311 MTU 503	
A1112-2	Al ₂ O ₃ 3% TiO ₂ Fused, Crushed	411419	-45 + 15 μm (-325 mesh + 15 μm)	Tafa 1419V Metco 101NS	Standard Grade	
A1112-3	Al ₂ O ₃ 3% TiO ₂ Sintered, Irregular	411159	-106 + 45 μm (-140 + 325 mesh)	Praxair ALO 159 Amdry 187	GE A50TF87 Class B PWA 1311 SENECMA DMR 33.013 CPW 281	
A1107	Al ₂ O ₃ 13% TiO ₂ Fused, Chemically Uniform	411107	-5 + 30 μm (-5 μm + 500 mesh)	Norton 107	Standard Grade	<ul style="list-style-type: none"> Hard, dense, smooth coatings Good abrasive wear resistance Typically used for the protection of hydraulic parts, plungers, shaft sleeves, mechanical seals or textile machine parts Less brittle, but lower dielectric strength than Al₂O₃ + 3% TiO₂
A1107-2	Al ₂ O ₃ 13% TiO ₂ Fused, Chemically Uniform	411106	-15 + 45 μm (-15 μm + 325 mesh)	Norton 106	Standard Grade	
A1188	Al ₂ O ₃ 13% TiO ₂ Sintered, Irregular	411188	-31 + 5 μm (-500 mesh + 5 μm)	Praxair ALO 188 Metco 130SF	Standard Grade	
A1188-1	Al ₂ O ₃ 13% TiO ₂ Sintered, Irregular	411187	-45 + 10 μm (-325 mesh + 10 μm)	Praxair ALO187 Metco 130	Standard Grade	
A1107-3	Al ₂ O ₃ 13% TiO ₂ Fused, Crushed	411420	-45 + 15 μm (-325 mesh + 15 μm)	Tafa 1420V	Standard Grade	
A1107-4	Al ₂ O ₃ 13% TiO ₂ Fused, Chemically Uniform	411103	-45 + 75 μm (-325 + 200 mesh)	Norton 103	Standard Grade	

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A1110	Al ₂ O ₃ 30% TiO ₂ Fused, Crushed	411101	-25 + 5 μm	Norton 1010	Standard Grade	<ul style="list-style-type: none"> • Very dense, low porosity coatings with high bond strength • Can be used instead of Al₂O₃ + 13% TiO₂ when grindability is a factor • The polished coatings are used in the chemical industry because of their low degree of wettability for dilute solutions of common acids • Applications include pump components, shaft sleeves, mechanical seals, thread guides and parts in the textile industry • Grinds in low RMS, near friction free
A1109	Al ₂ O ₃ 40% TiO ₂ Fused, Chemically Uniform	411109	-5 + 30 μm (-5 μm + 500 mesh)	Amdry 6250 Norton 109	Standard Grade	
A1109-1	Al ₂ O ₃ 40% TiO ₂ Fused, Chemically Uniform	411108	-15 + 45 μm (-15 μm + 325 mesh)	Amdry 6254 Norton 108	Standard Grade	
A1121	Al ₂ O ₃ 40% TiO ₂ Fused, Irregular	411121	-45 + 5 μm (-325 mesh + 5 μm)	Praxair ALO121 Metco 131VF	Standard Grade	
A1421	Al ₂ O ₃ 40% TiO ₂ Fused, Crushed	411421	-45 + 15 μm (-325 mesh + 15 μm)	Tafa 1421V	Standard Grade	
A1170	Al ₂ O ₃ 28% MgO Spinal, Spherical	411170	-10 + 75 μm (-10 μm + 200 mesh)	Norton 170	Standard Grade	
A1171	Al ₂ O ₃ 28% MgO Spinal, Spherical	411171	-15 + 45 μm (-15 μm + 325 mesh)	Norton 171	Standard Grade	<ul style="list-style-type: none"> • Good abrasion and wear resistance

