

KME-product: casting moulds from thermosetting copper with low alloying components,
with Advanced Mould Coatings (AMC ®)

Revised at: 17.09.2019

Information sheet for articles

1. Identification of the article and of the supplier

Supplier/Manufacturer // Application and use of the articles

KME Germany GmbH & Co. KG hereinafter referred as KME.

This information sheet of articles provides safety-information for following products:
Moulds from copper and copper alloys for continuous casting application with AMC ®.

Further information contact

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Remark

Products from copper and copper alloys are articles according to Regulation (EC) No.1907/2006 (REACH Regulation). For articles, it is not mandatory by law to issue a safety data sheet. This voluntarily information sheet for articles provide safety-information to our customers, but it is not subject to the formal requirements of the REACH Regulation.

2. Hazard identification

When supplied in solid form the articles are non-hazardous. If they will subsequently processed in any way, which might produce airborne dust or fumes, for instance by dry grinding, abrading, electro discharge machining, melting or welding (the material itself) then an inhalation hazard for the worker could arise.

General handling and most machining operations are non-hazardous. Heat treatment in air up to about 400 °C is non-hazardous but higher temperatures may give rise to loss of oxide, which could cause hazardous inhalation. This could be avoid by treatment in inert atmosphere.

3. Composition / information on ingredients

Copper-metal in compact form. The chemical composition is subject to variations within standardized tolerances.

Material codes: copper alloy // coating (AMC ®)

KME Material or Trade name	EN Material code (CEN/TS 13388:2013)	EN Material number (CEN/TS 13388:2013)	ASTM UNS-number
Elbrodur N4	CuZr	CW 120 C	C 15000
CH15			C 15100
CH35			C 18070
CH24			C 18140
Elbrodur GF	CuCr1Zr	CW 106 C	C 18400/18150
Elbrodur GP	CuCr1Zr	CW 106 C	C 18400/18150
Elbrodur RS	CuCr1Zr	CW 106 C	C 18400
Elbrodur HF	CuCr1Zr	CW 106 C	C 18400/18150
Elbrodur G	CuCr1Zr	CW 106 C	C 18400/18150
Elbrodur GR	CuCrZrAl		
Elbrodur GR 40			
Elbrodur GR 50			
Elbrodur GR 60			
Coating AMC ® HN20, HN 50	Ni	-	-
Coating AMC ® HN40, HWR	Ni (max. 80 %) Co (max. 80 %) balance (Ni,Co)	-	-
Coating AMC ® HC90, Topochrom	Cr	-	-
Coating AMC ® HF120	WC (max. 85 %) balance (Co, Cr, Ni)	-	-

The classifications mentioned below reflect the classification of the responding **pure substance** and are for information only.

Products from copper alloys are special preparations according to Regulation (EC) 1907/ 2006 (REACH).

Copper mould alloy components (respective to individual alloy)

Number	Name of component	Classification	content
CAS: 7440-67-7 EINECS: 231-176-9	Zirconium	-	Max. 0,3 %
CAS: 7440-50-8 EINECS: 231-159-6	Copper	-	balance
CAS: 7440-47-3 EINECS: 231-157-5	Chromium	-	Max. 1,2 %
CAS: 7429-90-5 EINECS: 231-072-3	Aluminium	-	Max. 0,9 %

AMC ® - Coating components (respective to individual type of coating)

Number	Name of component	Classification CLP / EU	AMC ® Coating type Content (w/w) / remark
CAS: 7440-02-0 EINECS: 231-111-4 Index-No.: 028-002-00-7	Nickel	Skin Sens. 1, H317 Carc. 2, H351 (inhalation) STOT RE 1, H372 (inhalation)	HN20, HN40, HN50, HWR, HF120/HN120 Max. 100 %
CAS: 7440-48-4 EINECS: 231-158-0	Cobalt	Resp. Sens. 1, H334 Skin Sens. 1, H317 Aquatic Chronic 4, H413	HN40, HWR, HF120/HN120 Max. 100 %
CAS: 7440-47-3 EINECS: 231-157-5	Chromium	-	HF120/HN120, HC90 Max. 100 %
CAS 12070-12-1 EINECS: 235-123-0	Wolframcarbid (Tungstencarbide)	-	HF120/HN120 Max. 85 %

4. First aid measures

General information: There is no acute risk associated and no special measures required.

Exposure	Measures
Inhalation	In practice, any exposure can only arise from operations such as grinding, abrading, electro discharge machining, welding or melting. Ensure supply of fresh air. In the event of symptoms, refer to medical treatment
Skin contact	Normally no skin irritation. In case of plates with AMC ® -> avoid skin contact while handling (as preventive measure to avoid nickel or cobalt sensitization)
Eye contact	In practice, any exposure can only arise from operations such as grinding, abrading, electro discharge machining, welding or melting. Rinse thoroughly with plenty of water and seek medical advice. Use normal industrial protection to protect against foreign bodies entering the eyes.
Ingestion	In practice, ingestion can only arise while operations such as grinding, abrading. Eating, drinking, smoking should be forbidden at the workplace in this case. In the event of symptoms, refer to medical treatment. Use normal industrial hygiene.

