

Antimicrobial
Copper



ICA Antimicrobial Copper Logo and Cu+ Mark

Conditions of Use

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Download interactive application forms:

- [Application Form - Product Manufacturer/Supplier](#)
- [Application Form - Semi-finished Product Manufacturer/Supplier](#)
- [Application Form - Service Provider](#)

1. Introduction

During the last 20 years, research into the antimicrobial characteristics of copper and copper alloys has proven the efficacy of copper against a number of pathogens. These published and peer reviewed data are now sufficiently powerful to have formed the basis for clinical trials in a number of countries investigating the practical aspects of installing copper in hospital environments and, again, the results are very positive. In 2009 the installation of copper and copper alloy products proceeded in healthcare facilities across the world. As new research emerges, a host of different evidence-based applications are envisaged.

As the global industry representative, the International Copper Association (ICA), working with New York-based Copper Development Association Inc, has established a Brand containing both Service and Certification Marks (the 'Antimicrobial Copper Marks' or the 'Marks'). The Antimicrobial Copper Marks ensure that International Copper Association, and its global network of Copper Centres, addresses stewardship with regard to the deployment of copper and copper alloys in the field. The use of the Antimicrobial Copper Marks by an organisation indicates that the organisation has received permission to do so based upon their adherence to particular rules, outlined in this document. These rules guide that organisation's understanding of the underlying technology and the way they promote, advise and deploy it in line with existing research, regulatory and legislative requirements. The Marks are designed to highlight accredited products and suppliers and to assist specifiers and end users in procurement of products and services.

Service Mark	 The logo for the Antimicrobial Copper Service Mark. It features the text "Antimicrobial Copper" in a brown, sans-serif font on the left. To the right is a brown square containing the white text "Cu ⁺ " with a small "TM" trademark symbol at the bottom right.
Certification Mark	 The logo for the Cu+ Certification Mark. It consists of a brown square containing the white text "Cu ⁺ " with a small "TM" trademark symbol at the bottom right.

2. Defined Standards and Characteristics

The Certification Mark indicates that products bearing the Certification Mark are made from approved antimicrobial copper alloys intended for use in appropriate environments and are provided by suppliers that have agreed to meet the technical requirements of the registration scheme.

3. Commercial

3.1. License Agreement

- 3.1.a This document should be considered in conjunction with the License Agreement, which together form a whole; it summarises the technical requirements and key commercial considerations. The License Agreement will be provided once an initial assessment of an application has been made.

3.2. Fee structure

- 3.2.a ICA reserves the right to charge an administration fee for use of the Antimicrobial Copper and Cu+ Marks.
- 3.2.b All members of the ICA Network, at national, regional and global levels, will have this fee waived at this time.
- 3.2.c Non-members of the ICA Network will be asked to pay an annual administration fee for use of the Marks.
- 3.2.d The intention is to use fees gathered to cover administration costs and support local promotion of the Antimicrobial Copper Marks.
- 3.2.e ICA reserves the right to review fees annually.
- 3.2.f This agreement will run for 12 months from the start of each calendar year (or as separately agreed) and is renewable automatically on payment of the fee.
- 3.2.g All Mark users will be automatically enrolled into an Antimicrobial Copper newsgroup for circulation of news and updates.

3.3. Organisation types

Licensed companies and organisations are permitted to use the Marks as below:

- 3.3.a Companies and organisations that supply end-use products, components or equipment may use the Certification Mark on finished products. They may also use the Certification Mark in marketing materials, but only to illustrate and explain the purpose of the Certification Mark. These companies and organisations may also use the Service Mark in promotional materials and to explain the Service Mark.
- 3.3.b Complementing organisations and other organisations within the copper supply chain may use the Service Mark in promotional materials and to explain the Service Mark. Complementing organisations and other organisations within the copper supply chain may also use the Certification Mark in marketing materials, but only to illustrate and explain the purpose of the Certification Mark.
- 3.3.c Companies within the copper supply chain may be:
- producers
 - alloy makers
 - semi fabricators
 - product, component or equipment manufacturers.

3.3.d Complementing organisations, supporting the use of products as detailed in Section 4 herein, may be:

- architects, designers
- healthcare contractors
- final end users.