CHROMIUM OXIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A3440	Cr ₂ O ₃ 99.5% Crystallized	423440	-25 + 5 μm (-500 mesh + 5 μm)	Tafa 1440Q Amdry 6417	Standard Grade	<ul style="list-style-type: none"> • Hard, dense, wear resistant coatings • Excellent resistance to abrasion, erosion, and cavitation • Insoluble in acid, alkali and alcohol • Used for anolox print rolls
A340-1	Cr ₂ O ₃ 99.5% Crystallized	423440-1	-45 + 15 μm (-325 mesh + 15 μm)	Tafa 1440V	Standard Grade	
A3179	Cr ₂ O ₃ 99% Reacted, Blocky	423179	-31 + 10 μm (-500 mesh + 10 μm)	Praxair CRO179	Standard Grade	
A3324	Cr ₂ O ₃ 99% Fused, Crushed	423324	-75 + 45 μm (-200 + 325 mesh)	Norton 324	Comp. F Type II, Class 1 Garrett EMS 52432 CL-V PWA 1325	
A3179-1	Cr ₂ O ₃ 99% Reacted, Blocky	423131	-45 + 5 μm (-325 mesh + 5 μm)	Praxair CRO131	Standard Grade	
A3179-2	Cr ₂ O ₃ 99% Reacted, Blocky	423167	-45 + 10 μm (-325 mesh + 10 μm)	Praxair CRO167	Standard Grade	
A3328	Cr ₂ O ₃ 99% Fused, Crushed	423328	-45 + 15 μm (-325 mesh + 15 μm)	Metco 6420 Norton 328	BMS 10-67 Type 4	
A3179-3	Cr ₂ O ₃ 99% Reacted, Blocky	423167-1	-45 + 15 μm (-325 mesh + 15 μm)	Praxair CRO167-1	Standard Grade	
A3179-4	Cr ₂ O ₃ 99% Reacted, Blocky	423172	-45 + 22 μm (-325 mesh + 22 μm)	Praxair CRO172 Amdry 6420	Standard Grade	
A3106	Cr ₂ O ₃ 5% Cr	423030	-45 + 10 μm	Norton 3030 Starck 704.054 Praxair CRO167	Standard Grade	
A3339	Cr ₂ O ₃ 3% SiO ₂ Fused, Crushed	423339	-45 + 15 μm (-325 mesh + 15 μm)	Norton 339 Praxair CRO 178	Standard Grade	<ul style="list-style-type: none"> • Hard dense coatings • Excellent resistance to wear and corrosion
A3339-1	Cr ₂ O ₃ 3% SiO ₂ Fused, Crushed	423338	-75 + 45 μm (-200 + 325 mesh)	Norton 338	Standard Grade	
A3341	Cr ₂ O ₃ 5% SiO ₂ 3%TiO ₂ Fused, Crushed	423341	-45 + 15 μm (-325 mesh + 15 μm)	Norton 341 Metco 136F	Standard Grade	<ul style="list-style-type: none"> • Hard dense coatings • Resistance to abrasive wear and particle erosion • Good friction characteristics
A3192	Cr ₂ O ₃ 5% SiO ₂ 3%TiO ₂ Agglomerated, Sintered, Irregular	423192	-53 + 11 μm (-270 mesh + 11 μm)	Praxair CRO192 Metco 136F	Standard Grade	
A3341-1	Cr ₂ O ₃ 5% SiO ₂ 3%TiO ₂ Fused, Crushed	423340	-75 + 45 μm (-200 + 325 mesh)	Metco 136CP Norton 340	Standard Grade	
A3301	Cr ₂ O ₃ 3% TiO ₂ Metal Free, Sintered	423301	-30 + 10 μm (-500 mesh + 10 μm)	Norton 301	Standard Grade	<ul style="list-style-type: none"> • Hard dense metal-free coatings • Good for wear resistance an laser engraving
A3301-1	Cr ₂ O ₃ 3% TiO ₂ Metal Free, Sintered	423302	-45 + 22 μm (-325 mesh + 22 μm)	Metco 106F Norton 302	Standard Grade	
A3301-2	Cr ₂ O ₃ 3% TiO ₂ Metal Free, Sintered	423307	-45 + 15 μm (-325 mesh + 15 μm)	Norton 307	Standard Grade	
A3301-3	Cr ₂ O ₃ 3% TiO ₂ Metal Free, Sintered	423306	-75 + 45 μm (-200 + 325 mesh)	Norton 306	Standard Grade	

