

## 1. Name and other identifiers of the substance

The substance **matte, copper** is a UVCB (origin: inorganic) having the following characteristics and physical–chemical properties (see the IUCLID dataset for further details).

The following public name is used: copper matte.

**Table 1. Substance identity**

<b>EC number:</b>	266-967-8
<b>EC name:</b>	Matte, copper
<b>CAS number (EC inventory):</b>	67711-91-5
<b>IUPAC name:</b>	matte, copper
<b>Description:</b>	<i>Substance resulting from metallurgic processing (smelting) of primary and secondary sulphidic and copper containing sources. It is composed primarily of copper and copper and iron sulfides with minor sulfides of other metals</i>
<b>Molecular formula:</b>	Not applicable
<b>Molecular weight range:</b>	Not applicable

Structural formula: Not applicable

## 2. Composition of the substance

### Name: Copper matte Classification Grade 1 –Generic (elemental)

Description: (elemental) composition applicable to classification grade 1 (massive material with legal entity Typ Pb  $\leq 0.37\%$  w/w, Typ Ni  $\leq 0.9\%$  w/w; fine material with Typ Pb  $\leq 0.03\%$  w/w, Typ Ni  $\leq 0.9\%$  w/w). Typical, min and max values are derived from the average concentrations. **Generic typical=average of the typicals across industry**, max=maximum of all typicals across industry.

Degree of purity: 100.0 % (w/w)

**Table 2. Constituents (elemental)**

Constituent	Typical concentration	Concentration range	Remarks
copper EC no.: 231-159-6	$\leq 61.0\%$ (w/w)	$> 45.0 — \leq 75.0\%$ (w/w)	refers to % element. Cu is mainly present in the form of Cu-Fe sulphides
iron EC no.: 231-096-4	$\leq 10.0\%$ (w/w)	$> 0.4 — \leq 15.0\%$ (w/w)	refers to % element. Fe is mainly present in the form of Cu-Fe sulphides
lead EC no.: 231-100-4	$\leq 0.37\%$ (w/w)	$\geq 0.01 — \leq 0.37\%$ (w/w)	refers to % element. Pb is mainly present in the form of Pb metal
arsenic EC no.: 231-148-6	$\leq 0.2\%$ (w/w)	$\geq 0.01 — \leq 0.9\%$ (w/w)	refers to % element. As is present in the form of multimetallic alloys (not oxides)

Constituent	Typical concentration	Concentration range	Remarks
nickel EC no.: 231-111-4	$\leq 0.49 \%$ (w/w)	$\geq 0.01$ — $\leq 0.9 \%$ (w/w)	refers to % element. Nickel is present as Ni multimetallic alloys
zinc EC no.: 231-175-3	$\leq 0.8 \%$ (w/w)	$\geq 0.2$ — $\leq 4.3 \%$ (w/w)	refers to % element. Zn is present in the form of sulphides
silver EC no.: 231-131-3	$\leq 0.008 \%$ (w/w)	$\geq 0.001$ — $\leq 0.2 \%$ (w/w)	refers to % element. Ag is present in the form of Ag alloys
cobalt EC no.: 231-158-0	$\leq 0.02 \%$ (w/w)	$\geq 0.0$ — $\leq 0.02 \%$ (w/w)	refers to % element. If present, Co is present in the form of multimetallic Co alloys
sulfur EC no.: 231-722-6	$\leq 20.0 \%$ (w/w)	$\geq 15.0$ — $\leq 30.0 \%$ (w/w)	refers to % element. Sulfur is mainly present as sulphides
Minor constituent	ca. $2.0 \%$ (w/w)		refers to Total % of minor (metal) elements. Each individually is typically below 0,1% or does not impact additionally on classification
Oxides	$\leq 3.0 \%$ (w/w)		refers to Total % of (metal specific) oxides from Si, Al, Ca, Na, K, Mg, Mn, etc. Major forms present are silicates and aluminates

**Name: Copper matte Classification Grade 2 –Generic (elemental)**

Description: (elemental) composition applicable to grade 2 (massive material with Legal Entity Typ Pb  $>0.37\%$  w/w, Typ Ni  $>0.9\%$  w/w; fine material with Typ Pb  $>0.03\%$ , Typ Ni  $>0.9\%$  w/w ). Typical, min and max values are derived from the average concentrations. Generic typical=average of the typicals across industry, max=maximum of all typicals across industry.