3.4. Geographical

Multinational and multiregional agreements are possible and organisations should apply for these to their local Copper Centre.

3.5. Use of Marks

3.5.a It is a requirement that a licensee ensures they are complying with the latest version of the Brand Identity Guidelines. These can be found at www.antimicrobialcopper.org. ICA will endeavour to make changes known via the Antimicrobial Copper newsgroup, but the onus remains with the licensee.

3.5.b Marketing claims may be restricted in different regions due to regulatory or legislative limitations.

3.5.c All marketing material must be presented to the local Copper Centre prior to publication to ensure technical accuracy and correct application of the Marks.

3.5.d We reserve the right to not allow use of the Marks if the product or component may cause confusion in the field as to what the Mark is identifying, e.g. if it is manufactured or installed alongside, or close to, other materials.

3.5.e The Mark should only be applied to the approved alloy, see 4.1.a. Where the approved alloy component forms only part of a product, this must be clearly stated and explained in any marketing materials/product information.

3.6. Withdrawal of rights

3.6.a Permission to use the Marks will be withdrawn if a user is deemed to be applying the Marks inappropriately, and specifically if the Marks are associated with:

- products not designed or expected to be deployed in a relevant environment
- non-approved alloys
- non-approved material forms
- inappropriate claims.

3.6.b Warnings will be issued prior to withdrawal of the rights in the expectation that organisations will correct inadvertent misuse. The organisation will have two weeks to remove or modify the inappropriate material, after which time permission to use the Marks will be removed without compensation.

4. Technical

4.1. Product types

A 'product' may be a single, solid alloy item or any of a set of assembled components; the term 'product' is used throughout this document to refer to both unless a component part of a set is specifically being referred to. Types and forms of product permitted to use the Marks must meet EACH of the following requirements:

4.1.a be designed, or expected to be deployed, as touch or environmental surfaces in a relevant environment. Secondary, e.g. not primary touch or environmental, components may be made from alternative materials to suit manufacturing requirements

and

4.1.b made from an approved alloy ¹ including:

- solid metal and alloy
- fully dense (>99.0%), sintered powder metallurgy (PM) or metal injection moulded (MIM) parts, manufactured from inert gas atomised 100% copper or copper alloy powder
- cladding, including non-metallic substrates
- foils ²

but excluding:

- coatings
- composites
- electroplated products.

and

4.1.c all materials must have an international or national alloy designation or, for proprietary alloys, a written internal manufacturing specification.

and

4.1.d all alloys used must be able to demonstrate antimicrobial efficacy according to testing deemed by the *Antimicrobial Copper Technical Committee* to be relevant and appropriate to the intended application (e.g. those tests developed for Registration by EPA or other national standard), or be alloys which are deemed to have quantitatively demonstrated antimicrobial efficacy in appropriate clinical or field trials.

4.2. Quality control

4.2.a All supplying organisations must have a project traceability system and should also have a documented Quality Management System and details of these should be provided on the application form.

4.3. Comparisons within the brand

4.3.a Making claims about efficacy comparisons between alloys, as long as these are supported with quantitative scientific data, deemed adequate and appropriate, are allowable.

4.4. Surface treatments

4.4.a Products with surface treatments are not allowed.

4.4.b In-process, high temperature oxidation must be removed, e.g. by acid etching, prior to deployment in the field.

4.4.c Process chemicals, additives and other products, whether applied in the primary mill or during product manufacture, must be removed by suitable cleaning procedures e.g. vapour degreasing or mildly alkaline hot wash.

The addition of benzotriazole (BTA) as a transitory corrosion inhibitor is specifically excluded from this clause as subsequent processing or normal cleaning will remove it quickly from finished products.

4.4.d To date there are no restrictions on mechanically treated surface finishes.

Notes to Technical

- 1 The primary EPA list (see Appendix 1) constitutes the basis for approval of alloys. As alloy designations will vary by country, local cross-reference lists are available or under development.
- 2 Foils must be sufficiently durable for the intended application; it is unlikely that foil thickness below 0.15 mm (0.006") will be sufficiently robust to have a 30-year lifetime. However, this will depend upon specific application conditions and the product manufacturer should provide their reasoning to the *Antimicrobial Copper Technical Committee*, via their local Copper Centre, before applying the Mark.