TITANIUM OXIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A4001	TiO ₂ 97% Fused, Crushed	420001	-25 + 5 μm (-425 mesh + 5 μm)	Norton 1001	Standard Grade	<ul style="list-style-type: none"> Slightly conductive with moderate abrasive wear resistance Lower hardness than Al₂O₃ + TiO₂
A4000	TiO ₂ 97% Fused, Crushed	420000	-63 + 10 μm (-230 mesh + 10μm)	Norton 1000	Standard Grade	
A4142	TiO ₂ 99% Fused, Crushed	420424	-45 + 5 μm (-325 mesh + 5 μm)	Tafa 1424V	Standard Grade	<ul style="list-style-type: none"> Moderate wear resistance Low electrical conductivity

ZIRCONIUM OXIDE BASE POWDERS

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
A9235	ZrO ₂ 5% CaO Calcina Stabilized	439252	-15 + 45 μm (-15 μm + 325 mesh)	Metco 201NS Norton 252	Standard Grade	<ul style="list-style-type: none"> Thermal barrier (insulative) and erosion resistant coatings Used for furnaces and casting ladles
A9235-1	ZrO ₂ 5% CaO Calcina Stabilized	439235	-45 + 75 μm (-325 + 200 mesh)	Metco 201B-NS Norton 235	Comp. H Type II, Class 2 Garrett EMS 52432 Class XII BMS 10-67 TYPE 5 Garrett EMS 56720 PWA 1312 MSRR 9507/18 MTU 512 MIL-Z-81572	
A9484	ZrO ₂ 7% Y ₂ O ₃ Spray-Dried, Sintered	439484	-63 + 20 μm (-230 mesh + 20 μm)	Tafa 1484I	PWA1375H	<ul style="list-style-type: none"> For thermal barrier coatings Heat and thermal shock resistant, erosion resistant Applications include heat treatment equipment, turbine combustors and airfoils, rocket nozzle throats, diesel engine valve heads, pistons and cylinder heads
A9485	ZrO ₂ 8% Y ₂ O ₃ Spray-Dried, Sintered	439485	-63 + 20 μm (-230 mesh + 20 μm)	Tafa 1485I	Standard Grade	
A9204	ZrO ₂ 8% Y ₂ O ₃ Ytria Stabilized, Spherical	439204	-75 + 10 μm (-200 mesh + 10 μm)	Norton 204	EMS 57750 GE A50TF204 Class C GE A50TF278 Class ABC PWA 1375 MSRR 9507/46 GE P16BAG8 WEST 83336AB	<ul style="list-style-type: none"> Standard Grade
A9204-1	ZrO ₂ 8% Y ₂ O ₃ Ytria Stabilized, Spherical	439204-1	-100 + 44 μm (-140 + 325 mesh)	Metco 204B-NS Norton 204PR	Standard Grade	
A9113	ZrO ₂ 8% Y ₂ O ₃ Agglomerated, Semi-Spherical	439113	-106 + 45 μm (-140 + 325 mesh)	Metco 204NSG Praxair ZRO113/114	GE A50TF204 Class C GE A50TF278 Class B PWA 1375	<ul style="list-style-type: none"> Standard Grade
A9196	ZrO ₂ 8% Y ₂ O ₃ Densified, Spherical	439196	-106 + 45 μm (-140 + 325 mesh)	Praxair ZRO196	Standard Grade	
A9113-1	ZrO ₂ 8% Y ₂ O ₃ Agglomerated, Semi-Spherical	439182	-106 + 45 μm (-140 + 325 mesh)	Praxair ZRO182	GE A50TF278 Class B Garrett EMS 57750 T1	<ul style="list-style-type: none"> Standard Grade
A9202	ZrO ₂ 20% Y ₂ O ₃ Ytria Stabilized, Spherical	439202	-10 + 75 μm (-10 μm + 200 mesh)	Norton 202 Metco 202NS	Garrett EMS 57750 GE A50TF204 Class A PWA 36087 M3966B	
A9110	ZrO ₂ 20% Y ₂ O ₃ Agglomerated, Semi-Spherical	439110	-150 + 45 μm (-100 + 325 mesh)	Praxair ZRO110	GE A50TF204 Class A MSRR 9507/37	<ul style="list-style-type: none"> Thermal barrier coating Resistant to molten metals and particle erosion Heat and thermal shock resistant Erosion resistant Applications include diesel engine pistons, valves, and cylinder heads
A9103	ZrO ₂ 22% MgO Fused, Irregular	439103	-75 + 10 μm (-200 mesh + 10 μm)	Praxair ZRO103	Garrett EMS 52432 Type XXVI GE A50TF155 Class A PWA 1333	
A9103-1	ZrO ₂ 18-25% MgO Fused, Crushed	439233	-15 + 5 μm	Norton 233 Metco 210NS-1	Comp. G Type II, Class 1 Garrett EMS 52432 TYPE XXVI A50TF-155 Class A PWA 1333 MSRR 9507/21 DMR 33.022	<ul style="list-style-type: none"> Standard Grade
A9222	ZrO ₂ 26% CeO ₂ Stabilized, Spherical	439222	-75 + 10 μm (-200 mesh + 10 μm)	Norton 222	Standard Grade	
A9119	MgO 35% NiAl 65/35 Blend	439119	-106 + 10 μm (-140 mesh + 10μm)	Praxair ZRO119	Standard Grade	<ul style="list-style-type: none"> Composite coating useful in graded application Useful as a cushioning thermal barrier providing thermal shock resistance

