

**Material Data Sheet**  
**Copper Alloys**  
 Issue: June 2014  
 Supersedes issue August 2010



**1. Description**

**Product:** Semi-finished products (sheets, strips) made of copper alloys, produced by melting cathodes or cathode-like scrap metals and master alloys with adjacent metallurgic hot and cold forming.

**Trade name:** Low-alloyed copper alloys, copper-aluminium alloys, copper-nickel-alloys, copper-nickel-zinc alloys, copper-tin-alloys, copper-zinc-alloys

**REACH registration number:** not necessary

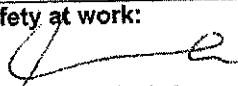


**Supplier:** MKM Mansfelder Kupfer und Messing GmbH  
 Lichtlöcherberg 40  
 06333 Hettstedt  
 Germany

**Note:** Semi-finished products made of copper alloys are products according to regulation (EC) No. 1907/2006. For these products, it is not necessary to create a safety data sheet according to article 31. However, in order to provide all necessary information for the use of these products, the following material data sheet has been developed. We explicitly point out that the distribution of the information contained in this material data sheet takes place on voluntary basis and therefore no claims can arise from the above mentioned regulation.

**2. Chemical composition**

**Chemical characterisation:** The main component is copper with defined and standardised alloying elements

Element	CAS	EINECS	Mass fraction in %
Copper	7440-50-8	231-159-6	54.0 – 99.9
Aluminium	7429-90-5	231-072-3	max. 11.5
Chromate	7440-47-3	231-157-5	max. 1.2
Iron	7439-89-6	231-096-4	max. 6.0
Lead	7439-92-1	231-100-4	max. 2.0
Manganese	7439-96-5	231-105-1	max. 3.0
Nickel	7440-02-0	231-111-4	max. 32
Silicium	7440-21-3	231-130-8	max. 1.0
Sulphur	7704-34-9	231-722-6	max. 0.60
Tin	7440-31-5	231-141-8	max. 15.0
Zinc	7440-66-6	231-175-3	max. 40.2
Zirconium	7440-67-7	231-176-9	max. 0.3

<b>Safety at work:</b>  26.06.2014	<b>Environmental management:</b>  26.06.2014	<b>Quality management:</b>  26.06.2014
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**Additional notes:**

These are copper wrought alloys in which, by melting, 2 or 3 main alloying elements combine to become a firm macroscopic homogenous structure. During further processing (metallurgical forming processes), no substances are released. The chemical composition is subject to fluctuations within standardised tolerances. Classifications of specified alloying components are not transferable to the characteristics of the alloys!

Our products do not contain substances, which are mentioned in Annex XIV of the REACH regulations (SVHC - Substance of very high concern).

The products comply with the requirements of European policies and regulations (2011/65/EC (RoHS); 2002/96/EC; 2000/53/EC; 2003/11/EC, 1907/2006/EC (REACH)).

**3. Potential risks**

**Indication of danger:** Not applicable, because products are only recast and heat-treated.  
No substances are released during this process.

**Additional risks for health and environment:**

Not applicable when properly handled. The products must be used so that no accidental release can occur.

**4. First aid measures**

No particular measures necessary.

**5. Fire fighting measures**

Fire fighting measures have to be attuned with the surroundings.

**Hazard of substance, preparation, without combustion products or resulting gases**  
Melted mass can explode upon contact with water.

**6. Accidental release measures**

**Individual related measures of precaution:** not necessary

**Environmental protection measures:** Dust formation should be avoided. Cover drainage system.  
Don't allow to reach drainage system or waters.

**Procedure for cleaning/take-up:**

- Use a licensed industrial vacuum cleaner for take-up.
- Fill the products with mud-like consistency into suitable containers

**7. Handling and storage**  
**Precautions for safe handling:**

No particular measures necessary for semi-finished products. Dust formation should be avoided.