5. Firefighting measures

Dispersive metal powder (e.g. in case of abrasive operations) could cause the risk of explosive dust/air mixture.

suitable extinguishing agents	Use fire-extinguishing methods suitable to surrounding conditions. In case of metal powder-fire use class D or dry sand - avoid using CO ₂ -extinguisher, powder and water.
Protective equipment	Avoid abrasive operations without dust suction.

6. Accidental release measures

Personal Protection	Not applicable
Environmental protection	not applicable

7. Handling and storage

Handling and storage	Measure
Protection of personal health and environment	Control are only applicable to any process which might produce airborne dust or fumes, which are subject to Health and Safety Executive Maximum Exposure as shown in chapter 8
Storage, Co-storage, maximum storage	No special requirements. Look for surrounding conditions.

8. Exposure controls and personal protections

Limitation and control of the exposure at the working place

If breathable dust or smoke occurs by machining, the exposition to workers must be minimized with an exhaust filter system to meet the limit values. As an additional measure personal protection as a filter mask (P2,P3) or an independent breathing helmet may be used.

In general, any abrasive operations on the AMC®-coating should be processed in closed cabinets to avoid the exposition to the shop floor of the workers. Abrasive operations should be processed under water-emulsion with additional complexing agent (e.g. benzotriazol) to reduce the resolution of tungsten, cobalt and nickel.

Occupational Exposure Limit Values for possible hazards during processing

Link to GESTIS International Limit Values: http://limitvalue.ifa.dguv.de/WebForm_gw2.aspx

Personal protective equipment	Recommendation
Respiratory	Use an industrial filter mask (type P3)
Hands	Protective gloves recommended, depending on the handling.
Eyes	Eye protection recommended, depending on the processing.
Body	Wear suitable protective clothing, depending on the processing.

9. Physical and chemical properties

Parameter	description
Colour	copper red
State of aggregation	solid
Density	ca. 8,9 g/cm ³ (Lit.)
Solubility in water	insoluble
Odour	odourless
Melting point	1083 °C (Lit.)
Boiling point / boiling range	undetermined
Flash point	Not applicable
Ignition (solid, gaseous)	Not applicable
Explosion occurrence	- No danger in solid form - In case of melted metal risk of explosion by contact with water. - in case of abrasive operations -> risk of explosive air/metal powder atmosphere

10. Stability and reactivity

Conditions to avoid: No decomposition if used to specification.

Contact to mercury, ammonia, ammonium chloride, ammonium hydroxide, ammonium nitrate, acetylene, chlorine-gas, hydrogen peroxide and various acids may be incompatible.

A corrode reaction with uncontrolled heating effects could occur.

11. Toxicology information

General information:

By using and handling according to specifications, the article does not have any harmful effects to our experience.

Contact with skin:

avoid direct skin contact as preventive measure to avoid nickel or cobalt related sensitization/allergy.

On eye: No irritating effect.

Sensitization: nickel, cobalt -> avoid skin-contact

12. Ecological information

General notes

Semi-finished articles from copper and copper-alloys are practically insoluble in water.

13. Disposal considerations / Recycling

KME confirm that the articles from copper and copper alloys could and should be recycled by end of life in accordance with Annex II to Directive 75/422/EEC for the recovery operation R4 (recycling / reclamation of metals).

Classification according to the EU Waste Catalogue Ordinance

KME got the authorization to receive and recover waste from copper and copper alloys each broken down by source:

Origin of the waste in according with EWC	EWC-Waste Code	Description
Waste metal	02 01 10	Waste metal
Slags from primary and secondary production	10 06 01	Slags from primary and secondary production
Other particulates and dust	10 06 04	Other particulates and dust
Furnace slag	10 10 03	Furnace slag
Other particulates other than those mentioned in 10 10 11	10 10 12	Other particulates other than those mentioned in 10 10 11
Wastes from copper hydrometallurgical process other than those mentioned in 11 02 05	10 02 05	Wastes from copper hydrometallurgical process other than those mentioned in 11 02 05
Waste from mechanical design processes	12 01 03	Non-ferrous metal chips
disassemble of old cars	16 01 18	Non-ferrous metal
Metals (including alloys)	17 04 01	copper, bronze, brass
Waste from shredding of metal-containing waste	19 10 02	Non-ferrous metal waste
Wastes from the mechanical processing (e.g. sorting, crushing)	19 12 02	Non-ferrous metal

EU-transboundary shipment of waste Directive

Classification	Waste Code	Description
B1 metals and metal containing waste, in massive form	B1010	Copper scrap

Contact KME or local metal dealer for recycling information.