5. Country-specific Conditions

5.1. Greece

Those wishing to use the Mark must obtain a certificate of antimicrobial efficacy for their products from the Medical School of Athens University.

5.2. USA

5.2.a Those marketing antimicrobial copper alloys or products based on those alloys, who make claims related to the antimicrobial performance of copper, must be registered with the US EPA. Registrations are managed by CDA Inc.

5.2.b Guidance on approved products can be found at www.antimicrobialcopper.org

5.2.c All alloys marketed and sold in the US based on antimicrobial properties must be on the list of alloys registered with the US EPA for making antimicrobial public health claims.

5.2.d EPA does not allow claims to be made for materials with surface treatments.

5.3. Other Countries

5.3.a Local regulatory requirements may exist before a supplier can market their products in a given country. These should be investigated and must be complied with prior to attempting to take products to a new market. Where a clear regulatory path exists, the local Copper Centre will advise.

Appendix 1

List of EPA registered alloys

The US Environmental Protection Agency (EPA) has allowed the registration of a number of copper alloys as public health antimicrobial products.

The list on the next page is organised by the Unified Numbering System (UNS), the US national alloy designation system. These alloys may be marketed anywhere in the world but only alloys conforming to these exact specifications may be marketed as antimicrobial in the US (see also Appendix 1a).

In addition, the alloy fabricator must obtain an EPA registration, as well as be registered in each of the fifty states where they intend to market their alloys or where the products made from these alloys will be sold. Contact Copper Development Association Inc. in the US for assistance.

