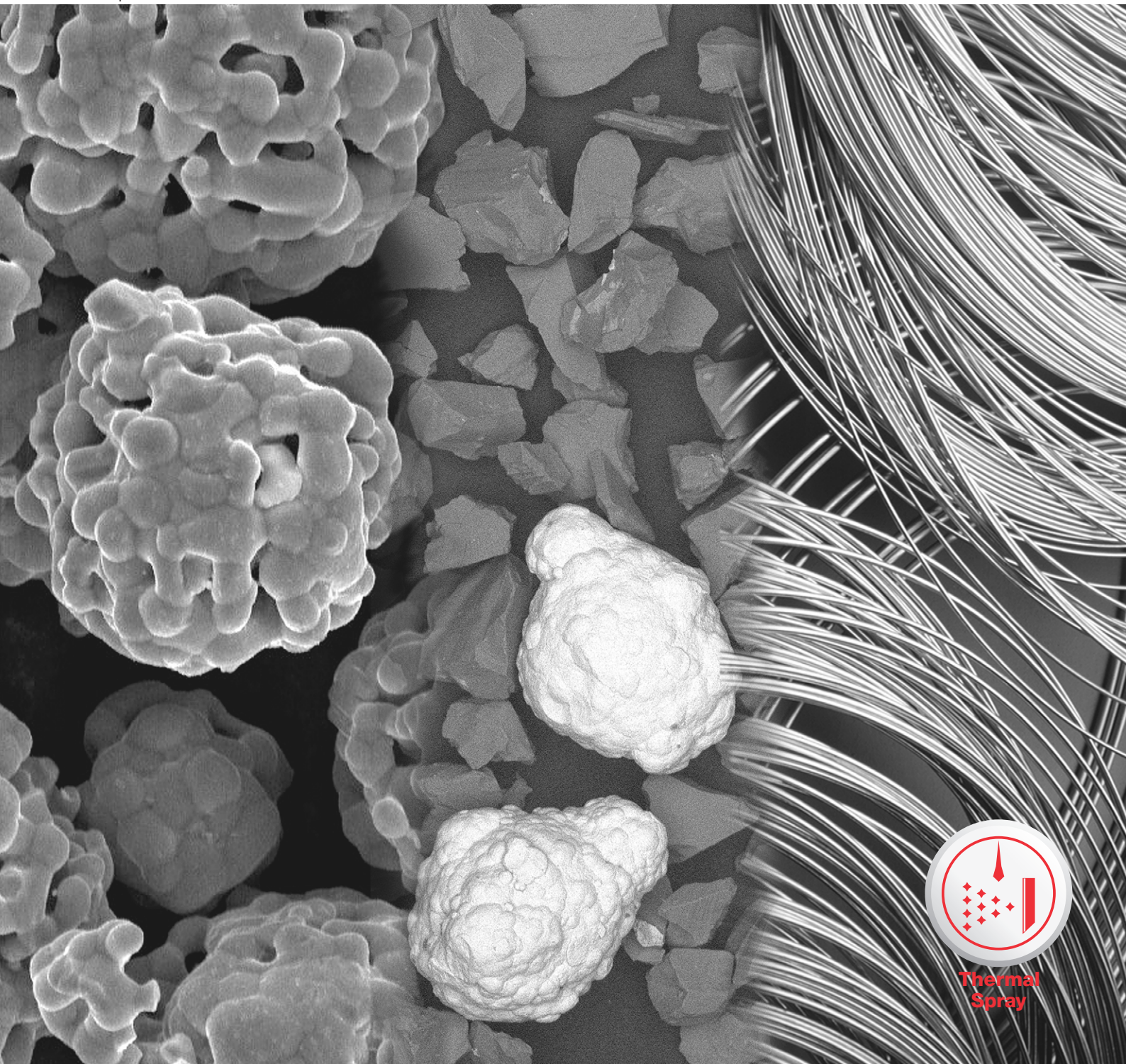
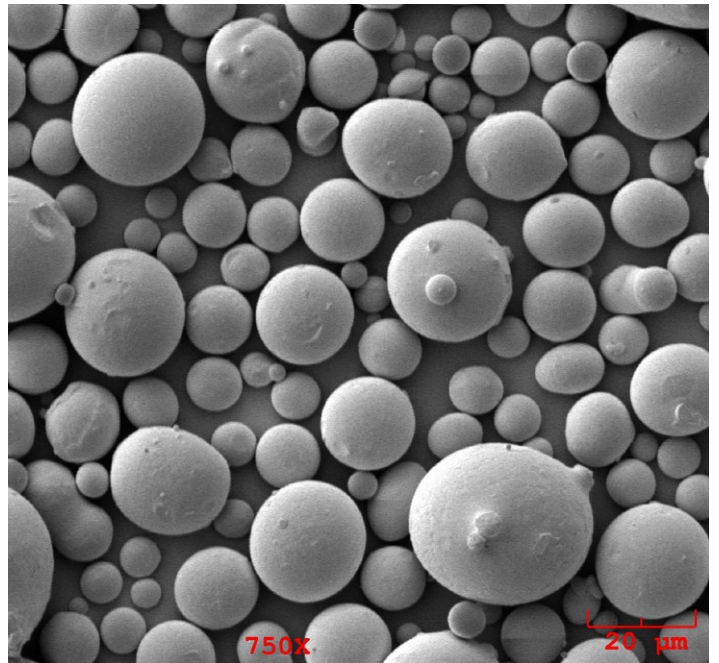


# Thermal Spray Materials Guide

Issue: April 2017



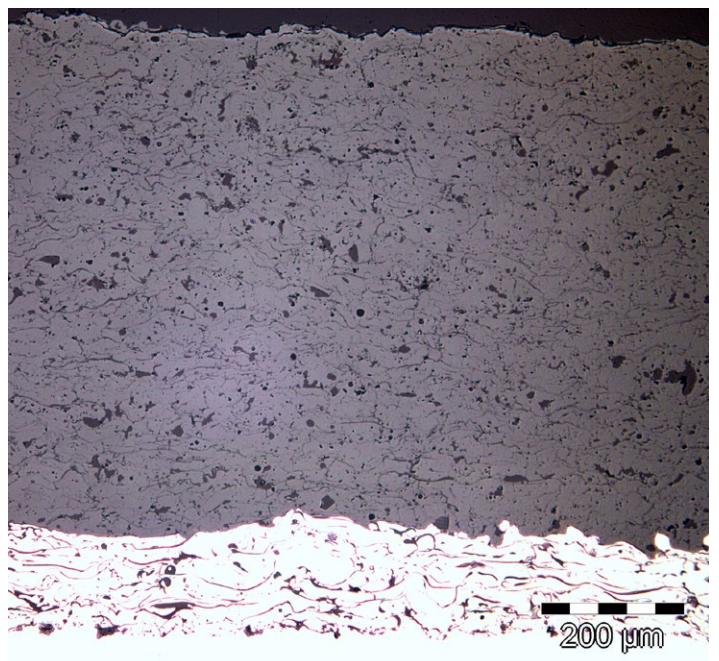
## Optimum Materials...



## Innovative Technology...



## Perfect Coatings...



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# The Oerlikon Metco Difference

## Every successful thermal spray solution starts with the right material choice.

Oerlikon Metco is a world-class materials manufacturer of powders and wires for coating applications and speciality markets. Our products are produced using a broad range of state-of-the-art materials manufacturing methods, including our own pioneered proprietary processes. We can provide you with hundreds of diverse products to choose from—the broadest line of thermal spray coating materials and auxiliary products in the world.

Our long-standing reputation of providing value through quality products is supported by the many customers who turn to Oerlikon Metco to manufacture materials with customized chemistries and particle size distributions.

Our quality commitment is evidenced by our ISO 9001 and AS 9000 quality standards and Nadcap-approved laboratories. Our strong commitment to the environment and the safety of our coworkers and customers is validated by our ISO 14001 and OHSAS 18001 certifications.

We verify our products through stringent in-process testing programs. While certifications are mandated for certain applications, compliance assures that our off-the-shelf solutions and custom thermal coating materials perform to your own demanding requirements.

Whether your engineered surface goal is better durability from wear or corrosion, thermal protection, surface restoration, dimensional control or engineering other desirable properties into a component or system, you will find solutions within these pages.

Materials for thermal spray are just one of our many specialties. Should your needs be better suited to hardface welding, PTA, laser cladding, brazing, electronic fillers or pack diffusion, Oerlikon Metco is a leading supplier of these materials. Please refer to the appropriate

material catalogs for more information about our products and solutions for these processes.

## Meeting Your Design Goals Means Paying Attention to All the Details.

“Designed to cost and purpose” coating solutions requires an in-depth approach that goes far beyond mere selection of a material based solely on chemistry and particle size distribution. Using our philosophy of fast, efficient, high-impact innovation, our scientists examine how material characteristics and coating properties are influenced by manufacturing processes and parameters, the subtleties of choosing one raw material instead of another, and material characteristics such as apparent and bulk density, particle morphology and shape, and other physical properties. Our specialized infrastructure is uniquely flexible and extensive in scope, including

our ability to quickly test material and coating characteristics, properties, and performance.

Once a material solution is developed, it is manufactured with lot-to-lot consistency and reliability. Oerlikon Metco leads our industry with lean, high-volume manufacturing using in-place, state-of-the-art facilities and quality systems. This includes fast availability of materials for testing, efficient prototype-to-production transfer and scale-up capability, and responsiveness to the customer’s needs based on expert knowledge of how to tailor coating materials to achieve specific coating performance and application demands.

**The end result?** Materials that fully meet your design and application goals, and go beyond your expectations for reliability and consistency.



# Key Manufacturing Processes

The choice of manufacturing process depends not only on the chemistry of the material to be produced, but also the product's target goals, resulting coating characteristics and properties, and the application economics

(deposition rate vs. product cost). In addition to the processes shown here, Oerlikon Metco may employ other processing steps to achieve the desired end result such as HDH (hydride-dehydride) and chemical purification.

We also offer blends of materials in precise ratios that consist of multiple materials produced using any of these manufacturing processes.

**Agglomerated**

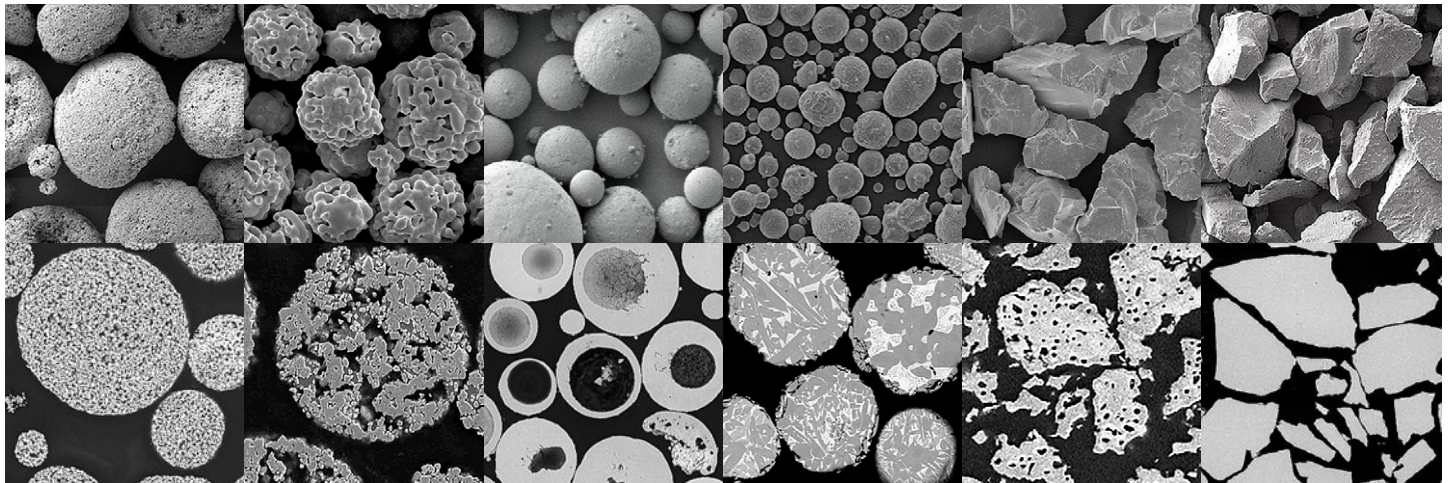
**Agglomerated and Sintered**

**Agglomerated and HOSP (Spheroidized)**

**Agglomerated, [and Sintered] and Densified (Spheroidized)**

**Sintered and Crushed**

**Fused and Crushed**



**Water Atomized**

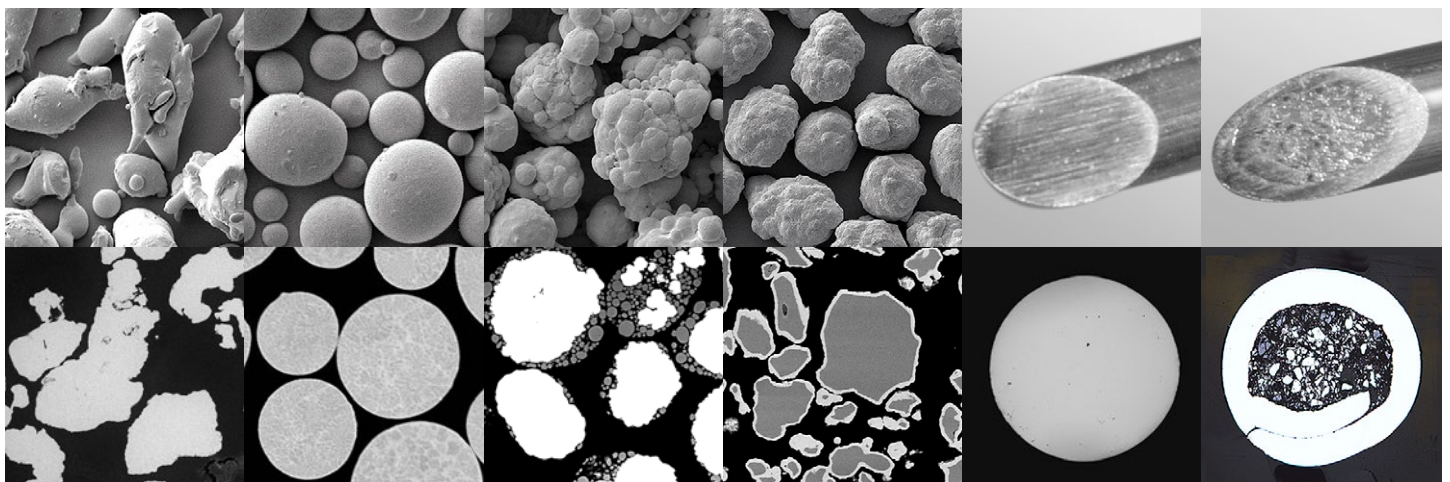
**Gas Atomized**

**Mechanically Clad (Porously Coated)**

**Chemically Clad (Densely Coated)**

**Drawn, Swaged or Rolled**

**Filled and Drawn, Swaged or Rolled**



Oerlikon Metco's key manufacturing processes. Upper images show shape or form, lower images show interior morphology.

# Key Information

## Product Availability

The majority of the products listed in this guide are available worldwide; however, some products are only available on a regional basis. Regional products may be obtainable outside of the specified region as a special order. For further information, please refer to the appropriate material product data sheet or contact your Oerlikon Metco account representative

In our data sheets, those items designated as Stock are warehoused and generally available for immediate shipment or for shipment within a few days. Please note that not all Oerlikon Metco warehouses may have supplies on hand or in sufficient quantities, whereupon we will make every effort to accommodate your needs as quickly as possible. Lead time to shipment for items marked

Special Order will be provided at the time of order placement. Minimum order quantities may apply.

Products marked Proprietary are only available to qualified purchasers of that product.

## Powder Particle Size Distributions

With few exceptions for OEM specifications, the powder materials in this guide and the associated Oerlikon Metco material data sheets reflect nominal powder particle size distributions such that the majority of the powder by weight is within the stated size range for that

product, with only a small amount being coarser or finer. In general, particle sizes that are greater than or equal to 45  $\mu\text{m}$  are measured by sieve analysis (ASTM B214) and particle sizes less than 45  $\mu\text{m}$  are measured by laser diffraction (Microtrac). Please refer to the data sheet for

further information. Customer specifications for that material product may reflect significantly different nominal size distributions, depending on the criteria used by the customer and the measurement methods chosen.