Degree of purity: 100.0 % (w/w)

**Table 3. Constituents (elemental)**

Constituent	Typical concentration	Concentration range	Remarks
copper EC no.: 231-159-6	$\leq 61.0 \%$ (w/w)	$> 45.0$ — $\leq 75.0 \%$ (w/w)	refers to % element. Cu is mainly present in the form of Cu-Fe sulphides
iron EC no.: 231-096-4	$\leq 10.0 \%$ (w/w)	$> 0.4$ — $\leq 15.0 \%$ (w/w)	refers to % element. Fe is mainly present in the form of Cu-Fe sulphides
lead EC no.: 231-100-4	$>0.37 \%$ (w/w)	$> 0.37$ — $\leq 7.5 \%$ (w/w)	refers to % element. Pb is mainly present in the form of Pb metal (and below 20% of total is as PbO)

Constituent	Typical concentration	Concentration range	Remarks
arsenic EC no.: 231-148-6	$\leq 0.2 \%$ (w/w)	$\geq 0.06$ — $\leq 0.9 \%$ (w/w)	refers to % element. As is present in the form of multimetallic As alloys
nickel EC no.: 231-111-4	$>0.9\%$ (w/w)	$> 0.9$ — $\leq 6.5 \%$ (w/w)	refers to % element. Ni is present in the form of multimetallic Ni alloys
zinc EC no.: 231-175-3	$\leq 0.8 \%$ (w/w)	$\geq 0.4$ — $\leq 4.3 \%$ (w/w)	refers to % element. Zn is mainly present in the form of sulphide
silver EC no.: 231-131-3	$\leq 0.008 \%$ (w/w)	$\geq 0.001$ — $\leq 0.2$	refers to % element. Ag is present in the form of Ag metal
Cobalt EC no.: 231-158-0	$\leq 0.3 \%$ (w/w)	$\geq 0.02$ — $\leq 1.0 \%$ (w/w)	refers to % element. Co is present in the form of multimetallic alloys and sulphides
Sulfur EC no.: 231-722-6	$\leq 20.0 \%$ (w/w)	$\geq 8.0$ — $\leq 25.0 \%$ (w/w)	refers to % element. S is present in the form of sulphides
Minor constituent	$\geq 0.4 \%$ (w/w)	$\geq 0.2$ - $\leq 1.2\%$ (w/w)	refers to Total % of minor (metal) elements. Each individually is typically below 0,1% or does not impact additionally on classification
Oxides	$\leq 1.0 \%$ (w/w)	$\geq 0.4$ - $\leq 1.5\%$ (w/w)	refers to Total % of (metal specific) oxides from Si, Al, Ca, Na, K, Mg, Mn, etc. Major forms present are silicates and aluminates

**Name: Copper matte – Generic (mineralogy)**

Description: mineralogical/ composition applicable to all classification grades.

Degree of purity: ca 75-95 % (w/w)

**Table 4. Constituents**

Constituent	Typical concentration	Concentration range	Remarks
Total copper sulphide minerals	$\leq 80.0 \%$ (w/w)	ca 75 — ca 95.0 % (w/w)	Minerals such as Chalcocite $\text{Cu}_2\text{S}$ and Bornite $\text{Cu}_5\text{FeS}_4$ . Mineralogical concentration range uncertain. Elemental concentration more accurate.

### 3. Classification and labelling according to CLP / GHS

#### **Name: Copper matte -Grade 1**

Implementation: EU

State/form of the substance: solid

Related composition: Copper matte Grade 1 -Generic

Remarks: Applicable to Massive matte characterized by max Pb  $\leq$  0.37% (and with Ni  $\leq$  0.9% and Co  $\leq$  0.9%); fine material with Typ Pb  $\leq$  0.03%w/w, Typ Ni  $\leq$  0.9%w/w).

#### **Classification**

The substance is not classified.

#### **Labelling**

Signal word: No signal word

#### **Name: Copper matte - Grade 2**

Implementation: EU

State/form of the substance: solid

Related composition: Copper matte Grade 2 -Generic

Remarks: Applicable to matte Grade 2 (powders), characterized by Pb  $>$  0.37% (with max Ni  $\geq$  or equal 0.9%); Grade 2 (Fines) with Typ Pb  $>$  0.03%w/w, Typ Ni  $>$  0.9%w/w.

#### **Classification**

The substance is classified as follows:

#### **Classification and labelling according to CLP / GHS for physicochemical properties**

Not classified for physicochemical properties

#### **Classification and labelling according to CLP / GHS for health hazards**

Endpoint	Hazard category	Hazard statement
Reproductive Toxicity:	Repr. 1A Specific effect: central nervous system, system for reproductivity.	H360: May damage fertility or the unborn child.
Carcinogenicity:	Carc. 1A	H350: May cause cancer.
Specific target organ toxicity - repeated:	STOT Rep. Exp. 1 Affected organs: central nervous system and systems for reproduction Route of exposure: Inhalation	H372: Causes damage to organs through prolonged or repeated exposure.

**Classification and labelling according to CLP / GHS for environmental hazards**

Endpoint	Hazard category	Hazard statement
Hazards to the aquatic environment (long-term):	Aquatic Chronic 3	H412: Harmful to aquatic life with long lasting effects.

**Labelling**

Signal word: Danger

Hazard pictogram:

GHS07: exclamation mark



GHS08: health hazard

Hazard statements:

H350: May cause cancer &lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;.

H360: May damage fertility or the unborn child &lt;state specific effect if known &gt; &lt;state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard&gt;.

H372: Causes damage to organs through prolonged or repeated exposure.

H412: Harmful to aquatic life with long lasting effects

Precautionary statements:

P260: Do not breathe dust/fume/gas/mist/vapours/spray.

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P281: Use personal protective equipment as required.

P308+P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents/container to...