APPLICATION AND USE OF ULTRA FINE COPPER POWDER

Copper Powder is one of the most used materials in Powder Metallurgy. The Ultra Fine Copper Powder underlying to the digital asset UCP MBX is a highly Electro-Conductive material with excellent mixing, pressing and sintering qualities.

Particularly useful for Electronic applications such as conductive fillers and EMI shielding film (usually as a paste mixed with Silver Powder). In addition, due to the low melting point of Copper, Ultra Fine Copper Powder is often used in the aerospace field to make Rocket Nozzles. In terms of medical treatment, Ultrafine Copper Powder also plays an important role in the treatment of diseases such as osteoporosis and fractures. It is suitable for processing into the more expensive, and more niche Nano-sized Copper Powder.

Furthermore, the areas of application for copper powders are currently growing significantly and are no longer restricted to powder metallurgy. Due to its high electrical and thermal conductivity, copper powder is actively used in almost all areas of technology and its area of application is constantly being expanded.

THE TWO MOST USED TYPES

1. Atomized Copper Powder

Suitable for most powder metallurgy applications because it has a high flow rate and good strength. It can be used in electronic and electrical applications requiring high conductivity provided high purity copper powder is specified. Hydrometallurgical processing generally yields a powder having fine particle sizes, low apparent density and high strength. With these properties, it is particularly suited for use in friction materials. Powders produced by solid-state reduction have characteristics similar to those of atomized powders and are suitable for the same applications.

2. Electrolytic Copper Powder

Because of its high purity, is particularly suited for Powder Metallurgy components in the Electronic and Electrical Industries where high electrical and thermal conductivities are required. However, it is suitable for most other Powder Metallurgy applications as well. Copper, after gold and Silver, is the best Electro-conductive material. Demand for Copper will continue to increase in particular because of the global transition to a more environmentally friendly power generation and the electrification of automobiles. Our U ultra Fine Copper Powder which is produced through Electrolysis and further purifying has exceptionally high purity making it an even better Material for any electrical applications.

Copper Powder is one of the most used metals in Powder Metallurgy:

CONDUCTIVE COATINGS

Conductive coatings are being rapidly developed along with advances in science and technology. At present, the main fillers are carbon, silver, copper, nickel, and composite. As a conductive filler in electromagnetic wave shielding coatings, copper powder has high electrical conductivity and a relatively low price.

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Chemical industry (e.g. in the production of Catalysts for the complete Oxidation of Hydrocarbons): Ultrafine copper powder is fine and uniform in particle size and has high surface activity. It is used to manufacture high- efficiency catalysts. For example, in the process of Automobile Exhaust Gas purification, Ultra Fine Copper Powder partially replaces precious metals such as platinum and rhodium as a catalyst, converting toxic carbon monoxide into Carbon Dioxide and converting Nitrogen Monoxide into Nitrogen Dioxide. Ultrafine Copper Powder has high Catalytic Activity and is also used as a Catalyst in the reaction process of Carbon Dioxide and Hydrogen Synthesis of Methanol.

The Nano Copper particles catalyzed the Polymerization of Acetylene and achieved satisfactory results.

LUBRICANTS

Ultra Fine Copper Powder is dispersed in various lubricating oils in a suitable manner to form a stable suspension, which can be an excellent lubricant that greatly reduces the wear and friction of materials and equipment, especially at heavy loads and low speeds. It plays a more significant role in high temperature vibration and plays an extremely important role in protecting materials and equipment. For example, copper sulfate pentahydrate is used as the main raw material to prepare Nano-Copper Powder. Its anti-wear and anti-friction properties are stronger than traditional lubricating oils, and it has become an anti-wear and anti-friction additive for a new generation of lubricating oil.

Electronics and Conductive Materials (in particular Micro-Electronics and Conductive Oils) like:

Carbon brushes
Brake and friction lining
Welding electrodes
Diamond tooling
Plastic fillers
Spark plugs
Pyrotechnics
Vacuum switches
Welding, Brazing and Joining
Cold Casting
Cold Metal Spraying
Anti Fouling Paints
Medical purposes
Nonstructural applications such as mechanical plating (e.g. for Medals and Medallions)
Metal-Plastic Decorative Products
3D Metal Printing
Army and Military

CONCLUSION

It can be said that Ultra Fine Copper Powder has many excellent properties different from conventional materials of the same composition due to its small size effect, surface interface effect, quantum scale effect, and quantum tunneling effect, and is widely used in mechanics, electricity, chemistry, and other fields.