## Symbols

Chemical symbols used in this guide:

Ag	Silver	hBN	Hexagonal Boron Nitride	P	Phosphorus
Al	Aluminum	Hf	Hafnium	Pb	Lead
B	Boron	In	Indium	S	Sulfur
BN	Boron Nitride	La	Lanthanum	Sb	Antimony
C	Carbon or Carbide	LSCF	Lanthanum Strontium Cobalt Ferrite	Si	Silicon
Ca	Calcium	LSM	Lanthanum Strontium Manganite	Sn	Tin
cBN	Cubic Boron Nitride	M	Metal (generic)	Sr	Strontium
Cl	Chlorine	MCO	Manganese Cobalt Oxide	Ta	Tantalum
Co	Cobalt	Mg	Magnesium	Ti	Titanium
Cr	Chromium	Mn	Manganese	V	Vanadium
Cu	Copper	Mo	Molybdenum	W	Tungsten
Dy	Dysprosium	N	Nitrogen	Y	Yttrium
Fe	Iron	Nb (Cb)	Niobium	Yb	Ytterbium
Gd	Gadolinium	Ni	Nickel	Zn	Zinc
H	Hydrogen	O	Oxygen	Zr	Zirconium

## Trademarks and Brands

The following brands in this publication are trademarks or registered trademarks of their respective owners:

Hastelloy	Haynes International, Inc.
Inconel	Huntington Alloys Corporation
Monel	Huntington Alloys Corporation
Silvaloy	Wolverine Joining Technologies, Llc
Stellite	Kennametal Inc.
Tribaloy	Kennametal Inc.

The following product brands used in this guide or other media are Oerlikon Metco trademarks or registered trademarks:

Amdry	Metco	Sprababbitt
ChamPro	MetcoClad	Sprabronze
Diamalloy	Metcolite	Sprasteel
Durabrade	Metcoloy	Thermospray
E-Fill	Metcoseal	WOKA
HOSP	PlasmaDur	WokaDur

# How to Use This Guide

Similar products in this guide are grouped together. The data sheet index number is provided for each of these product groups. The data sheet provides detailed information about each product, including any customer specifications the product is approved to meet

and ordering information. Product data sheets are available from our web site at [www.oerlikon.com/metco](http://www.oerlikon.com/metco).

This guide is designed for on-screen use. To facilitate navigation, Table of Contents entries are linked to sections

within the guide and index entries are linked to material product descriptions. To navigate, simply click on an entry within the contents or indexes. Page numbers are included for printed versions.

**Example:** Click the link for WOKA 3106 in the Product Index ① to navigate directly to the description of WOKA 3106 in the body ② of the guide.

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## Carbides

### Tungsten Carbide

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Tungsten Carbide 12% Cobalt - Agglomerated &amp; Sintered</b> <span style="float: right;">Data Sheet DSMTS-0044</span>				
WC 12Co	-53 +20 µm	<b>WOKA 3101</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Good sliding wear, impact, abrasion, fretting resistance</li> <li>Hard, dense, well-bonded</li> <li>Best for dry environments</li> <li>For steel rolls, sink rolls, exhaust fans, pump housings, conveyor screws, sucker rod couplings, etc.</li> <li>Choose product by process and spray gun to be used and desired surface finish</li> <li>"FC" products have submicron carbides ideal for corrugating rolls</li> <li>HVOF or HVOF application</li> <li>Service up to 500 °C (930 °F)</li> </ul>
	-53 +15 µm	<b>WOKA 3106</b>		
	-45 +15 µm	<b>WOKA 3102</b>		
	-45 +11 µm	<b>WOKA 3103</b>		
	-38 +10 µm	<b>WOKA 3105</b>		
	-30 +10 µm	<b>WOKA 3104</b>		
	-25 +5 µm	<b>WOKA 3110 FC</b>		
	-20 +5 µm	<b>WOKA 3111 FC</b>		
<b>Tungsten Carbide 17% Cobalt</b> <span style="float: right;">Data Sheet DSMTS-0030</span>				
	-90 +45 µm	<b>WOKA 3208</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Medium-fine carbide size</li> <li>High toughness and ductility; high fretting resistance</li> <li>Use in non-corrosive environments</li> <li>Economical</li> </ul>
	-53 +20 µm	<b>WOKA 3201</b>		
	-53 +15 µm	<b>WOKA 3206</b>		
	-53 +11 µm	<b>WOKA 3223</b>		
	-45 +20 µm	<b>WOKA 3224</b>		



# Abradables and Polymer Fillers

## Aluminum Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Aluminum Silicon Boron Nitride</b>				<a href="#">Data Sheet DSMTS-0017</a>
Al 8Si 20BN	-212 +22 µm	<b>Metco 320NS</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>▪ Turbine compressor abradable</li> <li>▪ Superior corrosion resistance</li> <li>▪ Good erosion resistance</li> <li>▪ Service up to 450 °C (840 °F)</li> </ul>
<b>Aluminum Silicon Graphite</b>				<a href="#">Data Sheet DSMTS-0020</a>
Al 7Si 22Graphite	-125 +5 µm	<b>Metco 310NS</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>▪ Turbine compressor abradable (mid and rear sections)</li> <li>▪ Balance of abrasability and erosion resistance</li> </ul>
Al 6Si 24Graphite	-180 +8 µm	<b>Metco 311NS</b>		
Al 5Si 45Graphite	-180 +8 µm	<b>Metco 313NS</b>		
<b>Aluminum Silicon Polymer</b>				<a href="#">Data Sheet DSMTS-0016</a>
Al 7Si 40Polyester	-125 +11 µm	<b>Metco 601NS</b>	Blended	<ul style="list-style-type: none"> <li>▪ Turbine fan and front compressor abradable</li> <li>▪ Optimal balance of abrasability, erosion resistance and hardness</li> </ul>
	-125 +11 µm	<b>Amdry 2010</b>		
Al 9Si 6BN 20Polyester	-125 +11 µm	<b>Amdry XPT-268</b>	Mechanically Clad	
Al 6Si 47Polyimide	-149 +11 µm	<b>Amdry 2000</b>		

## Cobalt Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>CoNiCrAlY Boron Nitride Polyester</b>				<a href="#">Data Sheet DSMTS-0011</a>
Co 24Ni 16Cr 6Al 0.3Y 7BN 14Polyester	-176 +7.8 µm	<b>Metco 2042</b>	Blended	<ul style="list-style-type: none"> <li>▪ Abradable for high pressure turbine compressors, labyrinth shaft seals and disk seals</li> <li>▪ Excellent oxidation and corrosion resistance</li> <li>▪ Polymer can be removed via post-coat heat treatment</li> <li>▪ Service up to 550 °C (1025 °F) to run against titanium; up to 750 °C (1390 °F) to run against Inconel and stainless steel</li> </ul>
Co 25Ni 16Cr 6Al 0.3Y 4BN 15Polyester	-176 +11 µm	<b>Metco 2043</b>		

## Copper Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Copper Aluminum (Aluminum Bronze) Polyester</b>				<a href="#">Data Sheet DSMTS-0012</a>
Cu 8.5Al 1Fe 5Polyester	-125 +11 µm	<b>Metco 604NS</b>	Blended	<ul style="list-style-type: none"> <li>▪ Industrial and aerospace abrasables</li> <li>▪ For running against titanium blades, 17-4 PH steel or inconel knife edges</li> <li>▪ Marine corrosion resistance superior to aluminum-based abrasables</li> <li>▪ Polymer can be removed via post-coat heat treatment</li> <li>▪ Service up to 650 °C (1200 °F)</li> </ul>
Cu 8.5Al 1Fe 10Polyester	-88 +11 µm	<b>Metco 605NS</b>		
Cu 7.5Al 1Fe 14.5Polyester	-150 +22 µm	<b>Metco 610NS</b>	Mechanically Clad	

# Abradables and Polymer Fillers

## Nickel Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Nickel Graphite</b>				<a href="#">Data Sheet DSMTS-0021</a>
Ni 15Graphite	-106 +30 µm	<b>Metco 308NS-3</b>	Chemically Clad	<ul style="list-style-type: none"> <li>Turbine compressor abrasives</li> <li>For running against nickel alloy and steel components</li> <li>Products with higher graphite content appropriate to run against untipped titanium components</li> <li>Higher graphite content enhances lubricity</li> <li>Higher nickel content enhances erosion resistance</li> <li>Similar products differ by OEM specification approvals</li> <li>Service up to 480 °C (900 °F)</li> </ul>
	-106 +30 µm	<b>Durabrade 2241</b>		
	-90 +30 µm	<b>Metco 308NS</b>		
	-90 +30 µm	<b>Metco 308NS-1</b>		
Ni 20Graphite	-106 +45 µm	<b>Metco 309NS-3</b>		
	-106 +45 µm	<b>Durabrade 2231</b>		
Ni 25Graphite	-90 +30 µm	<b>Metco 307NS</b>		
	-90 +30 µm	<b>Durabrade 2222</b>		
	-90 +30 µm	<b>Metco 307NS-3</b>		
	-90 +20 µm	<b>Metco 307NS-2</b>		
	-90 +20 µm	<b>Durabrade 2223</b>		
	-90 +30 µm	<b>Durabrade 2221</b>		
Ni 40Graphite	-90 +20 µm	<b>Durabrade 2224</b>		
	-90 +30 µm	<b>Durabrade 2211ZB</b>		
<b>Nickel Chromium Aluminum Bentonite</b>				<a href="#">Data Sheet DSMTS-0013</a>
Ni 4Cr 4Al 21Bentonite	-177 +74 µm	<b>Metco 314NS</b>	Chemically Clad	<ul style="list-style-type: none"> <li>Turbine high pressure compressor abrasible</li> <li>Finer cuts produce harder, more erosion resistant coatings</li> <li>Similar products differ by OEM specification approvals</li> <li>Service up to 650 °C (1200 °F)</li> </ul>
	-177 +74 µm	<b>Durabrade 2313</b>		
	-150 +45 µm	<b>Metco 312NS</b>		
	-149 +45 µm	<b>Durabrade 2311</b>		
<b>Nickel Chromium Iron Aluminum Boron Nitride</b>				<a href="#">Data Sheet DSMTS-0007</a>
Ni 13Cr 8Fe 3.5Al 6.5BN	-120 +45 µm	<b>Metco 301NS</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>Turbine high pressure compressor abrasible</li> <li>For running against nickel alloy or titanium alloy blades</li> <li>Boron nitride enhances lubricity</li> <li>Similar products differ by OEM specification approvals</li> <li>Service up to 815 °C (1500 °F)</li> </ul>
	-120 +45 µm	<b>Metco 301C-NS</b>		

## Polymer Fillers

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Polyester</b>				<a href="#">Data Sheet DSMTS-0015</a>
Crystalline Polyester Aromatic	-150 +45 µm	<b>Metco 600NS-1</b>	Reactor Product	<ul style="list-style-type: none"> <li>Provides friability and lubrication in clearance control applications</li> <li>Controls porosity in coating structure</li> <li>High quality LCP polymers for consistent performance</li> <li>Polymer can be removed via post-coat heat treatment</li> <li>Service up to 325 °C (600 °F)</li> </ul>
	-125 +45 µm	<b>Metco 600NS</b>		

# Abradables and Polymer Fillers

## Ceramic Abradables

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Ytterbia Zirconate Ceramic Abradables</b>				<a href="#">Data Sheet DSMTS-0100</a>
Proprietary Yb <sub>2</sub> O <sub>3</sub> ZrO <sub>2</sub>	-176 +11 μm	<b>Durabrade 2197</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Turbine hot section abradable</li> </ul>
Proprietary Yb <sub>2</sub> O <sub>3</sub> ZrO <sub>2</sub> + Polyester	-176 +11 μm	<b>Durabrade 2198</b>	Agglomerated, Sintered & Blended	<ul style="list-style-type: none"> <li>Produces coatings with high porosity levels</li> </ul>
	-176 +11 μm	<b>Durabrade 2198A</b>		<ul style="list-style-type: none"> <li>Proprietary Siemens products</li> </ul>
<b>Zirconium Oxide Abradables</b>				<a href="#">Data Sheet DSMTS-0014</a>
ZrO <sub>2</sub> 9.5Dy <sub>2</sub> O <sub>3</sub> 0.7BN 4.5Polyester	-176 +11 μm	<b>Durabrade 2192</b>	Agglomerated, Plasma Densified (HOSP) & Blended	<ul style="list-style-type: none"> <li>Turbine hot section abradable</li> <li>Durabrade 2192 usable to run against untip-ped blades under specific conditions</li> </ul>
ZrO <sub>2</sub> 7.5Y <sub>2</sub> O <sub>3</sub> 0.7BN 4.5Polyester	-176 +11 μm	<b>Metco 2395</b>		<ul style="list-style-type: none"> <li>Polymer controls coating porosity</li> <li>Polymer can be removed via post-coat heat treatment</li> </ul>
ZrO <sub>2</sub> 10Dy <sub>2</sub> O <sub>3</sub>	-125 +11 μm	<b>Metco 213</b>	Agglomerated & Plasma Densified (HOSP)	<ul style="list-style-type: none"> <li>Polymer-free Metco 213 produces dense, erosion resistant advanced-structured coatings</li> </ul>
ZrO <sub>2</sub> 7.5Y <sub>2</sub> O <sub>3</sub> 4Polyester	-176 +11 μm	<b>Metco 2460NS</b>	Agglomerated	<ul style="list-style-type: none"> <li>Metco 213 can be used as a TBC material</li> <li>Service up to 1150 °C (2100 °F)</li> </ul>

# MCrAlY Alloys

## Cobalt Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>CoCrAlY and CoNiCrAlY</b>				Data Sheet DSMTS-0092
Co 29Cr 6Al 2Si 0.3Y	-38 +5.5 µm	<b>Amdry 920</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Excellent hot corrosion and sulfidation resistance, good oxidation resistance</li> <li>▪ Excellent as a corrosion resistant bond coat</li> <li>▪ Can be post-coat heat treated for improved performance</li> <li>▪ Service up to 1050 °C (1920 °F)</li> </ul>
	-90 +45 µm	<b>Amdry 995C</b>		
Co 32Ni 21Cr 8Al 0.5Y	-63 +11 µm	<b>Amdry 9954</b>		<ul style="list-style-type: none"> <li>▪ Excellent balance of oxidation, hot corrosion and sulfidation resistance</li> <li>▪ Excellent as a corrosion resistant bond coat</li> <li>▪ Can be post-coat heat treated for improved performance</li> <li>▪ Service up to 850 °C (1560 °F)</li> </ul>
	-45 +22 µm	<b>Diamalloy 4454</b>		
	-45 +15 µm	<b>Diamalloy 4700</b>		
	-38 +5.5 µm	<b>Amdry 9951</b>		
	-38 +5.5 µm	<b>Metco 4451</b>		

## Iron Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>FeCrAlY</b>				Data Sheet DSMTS-0117
Fe 24Cr 8Al 0.5Y	-45 +11 µm	<b>Amdry 9700</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Very high oxidation and erosion resistance</li> <li>▪ For water droplet erosion protection in steam turbines, high oxidation resistance in coal-fired boilers</li> </ul>

# MCrAlY Alloys

## Nickel Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>NiCoCrAlY</b>				<a href="#">Data Sheet DSMTS-0093</a>
Ni 23Co 17Cr 12Al 0.5Y	-75 +38 $\mu\text{m}$	<b>Amdry 365-2</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Excellent high temperature oxidation and hot corrosion resistance</li> <li>▪ Excellent corrosion resistant bond coat</li> <li>▪ Hafnium increases adhesion of the thermally grown oxide layer in Amdry 386 series and SPM4-2667</li> <li>▪ Amdry 997 is a premium grade material with superior high temperature oxidation resistance</li> <li>▪ Service up to 1050 °C (1920 °F)</li> </ul>
	-45 +20 $\mu\text{m}$	<b>Amdry 365-4</b>		
	-45 +5 $\mu\text{m}$	<b>Amdry 365-1</b>		
Ni 22Co 17Cr 12Al 0.5Hf 0.5Y 0.4Si	-125 +53 $\mu\text{m}$	<b>Amdry 386-3</b>		
	-90 +38 $\mu\text{m}$	<b>Amdry 386-4</b>		
	-88 +38 $\mu\text{m}$	<b>SPM4-2667</b>		
	-88 +16 $\mu\text{m}$	<b>Amdry 386-2</b>		
	-75 +22 $\mu\text{m}$	<b>Amdry 386-5</b>		
	-63 +22 $\mu\text{m}$	<b>Amdry 386-2.5</b>		
Ni 23Co 20Cr 8.5Al 4Ta 0.6Y	-63 +5 $\mu\text{m}$	<b>Amdry 386</b>		
	-38 +5 $\mu\text{m}$	<b>Amdry 997</b>		
<b>NiCrAlCoY<sub>2</sub>O<sub>3</sub></b>				<a href="#">Data Sheet DSMTS-0096</a>
Ni 17.5Cr 5.5Al 2.5Co 0.5Y <sub>2</sub> O <sub>3</sub>	-150 +45 $\mu\text{m}$	<b>Metco 461NS</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>▪ For high temperature bond coats or salvage of worn/mismachined parts</li> <li>▪ Service up to 980 °C (1800 °F)</li> </ul>
<b>NiCrAlY</b>				<a href="#">Data Sheet DSMTS-0102</a>
Ni 24.5Cr 6Al 0.4Y	-90 +45 $\mu\text{m}$	<b>Amdry 963</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Excellent high temperature oxidation resistance</li> <li>▪ For use as thermal barrier and oxide ceramic abradable bond coats</li> <li>▪ High temperature corrosion resistance for turbine engine components, heat treatment fixtures, exhaust manifolds and ducts</li> <li>▪ Service up to 1050 °C (1920 °F)</li> </ul>
	-106 +53 $\mu\text{m}$	<b>Amdry 962</b>		
Ni 22Cr 10Al 1.0Y	-90 +45 $\mu\text{m}$	<b>Amdry 9621</b>		
	-74 +45 $\mu\text{m}$	<b>Amdry 9625</b>		
	-37 +11 $\mu\text{m}$	<b>Amdry 9624</b>		
Ni 31Cr 11Al 0.6Y	-106 +37 $\mu\text{m}$	<b>Amdry 964</b>		