List of EPA Registered Alloys (UNS Numbers)											
C10100	C14180	C17450	C19710	C42000	C51080	C62800	C66700	C70600	C81100	C89580	C99761
C10200	C14181	C17460	C19720	C42100	C51100	C63000	C66850	C70610	C81200	C89720	C99780
C10300	C14200	C17500	C19750	C42200	C51180	C63010	C66900	C70620	C81300	C89833	
C10400	C14210	C17510	C19800	C42210	C51190	C63020	C66908	C70690	C81700	C89835	
C10500	C14300	C17520	C19810	C42220	C51800	C63200	C66910	C70700	C81800	C89842	
C10700	C14310	C17530	C19900	C42500	C51900	C63230	C66913	C70800	C82000	C89845	
C10800	C14400	C17600	C19910	C42520	C51980	C63280	C66915	C70900	C82100	C89940	
C10900	C14410	C17700	C20500	C42600	C52100	C63300	C66920	C71000	C82200	C90280	
C10910	C14415	C18620	C21000	C43000	C52180	C63380	C66925	C71100	C82400	C90400	
C10920	C14420	C18625	C22000	C43400	C52400	C63400	C66930	C71110	C82500	C90410	
C10930	C14430	C18660	C22600	C43500	C52480	C63700	C66950	C71300	C82510	C90420	
C10940	C14440	C18661	C23000	C43600	C52600	C63800	C68300	C71500	C82600	C90430	
C11000	C14500	C18665	C23030	C43800	C52900	C63900	C68350	C71520	C82700	C94700	
C11010	C14510	C18835	C23400	C44200	C55180	C64200	C68400	C71580	C82800	C95200	
C11020	C14520	C18900	C24000	C44250	C55181	C64210	C68410	C71581	C83460	C95210	
C11025	C14530	C18910	C25000	C44300	C55280	C64250	C68700	C71590	C83470	C95220	
C11030	C14700	C18980	C25600	C44400	C55281	C64400	C68800	C71600	C84000	C95300	
C11040	C14710	C19000	C26000	C44500	C55282	C64700	C68900	C71630	C84010	C95400	
C11045	C14750	C19002	C26100	C44750	C55283	C64710	C69000	C71640	C84020	C95410	
C11100	C15000	C19010	C26130	C45450	C55284	C64720	C69050	C71700	C84030	C95420	
C11300	C15100	C19015	C26200	C45470	C55285	C64725	C69100	C72500	C85450	C95430	
C11400	C15150	C19020	C26800	C46210	C55385	C64727	C69150	C72600	C85470	C95500	
C11500	C15500	C19022	C27000	C46250	C55386	C64728	C69200	C72650	C85550	C95510	
C11600	C15600	C19024	C27200	C49250	C60600	C64730	C69220	C72660	C85900	C95520	
C11700	C15650	C19025	C27400	C49260	C60700	C64740	C69230	C72700	C85910	C95600	
C11900	C15710	C19027	C28000	C49300	C61000	C64745	C69250	C72800	C85920	C95700	
C11904	C15715	C19030	C28300	C49340	C61200	C64750	C69300	C72900	C85930	C95710	
C11905	C15720	C19040	C28310	C49350	C61300	C64760	C69310	C72950	C86350	C95720	
C11907	C15725	C19050	C28320	C49355	C61400	C64770	C70100	C73100	C87300	C95800	
C12000	C15730	C19170	C28330	C49360	C61500	C64780	C70200	C73200	C87500	C95810	
C12100	C15735	C19200	C40400	C50100	C61550	C64785	C70230	C73500	C87600	C95820	
C12200	C15750	C19210	C40410	C50150	C61600	C64800	C70240	C73800	C87610	C95900	
C12210	C15760	C19215	C40500	C50200	C61700	C64900	C70250	C74000	C87700	C96200	
C12220	C15780	C19220	C40800	C50500	C61800	C65100	C70252	C74300	C87710	C96300	
C12300	C15790	C19240	C40810	C50510	C61810	C65300	C70260	C74400	C87800	C96400	
C12500	C15815	C19250	C40820	C50580	C61900	C65500	C70265	C74500	C87845	C96600	
C12510	C15900	C19260	C40850	C50590	C62000	C65600	C70270	C75200	C87850	C96700	
C12700	C16200	C19280	C40860	C50700	C62200	C65620	C70275	C75700	C87860	C96800	
C12800	C16210	C19300	C40950	C50705	C62300	C65800	C70280	C75720	C87870	C96900	
C12900	C16400	C19400	C41000	C50710	C62400	C66200	C70290	C76400	C89320	C96950	
C13100	C16500	C19410	C41100	C50715	C62500	C66300	C70300	C80100	C89510	C96970	
C13150	C17000	C19419	C41110	C50725	C62580	C66400	C70310	C80300	C89520	C99300	
C13400	C17200	C19450	C41120	C50780	C62581	C66410	C70350	C80410	C89537	C99400	
C13500	C17400	C19500	C41125	C50800	C62582	C66420	C70370	C80500	C89550	C99500	
C13600	C17410	C19600	C41300	C50900	C62600	C66430	C70400	C80700	C89560	C99710	
C13700	C17420	C19700	C41500	C51000	C62730	C66500	C70500	C80900	C89570	C99760	

Appendix 1a

EPA Registered Alloys vs Close European and ISO Equivalents

Note: for marketing in the US the exact limits should be verified against those of the equivalent UNS specification as some elemental ranges are not identical.