HA Name	Powder Type	Product ID	Nominal Particle Size	Comparable Products	Comparable Specifications	Typical Properties and Applications
	Al 12Si plus 40% Polyester Blend	507201	-90 + 38 µm (-170 + 400 mesh)		Standard Grade	<ul style="list-style-type: none"> Excellent abrasability, clean rub surface For use in the compressor sections of gas turbines, or in automotive turbochargers No thickness limitation
	Al 12Si plus 40% Polyester Blend	507601	-106 + 11µm (-140 mesh + 11µm)	Tafa 1601M Praxair AL202 Metco 601	GE B50TF222 Class A	
	Ni 15% Graphite Composite	507608	-90 + 38 µm (-170 + 400 mesh)	Tafa 1608M Metco 308NS-1	Standard Grade	<ul style="list-style-type: none"> Used to spray abrasable coatings for the compressor sections of jet engines Self-lubricating, can be used for friction bearings
	Ni 25% Graphite Composite	507607	-90 + 38 µm (-170 + 400 mesh)	Tafa 1607M	PWA 13521L	<ul style="list-style-type: none"> Superior clearance control
	Ni 15C Nickel Graphite Clad Irregular	507115	-125 + 45 µm (-120 + 325 mesh)	Praxair NI115 Metco 308NS-3	GE B50TF52 Class B MSRR 9507/16	<ul style="list-style-type: none"> Plasma coatings are lubricious, suited for use as friction bearings Flame spray coatings offer good abrasability, useful in sacrificial/clearance control applications 80/20 NiC has better erosion than 75/25 NiC coatings No thickness limitation, readily machinable
	Ni 15C Nickel Graphite Clad Irregular	507126	-90 + 30µm (-170 + 500 mesh)	Praxair NI126 Metco 308NS	PWA 1352-2 Garrett EMS 56755E	
	Ni 20C Nickel Graphite Clad Irregular	507765	-106 + 45µm (-140 + 325 mesh)	Praxair NI765 Metco 309NS-3	GE B50TF172 Class A	
A7114	Ni 25C Nickel Graphite Clad Irregular	507114	-90 + 30 µm (-170 + 500 mesh)	Praxair NI114	MSRR 9507/6 MSRR 9507/12 Garrett EMS 56754	
a7114-1	Ni 25C Nickel Graphite Clad Irregular	507114-1	-90 + 30 µm (-170 + 500 mesh)	Praxair NI114-1	GE B50TF52 Class B	
A7114-2	Ni 25C Nickel Graphite Clad Irregular	507120	-90 + 45 µm (-170 + 325 mesh)	Praxair NI120	PWA 1352-1	
	Ni 40C Nickel Graphite Clad Irregular	507766	-106 + 45 µm (-140 + 325 mesh)	Praxair NI766	GE B50TF164 Class A	