# MCrAlY Alloys

## Proprietary

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Proprietary MCrAlY Products</b>				Data Sheet DSMTS-0094
Proprietary	-90 +45 µm	<b>Amdry 2231A</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ High quality products made to exacting customer specifications</li> <li>▪ Nickel or cobalt based MCrAlY materials</li> <li>▪ Available only to OEM-approved purchasers of these materials</li> <li>▪ Similar products differ by OEM specification approvals</li> </ul>
	-45 +22 µm	<b>Amdry 2231B</b>		
	-75 +45 µm	<b>Amdry 2231C</b>		
	-45 +5.5 µm	<b>Amdry 2231D</b>		
	-37 +5.5 µm	<b>Amdry 2453A</b>		
	-45 +11 µm	<b>Amdry 2464A</b>		
	-63 +22 µm	<b>Amdry 2464B</b>		
	-45 +15 µm	<b>Amdry 2464C</b>		
	-90 +45 µm	<b>Amdry 2464D</b>		
	-45 +22 µm	<b>Amdry 2464E</b>		
	-75 +45 µm	<b>Amdry 2464F</b>		
	-45 +11 µm	<b>Amdry 2464G</b>		
	-44 +11 µm	<b>Amdry 2479A</b>		
	-63 +22 µm	<b>Amdry 2479B</b>		
	-90 +45 µm	<b>Amdry 2479C</b>		
	-44 +11 µm	<b>Amdry 2483A</b>		
	-63 +22 µm	<b>Amdry 2483B</b>		
	-90 +45 µm	<b>Amdry 2483C</b>		
	-45 +11 µm	<b>Amdry 4522A</b>		
	-50 +22 µm	<b>Amdry 4522B</b>		
	-90 +45 µm	<b>Amdry 4522C</b>		
	-90 +11 µm	<b>Amdry 4522D</b>		
	-45 +11 µm	<b>Amdry 9800B</b>		
	-90 +11 µm	<b>Metco 4195</b>		
	-45 +5.5 µm	<b>Metco 4196A</b>		
	-148 +5.5 µm	<b>Metco 4196B</b>		
	-90 +22 µm	<b>Metco 4196C</b>		
	-45 +11 µm	<b>Metco 4198</b>		
	-176 +45 µm	<b>Metco 4199</b>		
	-45 +5.5 µm	<b>Metco 4200</b>		
-45 +16 µm	<b>Metco 4516</b>			
proprietary	<b>Metco 4518D</b>			
-148 +44 µm	<b>Metco 4518E</b>			

# Metals, Alloys, Composites and Blends

## Aluminum Base

Chemistry	Particle Size	Product	Manufacture	Applications	
<b>Aluminum (Pure)</b>				<a href="#">Data Sheet DSMTS-0050</a>	
Al 99.0+	-90 +45 µm	<b>Metco 54NS</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Good electrical and thermal conductivity; non-magnetic, can be used for RF shielding</li> <li>▪ Corrosion resistant in coastal and industrial atmospheric conditions</li> <li>▪ Relatively soft and ductile</li> <li>▪ Use to repair aluminum and magnesium alloy parts</li> <li>▪ Note: subject to export control</li> </ul>	
	-75 +45 µm	<b>Metco 54NS-1</b>			
<b>Aluminum Silicon</b>					<a href="#">Data Sheet DSMTS-0045</a>
Al 12Si	-90 +45 µm	<b>Metco 52C-NS</b>	Gas Atomized		<ul style="list-style-type: none"> <li>▪ Used to repair aluminum and magnesium alloy parts</li> <li>▪ Silicon reduces coating shrinkage and increases hardness</li> <li>▪ More abrasion resistant than pure aluminum</li> <li>▪ Finishes well</li> </ul>
	-45 µm	<b>Amdry 355</b>			

## Cobalt Base \*

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Cobalt Chromium Tungsten (Stellite Type)</b>				<a href="#">Data Sheet DSMTS-0074</a>
Co 23.4Cr 10Ni 7W 3.5Ta 0.6C	-45 +5 µm	<b>Amdry MM509</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Similar to Stellite</li> <li>▪ Coatings resist abrasion, fretting and particle erosion</li> <li>▪ Use for surface restoration of cobalt alloy worn or damaged parts</li> <li>▪ Use on turbine airfoils and combustors</li> <li>▪ Service up to 840 °C (1550 °F)</li> </ul>
	-106 +37 µm	<b>Amdry X40</b>		
Co 25.5Cr 10.5Ni 7.5W 0.5C	-75 +45 µm	<b>Metco 45C-NS</b>		
	-45 +5 µm	<b>Metco 45VF-NS</b>		
Co 28.5Cr 4.5W 1.6Si 1C	-45 +11 µm	<b>Diamalloy 4060NS</b>		
<b>CoCrAlY Silicon Hexagonal Boron Nitride</b>				<a href="#">Data Sheet DSMTS-0018</a>
Co 25Cr 5Al 0.27Y 1.75Si 15hBN	-177 +10 µm	<b>Amdry 958</b>	Blended	<ul style="list-style-type: none"> <li>▪ Combats fretting on compressor blade roots</li> <li>▪ Compatible with titanium blades</li> <li>▪ Effective on large blades under high stress in service</li> <li>▪ Superior performance compared to CuNiIn coatings</li> <li>▪ Service up to 450 °C (840 °F)</li> </ul>
<b>Cobalt Molybdenum Chromium Silicon (Tribaloy Type)</b>				<a href="#">Data Sheet DSMTS-0079</a>
Co 28.5Mo 17.5Cr 3.4Si SIMILAR TO TRIBALOY T-800	-45 +10 µm	<b>Metco 4800</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Similar to Tribaloy</li> <li>▪ Excellent high temperature sliding wear and self-lubricating</li> </ul>
	-45 +10 µm	<b>Metco 68F-NS-1</b>		
	-45 +5.5 µm	<b>Diamalloy 3001</b>		
Co 28.5Mo 8.5Cr 2.6Si SIMILAR TO TRIBALOY T-400	-45 +10 µm	<b>Metco 66F-NS</b>	Water Atomized	<ul style="list-style-type: none"> <li>▪ Resists corrosive environments such as HCl, H<sub>2</sub>SO<sub>4</sub>, HCO<sub>2</sub>H and salt water</li> </ul>
	-45 +5.5 µm	<b>Diamalloy 3002NS</b>		

\* Excluding Self-Fluxing alloys and MCrAlY alloys, which can be found in other sections of this guide

# Metals, Alloys, Composites and Blends

## Copper Base

Chemistry	Particle Size	Product	Manufacture	Applications	
<b>Copper (Pure)</b>				<a href="#">Data Sheet DSMTS-0104</a>	
Cu 99+	-75 +31 µm	<b>Diamalloy 1007</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Excellent electrical and thermal conductivity; non-magnetic and usable for EMI shielding</li> <li>▪ Resistant to corrosive inks</li> <li>▪ Use to repair copper-base alloy parts</li> </ul>	
	-90 +38 µm	<b>Metco 55</b>			
<b>Copper Aluminum (Aluminum Bronze)</b>					<a href="#">Data Sheet DSMTS-0103</a>
Cu 10Al	-106 +45 µm	<b>Metco 445</b>	Clad		<ul style="list-style-type: none"> <li>▪ Moderate oxidation, wear and fretting resistance</li> <li>▪ Good dry running properties</li> <li>▪ For build-up and repair of copper base alloy parts</li> <li>▪ Typically used on pumps (cavitation control), piston guides, shifter forks and compressor air seals</li> </ul>
Cu 9.5Al 1Fe	-125 +45 µm	<b>Metco 51NS</b>	Gas Atomized		
	-53 +5 µm	<b>Metco 51F-NS</b>			
	-53 +5 µm	<b>Diamalloy 1004</b>			
<b>Copper Nickel</b>				<a href="#">Data Sheet DSMTS-0061</a>	
Cu 38Ni	-75 +45 µm	<b>Metco 57NS</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Produces dense coatings resistant to galling and fretting</li> <li>▪ Indium improves anti-galling and lubricity</li> <li>▪ For jet engine turbine blade roots and disk slots</li> <li>▪ Similar products differ by OEM specification approvals</li> <li>▪ Service up to 315 °C (600 °F)</li> </ul>	
Cu 36Ni 5In	-75 +45 µm	<b>Amdry 500C</b>			
	-75 +45 µm	<b>Metco 58NS</b>			
	-45 +11 µm	<b>Amdry 500F</b>			

## Iron Base \*

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Speciality Iron-Based Products</b>				<a href="#">Data Sheet DSMTS-0081</a>
Fe 18Cr 12Mo 4Ni 3.5Si 3B 2.5Cu 0.6C	-45 +5.5 µm	<b>Diamalloy 1008</b>	Blended	<ul style="list-style-type: none"> <li>▪ For hard surfaces in corrosive wear applications</li> <li>▪ For plastic industry extrusion screws, hydraulic piston rods and pump shafts, glass manufacturing moulds and baffles, valve facing</li> <li>▪ Service up to 650 °C (1200 °F)</li> </ul>
Fe 28Cr 16Ni 4.5Mo 1.5Si 1.75C	-45 +16 µm	<b>Diamalloy 1010</b>	Gas Atomized	
Fe 33Cr 8Ni 4.8B 0.6C	-53 +20 µm	<b>Diamalloy 1009</b>		
<b>Iron Chromium Nickel - 400 Series Ferritic and Martensitic Stainless Steel</b>				<a href="#">Data Sheet DSMTS-0080</a>
Fe 12Cr 0.15C SIMILAR TO 420 STEEL	-45 +15 µm	<b>Diamalloy 1002</b>	Water Atomized	<ul style="list-style-type: none"> <li>▪ Martensitic type stainless steel</li> <li>▪ Used mostly for repair and wear applications that require a hard ground finish</li> </ul>
Fe 17Cr 2Ni 0.18C SIMILAR TO 431 STEEL	-106 +45 µm	<b>Metco 42C</b>		
<b>Iron Chromium Nickel - 300 Series Austenitic Stainless Steel</b>				<a href="#">Data Sheet DSMTS-0078</a>
Fe 17Cr 12Ni 2.5Mo 2.3Si 0.03C SIMILAR TO 316L STEEL	-106 +45 µm	<b>Metco 41C</b>	Water Atomized	<ul style="list-style-type: none"> <li>▪ Austenitic type stainless steel</li> <li>▪ For protection against corrosion, cavitation, low temperature particle erosion and salvage and repair</li> <li>▪ Service up to 540 °C (1000 °F)</li> </ul>
	-90 +45 µm	<b>Metco 41A</b>	Gas Atomized	
	-53 +20 µm	<b>Diamalloy 1003-1</b>		
	-45 +11 µm	<b>Diamalloy 1003</b>		
Fe 17Cr 12Ni 2.5Mo 0.75Si SIMILAR TO 316L STEEL	-53 +20 µm	<b>Diamalloy 1013</b>		
<b>Iron Molybdenum Carbon</b>				<a href="#">Data Sheet DSMTS-0046</a>
Fe 16Mo 2C 0.25Mn	-90 +11 µm	<b>Metco 350NS</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>▪ Alternative to hard chromium plating</li> <li>▪ Excellent scuff resistance, good wear and corrosion resistance</li> <li>▪ Service up to 340 °C (650 °F)</li> </ul>

\* Excluding MCrAlY alloys, which can be found in other sections of this guide



# Metals, Alloys, Composites and Blends

## Iron Base

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Iron Nickel Aluminum</b>				<a href="#">Data Sheet DSMTS-0054</a>
Fe 35Ni 6Al	-125 +45 µm	<b>Metco 452</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>▪ Hard coatings, good oxidation and hot corrosion resistance</li> <li>▪ For salvage and restoration of ferrous alloys</li> <li>▪ Molybdenum in Metco 453 improves toughness</li> <li>▪ Service up to 815 °C (1500 °F)</li> </ul>
Fe 37Ni 5.8Al	-125 +45 µm	<b>Amdry 959</b>		
Fe 30Ni 6Al 6Mo	-125 +45 µm	<b>Metco 453</b>		

## Molybdenum Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Molybdenum (Pure)</b>				<a href="#">Data Sheet DSMTS-0105</a>
Mo 99.5+	-75 +38 µm	<b>Amdry 313X</b>	Agglomerated & Densified	<ul style="list-style-type: none"> <li>▪ Tough and hard with excellent sliding properties and good running properties</li> <li>▪ Resists fretting and electric arc erosion</li> </ul>
	-75 +30 µm	<b>Metco 63NS</b>	Sintered & Crushed	
Mo 99.0+	-45 +16 µm	<b>Metco 4063</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Service up to 320 °C (610 °F)</li> </ul>
<b>Molybdenum - Self-Fluxing Alloy Blends</b>				<a href="#">Data Sheet DSMTS-0107</a>
Mo 25(NiCrBSiFe)	-90 +25 µm	<b>Amdry 1371</b>	Blended	<ul style="list-style-type: none"> <li>▪ Self-fusing</li> <li>▪ High wear resistance, low frictional coefficient, good scuff resistance</li> <li>▪ Produces hard coatings for bearing surfaces and abrasive wear resistance</li> <li>▪ Service up to 350 °C (660 °F)</li> </ul>

## Nickel Base \*

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Nickel (Pure)</b>				<a href="#">Data Sheet DSMTS-0062</a>
Ni 99.8	-150 +45 µm	<b>Metco 56VC</b>	Precipitated	<ul style="list-style-type: none"> <li>▪ For salvage and build-up of nickel-based components to repair damage or mis-machining</li> <li>▪ Can replace Monel for corrosion applications when slightly higher hardness and machinability is needed</li> </ul>
Ni 99.3	-75 +45 µm	<b>Metco 56C-NS</b>		
<b>Nickel 5% Aluminum</b>				<a href="#">Data Sheet DSMTS-0043</a>
Ni 3.8Al	-90 +45 µm	<b>Metco 450P</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>▪ Dense, machinable oxidation resistant and abrasion resistant coatings</li> <li>▪ Self-bonding</li> <li>▪ Clad products produce an exothermic reaction during spraying, excellent bond strength</li> <li>▪ For salvage and build-up on machinable carbon and corrosion-resistant steels</li> </ul>
Ni 5Al	-90 +45 µm	<b>Amdry 956</b>		
	-90 +45 µm	<b>Metco 450NS</b>		
	-90 +45 µm	<b>Metco 480NS</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Bond coat for thermal sprayed ceramic and abradable materials</li> <li>▪ Service up to 800 °C (1470 °F)</li> </ul>
	-45 +11 µm	<b>Diamalloy 4008NS</b>		

\* Excluding Self-Fluxing alloys and MCrAlY alloys, which can be found in other sections of this guide