UNS number	European symbol	European number	ISO
C10100	Cu-OFE	CW009A	Cu-OFE
C10200	Cu-OF	CW008A	Cu-OF
C10400	CuAg0,04(OF)	CW017A	CuAg0,05(OF)
C10500	CuAg0,04(OF)	CW017A	CuAg0,05(OF)
C10930	CuAg0,04(OF)	CW017A	CuAg0,05(OF)
C11000	Cu-ETP	CW004A	Cu-ETP
C11020	Cu-FRHC	CW005A	Cu-FRHC
C11025	Cu-FRHC	CW005A	Cu-FRHC
C11040	Cu-ETP-1	CW003A	-
C11400	CuAg0,04	CW011A	CuAg0,05
C11500	CuAg0,07	CW012A	-
C11600	CuAg0,10	CW013A	CuAg0,1
C12000	Cu-DLP	CW023A	Cu-DLP
C12100	CuAg0,10P	CW016A	CuAg0,1(P)
C12200	Cu-DHP	CW024A/CR024A	Cu-DHP
C12210	Cu-DHP	CW024A/CR024A	Cu-DHP
C12220	Cu-C Grade A, Cu-C Grade B, Cu-C Grade C	CC040A/A, CC040A/B, CC040A/C	-
C12300	Cu-DHP	CW024A/CR024A	-
C12500	Cu-FRTP	CW006A	Cu-FRTP
C14500	CuTeP	CW118C	CuTe(P)
C14510	CuTeP	CW118C	CuTe(P)
C14520	CuTeP	CW118C	CuTe(P)
C15000	CuZr	CW120C	-
C16200	CuCd1,0	CW131C	CuCd1
C17000	CuBe1,7	CW100C	CuBe1.7
C17200	CuBe2	CW101C	CuBe2
C17500	CuCo2Be	CW104C	CuCo2Be
C17510	CuNi2Be	CW110C	CuNi2Be
C18665	CuMg0,5	CW128C	-
C19000	CuNi1P	CW108C	-
C19400	CuFe2P	CW107C	-
C21000	CuZn5	CW500L	CuZn5
C22000	CuZn10	CW501L	CuZn10
C23000	CuZn15	CW502L	CuZn15
C23400	CuZn15	CW502L	CuZn15
C24000	CuZn20	CW503L	CuZn20
C25600	CuZn28	CW504L	-
C26000	CuZn30	CW505L	CuZn30
C26130	CuZn30As	CW707R	CuZn30As
C26800	CuZn33	CW506L	CuZn33
C27000	-	-	CuZn35
C27200	CuZn36	CW507L	-
C27400	CuZn37	CW508L	CuZn37
C28000	CuZn40	CW509L	CuZn40
C42500	CuSn3Zn9	CW454K	-
C43600	CuZn19Sn	CW701R	-

UNS number	European symbol	European number	ISO
C44300	CuZn28Sn1As	CW706R	CuZn28Sn1
C51000	CuSn5	CW451K	CuSn5
C51100	CuSn4	CW450K	CuSn4
C51900	CuSn6	CW452K	CuSn6
C52100	CuSn8	CW453K	CuSn8
C61400	CuAl8Fe3	CW303G	CuAl8Fe3
C61800	CuAl10Fe1	CW305G	-
C63000	CuAl10Ni5Fe4	CW370G	CuAl10Ni5Fe4
C63020	CuAl10Ni5Fe4	CW370G	CuAl10Ni5Fe4
C63380	CuMn11Al8Fe3Ni3-C	CC212E	-
C64200	CuAl7Si2	CW302G	CuAl7Si2
C64210	CuAl7Si2	CW302G	CuAl7Si2
C64700	CuNi2Si	CW111C	CuNi2Si
C65100	CuSi1	CW115C	CuSi1
C65500	CuSi3Mn1	CW116C	CuSi3Mn1
C65600	CuSi3Mn1	CW116C	CuSi3Mn1
C68700	CuZn20Al2As	CW702R	CuZn20Al2
C69100	CuZn13Al1Ni1Si1	CW700R	-
C69300	CuZn21Si3P	CW724R	-
C70250	CuNi3Si1	CW112C	-
C70252	CuNi3Si1	CW112C	-
C70260	CuNi1Si	CW109C	CuNi1Si
C70600	CuNi10Fe1Mn	CW352H	CuNi10Fe1Mn
C70610	CuNi10Fe1Mn	CW352H	CuNi10Fe1Mn
C70620	CuNi10Fe1Mn1-B, CuNi10Fe1Mn1-C	CB380H, CC380H	-
C71300	CuNi25	CW350H	CuNi25
C71500	CuNi30Mn1Fe	CW354H	CuNi30Mn1Fe
C71520	CuNi30Mn1Fe	CW354H	CuNi30Mn1Fe
C71640	CuNi30Fe2Mn2	CW353H	CuNi30Fe2Mn2
C72500	CuNi9Sn2	CW351H	CuNi9Sn2
C75200	CuNi18Zn20	CW409J	CuNi18Zn20
C75700	CuNi12Zn24	CW403J	CuNi12Zn24
C80100	Cu-C Grade A, Cu-C Grade B, Cu-C Grade C	CC040A/A, CC040A/B, CC040A/C	-
C80410	Cu-OF	CW008A	Cu-OF
C81100	Cu-C Grade A, Cu-C Grade B, Cu-C Grade C	CC040A/A, CC040A/B, CC040A/C	-
C81200	Cu-C Grade A, Cu-C Grade B, Cu-C Grade C	CC040A/A, CC040A/B, CC040A/C	-
C87800	CuZn16Si4-B, CuZn16Si4-C	CB761S, CC761S	-
C95200	CuAl10Fe2-B, CuAl10Fe2-C	CB331G, CC331G	CuAl10Fe3
C95210	CuAl10Fe2-B, CuAl10Fe2-C	CB331G, CC331G	CuAl10Fe3
C95500	CuAl10Ni5Fe4	CW307G	CuAl10Ni5Fe4
C95520	CuAl10Fe5Ni5-B, CuAl10Fe5Ni5-C	CB333G, CC333G	CuAl10Fe5Ni5
C95700	CuMn11Al8Fe3Ni3-C	CC212E	-
C95710	CuMn11Al8Fe3Ni3-C	CC212E	-
C95800	CuAl10Fe5Ni5-B, CuAl10Fe5Ni5-C	CB333G, CC333G	CuAl10Fe5Ni5
C95810	CuAl10Fe5Ni5-B, CuAl10Fe5Ni5-C	CB333G, CC333G	-
C95820	CuAl10Fe5Ni5-B, CuAl10Fe5Ni5-C	CB333G, CC333G	CuAl10Fe5Ni5
C96200	CuNi10Fe1Mn1-B, CuNi10Fe1Mn1-C	CB380H, CC380H	-
C96400	CuNi30Fe1Mn1NbSi-C	CC383H	-

