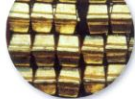




MAKIN METAL POWDERS
(UK) LIMITED

**Copper and Copper Alloy Powders
WORLDWIDE**



MAKIN METAL POWDERS (UK) LIMITED

INTRODUCTION

Launched in September 2009, we occupy a purpose built 10,000 sqm production facility. Our employees have a long history and a wealth of experience in the copper powder industry with an association stretching back more than 60 years.

MAKIN METAL POWDERS (UK) Ltd is one of the largest producers of copper and copper alloy powders in Europe.

We are a truly International business, exporting over 70% of our products to Europe, the Far East and the USA. Our advanced and highly specialised powders provide the raw material for precision components with key applications throughout the powder metallurgy, automotive, friction, carbon brush, filter and various other industries.



INVESTMENT

Our solid base for the future

With a long association in this industry going back more than half a century, Makin Metal Powders (UK) Ltd is not only one of the most experienced producers of metal powders in the world, today we are arguably one of the most modern and efficient.

Substantial investments made in plant, equipment and infrastructure in recent years gives us leading edge development and production facilities, protects and strengthens our ability to compete and grow in highly developed world markets and allows us to be flexible and responsive to our Customers' requirements. Through reacting swiftly to customer needs, market trends and creating special solutions, we aim to become the recognised world leader and innovator in copper and bronze powder manufacture and technology.

REACHING THE CUSTOMER

A worldwide network

To effectively service world markets we have at our Head Office in the UK a dedicated Customer Service department. Also, our carefully selected worldwide network of Agents is given special training in our powders and their various end uses and applications. We are in constant communication with all our agents to ensure rapid response and flow of information and first class customer care.

Expert technical support is an integral part of our service. Every new product enquiry, whether through our Agents or direct to MMP (UK) Ltd, is first reviewed and assessed by our Sales and Technical teams prior to developing the most appropriate, efficient, cost-effective samples for testing.

QUALITY

Built in to the production process

All our systems and processes are ISO9001 and ISO14000 accredited. Investment in the latest processing technology and our stringent process control systems ensure exceptionally good batch to batch consistency. The entire process is continually monitored as part of our ongoing improvement programme and, as a measure of its efficiency, core products are available on very short production lead times.





MAKIN METAL POWDERS (UK) LIMITED

IRREGULAR COPPER POWDERS

NORMAL LOW DENSITY (NLD) AND HYMOD (H TYPE)

These products display low to medium Apparent Density and facilitate good green strength. Various grades are available to meet specific requirements. Used in dynamo, electric motor and alternator brushes, as a catalyst and in iron powders as an additive. Widely used in sintered parts formulations.

IRREGULAR BRONZE POWDERS

Water atomised in various alloy compositions and grades for use in high density powder metallurgy parts, brake linings, porous bearings and diamond tool matrices. Also used in bronze press-ready premix formulations. Widely used in PTFE bearing compounds.

SPHERICAL COPPER POWDERS

For use in the manufacture of diamond tools and composite discs; cold casting decorative work; metal spraying and anti-fouling paint formulations.

SPHERICAL BRONZE POWDERS

A variety of alloy compositions including 89/11 Cu/Sn air atomised spherical powders with narrow particle size distribution for use in manufacture of filters. Also used in the diamond tool industry, PTFE bearing compounds and artistic cold cast figures.

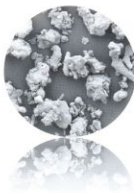
DENDRITIC COPPER POWDERS

FINE GRADES (0-53 micron)

These powders have applications in sintered friction materials, metal carbon brushes, diamond tool setting, anti-fouling paint formulations and cold cast resins.

STANDARD GRADES (0-150 micron)

Powder metallurgy applications e.g. used with tin powder for production of bronze bearings.



IRREGULAR COPPER POWDERS

PRODUCT GROUP	CHEMICAL COMPOSITION %	APPARENT DENSITY g/cc	PARTICLE SIZE μm
Irregular Copper Powder	Cu>99.0	3.0 +/- 0.5	<150
Irregular Copper Powder	Cu>99.0	2.8 +/- 0.3	<63
Irregular Copper Powder	Cu>99.0	2.8 +/- 0.3	<45

IRREGULAR BRONZE POWDERS

PRODUCT GROUP	CHEMICAL COMPOSITION %	APPARENT DENSITY g/cc	PARTICLE SIZE μm
Irregular Bronze Powder	Sn10 - 20	2.6 to 3.6	<150 <63 <45

SPHERICAL COPPER POWDERS

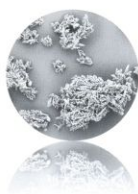
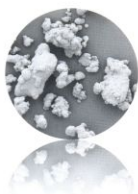
PRODUCT GROUP	CHEMICAL COMPOSITION %	APPARENT DENSITY g/cc	PARTICLE SIZE μm
Spherical Copper Powder	Cu>99.3	5.0 +/- 0.2	<150
Spherical Copper Powder	Cu>99.3	5.0 +/- 0.3	<63
Spherical Copper Powder	Cu>99.3	5.0 +/- 0.5	<45

SPHERICAL BRONZE POWDERS

PRODUCT GROUP	CHEMICAL COMPOSITION %	APPARENT DENSITY g/cc	PARTICLE SIZE μm
Spherical Bronze Powder	Sn11 - 20	5.0 +/- 0.5	<75 <45