# Metals, Alloys, Composites and Blends

## Nickel Base

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Nickel 20% Aluminum</b>				<a href="#">Data Sheet DSMTS-0029</a>
Ni 20Al	-90 +53 µm	<b>Metco 404NS</b>	Chemically Clad	<ul style="list-style-type: none"> <li>Dense, machinable oxidation resistant and abrasion resistant coatings</li> <li>Self-bonding</li> <li>Exothermic reaction during spraying, excellent bond strength, better than Ni 5Al materials</li> <li>For salvage and build-up on machinable carbon and corrosion-resistant steels</li> <li>Bond coat for ceramic and abradable materials</li> <li>Service up to 650 °C (1200 °F)</li> </ul>
	-125 +45 µm	<b>Metco 2101ZB</b>		
<b>Nickel Chromium</b>				<a href="#">Data Sheet DSMTS-0109</a>
Ni 20Cr	-106 +45 µm	<b>Metco 43C-NS</b>	Water Atomized	<ul style="list-style-type: none"> <li>Resists hot oxidizing and corrosive gases, and prevents scaling on carbon and low alloy steels</li> <li>Good bond coat for ceramic top coats</li> <li>Chromium enhances corrosion resistance</li> <li>Service up to 980 °C (1800 °F)</li> </ul>
	-63 +10 µm	<b>Metco 43F-NS</b>		
	-45 +5 µm	<b>Metco 43VF-NS</b>		
	-125 +45 µm	<b>Metco 5640NS</b>	Gas Atomized	
	-53 +11 µm	<b>Amdry 4535</b>		
<b>Nickel Chromium Aluminum</b>				<a href="#">Data Sheet DSMTS-0091</a>
Ni 18.5Cr 6Al	-125 +45 µm	<b>Metco 443NS</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>Self-bonding when plasma sprayed</li> <li>Bond coat for ceramics or salvage and build-up on nickel, nickel alloy or machinable steels</li> <li>Amdry 510 recommended for anilox roll bond coat</li> </ul>
	-125 +45 µm	<b>Amdry 960</b>		
Ni 22Cr 10Al	-44 +22 µm	<b>Amdry 510</b>	Gas Atomized	<ul style="list-style-type: none"> <li>Resists oxidation and corrosion at high temperatures</li> <li>Service up to 980 °C (1800 °F)</li> </ul>
<b>Nickel Chromium Aluminum Molybdenum</b>				<a href="#">Data Sheet DSMTS-0095</a>
Ni 9Cr 7Al 5.5Mo 5Fe	-125 +45 µm	<b>Metco 444</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>Self-bonding</li> <li>Moderate wear and abrasion resistance and corrosion resistance</li> <li>Good machinability</li> <li>Metco442: For salvage and build-up or bond coat on carbon and corrosion resistant steels</li> <li>Service up to 760 °C (1400 °F)</li> </ul>
Ni 8.5Cr 7Al 5Mo 2Si 2B 2Fe 3Al <sub>2</sub> O <sub>3</sub>	-125 +45 µm	<b>Metco 442</b>		
<b>Nickel Chromium Superalloys (Inconel Type)</b>				<a href="#">Data Sheet DSMTS-0085</a>
Ni 19Cr 18Fe 3Mo 0.5Al 5.1(Nb+Ta) 0.95Ti 0.05C SIMILAR TO INCONEL 718	-125 +45 µm	<b>Amdry 718</b>	Gas Atomized	<ul style="list-style-type: none"> <li>Dense, self-bonding</li> <li>Excellent high temperature oxidation and corrosion resistance</li> <li>For repair of superalloy components and protection for less noble substrates</li> <li>Machinable and drillable, excellent edge retention</li> <li>Service up to: 982 °C (1800 °F) (Inconel 625) 704 °C (1300 °F) (Inconel 718)</li> </ul>
	-90 +45 µm	<b>Amdry 718 Cl.B</b>		
	-45 +15 µm	<b>Amdry 1718</b>		
	-45 +11 µm	<b>Diamalloy 1006</b>		
Ni 21.5Cr 2.5Fe 9.0Mo 3.7(Nb+Ta) SIMILAR TO INCONEL 625	-90 +45 µm	<b>Amdry 625</b>	Gas Atomized	<ul style="list-style-type: none"> <li>Service up to: 982 °C (1800 °F) (Inconel 625) 704 °C (1300 °F) (Inconel 718)</li> </ul>
	-53 +20 µm	<b>Diamalloy 1005A</b>		
	-45 +11 µm	<b>Diamalloy 1005</b>		
<b>Nickel Chromium Cobalt Superalloy (Rene Type)</b>				<a href="#">Data Sheet DSMTS-0110</a>
Ni 14Cr 9.5Co 5Ti 4Mo 4W 3Al SIMILAR TO RENE 80	-45 +11 µm	<b>Diamalloy 4004NS</b>	Gas Atomized	<ul style="list-style-type: none"> <li>Excellent high temperature oxidation and corrosion resistance</li> <li>For repair of nickel-based superalloy components</li> </ul>

# Metals, Alloys, Composites and Blends

## Nickel Base

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Nickel Chromium Tungsten Molybdenum Superalloys</b>				<a href="#">Data Sheet DSMTS-0086</a>
Ni 20.5Cr 10W 9Mo 4Cu 1Fe 0.75C 0.75B	-53 +11 µm	<b>Diamalloy 4006</b>	Water Atomized	<ul style="list-style-type: none"> <li>High temperature corrosion and oxidation resistance</li> <li>Diamalloy 4006 resists abrasion, sliding wear, scuffing and galling</li> </ul>
Ni 15.5Cr 4.5W 16Mo 4Fe SIMILAR TO HASTELLOY C276	-53 +20 µm	<b>Diamalloy 4276</b>	Gas Atomized	<ul style="list-style-type: none"> <li>Diamalloy 4276 resists crevice corrosion, pitting, sulfuric acid and chlorine</li> <li>Service up to 980 °C (1800 °F)</li> </ul>
<b>Nickel Molybdenum Aluminum</b>				<a href="#">Data Sheet DSMTS-0111</a>
Ni 5Mo 5.5Al	-90 +45 µm	<b>Metco 447NS</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>Produces self-bonding, general purpose, fairly hard coatings for bearing applications</li> <li>Tough, good erosion and impact resistance</li> <li>For machine elements, bearing seats, valves</li> </ul>

## Silicon Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Silicon Metalloid (Pure)</b>				<a href="#">Data Sheet DSMTS-0125</a>
Si 99.0+	-75 +15 µm	<b>Metco 4810</b>	Fused & Crushed	<ul style="list-style-type: none"> <li>Low thermal expansion coefficient, excellent thermal shock resistance and thermal stability</li> <li>Ideal environmental barrier coating (EBC) bond coat for ceramic matrix composites (CMCs)</li> <li>Service up to 1300 °C (2370 °F)</li> </ul>
Si 99.5+	-45 +15 µm	<b>Metco 4811</b>	Plasma Densified	

# Metals, Alloys, Composites and Blends

## Titanium Base

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Titanium (Pure) and Titanium Alloys</b>				Data Sheet DSMTS-0089
Ti Grade 1	-106 +45 µm	<b>Metco 4012A</b>	HDH - wrought	<ul style="list-style-type: none"> <li>▪ Biocompatibility for medical applications</li> <li>▪ Can produce coatings with porous structures for implants</li> <li>▪ Corrosion resistant</li> <li>▪ Bond coat for hydroxyapatite top coats</li> <li>▪ Choose by size and manufacturing method for thermal spray, cold spray, laser cladding, high-speed laser cladding, metal injection molding, hot and cold isostatic pressing</li> <li>▪ HDH - wrought: Hydride-dehydride from wrought raw material; dense particles with angular / blocky morphology</li> <li>▪ HDH - sponge: hydride-dehydride process from sponge raw material; porous particles with angular / blocky morphology</li> <li>▪ Atomized: dense particles with spheroidal morphology</li> <li>▪ Service up to 400 °C (750 °F)</li> </ul>
	-106 +45 µm	<b>Metco 4023B</b>	Atomized	
Ti Grade 2	-106 +45 µm	<b>Metco 4013A</b>	HDH - wrought	
	-106 +45 µm	<b>Metco 4024B</b>	Atomized	
Ti Grade 3	-25 +5 µm	<b>Metco 4027A</b>		
Ti Grade 4	-350 +200 µm	<b>Metco 4010E</b>	HDH - wrought	
	-250 +90 µm	<b>Metco 4010D</b>		
	-180 +75 µm	<b>Metco 4010B</b>		
	-90 +22 µm	<b>Metco 4010A</b>	HDH - sponge	
	-45 +11 µm	<b>Metco 4010C</b>		
	-180 +75 µm	<b>Metco 4016A</b>		
	-125 +90 µm	<b>Metco 4016B</b>		
	-25 +5 µm	<b>Metco 4028A</b>	Atomized	
Ti 6Al 4V Grade 5	-250 +150 µm	<b>Metco 4030A</b>	HDH - wrought	
	-180 +75 µm	<b>Metco 4030B</b>		
	-106 +45 µm	<b>Metco 4030C</b>		
	-106 +45 µm	<b>Metco 4031A</b>	Atomized	
	-45 +20 µm	<b>Metco 4031C</b>		
	-25 +5 µm	<b>Metco 4031B</b>		
Ti 6Al 4V Grade 23	-106 +45 µm	<b>Metco 4032A</b>	HDH - wrought	
	-106 +45 µm	<b>Metco 4033A</b>	Atomized	
	-45 +20 µm	<b>Metco 4033C</b>		

# Self-Fluxing

## Standard Alloys

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Cobalt-Based and Nickel-Based Standard Self-Fluxing Alloys</b>				Data Sheet DSMTS-0026
Co 27Ni 18Cr 6Mo 3.5Si 3B 2.5Fe 0.2C	-125 +53 µm	<b>Metco 18C</b>	Gas Atomized	<ul style="list-style-type: none"> <li>▪ Self-fluxing; post-coat fuse for dense, virtually porosity free, metallurgically bonded coatings</li> <li>▪ Enhanced wear and corrosion resistance</li> <li>▪ For industrial applications such as hot crushing rolls, forging tools, extrusion dies, screw conveyors, chip breakers, shafts, etc.</li> <li>▪ Metco 12C: moderate wear resistance, very good machinability</li> <li>▪ Metco 14E: hard, thick, wear resistant coatings</li> <li>▪ Metco 15E, Metco 15F, Diamalloy 2001: high hardness and wear resistance</li> <li>▪ Metco 18C: use when substrate cracking is an issue</li> <li>▪ Metco 16C-NS: superior resistance to acids and aqueous media</li> <li>▪ Metco 7010 and Amdry 7050: chromium free; can be blended with carbide materials for higher wear resistance; suitable for thermal spray, spray and fuse welding and PTA</li> <li>▪ Service up to 540 °C (1000 °F)</li> </ul>
Ni 7.5Cr 3.5Si 2.5Fe 1.7B 0.25C	-125 +53 µm	<b>Metco 12C</b>		
Ni 11Cr 3.7Si 2.75Fe 2.2B 0.5C	-125 +45 µm	<b>Metco 14E</b>		
	-106 +45 µm	<b>Metco 15E</b>		
Ni 17Cr 4Fe 4Si 3.5B 1C	-53 +15 µm	<b>Metco 15F</b>		
	-45 +15 µm	<b>Diamalloy 2001</b>		
Ni 1.8B 3.5Si	-180 +53 µm	<b>Metco 7010</b>	Gas Atomized Blend	
Ni 3B 3Si	-180 +45 µm	<b>Amdry 7050</b>		
Ni 17Cr 4Si 3.7B 3.0Fe 2.5Cu 2.5Mo 0.6C	-125 +53 µm	<b>Metco 16C-NS</b>		

## With Hardphase

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Self-Fluxing Alloys with Tungsten Carbide</b>				Data Sheet DSMTS-0077
65(Ni 17.5Cr 4Fe 4Si 4B 0.5C) 35(WC 12Co)	-125 +45 µm	<b>Metco 31C-NS</b>	Blended	<ul style="list-style-type: none"> <li>▪ Self-fluxing; post-coat fuse for dense, virtually porosity free, metallurgically bonded coatings</li> <li>▪ Resists particle erosion and abrasion</li> <li>▪ For applications such as pump seals, wire capstans, hydroelectric valves, plug gages, etc.</li> <li>▪ Metco 31C-NS, Metco 36C, Woka 7702: highest corrosion resistance</li> <li>▪ Metco 32C, Metco 36C: highest wear resistance</li> <li>▪ Metco 34F, Metco 34FP, Diamalloy 2002: best for thin smooth coatings; can be used unfused</li> <li>▪ Metco 36C, Woka 7702, Woka 7702, Woka 7703: less brittle; lower tendency to crack</li> <li>▪ Woka 7702: best abrasion and slurry abrasion resistance</li> <li>▪ Woka 50454: corrosion and impact resistance</li> <li>▪ Woka 53194, Woka 53141: corrosion, erosion and sliding wear resistance</li> <li>▪ Service up to 540 °C (1000 °F)</li> </ul>
20(Ni 17.5Cr 4Fe 4Si 4B 0.5C) 80(WC 12Co)	-125 +45 µm	<b>Metco 32C</b>		
50(Ni 17.5Cr 4Fe 4Si 4B 0.5C) 50(WC 12Co)	-53 +15 µm	<b>Metco 34F</b>		
	-53 +15 µm	<b>Metco 34FP</b>		
50(Ni 18Cr 7Fe 4Si 4B 1C) 50(WC 12Co)	-45 +11 µm	<b>Diamalloy 2002</b>		
60(Ni 16.5Cr 3.7Si 3.5Fe 3.4B 0.9C) 40(WC 12Co)	-106 +45 µm	<b>WOKA 7702</b>		
60(Ni 15Cr 4.4Si 3.5Fe 3.2B 0.7C) 40(WC 12Co)	-106 +45 µm	<b>WOKA 7703</b>		
65(Ni 16.5Cr 3.7Si 3.5Fe 3.4B 0.9C) 35(WC 12Co)	-106 +45 µm	<b>WOKA 7701</b>		
65(Ni 17.5Cr 4Fe 4Si 4B 0.5C) 35(WC 8Ni)	-150 +45 µm	<b>Metco 36C</b>		
60(Ni 7Cr 3.5Fe 3.2B 4.4Si 0.7C) 40WC	-106 +32 µm	<b>WOKA 53141</b>		
50(Ni 15Cr 4.4Si 3.2Fe 3.2B 0.7C) 50(WC 12Ni)	-106 +20 µm	<b>WOKA 50454</b>		
40(Ni 15Cr 4.4Si 3.2Fe 3.2B 0.7C) 60(WC 12Ni)	-106 +20 µm	<b>WOKA 53194</b>		

# Self-Fluxing

## Hardfacing Alloys

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Self-Fusing Chromium Carbide Blends</b>				<a href="#">Data Sheet DSMTS-0067</a>
Cr <sub>3</sub> C <sub>2</sub> 7(Ni 20Cr) Self-Fusing Nickel Alloy	-75 +10 μm	<b>Metco 430NS</b>	Blended	<ul style="list-style-type: none"> <li>▪ Self-fluxing when fusing is not desirable</li> <li>▪ High toughness without cracking</li> <li>▪ For hot crushing rolls, fuel rod mandrels, exhaust valves and seats</li> <li>▪ Service up to 820 °C (1500 °F)</li> </ul>
<b>Self-Fusing Tungsten Carbide Blends</b>				<a href="#">Data Sheet DSMTS-0090</a>
50(Ni 5.8Cr 2.8Al 1.4Fe 1.4Si 1.3B 0.3C) - 50(WC 12Co)	-63 +11 μm	<b>Metco 439NS</b>	Blended	<ul style="list-style-type: none"> <li>▪ Self-fluxing when fusing is not desirable such as thin-walled components and components that may distort if fused</li> </ul>
50(Ni 5.8Cr 0.7Al 1.4Fe 1.4Si 1.3B 0.3C) - 50(WC 12Co)	-75 +11 μm	<b>Metco 439NS-2</b>		<ul style="list-style-type: none"> <li>▪ Some fusing occurs when plasma sprayed</li> </ul>
25(Ni 4.3Cr 1Fe 1Si 0.9B 0.2C) - 75(WC 12Co)	-90 +31 μm	<b>Metco 1123</b>		<ul style="list-style-type: none"> <li>▪ For digestors, liquor tanks, manifolds, centrifugal fans in coal and oil plants</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>