PACK DIFFUSION POWDERS

Powder Type	Product ID	Nominal Particle Size	Comparable Specifications	Typical Properties and Applications
Aluminum (Al) 99.5% Spherical, Gas Atomized	601030	-45 μm (-325 mesh)	Standard Grade	<ul style="list-style-type: none"> Chromizing and aluminizing powders, designed for use in pack diffusion processes to form hot corrosion and oxidation resistant coatings, primarily on nickel or cobalt base alloy parts Al_2O_3 is used as an inert filler material to optimize the activity of the diffusion pack
Aluminum (Al) 12Si Spherical, Gas Atomized	601111	-45 μm (-325 mesh)	Standard Grade	
Aluminum Oxide (Al_2O_3) Angular, Fused, Crushed Fine Cut	Al_2O_3 Fine		GE A50TF100 Class C	
Aluminum Oxide (Al_2O_3) Angular, Fused, Crushed Coarse Cut	Al_2O_3 Coarse		GE A50TF100 Class B	
Chromium (Cr) 99.5% Regular	602024	-45 μm (-325 mesh)	GE B10D5 PMC 9753-1	
Silicon (Si) 99.9% Angular	609197	-105 μm (-140/D mesh)	Standard Grade	

THERMAL SPRAY WIRES

Pure Metals

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA101	Aluminum Al 99.5 <i>1350 Alloy</i>	10101-1	1/8", 1/16" 3/16", 11, 15 Gauge	Tafa 01T Praxair Aluminum Metco Aluminum Metco Aluminum AW	MIL-W-6712C PWA 1320F SNECMA DMR33-12 Garrett FP5045 GECF6	30-75 Rb 4379 PSI	<ul style="list-style-type: none"> Corrosion and chemical resistance Electrical conductivity Used in capacitor industry
HA111	Aluminum 99.0 Min, 1.0Si Max + Fe <i>1100 Alloy</i>	10111	1/8", 1/16"	Praxair 1100	MIL-W-6712	35-55 Rh 4379 PSI	<ul style="list-style-type: none"> Corrosion resistant Better corrosion resistance than pure aluminum
HA405	Copper Cu 98.7	10405	1/8", 1/16"	Tafa 05T Praxair Copper Metco Copper Metco Copper AW	MIL-R-19631A MIL-W-6712C type II	37 Rb 7324 PSI	<ul style="list-style-type: none"> Electric conductivity Copper reclamation Used as alternate to copper plating
HA613	Molybdenum Mo 99.0+	10613	1/8", 1/16"	Tafa 13T Praxair Moly Metco Sprabond®	PWA 36913 PWA 271-13 Rev D MSSR9507/19 Garrett FP5045 Type I	14-36 Rb 5496 PSI	<ul style="list-style-type: none"> Abrasion resistance Excellent adhesion to steel Excellent in molten metal environment in inert atmospheres
HA706	Nickel Ni 99.0	10706	1/16"	Tafa 06T Praxair Nickel Metco Nickel	MIL-W-6712C	58 Rb 4000 PSI	<ul style="list-style-type: none"> Corrosion protection Excellent machined surface finish Finishes "Bright & Shiny"
HA930	Silver Cu 34Zn 31Ag	10930	1/16"	Tafa 30S	GE B20A4 GE 70-49-44	86-94 Rb 6525 PSI	<ul style="list-style-type: none"> Stationary seals in Aircraft Good rubbing wear characteristics
HA802	Tin Sn 99.8	10802	1/8" 2 mm	Tafa 02W Praxair Tin Metco Tin	MIL-W-6712C	69-71 Rb 2552 PSI	<ul style="list-style-type: none"> Good electrical conductivity Low melting point
HA814	Titanium Ti 99.8	10814	1/16"	Tafa 14T	ASTM B348/Grade I ASTM F67-89/Grade I	70-80 Rb 5700 PSI	<ul style="list-style-type: none"> Spraying in inert atmospheres Medical implants Excellent corrosion
HA902	Zinc Zn 99.9	10902	1/8", 1/16" 3/16", 2mm 11, 15 Gauge	Tafa 02Z Praxair Zinc Metco Zinc PP Metco Zinc AW	MIL-W-6712C	60-73 Rb 1218 PSI	<ul style="list-style-type: none"> Corrosion, EMI/REI shielding Low melting point material Anode protection Excellent bonding to non-metallic surfaces

