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SULZER METCO
The Coatings Company™

Metco® Aluminum Wire **Metco Aluminum AW Wire**

Technical Bulletin #10-006

Metco® Aluminum Wire / Metco Aluminum AW Wire

This is a pure aluminum wire manufactured exclusively for flame spraying.

It produces coatings with a number of useful characteristics, such as:

resistance to atmospheric, chemical, and heat corrosion; electrical conductivity; and heat conductivity.

It meets the requirements of the Department of Defense Specification MIL-W-6712B, Table II, Aluminum.

Metco Aluminum Wire can be sprayed with any Metco Metallizing Gun, using any fuel gas, and with Metco Type R and Type 2R Arc Systems.

Applications

A complete list of applications for Metco Aluminum Wire would fill many pages. The following brief list illustrates the versatility of the material.

Atmospheric Corrosion:

Aluminum is anodic to steel and protects by being a sacrificial coating. The aluminum coating has a tendency to form an oxide film which protects it from further attack. It is recommended for use in several different environments. Further detail can be found in Metco Systems specifications and bulletins.

Chemical Corrosion:

Metco Aluminum Wire is recommended for the protection of oil refining equipment, chemical processing equipment, boat bottom interiors exposed to bilge water, fish holds, and many similar exposures. Also see Metco Systems specifications and bulletins.

Heat Corrosion:

Metco Aluminum Wire is used in the fabrication of Metcolized coatings which increase the service life of iron and steel heat-treating equipment from 200% to 800%. See specifications for Metco Systems 11 and 45. It is also used on jet engine combustion chambers and on automobile engine exhaust valves to protect against heat corrosion.

Electrical Conductivity:

Metco Aluminum Wire is used on sections of aircraft fuselages made of fiberglass reinforced plastic, to provide a coating which dissipates static electricity. It is also used for applications such as forming circuits on glass heating panels, providing conducting areas on electrical insulators and capacitors, and many other applications requiring electrical conductivity.

Heat Conductivity:

Metco Aluminum Wire is sprayed on the bottoms of steel kitchen utensils to assure an even flow of heat.

Miscellaneous:

Metco Aluminum Wire is also used to produce reflective surfaces, to fill blow-holes in aluminum castings, for coating nails and screws, for spraying cloth in the manufacture of electrolytic condenser plates, and for decorative purposes.

Typical Composition

Aluminum 99.0+%

Physical Properties

Melting point:	660°C	(1220°F)
Typical macrohardness:	Rh80	
Shrink, inches:	.0068	
mm:	.173	
Coating tensile strength, psi:	19,500	
N/cm²:	13,440	
Density, gm/cc:	2.41	

Tensile bond strength: (on cold-rolled steel)

Over grit blast, psi:	1030
N/cm²:	710
Full Metco method, psi:	2140
N/cm²:	1475
Over Sprabond Wire, psi:	1640
N/cm²:	1130
Thread & Sprabond, psi:	2400
N/cm²:	1655

Spraying

Parameters for spraying Metco Aluminum Wire are shown in the Metco Gun Instruction Manual.

Finishing

Coatings of Metco Aluminum can be machined with either high-speed or carbide tools. Use the parameters in Vol. I of the Flame Spray Handbook under "Finishing".

Coatings can also be sanded, polished, or burnished.

Safety Measures

Flame spraying is a completely safe process when performed in accordance with “Metco’s Safety Measures”. Familiarize yourself with local safety regulations before starting spraying operations. DO NOT operate your spraying equipment or use the spray material supplied before you have thoroughly read the Metco Instruction Manual.

Disregarding These Instructions May Be Dangerous To Your Health.

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