# Carbides

## Chromium Carbide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Chromium Carbide</b>				<a href="#">Data Sheet DSMTS-0087</a>
Cr <sub>3</sub> C <sub>2</sub>	-106 +45 µm	<b>Metco 70C-NS</b>	Sintered & Crushed	<ul style="list-style-type: none"> <li>▪ High microhardness (1200 HV300) and wear resistance at elevated temperatures; relatively poor interparticle strength</li> <li>▪ For hot forming dies, mandrels, hydraulic valves, machine parts</li> <li>▪ Service up to 535 °C (1000 °F)</li> </ul>
	-44 µm	<b>Metco 70F-NS</b>		
<b>Chromium Carbide - Nickel Chromium Blends</b>				<a href="#">Data Sheet DSMTS-0042</a>
Cr <sub>3</sub> C <sub>2</sub> 7(Ni 20Cr)	-45 +5.5 µm	<b>Metco 82VF-NS</b>	Blended	<ul style="list-style-type: none"> <li>▪ Choose higher carbide content for higher hardness and resistance to fretting, abrasion and particle erosion</li> <li>▪ For turbine components: air seals, baffle dampers, nozzle supports, valve seats, struts</li> <li>▪ For hot crushing rolls, forming dies, forging tools</li> <li>▪ Service up to 870 °C (1600 °F)</li> </ul>
Cr <sub>3</sub> C <sub>2</sub> 10(Ni 20Cr)	-45 +5 µm	<b>Amdry 367</b>		
Cr <sub>3</sub> C <sub>2</sub> 25(Ni 20Cr)	-106 +11 µm	<b>Metco 81NS</b>		
	-45 +5.5 µm	<b>Diamalloy 3004</b>		
	-45 +5 µm	<b>Metco 81VF-NS</b>		
<b>Chromium Carbide - Nickel Chromium - Chemically Clad</b>				<a href="#">Data Sheet DSMTS-0022</a>
Cr <sub>3</sub> C <sub>2</sub> 20(Ni 20Cr)	-45 +5.5 µm	<b>Diamalloy 3007</b>	Chemically Clad	<ul style="list-style-type: none"> <li>▪ For wear, oxidation resistance</li> <li>▪ Minimal decarburization and oxidation during spraying</li> <li>▪ High coating density</li> <li>▪ Service up to 870 °C (1600 °F)</li> </ul>
<b>Chromium Carbide - 20% Nickel Chromium - Agglomerated &amp; Sintered</b>				<a href="#">Data Sheet DSMTS-0027</a>
Cr <sub>3</sub> C <sub>2</sub> 20(Ni 20Cr)	-53 +20 µm	<b>WOKA 7101</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Resists solid particle erosion, abrasion, tribo-corrosion, cavitation</li> <li>▪ Excellent hard chromium plating alternative for NaCl and NaOH environments</li> <li>▪ Minimal decarburization during spraying</li> <li>▪ Choose product by HVOF gun to be used and desired surface finish</li> <li>▪ Service up to 870 °C (1600 °F)</li> </ul>
	-45 +20 µm	<b>WOKA 7107</b>		
	-45 +15 µm	<b>WOKA 7102</b>		
	-45 +11 µm	<b>WOKA 7103</b>		
	-38 +10 µm	<b>WOKA 7105</b>		
	-30 +10 µm	<b>WOKA 7104</b>		
<b>Chromium Carbide - 25% Nickel Chromium - Agglomerated &amp; Sintered</b>				<a href="#">Data Sheet DSMTS-0031</a>
Cr <sub>3</sub> C <sub>2</sub> 25(Ni 20Cr)	-106 +45 µm	<b>WOKA 7215</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Resists solid particle erosion, abrasion, tribocorrosion</li> <li>▪ Excellent hard chromium plating alternative with better chloride, acidic and alkaline resistance</li> <li>▪ Minimal decarburization during spraying</li> <li>▪ Select product by spray gun and process to be used and desired surface finish</li> <li>▪ Service up to 870 °C (1600 °F)</li> </ul>
	-75 +45 µm	<b>WOKA 7218</b>		
	-63 +20 µm	<b>WOKA 7219</b>		
	-53 +20 µm	<b>WOKA 7201</b>		
	-45 +20 µm	<b>WOKA 7207</b>		
	-45 +15 µm	<b>WOKA 7202</b>		
	-45 +11 µm	<b>WOKA 7203</b>		
	-38 +10 µm	<b>WOKA 7205</b>		
	-30 +10 µm	<b>WOKA 7204</b>		
-25 +5 µm	<b>WOKA 7210</b>			

# Carbides

## Chromium Carbide

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Chromium Carbide - 25% Nickel Chromium - Agglomerated &amp; Densified</b>				<a href="#">Data Sheet DSMTS-0058</a>
Cr <sub>3</sub> C <sub>2</sub> 25(Ni 20Cr)	-53 +11 μm	<b>Amdry 5260</b>	Agglomerated & Plasma Densified	<ul style="list-style-type: none"> <li>Resists solid particle erosion, abrasion, tribo-corrosion, high temperature corrosion</li> <li>Excellent hard chromium plating alternative with better chloride, acidic and alkaline resistance</li> <li>Minimal decarburization during spraying</li> <li>Densification improves coating density and corrosion resistance</li> <li>Select Amdry 5260 to meet aerospace specifications</li> <li>Choose product by HVOF gun to be used and desired surface finish</li> <li>Service up to 870 °C (1600 °F)</li> </ul>
	-53 +20 μm	<b>WOKA 7301</b>	Agglomerated, Sintered & Plasma Densified	
	-45 +20 μm	<b>WOKA 7307</b>		
	-45 +15 μm	<b>WOKA 7302</b>		
	-45 +11 μm	<b>WOKA 7303</b>		
	-38 +10 μm	<b>WOKA 7305</b>		
	-30 +10 μm	<b>WOKA 7304</b>		
	-25 +5 μm	<b>WOKA 7310</b>		
<b>Chromium Carbide - 37% Tungsten Carbide - 18% Metal Alloy</b>				<a href="#">Data Sheet DSMTS-0056</a>
Cr <sub>3</sub> C <sub>2</sub> 37WC 18Metal Alloy	-45 +20 μm	<b>WOKA 7507</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Excellent abrasion and cavitation resistance, good hardness</li> <li>Resists harsh, complex corrosive media</li> <li>Ideal for pumps, boiler tubes, incinerator fire walls</li> <li>Choose product by HVOF gun to be used and desired surface finish</li> <li>Service up to 700 °C (1290 °F)</li> </ul>
	-45 +15 μm	<b>WOKA 7502</b>		
	-45 +11 μm	<b>WOKA 7503</b>		
	-38 +10 μm	<b>WOKA 7505</b>		
	-30 +10 μm	<b>WOKA 7504</b>		
<b>Chromium Nickel Carbide</b>				<a href="#">Data Sheet DSMTS-0112</a>
Cr 34Ni 7C	-53 +15 μm	<b>Metco 5241</b>	Gas Atomized Blend	<ul style="list-style-type: none"> <li>Excellent erosion and oxidation resistance; good wear and corrosion resistance</li> <li>Excellent superfinished surface</li> <li>Ideal hard chromium alternative</li> <li>For ball valves, hydraulic rods, boiler tubes, turbine component, textile rolls, exhaust stacks</li> <li>Service up to 900 °C (1650 °F)</li> </ul>
<b>Chromium Carbide MCrAlY Blend</b>				<a href="#">Data Sheet DSMTS-0048</a>
Cr <sub>3</sub> C <sub>2</sub> 25(NiCrAlY)	-45 +5.5 μm	<b>Metco 5546NS</b>	Blended	<ul style="list-style-type: none"> <li>Excellent erosion resistance, good toughness, oxidation and hot corrosion resistance</li> <li>For turbine components, fuel rod mandrels, forging tools, hot crushing rolls, forming dies</li> <li>Service up to 870 °C (1600 °F)</li> </ul>

## Tungsten Carbide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Tungsten Carbide 12% Cobalt - Fused &amp; Crushed</b>				<a href="#">Data Sheet DSMTS-0114</a>
W <sub>2</sub> C / WC 12Co	-90 +53 μm	<b>Metco 71NS</b>	Fused & Crushed	<ul style="list-style-type: none"> <li>Resists abrasion, erosion; good sliding wear and fretting resistance</li> <li>Dense coatings with good bond strengths</li> <li>Not for corrosive media</li> <li>For machine parts, pump housings, etc.</li> <li>Service up to 500 °C (930 °F)</li> </ul>
	-45 +5 μm	<b>Metco 71VF-NS</b>		
	-45 +5 μm	<b>Metco 71VF-NS-1</b>		
	-38 +5 μm	<b>Diamalloy 2003</b>		
<b>Tungsten Carbide 12% Cobalt - Sintered &amp; Crushed</b>				<a href="#">Data Sheet DSMTS-0115</a>
WC 12Co	-45 +11 μm	<b>Metco 72F-NS</b>	Sintered & Crushed	<ul style="list-style-type: none"> <li>Good abrasion, fretting, erosion and sliding wear resistance in dry media</li> <li>Dense coatings with good bond strengths</li> <li>For machine parts, pump housings, etc.</li> <li>Service up to 500 °C (930 °F)</li> </ul>
	-45 +5 μm	<b>Diamalloy 2004</b>		



# Carbides

## Tungsten Carbide

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Tungsten Carbide 12% Cobalt - Agglomerated &amp; Sintered</b>				Data Sheet DSMTS-0044
WC 12Co	-90 +45 µm	<b>WOKA 3108</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Good sliding wear, impact, abrasion, fretting resistance</li> <li>▪ Hard, dense, well-bonded</li> <li>▪ Best for dry environments</li> <li>▪ For steel rolls, sink rolls, exhaust fans, pump housings, conveyor screws, sucker rod couplings, etc.</li> <li>▪ Choose product by process and spray gun to be used and desired surface finish</li> <li>▪ "FC" products have submicron carbides ideal for corrugating rolls</li> <li>▪ HVOF or HVOF application</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-75 +45 µm	<b>WOKA 3118</b>		
	-53 +20 µm	<b>WOKA 3101</b>		
	-53 +15 µm	<b>WOKA 3106</b>		
	-45 +15 µm	<b>WOKA 3102</b>		
	-45 +11 µm	<b>WOKA 3103</b>		
	-38 +10 µm	<b>WOKA 3105</b>		
	-30 +10 µm	<b>WOKA 3104</b>		
	-25 +5 µm	<b>WOKA 3110 FC</b>		
-20 +5 µm	<b>WOKA 3111 FC</b>			
<b>Tungsten Carbide 17% Cobalt</b>				Data Sheet DSMTS-0030
WC 17Co	-90 +45 µm	<b>WOKA 3208</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Medium-fine carbide size</li> <li>▪ High toughness and ductility; high fretting resistance</li> <li>▪ Use in non-corrosive media</li> <li>▪ Economical choices for industrial applications such as pump seals, extrusion dies and crushing rolls</li> <li>▪ Select product by process and spray gun to be used and desired surface finished</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-53 +20 µm	<b>WOKA 3201</b>		
	-53 +15 µm	<b>WOKA 3206</b>		
	-53 +11 µm	<b>WOKA 3223</b>		
	-45 +20 µm	<b>WOKA 3207</b>		
	-45 +15 µm	<b>WOKA 3202</b>		
	-45 +11 µm	<b>WOKA 3203</b>		
	-38 +10 µm	<b>WOKA 3205</b>		
	-30 +10 µm	<b>WOKA 3204</b>		
	-53 +11 µm	<b>Amdry 9831</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ For landing gear, flap tracks and mid-span shrouds</li> <li>▪ Amdry 9831 and Metco 73 series have coarse carbides for plasma spray</li> <li>▪ Diamalloy 2005NS, Diamalloy 2005NS-1 (DiamondJet applied) and Metco 5143 for aero use with Almen requirements</li> <li>▪ Similar products differ by OEM specification approvals</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-53 +11 µm	<b>Diamalloy 2005NS-1</b>		
	-53 +11 µm	<b>Metco 73F-NS-1</b>		
	-53 +11 µm	<b>Metco 73F-NS-2</b>		
	-45 +15 µm	<b>Metco 5143</b>		
	-45 +11 µm	<b>Metco 73F-NS-1 (-45)</b>		
-45 +5.5 µm	<b>Diamalloy 2005NS</b>			
-38 +5.5 µm	<b>Metco 73SF-NS</b>			
<b>Tungsten Carbide 20% Cobalt</b>				Data Sheet DSMTS-0116
WC 20Co	-90 +38 µm	<b>Amdry 5670</b>	Sintered & Crushed	<ul style="list-style-type: none"> <li>▪ Very ductile</li> <li>▪ Formulated for combustion powder spray or atmospheric plasma spray</li> <li>▪ Coarse as-sprayed finish for traction or gripping applications</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-53 +11 µm	<b>Metco 76F-NS</b>		

# Carbides

## Tungsten Carbide

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Tungsten Carbide 10% Nickel</b>				<a href="#">Data Sheet DSMTS-0057</a>
WC 10Ni	-53 +20 µm	<b>WOKA 3301</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Resists hammer, fretting, abrasion and sliding wear</li> <li>▪ More corrosion-resistant and tougher than WC-Co, but lower hardness</li> <li>▪ Higher hardness, but lower toughness than WC 12Ni</li> <li>▪ For ball valves, gate valves, oil field equipment</li> <li>▪ Cobalt-free: may be used in radioactive environments</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-45 +20 µm	<b>WOKA 3307</b>		
	-45 +15 µm	<b>WOKA 3302</b>		
	-45 +11 µm	<b>WOKA 3303</b>		
	-45 +5 µm	<b>WOKA 3309</b>		
	-38 +10 µm	<b>WOKA 3305</b>		
	-30 +10 µm	<b>WOKA 3304</b>		
	-30 +5 µm	<b>WOKA 3332</b>		
<b>Tungsten Carbide 12% Nickel</b>				<a href="#">Data Sheet DSMTS-0129</a>
WC 12Ni	-53 +20 µm	<b>WOKA 3401</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Resists hammer, fretting, abrasion and sliding wear</li> <li>▪ More corrosion-resistant and tougher than WC-Co, but lower hardness</li> <li>▪ Higher toughness, but lower hardness than WC 10Ni</li> <li>▪ For ball valves, gate valves, oil field equipment</li> <li>▪ Cobalt-free: may be used in radioactive environments</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-45 +20 µm	<b>WOKA 3406</b>		
	-45 +15 µm	<b>WOKA 3402</b>		
	-45 +11 µm	<b>WOKA 3403</b>		
	-30 +10 µm	<b>WOKA 3404</b>		
	-30 +5 µm	<b>WOKA 3408</b>		
<b>Tungsten Carbide 17% Nickel</b>				<a href="#">Data Sheet DSMTS-0055</a>
WC 17Ni	-106 +75 µm	<b>WOKA 3534</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Resists hammer, fretting, abrasion and sliding wear</li> <li>▪ More corrosion-resistant and tougher than WC-Co, but hardness is lower</li> <li>▪ Higher toughness, but lower hardness than WC 12Ni</li> <li>▪ For ball valves, gate valves, oil field equipment</li> <li>▪ Cobalt-free: may be used in radioactive environments</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-53 +20 µm	<b>WOKA 3501</b>		
	-53 +15 µm	<b>WOKA 3506</b>		
	-45 +15 µm	<b>WOKA 3502</b>		
	-45 +11 µm	<b>WOKA 3503</b>		
	-38 +10 µm	<b>WOKA 3505</b>		
<b>Tungsten Carbide 12% Cobalt 25% Nickel</b>				<a href="#">Data Sheet DSMTS-0073</a>
(WC 12Co) 25(Ni-Based Superalloy)	-63 +5 µm	<b>Metco 5803</b>	Blended	<ul style="list-style-type: none"> <li>▪ Excellent corrosion resistance; resists abrasion, fretting, erosion, sliding wear</li> <li>▪ Ideal hard chromium alternative</li> <li>▪ Easily machined; grindable</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>

# Carbides

## Tungsten Carbide

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Tungsten Carbide 10% Cobalt 4% Chromium - Sintered &amp; Crushed</b>				Data Sheet DSMTS-0113
WC 10Co 4Cr	-45 +16 µm	<b>Amdry 5843</b>	Sintered & Crushed	<ul style="list-style-type: none"> <li>▪ Better corrosion and cavitation resistance than WC-Co coatings</li> <li>▪ Excellent erosion and abrasion resistance</li> <li>▪ Ideal hard chromium alternative; resists wear in wet corrosive media</li> <li>▪ Dense coatings, suitable for gate valves</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-45 +11 µm	<b>WOKA 3903</b>		
<b>Tungsten Carbide 10% Cobalt 4% Chromium - Agglomerated &amp; Sintered</b>				Data Sheet DSMTS-0025
WC 10Co 4Cr	-106 +45 µm	<b>WOKA 3665</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Medium-fine carbide size</li> <li>▪ Resists both corrosion and wear (abrasion, erosion fretting)</li> <li>▪ For landing gears, shafts, actuators, pump seals, valves, etc.</li> <li>▪ Excellent hard chromium plating alternative</li> <li>▪ Select product by process and spray gun to be used and desired surface finish</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-53 +20 µm	<b>WOKA 3651</b>		
	-45 +20 µm	<b>WOKA 3657</b>		
	-45 +15 µm	<b>WOKA 3652</b>		
	-45 +15 µm	<b>WOKA 3652 AMS</b>		
	-45 +11 µm	<b>WOKA 3653</b>		
	-38 +10 µm	<b>WOKA 3655</b>		
	-30 +10 µm	<b>WOKA 3654</b>		
	-53 +11 µm	<b>Metco 5847</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Metco 5164, Metco 5165, Metco 5847 and Metco 5847-45 have lower apparent density for aerospace applications with Almen requirements</li> <li>▪ Metco 5163 produces very dense coatings for industrial and aerospace applications without Almen requirements</li> <li>▪ Metco 5163 achieves higher DE with right spray conditions</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-45 +11 µm	<b>Metco 5847-45</b>		
	-45 +15 µm	<b>Metco 5163</b>		
	-45 +11 µm	<b>Metco 5164</b>		
	-38 +16 µm	<b>Metco 5165</b>		
	-45 +15 µm	<b>WOKA 3652 FC</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ "FC" products have submicron-sized carbides that increase hardness and improve abrasion and erosion resistance against fine particulate</li> <li>▪ Excellent polished surface finish</li> <li>▪ Suitable for calender rolls, corrugating rolls and doctor blades</li> <li>▪ HVOF or HVAF application</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-45 +11 µm	<b>WOKA 3653 FC</b>		
	-30 +15 µm	<b>WOKA 3654 FC-1</b>		
	-30 +10 µm	<b>WOKA 3654 FC</b>		
-25 +5 µm	<b>WOKA 3660 FC</b>			
-20 +5 µm	<b>WOKA 3661 FC</b>			
<b>Tungsten Carbide 9% Cobalt 5% Chromium 1% Nickel</b>				Data Sheet DSMTS-0051