14. Transport information

There is no special risk of carrying copper alloys in solid form, either as a primary product or as scrap. EEC hazard labelling is not required.

Apply suitable measures concerning load securing in due consideration to dimension and mass of the articles.

15. REACH / SVHC

Labelling in accordance to the EC-regulations and SVHC candidate list

Semi-finished articles from copper and copper-alloy are not a substance or mixtures according to Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures (GHS/CLP regulation).

The articles and packaging do not contain any of the particularly alarming substances (SVHC) mentioned in the candidate list in concentrations of more than 0.1% (w/w), at the time of the revision date of this information sheet.

(SVHC-candidate list for authorization updated by ECHA)


Link to the most recent update: <https://echa.europa.eu/de/candidate-list-table>

16. Information regarding other regulations

The products from copper and copper-alloy (with tinned or uncoated surface) have a chemical composition in accordance with the below listed Directives of the European Parliament and of the Council and Council/Commission Decisions and mentioned regulations:

Item	Regulation
ELV	DIRECTIVE 2000/53/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 September 2000 on end-of life vehicles (so-called ELV) according amendment of Annex II (2008/689/EG)
GADSL	VDA 232-101 Global Automotive Declarable Substance List (GADSL)
RoHS-3 (assessment based on DIN EN 50581)	DIRECTIVE 2011/65/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 08 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. COMMISSION DELEGATED DIRECTIVE (EU) 2015/863 of 31 March 2015 amending Annex II to Directive 2011/65/EU (RoHS 3) COMMISSION DELEGATED DIRECTIVE (EU) 2017/2102 of 15 November 2017 amending Directive 2011/65/EU COMMISSION DELEGATED DIRECTIVE (EU) 2018/741 of 01 March 2018 amending Annex III to Directive 2011/65/EU In case of lead-containing alloy applied exemption according annex III: <i>6c) Copper alloy containing up to 4 % lead (w/w) (exemption extend until 21. July 2021)</i>
DecaBDE	China-RoHS SJ/T 11363-2006)
WEEE	DIRECTIVE 2005/717/EG of 1st July 2008 Flame retardant DecaBDE in electrical and electronic appliances. For KME articles (semi-finished products), this directive is not applicable.
POP Stockholm Convention	POP-Directive REGULATION (EU) 2019/1021 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 June 2019 on persistent organic pollutants to recast and repealing EG/850/2004 and associated amendments
PFOS	Directive 2003/11/EG (Pentabromdiphenylether, Octabromdiphenylether) and 2006/122 EG (PFOS) of the EUROPEAN PARLIAMENT AND OF THE COUNCIL to change 76/769/EG for the use of dangerous substances and dangerous products. The products are free from PAH.
Ozone-Layer	Regulation (EC)1005/2009: Substances that Deplete the Ozone Layer
Packaging material	Directive 94/62/EC (packaging and packaging waste)
Siloxane	The products are free from Octamethylcyclotetrasiloxane (D4) (EC No: 209-136-7, CAS No: 556-67-2) and Decamethylcyclopentasiloxane (D5) (EC No. 208-764-9, CAS No. 541-02-6)
- Cr VI - asbestos - mercury, sulphur	The products are free from hexavalent chromium (CrVI) and asbestos. There is no use of mercury or sulphur as raw material in the manufacture of the products.

US State Regulations

TSCA	<p>All alloy-components are listed on the TSCA (Toxic Substance Control Act) list or are exempt from.</p> <p>All alloy-components are listed on SARA Section 313</p>
SARA Section 312	<p>Reporting and/or labelling requirements may be applicable for the components (including unintentional trace elements) of as-supplied alloy bar-stock; check your State and Local Regulatory Requirements for any reporting and labelling requirements.</p>
<p>U.S. California-Proposition 65 Carcinogens List</p> <p>Nickel CAS: 7440-02-0</p>	<p> WARNING: This product can expose you to chemicals including nickel, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov.</p> <p>In solid form, there will be no exposure of chemicals to the air by the articles. If the articles are subsequently processed in any way, which might produce airborne dust or fumes, for instance by dry grinding, abrading, electro discharge machining, melting or welding (the material itself) then an exposure to the air of the listed chemicals and the inhalation hazard could arise.</p>

REACH

<p>annex XVII to REACH Regulation (EU) No 1907/2006</p>	<p><u>Nickel</u> CAS: 7440-02-0 ; EINECS: 231-111-4</p> <p>Some uses of <u>nickel</u> in articles are restricted under entry 23 annex XVII nickel</p>
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17. Disclaimer

We confirm that the information involved in the drawing up of this document are checked to the best of our knowledge for completeness, correctness and current relevance for a safe and proper use of our articles. These given data do not have the meaning of warranted characteristics of the specific delivered articles.

We shall inform our customers about mistakes, which transpire to exist in information included in this information sheet, as well as about amendments about which we become aware prior to a delivery.