DENDRITIC COPPER POWDERS

PRODUCT GROUP	CHEMICAL COMPOSITION %	APPARENT DENSITY g/cc	PARTICLE SIZE μm
Dendritic Copper (Heavy)	Cu>99.7	>2.0	<150
Dendritic Copper (Medium)	Cu>99.5	1.5 +/- 0.5	<150
Dendritic Copper (Light)	Cu>99.4	<1.0	<63
Dendritic Copper (Medium)	Cu>99.5	1.7 +/- 0.5	<45



TIN POWDERS

PRODUCT GROUP	CHEMICAL COMPOSITION %	APPARENT DENSITY g/cc	PARTICLE SIZE μm
Tin Powder	Sn>99.7	4.1 +/- 0.3	<150
		4.0 +/- 0.2	<75
		4.0 +/- 0.2	<53
		4.0 +/- 0.2	<45
		4.0 +/- 0.2	<25

BRASS POWDERS

PRODUCT GROUP	CHEMICAL COMPOSITION %	APPARENT DENSITY g/cc	PARTICLE SIZE μm
Irregular Brass Powder	Zn10 - 40	3.3 +/- 0.3	<150 <75 <1180
Spherical Brass Powder	Cu90/Zn10	5.0 +/- 1.0	<106

PREMIX POWDERS

PRODUCT GROUP	CHEMICAL COMPOSITION %	APPARENT DENSITY g/cc	DIMENSIONAL CHANGE %
Large Shrinkage	Cu90/Sn10	2.0 - 3.0	-2.0 to -0.8
Medium Shrinkage	Cu90/Sn10	2.5 - 2.8	-0.7 to -0.5
Low Shrinkage	Cu90/Sn10	2.5 - 3.5	-0.5 to 0
MP-01	Cu90/Sn10	2.8 +/- 0.1	-0.2 to 0.2
MP-02	Cu90/Sn10	2.8 +/- 0.1	-0.3 to 0.3
Low Growth	Cu90/Sn10	2.5 - 3.5	0 to 0.7
Medium Growth	Cu90/Sn10	2.7 - 3.5	0.5 to 1.2
High Growth	Cu90/Sn10	2.8 - 3.6	1.5 to 3.5
Low Growth High S/S	Cu90/Sn10	2.0 - 2.5	-1.2 to -0.5
High Growth High G/S	Cu90/Sn10	2.5 - 3.5	0.5 to 1.2

SPECIALITY MATERIALS

PRODUCT GROUP	CHEMICAL COMPOSITION %	APPARENT DENSITY g/cc	PARTICLE SIZE μm
XF-3M Non Residue Infiltrant	Cu>97.0	2.7 Min	<180
XF-6M Residue Infiltrant	Cu>92.5	2.7 Min	<180
Dairy Metal Spherical Bronze	Cu67/Sn5/Ni27	-	<150
Irregular Zinc Bronze Powder	Cu88/Sn10/Zn2	3.3 +/- 0.3	<45
Dendritic Bronze Powder	Cu90/Sn10	1.6 +/- 0.3	<150
Dendritic Zinc Bronze Powder	Cu88/Sn10/Zn2	2.0 +/- 0.5	<150

TIN POWDERS

Spheroidal particle powders are manufactured using high purity refined tin. Several fractions are available for use in a variety of applications including in blends with other powders for pressed and sintered parts.

BRASS POWDERS

Lead-free, atomised powders of various sieve fractions and compositions used in friction materials, sintered parts and decorative applications.

PREMIX POWDERS

Press-ready premix powders formulated to customers individual requirements in terms of alloy composition, dimensional change characteristics, apparent density, green and sintered strengths. Lubricants added according to processing requirements.

PREMIX ADVANTAGES

- Minimal dimensional change variation
- No segregation
- Reduced dimensional change sensitivity to sintering temperature variations
- Elimination of in-plant mixing
- Minimum variation
- Reduced stock levels
- Reduced scrap
- 25 kgs to 1000 kgs packaging options

SPECIALITY MATERIALS

INFILTRANT GRADES

A range of formulations available to meet specific requirements to impart enhanced properties to sintered iron components with excellent efficiency, minimal erosion and precise control.

DAIRY METAL (Cu/Ni/Sn)

Manufacture of filters for foodstuffs and pharmaceuticals.

BRAZING ALLOYS

Alloys of mainly copper, tin and phosphorus for use in welding and brazing pastes.

ULTRA-FINE POWDERS

Particle sizes with a nominal d(0.50) of 5, 10 and 20 microns.

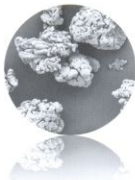


DEVELOPMENT

The flair and flexibility you need

In addition to core products, many of our powders are individually formulated to meet specific customer requirements. We work closely with world-renowned partners; our advanced laboratory facilities match industry standards, provide full physical and chemical testing, and accurately simulate the powder engineering process. In this way we can be a vital part of your product development programme, creating the powders that will help you to successfully exploit new market opportunities.

Large or small volumes, we have the capacity and flexibility to supply "standard" and specialty powders.



CONTACT US

We hope this short overview of MAKIN METAL POWDERS (UK) LTD has brought our products, capabilities, markets and corporate aims and credentials into clear focus.

Our modern production facility in Rochdale lies close to the North West motorway system, and is only 30 minutes from Manchester International Airport.

For advice on how our powders and technical expertise can benefit your business, please phone, fax or email directly to Makin or alternatively contact our local Agent (details can be found on our website).



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