# Carbides

## Tungsten Carbide

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
WC 9Co 5Cr 1Ni	-75 +20 $\mu\text{m}$	<b>WOKA 3644</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Best for corrosion resistance coupled with high abrasion resistance</li> <li>▪ Excellent hard chromium alternative, particularly in HCl media</li> <li>▪ For mining carrier belt rollers, paper machinery rollers, slush pump rods, dump valves, pump seals, hydraulic rods, etc.</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
	-63 +20 $\mu\text{m}$	<b>WOKA 3619</b>		
	-53 +20 $\mu\text{m}$	<b>WOKA 3601</b>		
	-53 +15 $\mu\text{m}$	<b>WOKA 3606</b>		
	-45 +20 $\mu\text{m}$	<b>WOKA 3607</b>		
	-45 +15 $\mu\text{m}$	<b>WOKA 3602</b>		
	-45 +11 $\mu\text{m}$	<b>WOKA 3603</b>		
	-30 +10 $\mu\text{m}$	<b>WOKA 3604</b>		
	-30 +5 $\mu\text{m}$	<b>WOKA 3632</b>		
	-25 +10 $\mu\text{m}$	<b>WOKA 3622</b>		
-25 +5 $\mu\text{m}$	<b>WOKA 3610</b>			
<b>Tungsten Carbide 10% Nickel 5% Chromium</b>				<a href="#">Data Sheet DSMTS-0108</a>
WC 10Ni 5Cr	-45 +15 $\mu\text{m}$	<b>WOKA 3552</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Cobalt-free matrix composition</li> <li>▪ Better corrosion resistance than WCCoCr</li> <li>▪ Has good impact, cavitation and droplet erosion resistance with fair abrasion and slurry erosion resistance</li> <li>▪ For oil drilling downhole mandrels, offshore application couplings, quenching rolls, sluice gate and transport system hydraulic rods, ball valves</li> <li>▪ Service up to 500 °C (930 °F)</li> </ul>
<b>Tungsten Carbide 20% Chromium Carbide 7% Nickel</b>				<a href="#">Data Sheet DSMTS-0059</a>
WC 20Cr <sub>3</sub> C <sub>2</sub> 7Ni	-53 +20 $\mu\text{m}$	<b>WOKA 3701</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Excellent oxidation and corrosion resistance, especially in wet environments</li> <li>▪ Dense, smooth coatings</li> <li>▪ For oil field equipment, paper machinery, pump seals and rotors, ball valves, compressor shafts, etc.</li> <li>▪ WOKA 3702-1 applies with higher DE and lower porosity</li> <li>▪ Service up to 700 °C (1290 °F)</li> </ul>
	-45 +20 $\mu\text{m}$	<b>WOKA 3707</b>		
	-45 +15 $\mu\text{m}$	<b>WOKA 3702</b>		
	-45 +15 $\mu\text{m}$	<b>WOKA 3702-1</b>		
	-45 +11 $\mu\text{m}$	<b>WOKA 3703</b>		

# Cermets

## Oxide Ceramic and Alloy Blends

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Aluminum Oxide – Nickel Aluminum Cermets</b>				<a href="#">Data Sheet DSMTS-0066</a>
Al <sub>2</sub> O <sub>3</sub> 30(Ni 20Al)	-90 +10 μm	<b>Metco 410NS</b>	Blended	<ul style="list-style-type: none"> <li>▪ Resists abrasion, shock and thermal cycling better than alumina</li> <li>▪ For intermediate layer in graded coatings to prevent thermal expansion mismatch</li> <li>▪ May be used as an abrasive (cutting) coating in clearance control applications</li> </ul>
<b>Zirconium Oxide – Nickel Chromium Cermets</b>				<a href="#">Data Sheet DSMTS-0070</a>
MgZrO <sub>3</sub> 35NiCr	-90 +11 μm	<b>Metco 303NS-1</b>	Blended	<ul style="list-style-type: none"> <li>▪ Distributes thermal stresses to prevent spalling and thermal shock effects</li> <li>▪ For intermediate layer in 3-layer TBC coating systems</li> <li>▪ Service up to 900 °C (1650 °F)</li> </ul>
MgZrO <sub>3</sub> 26Ni 7Cr 2Al	-90 +11 μm	<b>Metco 441NS-1</b>		

# Oxide Ceramics

## Aluminum Oxide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Aluminum Oxide (High Purity)</b>				<a href="#">Data Sheet DSMTS-0023</a>
Al <sub>2</sub> O <sub>3</sub> 99.9+	-45 +15 µm	<b>Metco 6103</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Superior dielectric and thermal insulation characteristics</li> <li>Resists wear, chemically inert, stable at high temperatures</li> <li>For electronics and semi-conductor production tooling, biomedical implants</li> <li>Service up to 1650 °C (3000 °F)</li> </ul>
<b>Aluminum Oxide (Pure)</b>				<a href="#">Data Sheet DSMTS-0005</a>
Al <sub>2</sub> O <sub>3</sub> 99.5+	-45 +22 µm	<b>Amdry 6062</b>	Fused & Crushed	<ul style="list-style-type: none"> <li>Excellent dielectric and thermal insulation characteristics</li> <li>Resists wear, chemically inert, stable at high temperatures</li> <li>For vacuum chamber and furnace linings, corona rolls, biomedical implants, electrostatic chucks and capacitors, clearance control abrasive (cutting) coating</li> <li>Service up to 1650 °C (3000 °F)</li> </ul>
	-45 +5 µm	<b>Amdry 6060</b>		
	-31 +5.5 µm	<b>Metco 6051</b>		
	-31 +3.9 µm	<b>Metco 105SFP</b>		
Al <sub>2</sub> O <sub>3</sub> 98.0+	-45 +15 µm	<b>Metco 105NS</b>		
<b>Aluminum Silicate (Mullite)</b>				<a href="#">Data Sheet DSMTS-0124</a>
3Al <sub>2</sub> O <sub>3</sub> 2SiO <sub>2</sub>	-45 +5 µm	<b>Metco 6150</b>	Fused & Crushed	<ul style="list-style-type: none"> <li>Low thermal conductivity and expansion coefficient, high phase stability</li> <li>Ideal for environmental barrier coatings (EBC) top coats to protect ceramic matrix composites (CMCs)</li> <li>Service up to 1300 °C (2370 °F)</li> </ul>
<b>Aluminum Oxide 3% Titanium Oxide</b>				<a href="#">Data Sheet DSMTS-0006</a>
Al <sub>2</sub> O <sub>3</sub> 3TiO <sub>2</sub>	-90 +45 µm	<b>Amdry 6208</b>	Fused & Crushed	<ul style="list-style-type: none"> <li>Resists abrasion, sliding wear, friction, oxidation, acids, alkalis</li> <li>Somewhat tougher than pure alumina</li> <li>For textile production tooling, butterfly valves, electrical insulation, dielectric applications</li> <li>Service up to 1100 °C (2010 °F)</li> </ul>
	-75 +30 µm	<b>Metco 101B-NS</b>		
	-75 +30 µm	<b>Amdry 187</b>		
	-45 +11 µm	<b>Metco 101NS</b>		
	-45 +11 µm	<b>Metco 6203</b>		
	-45 +5 µm	<b>Amdry 6204</b>		
	-22 +5 µm	<b>Amdry 6200</b>		
	-22 +5 µm	<b>Metco 101SF</b>		
<b>Aluminum Oxide 13% Titanium Oxide</b>				<a href="#">Data Sheet DSMTS-0084</a>
Al <sub>2</sub> O <sub>3</sub> 13TiO <sub>2</sub>	-45 +15 µm	<b>Amdry 6228</b>	Fused, Crushed & Blended	<ul style="list-style-type: none"> <li>Resists abrasion, sliding wear, oxidation, acids, alkalis</li> <li>Titania adds toughness but reduces hardness</li> <li>For hydraulic parts, shaft sleeves, mechanical seals, thread and synthetic fiber production tooling</li> <li>Metco 6221 has improved DE and more homogeneous coating structure</li> <li>Service up to 540 °C (1000 °F)</li> </ul>
	-40 +5 µm	<b>Amdry 6224</b>		
	-35 +5 µm	<b>Amdry 6220</b>		
	-53 +15 µm	<b>Metco 130</b>	Mechanically Clad	
	-45 +5 µm	<b>Metco 130SF</b>		
	-45 +15 µm	<b>Metco 6221</b>		

# Oxide Ceramics

## Aluminum Oxide

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Aluminum Oxide 40% Titanium Oxide</b>				<a href="#">Data Sheet DSMTS-0083</a>
Al <sub>2</sub> O <sub>3</sub> 40TiO <sub>2</sub>	-45 +5 μm	<b>Amdry 6244</b>	Fused, Crushed & Blended	<ul style="list-style-type: none"> <li>Resists abrasion, fretting, particle erosion, dilute acids</li> <li>Good friction characteristics for hard bearing surfaces</li> <li>Ground/polished surfaces have low wettability</li> <li>Lower hardness, but more readily ground than alumina with lower titania content</li> <li>For pump parts, shaft sleeves, mechanical seals, thread and synthetic fiber production tooling</li> <li>Service up to 540 °C (1000 °F)</li> </ul>
	-35 +5 μm	<b>Amdry 6240</b>		
	-45 +15 μm	<b>Amdry 6257</b>	Fused & Crushed	
	-45 +5 μm	<b>Amdry 6254</b>		
	-35 +5 μm	<b>Amdry 6250</b>		
	-45 +5 μm	<b>Metco 131VF</b>		

## Chromium Oxide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Chromium Oxide (Pure)</b>				<a href="#">Data Sheet DSMTS-0072</a>
Cr <sub>2</sub> O <sub>3</sub> 99.7+	-45 +20 μm	<b>Metco 6445</b>	Sintered & Crushed	<ul style="list-style-type: none"> <li>Hard, wear resistant, chemically inert</li> <li>Metco 6156, Metco 6155, Metco 6416, Metco 6445 and Amdry 6420 are recommended for anilox rolls</li> </ul>
	-45 +15 μm	<b>Metco 6155</b>		
	-35 +15 μm	<b>Metco 6156</b>		
	-30 +10 μm	<b>Metco 6416</b>		
Cr <sub>2</sub> O <sub>3</sub> 99.5+	-45 +22 μm	<b>Amdry 6420</b>	Specially Treated	<ul style="list-style-type: none"> <li>Metco 106 and Metco 106F have small amounts of titania, increasing fracture toughness</li> </ul>
Cr <sub>2</sub> O <sub>3</sub> 99.0+	-15 +5 μm	<b>Amdry 6415</b>		
		-90 +11 μm	<b>Metco 106NS</b>	Sintered & Crushed
Cr <sub>2</sub> O <sub>3</sub> 95.8+	-53 +5 μm	<b>Metco 106F</b>		
Cr <sub>2</sub> O <sub>3</sub> 95.0+	-90 +11 μm	<b>Metco 106</b>		
<b>Chromium Oxide 4% Silicon Oxide 3% Titanium Oxide</b>				<a href="#">Data Sheet DSMTS-0098</a>
Cr <sub>2</sub> O <sub>3</sub> 4SiO <sub>2</sub> 3TiO <sub>2</sub>	-90 +16 μm	<b>Metco 136CP</b>	Mechanically Clad	<ul style="list-style-type: none"> <li>Hard, dense, very wear resistant</li> <li>Unusually high ceramic toughness</li> <li>Resists, acids, alkalis, alcohols</li> <li>For pump components, wear rings, down-hole plungers, textile machinery parts, seals</li> <li>Service up to 540 °C (1000 °F)</li> </ul>
	-63 +5 μm	<b>Metco 136F</b>		
		-45 +10 μm	<b>Amdry 6462</b>	
<b>Chromium Oxide – Titanium Oxide</b>				<a href="#">Data Sheet DSMTS-0071</a>
Cr <sub>2</sub> O <sub>3</sub> 25TiO <sub>2</sub>	-45 +20 μm	<b>Metco 6485</b>	Fused & Crushed	<ul style="list-style-type: none"> <li>Excellent abrasion, heat and corrosion resistance</li> <li>High fracture toughness</li> </ul>
Cr <sub>2</sub> O <sub>3</sub> 40TiO <sub>2</sub>	-90 +16 μm	<b>Metco 6483</b>	Blended	<ul style="list-style-type: none"> <li>For sucker rod couplings, doctor blades, machine tool chip breakers</li> <li>Service up to 540 °C (1000 °F)</li> </ul>

## Gadolinium Zirconium Oxide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Gadolinium Zirconium Oxide and Gadolinium Zirconate</b>				<a href="#">Data Sheet DSMTS-0121</a>
Proprietary	-120 +16 μm	<b>Metco 6042</b>	Agglomerated, Sintered & Plasma Densified	<ul style="list-style-type: none"> <li>Advanced thermal barrier material for industrial gas turbine applications</li> <li>Available only to OEM-approved purchasers of these materials</li> </ul>
Proprietary	-140 +16 μm	<b>Metco 6043</b>		
Proprietary	-140 +45 μm	<b>Metco 6041</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Service up to 1500 °C (2730 °F)</li> </ul>

# Oxide Ceramics

## Lanthanum Oxide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Lanthanum Strontium Manganate (LSM)</b>				<a href="#">Data Sheet DSMTS-0024</a>
(La <sub>0.8</sub> Sr <sub>0.2</sub> ) <sub>0.98</sub> MnO <sub>3</sub> (provided in molar %)	-53 +22 μm	<b>Metco 6801</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>High purity Perovskite</li> <li>Used as an evaporation barrier on chromite-based SOFC interconnects and for catalysts and sensors</li> <li>Service up to 1500 °C (2730 °F)</li> </ul>
	-45 +15 μm	<b>Metco 6800</b>		
<b>Lanthanum Strontium Cobalt Ferrite (LSCF)</b>				
La <sub>0.6</sub> Sr <sub>0.4</sub> Co <sub>0.2</sub> Fe <sub>0.8</sub> O <sub>3</sub> (provided in molar %)	-45 +15 μm	<b>Metco 6830A</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Used for cathodes in SOFCs and oxygen permeable membranes for gas separation</li> </ul>
	-25 +5 μm	<b>Metco 6830</b>		
La <sub>0.78</sub> Sr <sub>0.2</sub> Co <sub>0.2</sub> Fe <sub>0.8</sub> O <sub>3</sub> (provided in molar %)	-45 +15 μm	<b>Metco 6831A</b>		
	-25 +5 μm	<b>Metco 6831</b>		

## Manganese Cobalt Oxide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Manganese Cobalt Oxide (MCO)</b>				<a href="#">Data Sheet DSMTS-0120</a>
Mn <sub>1.5</sub> Co <sub>1.5</sub> O <sub>4</sub> (provided in molar %)	-45 +15 μm	<b>Metco 6820</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Used as an evaporation barrier on chromite-based SOFC interconnects</li> <li>Cost effective alternative to LSM materials</li> </ul>

## Titanium Oxide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Titanium Oxide (Pure)</b>				<a href="#">Data Sheet DSMTS-0065</a>
TiO <sub>x</sub> 99+ x = 1.7	-105 +32 μm	<b>Metco 6231A</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Resists sliding wear and many corrosive medias; not for acidic or alkaline environments</li> <li>Lubricious; good toughness; moderate electrical conductivity with no surface static charge</li> <li>Metco 623XX products: controlled x factor; recommended to produce sputter target manufacture</li> <li>For sputter target manufacture, decorative coatings, mandrels, oxygen sensors, biomedical implants</li> <li>Service up to 540 °C (1000 °F)</li> </ul>
TiO <sub>x</sub> 99+ x = 1.8	-150 +45 μm	<b>Metco 6232B</b>		
	-150 +38 μm	<b>Metco 6233C</b>		
TiO <sub>x</sub> 99+ x = 1.9	-30 +10 μm	<b>Metco 6233D</b>	Fused & Crushed	
	-106 +38 μm	<b>Amdry 6510</b>		
	-45 +11 μm	<b>Metco 102</b>		
	-45 +5 μm	<b>Amdry 6505</b>		
<b>Titanium Oxide 45% Chromium Oxide</b>				<a href="#">Data Sheet DSMTS-0064</a>
TiO <sub>2</sub> 45Cr <sub>2</sub> O <sub>3</sub>	-63 +11 μm	<b>Metco 111</b>	Blended	<ul style="list-style-type: none"> <li>Excellent abrasion, heat and corrosion resistance</li> <li>Hard with high fracture toughness; low frictional coefficient</li> <li>For sucker rod couplings, dry cell batter mandrels, cylinder bores; doctor blades, machine tool chip breakers</li> <li>Service up to 540 °C (1000 °F)</li> </ul>