**Fire and explosion prevention:**

No particular measures necessary

**Requirements for safe storage:**

No particular measures necessary.

**8. Exposure prevention and personal protective equipment**

Permitted limits regarding safety at work (8 hrs average)

Copper: dust and fog

1mg/m<sup>3</sup>

Copper: fume

0.1mg/m<sup>3</sup>

**Personal protective equipment:**

**General protection and hygiene measures:**

Wash hands before breaks and at the end of work. Do not inhale dust.

**Respiratory protection:**

At dust formation, appropriate protective respirators shall be used.

**Skin protection:**

Appropriate skin protection shall be used (e.g. gloves).

**Eye protection:**

Appropriate tight safety goggles shall be used.

**Body protection:**

Appropriate protective clothing shall be used.

**9. Physical and chemical characteristics**

**Form:**

solid, firm

**Colour:**

dependent on alloying elements

**Odour:**

odourless

**Melting point:**

dependent on alloying elements

**Ignition temperature:**

not applicable

**Self ignition temperature:**

not applicable

**Oxidising properties:**

not applicable

**Explosion hazard:**

not applicable

**Density:**

dependent on alloying elements

**Water solubility:**

practically insoluble

**Flammability:**

the products themselves are not flammable

**10. Reactivity and stability:**

Stable at normal temperature.

**Conditions to avoid:**

uncontrolled heating without protective measures

**Substances to avoid:**

ammonia, ammonium chloride, ammonium hydroxide, ammonium nitrate, chlorine, ethine, copper(II) chloride, copper nitrate, iron(III) chloride, iron sulphate, ethylene oxide, hydrogen peroxide (>10%)

### 11. Information on toxicology

There are no harmful effects known to us when the product is handled properly and used for its intended purpose.

#### Sensitisation

No sensitising effects known.

### 12. Information on ecology

Semi-finished products made of copper alloys are practically insoluble in water.

### 13. Information on disposal

Disposal is carried out according to the law on Waste Recycling and Management (KrW-/AbfG).  
The materials are 100 % reusable in equipment for metallurgy.

Waste code number: 16 01 18

### 14. Information on transport

The product is no hazardous good in terms of the land transport regulations (ADR / RID, GGVSE<sup>1</sup>).  
Land transport ADR/RID and GGVs/GGVE (cross-border/inland):

ADR/RID-GGVs/E class: -

Shipment by sea IMDG/GGVSee: -

IMDG/GGVSee-class: -

Marine pollutant: No

Air transport ICAO-TI and IATA-DGR: -

ICA=/IATA-class: -

### 15. Legislative provisions

#### Marking

The products are not subject to mandatory labelling according to EC Directives/GefStoffV.

#### National provisions:

##### Employment limitations:

Statutory order on hazardous incidents:

VbF (directive for flammable liquids):

TA Luft (Technical Guidelines on Air Quality Control):

Water hazard class:

Other provisions

none

not applicable

not applicable

Section 5.2.2. III

not hazardous to water

For Germany

The accident prevention regulations as well as other provisions by the professional associations must be observed.

<sup>1</sup> German regulations on transport of hazardous goods by land (GGVS), rail (GGVE) and sea (GGVSee)

## **16. Other information**

### **Recommended use**

The products are intended for industrial use.

electronics, electricity, engineering, corrosion prevention, plumbing trade, mechanical engineering, electrical engineering, chemical industry, food industry, brewery and beverage industry, paper industry, ship building and apparatus construction, automotive engineering, wagon building, locomotive construction, nuclear engineering, overhead line installation

### **Data origins**

Hauptstoffliste 2009 WEKA – Verlag (*List of main substances*)  
Gefahrstoffdatenblätter WEKA – Verlag (*Hazardous material data sheets*)  
TRGS 900 „Luftgrenzwerte“ (*Air safety values*)  
Remy, Lehrbuch der anorganischen Chemie (*Textbook of inorganic chemistry*)  
Verwaltungsvorschrift wassergefährdende Stoffe (*Administrative regulations for water-polluting substances*)  
Abfallablagungsverordnung (*Waste disposal regulations*)  
GGVSE (*Ordinance on dangerous goods for road and rail*)



Cust. GRAHAM ENGINEERING ANS (EM; Item P464006250HR---  
Desc. 5/8" 464 ANN NAVAL PLT Carr. FEDEX PRIORITY FRT.