Appendix 2

Supplementary List of Antimicrobial Alloys

These alloys are very close equivalents to the alloys in Appendix 1 and 1a, are simple alloys with compositions bounded by other efficacious alloys or have sufficient evidence showing efficacy. They have not been approved by the EPA and therefore cannot be marketed as antimicrobial in the US.

Alloys may be appended to this list if supported by suitable evidence, via the local Copper Centre.

EU Designation	EN Number	ISO Designation	Other Designation	Type	UNS Designation	Close UNS Designation
-	-	-	CZ131	CuZn39Pb2		C35340
CuCr1	CW105C	CuCr1	CC101			C18500
CuCr1Zr	CW106C	CuCr1Zr	CC102			C18150
CuSn0,15	CW117C		C107			C14200
-	-	CuSn4Pb4Zn3	-			C54400
CuSn5Zn5Pb5-C	CC491K	CuPb5Sn5Zn5	-			C83600
-	-	-	-	CuZn10Ni9Mn5		-
-	-	-	-	CuZn20Mn12Al1		-
CuZn30As	CW707R	CuZn30As	CZ126			C26130
-	-	-	-	CuNi8Zn25Pb2	C78200	
CuNi12Zn25Pb1	CW404J	-	-			C79200
-	-	-	-	CuZn14Si4Al	C87400	
-	-	-	J7521	CuNi18Zn26		-
-	-	-	-	CuZn28Mn10		-
CuZn33Pb2-C	CC705S	CuZn33Pb2	LG2			-
CuZn35Pb2	CW601N	CuZn34Pb2	-			C34200, C34500
CuZn35Pb2Al-B	CB752S	-	-			-
-	-	-	-	CuZn35Ni11	C77100	
CuZn36Pb2As	CW602N	CuZn36Pb2As	DZR, SCB3, CZ132			C35330
CuZn36Pb3	CW603N	CuZn36Pb3	CZ124			C36000
-	-	-	-	CuZn36Pb2NiAs		-
CuZn36Sn1Pb	CW712R	-	CZ112			C46200
-	-	-	-	CuZn36Pb2NiSnAs		-
-	-	-	-	CuZn37Pb0.25	C27450	
CuZn37Pb2	CW606N	CuZn37Pb2	CZ119			C35300
CuZn39Pb1	CW611N	CuZn39Pb1	CZ129			-
CuZn39Pb1Al-C	CC754S	CuZn40Pb	DCB3			C36500
-	-	-	-	CuZn39Pb2	C37700	
CuZn39Sn1	CW719R	CuZn38Sn1	CZ133			C46400

If there is an alloy that you believe should be added to one of these lists please send full compositional details via the local Copper Centre for consideration.