THERMAL SPRAY WIRES

Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA101B	Aluminum Silicon Al 12Si	21101-1	1/16"	Tafa 01A	MIL-w-6712C PWA 36935 GE B50TF92S2 CLA SNECMA DMR33-027	72 Rb 4250 PSI	<ul style="list-style-type: none"> • Less corrosion resistance than pure aluminum • Non-galling, finer texture • Dimensional restoration
HA101C	Aluminum Silicon Al 5Si	21101-2	1/8", 1/16"	Tafa 01S Praxair Aluminum S Metco SF Aluminum	MIL-W-6712C	95Rb 4250 PSI	<ul style="list-style-type: none"> • Dimensional restoration • Machines easier and sprays raster than pure Al • Corrosion resistant
HA110	Aluminum Bronze Cu 9Al .5Fe	21110	1/8", 1/16"	Tafa 10T Praxair Al Bronze Metco Sprabronze® AA	MIL-W-6712	65-68 Rb 6744 PSI	<ul style="list-style-type: none"> • Reclamation, cavitation easy to spray • Readily machinable • Dense coatings
HA104	Babbitt Sn 7Sb 3Cu	21104	1/8", 1/16" 3/16", 2 mm	Tafa 04T Praxair Babbitt HT Metco Sprababbitt® A	MIL-W-6712C	32-35 R _{15T} 2871 PSI	<ul style="list-style-type: none"> • Bearing reclamation capacitors • Good electrical conductivity • Dense coatings
HA112	Brass Zn 60Cu .7Sn .06Pb	21112	1/16"	Tafa 12T Praxair Brass	MIL-W-6712C	51 Rb 551 I PSI	<ul style="list-style-type: none"> • Corrosion protection • Sprays fast, machines easy • Produces a smooth machined surface
HA706	Nickel Chrome Ni 20Cr	21706	1/8", 1/16"	Tafa 06C Praxair 80/20 Metco Nickel #33	PWA 1317D MSSR9507/27 SNECMA DMR33-079	90 Rb 7324 PSI	<ul style="list-style-type: none"> • Machinable • Heat Oxidation Resistance • Oxygen barrier under ceramic coatings
HA770	Monel Ni 27Cu 2.0Fe 1.5Mg .25C .25Si .10Al S	21770	1/16"	Tafa 70T Praxair Monel Metco Monel	MIL-W-6712B	80-84 Rb 4307 PSI	<ul style="list-style-type: none"> • Marine corrosion protection • Print rolls
HA116	Modified Silicon Bronze Cu 2.9Si .89Mn	21116	1/16"	Tafa 16T	Standard Grade	29 Rb 4060 PSI	<ul style="list-style-type: none"> • Restoration of Original Surface Condition
HA118	Modified Silicon Bronze Proprietary	21118	1/16"	Tafa 18MXC®	Standard Grade	29 Rb 4060 PSI	<ul style="list-style-type: none"> • Restoration of original Surface condition • Softer, more machinable
HA535	High Carbon Steel Composite	21535	1/16"	Tafa 35MXC®	Standard Grade	60 Rc 8425 PSI	<ul style="list-style-type: none"> • Extreme rough, high profile non-skid coatings
HA538	High Carbon Steel Fe .8C .7Mg .10Si .04P .03S	21538	1/16"	Tafa 38T Praxair Steel #80 Metco Sprabond #80	MIL-W-6712C	23 Rc 8425 PSI	<ul style="list-style-type: none"> • Low shrink material • High wear resistance • ID Fans
HA530	Medium Carbon Steel Fe 1.0Mg .35Si .15C P S	21530	1/16"	Tafa 30T Praxair Steel #25 Metco Sprabond #25	MIL-W-6712C	97-100 Rb 5700 PSI	<ul style="list-style-type: none"> • Dimensional restoration of mismachined and worn parts