Line 1056091-10 Qty 513 Req 14  
Doc. D02148-464-825 P.O.# B163158

**ABNAHMEPRÜFZEUGNIS**  
**INSPECTION CERTIFICATE**

EN 10204/2004-3,1



Besteller / Purchaser Farmer's Copper & Industrial  
Supply Inc.

9900 Emmett F. Lowry Expressway  
77591 Texas City

US

**Mansfelder Kupfer und Messing GmbH**

Produktbereiche Bleche / Bänder

Geprüft nach AD 2000-Merkblatt W0TRD100  
durch den TÜV Hannover/Sachsen-Anhalt e.V.  
Zertifikat nach Richtlinie 97/23/EG durch die  
TÜV CERT-Zertifizierungsstelle für Druckgeräte der  
TUV Nord Gruppe, Bismarck Straße, Kern-Nr. 0045

Lichtlöcherberg 40

06333 Hettstedt / Germany

Telefon: +49 (0)3476 89 3023 / 2475

Fax: +49 (0)3476 89 2919 / 3043

Auftragsnr./Pos. / Contract-No./Item	Bestellnr. / Order no.	Kundenmat.-Nr.	Datum / date	Lieferschein-Nr. / Delivery note No.
0000454768/000004	753464-FC		04.08.2016	0000477811
Erzeugnis / Product		Werkstoff / Material		
Plate hot.rolled 0,625x48x120"		C46400 ASMESB171/SB171M/2015 // ASTM B171/B171M/2012		
Abmessung / Dimension		Lieferzustand / Temper		
15,88 * 1.219,2 * 3.048 mm		Q25 ASMESB171/SB171M/2015 // ASTM B171/B171M/2012		
Lieferbedingungen / Terms of delivery				
ASMESB171/SB171M/2015 // ASTM B171/B171M/2012 // QQ-B-639 C				

**Verpackung / shipping units**

Charge / Batch	D02148
Coil	005
Stück / Pieces	2
Masso / Weight	1010

**Gesamtgewicht: / Weight total: 1010 kg**

**Mechanische Anforderungen / mechanical properties**

Charge / Batch	D02148	D02148
Probendatum / Date	20160712	20160712
Probe / Sample	0012	0011
Rm min. 345 N/mm²	427	424
Rp 0,2 min. 140 N/mm²	231	222
Rt0,5 min. 140 N/mm²	255	240
A50 min. 35 %	44	44
Rm (Tensile Strength) min. 60,0 ksi	61,9	61,5
Rp0,2 (Yield at 0,2% Offset) min. 20,0 ksi	33,5	32,2
Rt0,5 (Yield strength) min. 20,0 ksi	37,0	34,8

**FARMERS COPPER LTD**  
**MILL TEST REPORT APPROVED**  
BY Q.A. DEPT.: 8-18-16  
REVIEWED BY: A

**Chemische Anforderungen / chemical properties**

Charge / Batch	D02148
Cu 59,00 - 62,00 %	61,21
Sn 0,50 - 1,00 %	0,80
Pb max. 0,200 %	0,013
Fe max. 0,100 %	0,007
Zn - %	rem.

Die Maß- und Formtoleranzen entsprechen den Bestellangaben. Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht.

The dimension- and shape tolerances conform to the requirements. We hereby certify, that the material described above has been tested and complies with the terms of the order contract.

MKM Mansfelder Kupfer und Messing GmbH Hettstedt

Abnahmebeauftragter / Acceptance representative