# Oxide Ceramics

## Ytterbium Oxide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Ytterbium Disilicate</b>				<a href="#">Data Sheet DSMTS-0128</a>
$Yb_2Si_2O_7$	-90 +11 $\mu m$	<b>Metco 6157</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Low thermal conductivity and expansion coefficient, excellent phase stability</li> <li>Ideal for environmental barrier coatings (EBC) top coats to protect ceramic matrix composites (CMCs)</li> <li>Service up to 1350 °C (2460 °F)</li> </ul>

## Yttrium Oxide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Yttrium Oxide (Pure)</b>				<a href="#">Data Sheet DSMTS-0122</a>
$Y_2O_3$ 99.95+	-53 +15 $\mu m$	<b>Metco 6035A</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>Superior dielectric and electrical insulation; highly resistant to plasma and fluoride etching, stable at high temperatures</li> <li>Metco 6035A: ultra high purity, superior performance</li> <li>Metco 6035A-1: high purity, excellent performance</li> <li>Metco 6035 series: for electronics and semiconductor production tooling, linings for graphite molds</li> </ul>
$Y_2O_3$ 99.9+	-53 +15 $\mu m$	<b>Metco 6035A-1</b>		
$Y_2O_3$ 96.0+	-106 +16 $\mu m$	<b>Metco 6015S</b>	Agglomerated	<ul style="list-style-type: none"> <li>Metco 6015: linings for sintering beds / sleds, graphite molds / trays</li> <li>Metco 6015S: better flow than Metco 6015</li> <li>Service up to 1650 °C (3000 °F)</li> </ul>
	-106 +16 $\mu m$	<b>Metco 6015</b>		

## Zirconium Oxide

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Calcia-Stabilized Zirconium Oxide</b>				<a href="#">Data Sheet DSMTS-0034</a>
$ZrO_2$ 5CaO	-90 +25 $\mu m$	<b>Metco 201B-NS-1</b>	Agglomerated	<ul style="list-style-type: none"> <li>Thermal barrier, resists abrasive wear, wetting, corrosion from molten metals</li> <li>For turbine hot section components, diesel pistons, valves and cylinder heads, casting molds and troughs</li> <li>Service up to 900 °C (1650 °F)</li> </ul>
	-75 +30 $\mu m$	<b>Metco 201B-NS</b>	Fused & Crushed	
	-53 +11 $\mu m$	<b>Metco 201NS</b>		
<b>Ceria-Stabilized Zirconium Oxide</b>				<a href="#">Data Sheet DSMTS-0038</a>
$ZrO_2$ 24CeO <sub>2</sub> 2.5Y <sub>2</sub> O <sub>3</sub>	-125 +11 $\mu m$	<b>Metco 205NS</b>	Agglomerated & Plasma Densified (HOSP)	<ul style="list-style-type: none"> <li>Thermal barrier, excellent shock resistance, low thermal conductivity, resists high temperature corrosion</li> <li>For turbine hot section components</li> <li>Service up to 1250 °C (2280 °F)</li> </ul>
<b>Magnesia-Stabilized Zirconium Oxide</b>				<a href="#">Data Sheet DSMTS-0037</a>
$ZrO_2$ 24MgO	-90 +11 $\mu m$	<b>Metco 210NS-1</b>	Agglomerated & Plasma Densified (HOSP)	<ul style="list-style-type: none"> <li>Thermal barrier, low thermal conductivity, high melting point</li> <li>Resists high temperature erosion, wetting of molten metals</li> <li>For turbine hot section components, molten metal molds and troughs, forging tooling, etc.</li> <li>Service up to 900 °C (1650 °F)</li> </ul>
	-90 +11 $\mu m$	<b>Metco 210</b>	Fused & Crushed	

# Oxide Ceramics

## Zirconium Oxide

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>Zirconia Titania Yttria Composite</b>				<a href="#">Data Sheet DSMTS-0033</a>
ZrO <sub>2</sub> 18TiO <sub>2</sub> 10Y <sub>2</sub> O <sub>3</sub>	-75 +5 μm	<b>Metco 143</b>	Agglomerated	<ul style="list-style-type: none"> <li>▪ Excellent high temperature scuff and erosion resistance</li> <li>▪ Resists sulfidation, chlorination and sodium hot corrosion</li> <li>▪ For hard bearing surfaces on liners, cylinder bores, piston rings and crowns, exhaust valves, turbine blades</li> <li>▪ Service up to 980 °C (1800 °F)</li> </ul>
<b>7.5% Yttria-Stabilized Zirconium Oxide - Agglomerated</b>				<a href="#">Data Sheet DSMTS-0019</a>
ZrO <sub>2</sub> 7.5Y <sub>2</sub> O <sub>3</sub>	-30 +1 μm	<b>Metco 6700</b>	Agglomerated	<ul style="list-style-type: none"> <li>▪ Thermal barrier for turbine hot section components</li> <li>▪ Stabilization occurs during spray process</li> <li>▪ Designed for ChamPro PS-PVD spray process, can produce columnar microstructures</li> <li>▪ Service up to 1200 °C (2190 °F)</li> </ul>
<b>8% Yttria-Stabilized Zirconium Oxide - Agglomerated &amp; Sintered</b>				<a href="#">Data Sheet DSMTS-0047</a>
ZrO <sub>2</sub> 8Y <sub>2</sub> O <sub>3</sub>	-125 +45 μm	<b>Metco 233C</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ For high porosity thermal barrier turbine applications</li> <li>▪ Metco 222A: very high purity</li> <li>▪ Metco 231A: lowest cost, stabilizes during spray processing</li> <li>▪ Metco 233B: for DVC coatings</li> <li>▪ Service up to:                             <ul style="list-style-type: none"> <li>1350 °C (2460 °F) (Metco 22XX)</li> <li>1250 °C (2280 °F) (Metco 23XX)</li> </ul> </li> </ul>
	-125 +45 μm	<b>Metco 222A</b>		
	-125 +45 μm	<b>Metco 233A</b>		
	-125 +45 μm	<b>Metco 231A</b>		
	-90 +15 μm	<b>Metco 234A</b>		
	-45 +22 μm	<b>Metco 233B</b>		
<b>8% Yttria-Stabilized Zirconium Oxide - HOSP</b>				<a href="#">Data Sheet DSMTS-0001</a>
ZrO <sub>2</sub> 8Y <sub>2</sub> O <sub>3</sub>	-147 +45 μm	<b>Metco 204C-NS Premium</b>	Agglomerated & Plasma Densified (HOSP)	<ul style="list-style-type: none"> <li>▪ Well known for excellent flow, chemical homogeneity and structural integrity</li> <li>▪ Best used for standard porosity (4 – 12 vol. %) TBC coatings</li> <li>▪ Similar products differ by OEM specification approvals</li> <li>▪ For thermal protection of thermal hot section components</li> <li>▪ “Premium” products: very high purity with improved sintering resistance at higher temperatures</li> <li>▪ Metco 204D: excellent purity, cost-effective alternative</li> <li>▪ Metco 204AF and Metco 204F: for denser coatings</li> <li>▪ Service up to:                             <ul style="list-style-type: none"> <li>1350 °C (2460 °F) (“Premium” products)</li> <li>1250 °C (2280 °F) (Other products)</li> </ul> </li> </ul>
	-147 +45 μm	<b>Metco 204C-NS</b>		
	-125 +11 μm	<b>Metco 204NS-G Premium</b>		
	-125 +11 μm	<b>Metco 204NS-G</b>		
	-125 +11 μm	<b>Amdry 204NS-1</b>		
	-125 +11 μm	<b>Metco 204NS</b>		
	-90 +16 μm	<b>Metco 204D</b>		
	-75 +45 μm	<b>Metco 204B-NS</b>		
	-45 +15 μm	<b>Metco 204AF</b>		
	-45 +15 μm	<b>Metco 204F</b>		
Proprietary	Proprietary	<b>Metco 204NS-AP</b>		
		<b>SPM 2000</b>		
		<b>SPM 2000-1</b>		

# Oxide Ceramics

## Zirconium Oxide

CONTINUED

Chemistry	Particle Size	Product	Manufacture	Applications
<b>8% Yttria-Stabilized Zirconium Oxide - Suspension</b>				<a href="#">Data Sheet DSMTS-0127</a>
ZrO <sub>2</sub> 8Y <sub>2</sub> O <sub>3</sub> / Ethanol	submicron	<b>Metco 6608</b>	Agglomerated & Plasma Densified, Milled and Dispersion Mixed	<ul style="list-style-type: none"> <li>▪ Designed for suspension plasma spray as an alternative to EB-PVD</li> <li>▪ High purity YSZ constituent</li> <li>▪ Metco 6608:                             <ul style="list-style-type: none"> <li>▪ Premixed with ethanol and dispersant</li> <li>▪ For prototype coating and development of advanced TBC top coats</li> </ul> </li> <li>▪ Metco 6609:                             <ul style="list-style-type: none"> <li>▪ Preformulated with dispersant for mixing by customer</li> <li>▪ For production applications</li> <li>▪ Service up to 1350 °C (2460 °F)</li> </ul> </li> </ul>
ZrO <sub>2</sub> 8Y <sub>2</sub> O <sub>3</sub>		<b>Metco 6609</b>	Agglomerated, Plasma Densified & Milled	
<b>20% Yttria-Stabilized Zirconium Oxide</b>				<a href="#">Data Sheet DSMTS-0035</a>
ZrO <sub>2</sub> 20Y <sub>2</sub> O <sub>3</sub>	-90 +16 μm	<b>Metco 202NS</b>	Agglomerated	<ul style="list-style-type: none"> <li>▪ Thermal barrier for turbine hot section components</li> <li>▪ Resists particle erosion for rocket nozzles and missile nose cones</li> <li>▪ Service up to 1500 °C (2730 °F)</li> </ul>
	Proprietary	<b>Metco 6620A</b>	Agglomerated & Plasma Densified	
	Proprietary	<b>Metco 6620C</b>	(HOSP)	
<b>High Yttria-Stabilized Zirconium Oxide</b>				<a href="#">Data Sheet DSMTS-0126</a>
ZrO <sub>2</sub> 38Y <sub>2</sub> O <sub>3</sub>	-125 +11 μm	<b>Metco 207</b>	Agglomerated & Plasma Densified (HOSP)	<ul style="list-style-type: none"> <li>▪ Thermal barrier for turbine hot section components</li> <li>▪ Resists CMAS attack</li> <li>▪ Lower thermal conductivity than 8% YSZ coatings</li> <li>▪ Improves thermal shock resistance when applied over 8% YSZ coatings</li> <li>▪ Choose Metco 208 for advanced-structured TBCs</li> <li>▪ Service up to 1425 °C (2600 °F)</li> </ul>
ZrO <sub>2</sub> 55Y <sub>2</sub> O <sub>3</sub>				
<b>Zirconia Gadolinia Ytterbia Yttria</b>				<a href="#">Data Sheet DSMTS-0099</a>
ZrO <sub>2</sub> 9.5Y <sub>2</sub> O <sub>3</sub> 5.6Yb <sub>2</sub> O <sub>3</sub> 5.2Gd <sub>2</sub> O <sub>3</sub>	-125 +45 μm	<b>Metco 206A</b>	Agglomerated & Sintered	<ul style="list-style-type: none"> <li>▪ Ultra high temperature thermal barrier material</li> <li>▪ Very low thermal conductivity; improved high temperature sintering resistance</li> <li>▪ Limited to licensed US government programs</li> <li>▪ Service up to 1500 °C (2730 °F)</li> </ul>

# Wires

## Aluminum Base

Chemistry	Diameters	Product	Form	Applications
<b>Aluminum (Pure)</b>				Data Sheet DSMTS-0003
Al 99.5%+	<b>1050 Grade:</b> 1.62 mm (14 ga) 2 mm (5/64 in) 2.0 mm (0.079 in) 2.3 mm (11 ga) 2.5 mm (0.098 in) 3.2 mm (1/8 in) 4.0 mm (0.157 in) 4.8 mm (3/16 in)	<b>Metco Aluminum</b>	Solid Wire	<ul style="list-style-type: none"> <li>▪ Sacrificial coatings for steel structures for atmospheric, saltwater, fresh water immersion environments</li> <li>▪ May be used as an undercoat to organic coatings</li> <li>▪ Electrical conductance on insulators, capacitors end caps, varistors, etc.</li> <li>▪ Service up to 538 °C (1000 °F)</li> </ul>
	Al 99.0%+			
Al 99.5%+				
<b>Aluminum Alloys</b>				Data Sheet DSMTS-0004
Al 5Mg	2.5 mm (0.098 in)	<b>Metco AlMg</b>	Solid Wire	<ul style="list-style-type: none"> <li>▪ Cathodic and galvanic protection on iron and steel substrates in seawater</li> <li>▪ Use at temperatures that exceed limits of Zn or Zn/Al</li> <li>▪ Usable in mildly acidic media and soft water</li> <li>▪ Service up to 100 °C (210 °F)</li> <li>▪ For machine element repair on aircraft cases, flanges, gearbox seals</li> <li>▪ Repair Mg and Al alloy substrates</li> <li>▪ Higher Si content produces harder, denser coatings</li> <li>▪ Service up to 450 °C (840 °F)</li> <li>▪ Corrosion resistant in marine environments with good thermal cycling characteristics</li> <li>▪ For traction coatings on decks, catwalks, etc.</li> </ul>
Al 6Si	1.62 mm (14 ga) 3.2 mm (1/8 in)	<b>Metco SF Aluminum</b>		
	3.2 mm (1/8 in)	<b>Metco SF-NS Aluminum</b>		
Al 12Si	1.62 mm (14 ga)	<b>Metco 8234</b>		
Al 3Ti	2.5 mm (0.098 in)	<b>Metco 8901</b>		

# Wires

## Copper Base

Chemistry	Diameters	Product	Form	Applications
<b>Copper (Pure) and Copper Alloys</b>				<a href="#">Data Sheet DSMTS-0009</a>
Cu 99.9+	1.62 mm (14 ga) 3.2 mm (1/8 in)	<b>Metco Copper</b>	Solid Wire	<ul style="list-style-type: none"> <li>▪ Excellent conductivity for electrical applications</li> <li>▪ Decorative coatings</li> <li>▪ Service up to 750 °C (1380 °F)</li> </ul>
Cu 8Al	1.62 mm (14 ga)	<b>Sprabronze AB</b>		<ul style="list-style-type: none"> <li>▪ Dense, moderately wear resistant</li> </ul>
Cu 9Al 1Fe	1.62 mm (14 ga) 3.2 mm (1/8 in)	<b>Sprabronze AA</b>		<ul style="list-style-type: none"> <li>▪ Machine element restoration and for pump impellers, armature bushings, motor bearings, decorative coatings</li> </ul>
Cu 6Sn	1.62 mm (14 ga)	<b>Sprabronze S</b>		<ul style="list-style-type: none"> <li>▪ Sprabronze AB and AA: more corrosion resistant</li> <li>▪ Sprabronze S: Lubricious, resists sliding wear</li> </ul>
Cu 40Zn 1Fe 1Sn	3.2 mm (1/8 in)	<b>Sprabronze TM</b>		<ul style="list-style-type: none"> <li>▪ Sprabronze TM: Tobin-type bronze</li> <li>▪ Service up to 700 °C (1290 °F)</li> </ul>
Cu 37Zn	1.62 mm (14 ga)	<b>Metco Brass</b>		<ul style="list-style-type: none"> <li>▪ Resists low oxygen, alkaline, caustic solutions</li> <li>▪ Solderable</li> <li>▪ Service up to 750 °C (1380 °F)</li> </ul>