THERMAL SPRAY WIRES

Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA560	Stainless Steel Fe 14Cr 1.0Mg 1.0Ni .3C .08Si P S	21560	1/8" 1/16", 3/16" 11 Gauge	Tafa 60T Praxair #2 Stainless Metco Metcoloy® #2	MIL-W-6712C RR OMAT #3/45D	40-43 Rc 4728 PSI	<ul style="list-style-type: none"> • Good wear and corrosion Resistance • Best All Purpose Steel
HA555	Stainless Steel Fe 18Cr 8.0Mg 5.0Ni .08Si .06C P S	21555	1/8", 1/16" , 3/16"	Tafa 55T Praxair #5 Stainless Metco Metcoloy #5	MIL-W-6712C	92-94 Rb 4162 PSI	<ul style="list-style-type: none"> • Reclamation • Corrosion protection • Low shrinkage and good machinability
HA580	Stainless Steel Fe 18Cr 8.0Ni 1.5Mg .5Si .12C P S	21580	1/16"	Tafa 80T Praxair #1 Stainless Metco Metcoloy #1	MIL-W-6712C	93-97 Rb 4100 PSI	<ul style="list-style-type: none"> • Corrosion protection • Dimensional restoration • Print rolls
HA585	Stainless Steel 316 S.S.	21585	1/8", 1/16"	Tafa 85T Metco Metcoloy 4	Standard Grade	93-97 Rb 4100 PSI	<ul style="list-style-type: none"> • Corrosion protection • Dimensional restoration
HA588	Stainless Steel 316L S.S.	21588	1/8", 1/16" 11 Gauge	Tafa 88T Praxair #16 Stainless Metco Metcoloy #16	Standard Grade	93-97 Rb 6744 PSI	<ul style="list-style-type: none"> • Corrosion Protection • Dimensional Restoration • Print Rolls
HA802B	Tin Sn 20Zn	21802-1	2 mm	Tafa 02T	Standard Grade	Dead Soft 2857 PSI	<ul style="list-style-type: none"> • Low melting point • Corrosion resistance • Capacitor end coatings
HA902B	Zinc Aluminum Zn 15Al	21902-1	2 mm	Tafa Tafaloy® 02A	Standard Grade	73 Rb 3683 PSI	<ul style="list-style-type: none"> • Corrosion Protection • Oxidation resistance • Galvanizing

THERMAL SPRAY WIRES

Specialty Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA106	Cobalt Alloy Co 26Cr 10Ni 8W 1C	22106	1/16"	Tafa 106 MXC®	Standard Grade	58-69 Ra 6671 PSI	<ul style="list-style-type: none"> • Erosion and wear resistance • Machinable • Restore cobalt parts
HA206	Cobalt Alloy Co 28Cr 4Fe 3.5W 1.2C	22206	1/16"	Stellite 6	Standard Grade	45Rc 5700 PSI	<ul style="list-style-type: none"> • Excellent galling properties • High bond strength • Excellent corrosion resistance
HA524	Iron Chrome Aluminum Fe 23.5Cr 5.3Al .65Si	22524	1/16"	Tafa 24CA Praxair ALCRO	Standard Grade	88 Rb 7770 PSI	<ul style="list-style-type: none"> • Boiler applications • Excellent machinability • Ability to have featheredge coatings
HA774	Molybdenum Nickel Aluminum Ni 5.5Al 5.0Mo	22774	1/16"	Tafa 74MXC® Metco 8447	MSRR9507/35 GE B50TF166 Garrett FP5045	78 Rb 7454 PSI	<ul style="list-style-type: none"> • Erosion and fretting wear • Salvage and build-up of machinable and gradable carbon steels

THERMAL SPRAY WIRES

Specialty Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA779	Nickel Aluminum Ni 20Al	22779	1/8", 1/16"	Tafa 79B Metco 405-1 Metco 405, 405NS	RR OMAT #3/90A	55-80 Rb 8949 PSI	<ul style="list-style-type: none"> High temperature resistance Oxidation and abrasion resistant Dense coatings
HA775	Nickel Aluminum Bond Arc® Ni 5Al	22775	1/16"	Tafa 75B Bond Arc® Metco 8400 Metco 450	PWA-36937 SNECMA DMR33-011 Garrett FP5045 RR OMAT #3/229	78 Rb 9746 PSI	<ul style="list-style-type: none"> High temperature resistance Oxidation and abrasion resistant Dense coatings
HA711	Nickel Aluminum Bronze Cu 9Al 4Ni 4Fe 1.5Mg	22711	1/16"	Tafa 11T	Standard Grade	60 Rb 9000 PSI	<ul style="list-style-type: none"> Cavitation, reclamation of sliding components Corrosion protection
HA773	Nickel Chrome Aluminum Ni 21Cr 7Al	22573	1/16"	Tafa 73MXC® Metco 8443	Standard Grade	95 Rb 7454 PSI	<ul style="list-style-type: none"> Oxidation and corrosion resistant Self-bonding Salvage and build-up
HA776	Nickel Chrome Aluminum Yttrium Ni 22Cr 10Al 1.0Y	22576	1/16"	Tafa 76MXC®	Standard Grade	52-90 Rb 10964 PSI	<ul style="list-style-type: none"> Bond coat Oxidation resistant
HA798	Nickel Chrome Iron Fe 26Cr 3Ni 1.7C 1.6Mg 1.6Si .8Mo	22798	1/16"	Tafa 98 MXC®	Standard Grade	39-42 Rc 5772 PSI	<ul style="list-style-type: none"> Corrosion and wear resistant Easily machinable Good bond strength
HA771	Nickel Chrome Molybdenum Ni 22Cr 10Mo 2Fe <i>Inconel® 625</i>	22771	1/16"	Tafa 71T Metco 8625	Standard Grade	92 Rb 6970 PSI	<ul style="list-style-type: none"> Caustic stress corrosion Restoration of worn or mismachined components
HA777	Nickel Chrome Molybdenum Ni 20Cr 20Mo 7Fe 4W <i>Hastelloy C-276</i>	22777	1/16"	Tafa 77T	Standard Grade	35 Rc 6990 PSI	<ul style="list-style-type: none"> Acidic and hot gas corrosion Good abrasion and metal-to-metal wear
HA778	Nickel Chrome Molybdenum Ni 18.5Cr 18.5Fe 3.0Mo <i>Inconel® 718</i>	22778	1/16"	Tafa 78T Metco 8718	GE #70-49-45, FAA RDA #000-637	30 Rc 8992 PSI	<ul style="list-style-type: none"> Acidic and hot gas corrosion Restoration of worn or mismachined components
HA745	Nickel Chrome Titanium Fe .63Mg .18C .05P .06S	22745	1/16"	Tafa 45CT	Standard Grade	32 Rc 6961 PSI	<ul style="list-style-type: none"> Extreme resistance to corrosion Boiler applications
HA595	Ultrahard™ Armacor™ M Proprietary High Chrome Steel	22595	1/16"	Tafa 95 MXC®	Standard Grade	70 Rc 5772 PSI	<ul style="list-style-type: none"> Corrosion and wear protection Hard abrasion coatings High chrome finish
HA590	Ultrahard™ Armacor™ C Fe 25Cr 10Ni 4Mo 2B 2Cu	22590	1/16"	Tafa 90 MXC®	Standard Grade	45 Rc 5076 PSI	<ul style="list-style-type: none"> Corrosion and Wear Protection Increased hardness High chrome finish

THERMAL SPRAY WIRES

Specialty Metal Alloys

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA596	Ultrahard™ Armacor™ 16 Fe 21Cr 8Ni 3.2Mo 2.5B 2.2Cu 1.8Mg 1.5Si .2C	22596	1/16"	Tafa 96 MXC®	Standard Grade	53 Rc 5772 PSI	<ul style="list-style-type: none">• High temperature corrosion protection and abrasion resistance• High chrome finish

THERMAL SPRAY WIRES

Carbides

Product Name	Chemical Composition	Product ID	Available Sizes	Comparable Products	Comparable Specifications	Hardness and Bond Strength	Typical Characteristics and Applications
HA205	Chrome Carbide Cr ₃ C ₂ 40Fe + FeC	31205	1/16", 2mm	Praxair Chrome Carbide	Standard Grade	45 Rc 5700 PSI	<ul style="list-style-type: none"> • High hardness and wear resistance • For applications above 1000°F
HA840	Tungsten Carbide Fe 41WC/W ₂ C .1Zn	31840	1/16", 2mm		Standard Grade	52 Rc 6700 PSI	<ul style="list-style-type: none"> • Excellent bond strength • Abrasion resistance • Dredge cutter blades
HA597	Ultrahard™ Duocor™ Fe 15Cr 5Ni 2B 1.5Si .7Mg +26WC + 6TiC	31597	1/16", 2mm	Tafa 97 MXC®	Standard Grade	64-69 Rc 5100 PSI	<ul style="list-style-type: none"> • Abrasion and wear resistant • High bond strength • Non-skid surface