## Iron Base

Chemistry	Diameters	Product	Form	Applications
<b>Carbon Steels</b>				<a href="#">Data Sheet DSMTS-0076</a>
Fe 0.7Mn 0.8C	1.62 mm (14 ga) 3.2 mm (1/8 in)	<b>Sprasteel 80</b>	Solid Wire	<ul style="list-style-type: none"> <li>▪ Good hardness for restoration and repair of low alloy and carbon steels</li> </ul>
Fe 1.63Mn 1Si 0.07C	1.62 mm (14 ga)	<b>Sprasteel 11</b>		<ul style="list-style-type: none"> <li>▪ For engine block and header castings, bearing surfaces, machine element repair</li> </ul>
Fe 0.8Mn 0.2Si 0.15C	1.62 mm (14 ga)	<b>Metco 8230</b>		<ul style="list-style-type: none"> <li>▪ Sprasteel 80: low shrink, hard, moderately thick coatings</li> <li>▪ Sprasteel 11: high shrink, softer coating for bearing surfaces</li> <li>▪ Metco 8230: low to moderate shrink, moderately thick coatings</li> </ul>
<b>Iron Aluminum Carbon</b>				<a href="#">Data Sheet DSMTS-0069</a>
Fe 5.5Al 2C 0.8Mn	1.62 mm (14 ga)	<b>Metco 8235</b>	Cored Wire	<ul style="list-style-type: none"> <li>▪ Good traction and anti-skid characteristics, high wear resistance</li> <li>▪ For walkways, platforms, stairs, traction rollers, etc.</li> <li>▪ Service up to 354 °C (670 °F)</li> </ul>

# Wires

## Iron Base

CONTINUED

Chemistry	Diameters	Product	Form	Applications
<b>Iron Chromium (Stainless Steel)</b>				<a href="#">Data Sheet DSMTS-0032</a>
Fe 13Cr 0.5Mn 0.5Ni 0.35C 0.25Si	1.62 mm (14 ga) 2.0 mm (0.08 in) 2.3 mm (11 ga) 3.2 mm (1/8 in) 4.8 mm (3/16 in)	<b>Metcoloy 2</b>	Solid Wire	<ul style="list-style-type: none"> <li>▪ Excellent corrosion and wear resistance</li> <li>▪ For salvage and restoration of machine elements, pump plungers, impellers, journal surfaces, printing rolls, etc.</li> </ul>
Fe 17Cr 12Ni 2.5Mo 2Mn 1Si 0.08C	1.62 mm (14 ga) 3.2 mm (1/8 in)	<b>Metcoloy 4</b>		
Fe 18Cr 8Ni 2Mn 0.75Si 0.08C	3.2 mm (1/8 in) 4.8 mm (3/16 in)	<b>Metcoloy 1</b>		
Fe 18Cr 8.5Mn 5Ni 1Si 0.15C	1.62 mm (14 ga) 3.2 mm (1/8 in) 4.8 mm (3/16 in)	<b>Metcoloy 5</b>		
Fe 17Cr 3Ti 1.5Mn 1.3Si	1.62 mm (14 ga)	<b>Metco 8238</b>	Cored Wire	<ul style="list-style-type: none"> <li>▪ Metco 8238: resists friction and erosion; high bond strength</li> </ul>
<b>Iron Chromium (Cr &gt; 20%)</b>				<a href="#">Data Sheet DSMTS-0008</a>
Fe 25Cr 5Al 0.25C 0.25Si	1.62 mm (14 ga)	<b>Metco 8236</b>	Solid Wire	<ul style="list-style-type: none"> <li>▪ Excellent corrosion and oxidation resistance combined with high strength</li> <li>▪ For boiler applications, restoration, paper machinery, textile machinery, hard chromium plating alternatives</li> </ul>
Fe 35Ni 20Cr 2Si	1.62 mm (14 ga)	<b>Metco X10</b>		
Fe 31Ni 27Cr 4Mo 1.75Mn 1.1Cu	1.62 mm (14 ga)	<b>Metco X28</b>		
Fe 28Cr 5C 1Mn	1.62 mm (14 ga)	<b>Metco 8222</b>	Cored Wire	<ul style="list-style-type: none"> <li>▪ Metco 8295: resists erosion, chemical attack at higher temperatures</li> <li>▪ Metco 8222 and Metco 8237: superior hardness for hardfacing</li> <li>▪ Metco X10 and Metco X28: tough, high alloy steels for dimensional buildup</li> </ul>
Fe 28Cr 5C 5B 0.6Si 0.3Mn	1.62 mm (14 ga)	<b>Metco 8237</b>		
Fe 29Cr 4B 1.75Si	1.62 mm (14 ga)	<b>Metco 8295</b>		
<b>Iron Chromium Nickel with Hard Phase</b>				<a href="#">Data Sheet DSMTS-0068</a>
Fe 26WC 13Cr 6TiC 6Ni 2B 1Si	1.62 mm (14 ga)	<b>Metco 8297</b>	Cored Wire	<ul style="list-style-type: none"> <li>▪ Hard, partially amorphous coatings; resists corrosion, abrasion</li> <li>▪ For metal-earth and metal-metal sliding wear, industrial fan blades, boiler tubes</li> <li>▪ Service up to 538 °C (1000 °F)</li> </ul>
<b>Iron Molybdenum</b>				<a href="#">Data Sheet DSMTS-0063</a>
Fe 21Mo 2C 1B	1.62 mm (14 ga)	<b>Metco 8223</b>	Cored Wire	<ul style="list-style-type: none"> <li>▪ Low cost alternative to pure Mo with higher interparticle cohesion</li> <li>▪ Low friction, resists wear, scuffing</li> <li>▪ For piston rings and shafts, synchronizer rings, transmission ring gears</li> <li>▪ Service up to 340 °C (650 °F)</li> </ul>

# Wires

## Nickel Base

Chemistry	Diameters	Product	Form	Applications	
<b>Nickel (Pure)</b>				<a href="#">Data Sheet DSMTS-0040</a>	
Ni 99.0+	1.62 mm (14 ga) 3.2 mm (1/8 in)	<b>Metco Nickel</b>	Solid Wire	<ul style="list-style-type: none"> <li>Resists alkaline, freshwater, marine and sulfuric acid</li> <li>For salvage, restoration and corrosion resistance on nickel-based substrates, petrochemical equipment</li> </ul>	
<b>Nickel Aluminum</b>				<a href="#">Data Sheet DSMTS-0002</a>	
Ni 5Al	1.62 mm (14 ga)	<b>Metco 8400</b>	Solid Wire	<ul style="list-style-type: none"> <li>Exothermic reaction for exceptionally high bond strength</li> <li>Resists oxidation, particle erosion</li> <li>For bond coats, restoration of machinable carbon and corrosion-resistant steels</li> <li>Metco 8400: general purpose bond coat materials; select Metco 8400 to meet turbine OEM specifications</li> <li>Metco 8447: Mo improves wear resistance</li> <li>Metco 8405, Metco 405-1, Metco 405NS: denser coatings with better oxidation, high temperature corrosion resistance</li> <li>Service up to 650 °C (1200 °F)</li> </ul>	
Ni 5.5Al 5Mo	1.62 mm (14 ga)	<b>Metco 8447</b>	Cored Wire		
Ni 20Al	1.62 mm (14 ga)	<b>Metco 8405</b>			
	3.2 mm (1/8 in)	<b>Metco 405-1</b>			
	3.2 mm (1/8 in)	<b>Metco 405NS</b>			
<b>Nickel Chromium</b>				<a href="#">Data Sheet DSMTS-0052</a>	
Ni 20Cr	1.62 mm (14 ga)	<b>Metco 8450</b>	Solid Wire	<ul style="list-style-type: none"> <li>High structural integrity, density</li> <li>Resists oxidation at elevated temperatures for bond coats and restoration</li> <li>Metco 8450: bond coat in aggressive environments</li> <li>Metco 470 AW, Metco 8276, Metco 8443, Metco 8625: resists oxidation and hot gas corrosion</li> <li>Metco 8500, Metco 8622: for boilers and digesters</li> <li>Metco 470 AW, Metcoloy 33: general purpose machine element restoration</li> </ul>	
Ni 15Cr 16Mo 6Fe 4W 0.5Mn SIMILAR TO HASTELLOY C276	1.62 mm (14 ga)	<b>Metco 8276</b>			
Ni 21Cr 9Mo 4(Nb+Ta) SIMILAR TO INCONEL 625	1.62 mm (14 ga)	<b>Metco 8625</b>			
Ni 43Cr 0.6Ti	1.62 mm (14 ga)	<b>Metco 8500</b>			
Ni 21Cr 14Mo 3W 2.5Fe SIMILAR TO INCONEL 622	1.62 mm (14 ga)	<b>Metco 8622</b>			
Ni 20Fe 19Cr 3Mo 5(Nb+Ta) 1Ti SIMILAR TO INCONEL 718	1.62 mm (14 ga)	<b>Metco 8718</b>			
Ni 22Fe 16Cr	3.2 mm (1/8 in)	<b>Metcoloy 33</b>			
Ni 25Fe 15Cr	1.62 mm (14 ga)	<b>Metco 470 AW</b>			
Ni 18Cr 6Al 2Mn	1.62 mm (14 ga)	<b>Metco 8443</b>			Cored Wire
Ni 50Cr	1.62 mm (14 ga)	<b>Metco 8452</b>			
<b>Nickel Copper (Monel)</b>				<a href="#">Data Sheet DSMTS-0041</a>	
Ni 30Cu	1.62 mm (14 ga) 3.2 mm (1/8 in)	<b>Metco NiCu</b>	Solid Wire	<ul style="list-style-type: none"> <li>Monel-type composition</li> <li>Highly resists seawater, atmospheric corrosion, various acids and alkaline environments</li> <li>Service up to 600 °C (1100 °F)</li> </ul>	

# Wires

## Nickel Base

CONTINUED

Chemistry	Diameters	Product	Form	Applications
<b>Nickel Titanium</b>				<a href="#">Data Sheet DSMTS-0039</a>
Ni 3Ti	1.62 mm (14 ga)	<b>Metco 8448</b>	Solid Wire	<ul style="list-style-type: none"> <li>Exothermic reaction for exceptionally high bond strength</li> <li>Resists corrosion and alkaline environments</li> <li>Excellent bond coat</li> <li>Service up to 800 °C (1470 °F)</li> </ul>

## Silver Base

Chemistry	Diameters	Product	Form	Applications
<b>Silver (Pure) and Silver Alloys</b>				<a href="#">Data Sheet DSMTS-0082</a>
Ag 99.99+	2.3 mm (11 ga)	<b>Metco Silver</b>	Solid Wire	<ul style="list-style-type: none"> <li>Metco Silver for electrical contacts and decorative coatings</li> <li>Metco Silverloy and Silvaloy for soft, turbine compressor abrasives or electrical contacts</li> </ul>
Ag 38Cu 32Zn	1.62 mm (14 ga) 2.3 mm (11 ga) 3.2 mm (1/8 in)	<b>Metco Silverloy</b>		
	3.2 mm (1/8 in)	<b>Silvaloy</b>		

## Tin Base

Chemistry	Diameters	Product	Form	Applications
<b>Tin (Pure) and Tin Alloys</b>				<a href="#">Data Sheet DSMTS-0075</a>
Sn 99.8+	3.2 mm (1/8 in)	<b>Metco Tin</b>	Solid Wire	<ul style="list-style-type: none"> <li>Metco Tin: resists solvents for of glass lined tanks; solderable for electrical connections; EMI/RFI shielding</li> <li>Sprababbitt A: dense, babbitt material suitable for high-speed and heavy-duty bearing surfaces</li> </ul>
Sn 7.5Sb 3.5Cu	1.62 mm (14 ga) 2.5 mm (0.098 in) 3.2 mm (1/8 in) 4.76 mm (3/16 in)	<b>Sprababbitt A</b>		

## Zinc Base

Chemistry	Diameters	Product	Form	Applications
<b>Zinc (Pure) and Zinc Alloys</b>				<a href="#">Data Sheet DSMTS-0010</a>
Zn 99.9+	1.45 mm (15 ga) 1.62 mm (14 ga) 2.0 mm (0.079 in) 2.3 mm (11 ga) 2.5 mm (0.098 in) 3.2 mm (1/8 in) 4.76 mm (3/16 in)	<b>Metco Zinc</b>	Solid Wire	<ul style="list-style-type: none"> <li>Galvanically protects iron and steel in atmospheric and immersed freshwater and saltwater</li> <li>For tanks, bridges, towers, roadway structures, marine and offshore structures</li> </ul>
Zn 15Al	1.62 mm (14 ga) 2.0 mm (0.079 in) 2.5 mm (0.098 in) 3.0 mm (0.118 in) 3.2 mm (1/8 in)	<b>Metco ZnAl</b>		



# Auxiliary Supplies

## Sealers

Form	Service Temperature	Product	VOC	Applications
<b>Sealers</b>				Data Sheet DSMTS-0049
Used to seal the porosity in thermal spray coatings to form a protective barrier to gases and liquids. Recommended for porous coatings, such as ceramics used in liquid or atmospheric chemical environments and metallic coatings with higher nobility than the substrate.				
Phenolic Liquid	up to 205 °C (400 °F)	<b>Metcoseal AP</b>	High	<ul style="list-style-type: none"> <li>Resists many solvents, acidic and atmospheric environments</li> </ul>
Liquid Solvent	---	<b>Metcoseal APT Thinner</b>	High	<ul style="list-style-type: none"> <li>Thinner for Metcoseal AP</li> </ul>
Epoxy Liquid (2 component kit)	up to 150 °C (300 °F)	<b>Metcoseal ERS</b>	None	<ul style="list-style-type: none"> <li>Resists many solvents, basic and atmospheric environments</li> </ul>
Silicone Resin with Aluminum Flake	up to 480 °C (900 °F)	<b>Metcoseal SA</b>	High	<ul style="list-style-type: none"> <li>Protection for aluminum coatings in atmospheric environments</li> </ul>
Urethane Liquid	up to 205 °C (400 °F)	<b>Metcoseal URS</b>	Low	<ul style="list-style-type: none"> <li>Resists many solvents, acidic basic and atmospheric environments</li> </ul>
Petroleum-based Wax Stick	up to 82 °C (180 °F)	<b>Metco 185 Sealer</b>	None	<ul style="list-style-type: none"> <li>Resists most acidic, basic and atmospheric environments</li> </ul>

## Masking Compounds

Form	Service Temperature	Product	VOC	Applications
<b>Liquid Masking Compounds</b>				Data Sheet DSMTS-0053
Water-based Liquid	up to 315 °C (600 °F)	<b>Metco Anti-Bond</b>	None	<ul style="list-style-type: none"> <li>For all thermal spray processes except HVOF or ChamPro™</li> </ul>
Water-based Liquid	---	<b>Metco Masking Compound</b>	None	<ul style="list-style-type: none"> <li>For all thermal spray processes except HVOF, electric arc wire and ChamPro™</li> </ul>

## Masking Tapes

Form	Tape Width	Product	Applications	
<b>Masking Tapes</b>				Data Sheet DSMTS-0036
Fiberglass fabric, double-faced adhesive	25.4 mm (1.0 in)	<b>Metco Flame Spray Masking Tape</b>	<ul style="list-style-type: none"> <li>For all thermal spray processes except HVOF or ChamPro™</li> </ul>	
	38.1 mm (1.5 in)			
Silicon rubber / fiberglass fabric, double-faced silicon adhesive	25.4 mm (1.0 in)	<b>Metco HP Flame Spray Masking Tape</b>	<ul style="list-style-type: none"> <li>For all thermal spray processes except ChamPro™</li> </ul>	
Silicon rubber / fiberglass fabric, double-faced adhesive	12.7 mm (0.5 in)	<b>Amdry T-3312</b>	<ul style="list-style-type: none"> <li>For all thermal spray processes except HVOF or ChamPro™</li> </ul>	
	25.4 mm (1.0 in)	<b>Amdry T-3325</b>		
	50.8 mm (2.0 in)	<b>Amdry T-3350</b>		

# Auxiliary Supplies

## Cleaning (Blast) Media

Chemistry	Particle (Grit)* Size	Product	Manufacture	Applications
<b>Aluminum Oxide Grit</b>				<a href="#">Data Sheet DSMTS-0028</a>
Al <sub>2</sub> O <sub>3</sub> 3.5TiO <sub>2</sub>	-2.36 +1.00 mm (14)	<b>Metcolite 14</b>	Fused & Crushed	<ul style="list-style-type: none"> <li>▪ Relatively coarse, sharp, clean and tough abrasive media</li> <li>▪ To clean and profile substrate prior to thermal spray coating application</li> <li>▪ Select grit size appropriately for the application and surface profile desired</li> </ul>
	-2.00 +0.60 mm (20)	<b>Metcolite C</b>		
	-1.41 +0.42 mm (24)	<b>Metcolite F</b>		
	-0.85 +0.35 mm (36)	<b>Metcolite F36</b>		
	-0.60 +0.17 mm (54)	<b>Metcolite VF</b>		

\* Grit size per U.S. Commercial Standard CS 271-65

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# Notes

# Thermal Spray Materials

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