# Copper Cyanide

Safety Data Sheet M300

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 02/25/2019 Supersedes: 06/02/2015

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

| | | |
|---|---|---|
| Product form | : | Substance |
| Trade name | : | Copper Cyanide |
| Chemical name | : | Copper Cyanide |
| CAS No | : | 544-92-3 |
| Product code | : | M300 |
| Formula | : | CuCN |
| Synonyms | : | Copper cyanide / copper cyanide (Cu(Cn)) / copper-cyanide / coppercyanide(=copper(I)cyanide) / cupricin / cuprous cyanide |
| BIG no | : | 13964 |

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

| | | |
|---|---|---|
| Use of the substance/mixture | : | Product for industrial use only |
| Restrictions on use of the substance/mixture | : | No data available |

### 1.3. Details of the supplier of the safety data sheet

### 1.4. Emergency telephone number

| | | |
|---|---|---|
| Emergency number | : | CHEMTREC - (800) 424-9300 \| Outside the US: (703) 527-3887 |

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Classification (GHS-US)**

| | |
|---|---|
| Acute Tox. 2 (Oral) | H300 |
| Acute Tox. 1 (Dermal) | H310 |
| Acute Tox. 2 (Inhalation) | H330 |
| Aquatic Acute 1 | H400 |
| Aquatic Chronic 1 | H410 |

Full text of H-phrases: see section 16

### 2.2. Label elements

**GHS-US labeling**

Hazard pictograms (GHS-US) :

GHS06 GHS09

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :
H300+H310+H330 - Fatal if swallowed, in contact with skin or if inhaled
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) :
P260 - Do not breathe dust, fume, vapors
P262 - Do not get in eyes, on skin, or on clothing
P264 - Wash hands, forearms and face thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective clothing, protective gloves, eye protection, face protection
P284 - [In case of inadequate ventilation] wear respiratory protection
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P310 - Immediately call a poison center or doctor/physician
P330 - Rinse mouth
P361 - Take off immediately all contaminated clothing
P363 - Wash contaminated clothing before reuse
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

### 2.3. Other hazards

Reacts with (some) acids: release of toxic/combustible gases/vapors (hydrogen cyanide).

### 2.4. Unknown acute toxicity (GHS-US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

| Name | Product identifier | % | Classification (GHS-US) |
|---|---|---|---|
| Copper Cyanide<br>(Main constituent) | (CAS No) 544-92-3 | 97 - 100 | Acute Tox. 2 (Oral), H300<br>Acute Tox. 1 (Dermal), H310<br>Acute Tox. 2 (Inhalation), H330<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 |

Full text of H-phrases: see section 16

### 3.2. Mixture

Not applicable

### 4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing before washing.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist. Do not apply neutralizing agents.

First-aid measures after ingestion : Rinse mouth with water. Give nothing to drink. Victim is fully conscious: immediately induce vomiting. Induce vomiting by giving a 0.9 % saline solution. Take the container/vomit to the doctor/hospital. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm).

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Feeling of weakness. Blue/grey discolouration of the skin. Tingling/irritation of the skin. Central nervous system depression. Dizziness. Excited/restless. Anxious. Coordination disorders. Paralysis. Disturbances of consciousness. Headache. Low arterial pressure. Respiratory difficulties. Rapid respiration. Irritation of the respiratory tract. Vomiting. Nausea. Irritation of the gastric/intestinal mucosa. Irritation of the eye tissue. Irritation of the nasal mucous membranes. Increased salivation. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung oedema.

### 4.3. Indication of any immediate medical attention and special treatment needed

Always have a cyanide antidote kit available. Cyanide antidote kits (such as Eli Lilly Co. Kit No M-76 - cyanide package) are available by prescription. To obtain a kit you must: 1) obtain a prescription from your physician; 2) go to a local pharmacy and ask the pharmacist to order the kit for you. There is an expiration date on the kit. It must be replaced before it expires; 3) place this kit with your safety or first aid supplies. Do not lock it in a desk or cabinet as valuable time may be wasted trying to get the kit if a cyanide exposure occurs; 4) read the instructions provided and train your employees in the proper use of amyl nitrite as first aid.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Adapt extinguishing media to the environment.

Unsuitable extinguishing media : No unsuitable extinguishing media known.

### 5.2. Special hazards arising from the substance or mixture

| | | |
|---|---|---|
| Fire hazard | : | DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard". |
| Explosion hazard | : | INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard". |
| Reactivity | : | Decomposes on exposure to temperature rise: release of toxic/corrosive/combustible gases/vapours (hydrogen cyanide, nitrous vapours). Reacts with (strong) oxidizers: (increased) risk of fire/explosion. Reacts with (some) acids: release of toxic/combustible gases/vapours (hydrogen cyanide). |

### 5.3. Advice for firefighters

| | | |
|---|---|---|
| Precautionary measures fire | : | Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows. |
| Firefighting instructions | : | Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it. |
| Protection during firefighting | : | Heat/fire exposure: compressed air/oxygen apparatus. |

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

| | | |
|---|---|---|
| Protective equipment | : | Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit. Reactivity hazard: compressed air/oxygen apparatus. Reactivity hazard: gas-tight suit. See "Material-Handling" to select protective clothing. |
| Emergency procedures | : | Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation. |
| Measures in case of dust release | : | In case of dust production: keep upwind. In case of dust production: consider evacuation. Dust production: have neighbourhood close doors and windows. |

#### 6.1.2. For emergency responders

No additional information available

### 6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

### 6.3. Methods and material for containment and cleaning up

| | | |
|---|---|---|
| For containment | : | Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Hazardous reaction: measure explosive gas-air mixture. If reacting: dilute combustible/toxic gases/vapours. Knock down/dilute dust cloud with water spray. Take account of toxic/corrosive precipitation water. On heating: dilute combustible/toxic gases/vapours. |
| Methods for cleaning up | : | Prevent dispersion by covering with dry sand/earth. Solid spill: shovel into synthetic bags or shovel into drums. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling. |

### 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

| | | |
|---|---|---|
| Additional hazards when processed | : | Pulverization rapidly increases toxic concentration. |
| Precautions for safe handling | : | Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Keep away from naked flames/heat. Reduce/avoid exposure and/or contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. |

### 7.2. Conditions for safe storage, including any incompatibilities

| | | |
|---|---|---|
| Storage temperature | : | < 49 °C |
| Heat-ignition | : | KEEP SUBSTANCE AWAY FROM: heat sources. |
| Prohibitions on mixed storage | : | KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. metals. |

| | | |
|---|---|---|
| Storage area | : | Store in a dry area. Keep container in a well-ventilated place. Keep locked up. Meet the legal requirements. |
| Special rules on packaging | : | SPECIAL REQUIREMENTS: closing. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers. |
| Packaging materials | : | SUITABLE MATERIAL: steel. aluminium. synthetic material. glass. |

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| Copper Cyanide (544-92-3) | | |
|---|---|---|
| ACGIH | ACGIH Ceiling (mg/m³) | 5 mg/m³ |
| OSHA | Not applicable | |

### 8.2. Exposure controls

| | | |
|---|---|---|
| Materials for protective clothing | : | GIVE EXCELLENT RESISTANCE: natural rubber. polyurethane. PVC. nitrile rubber/PVC. GIVE GOOD RESISTANCE: butyl rubber. chlorinated polyethylene. chlorosulfonated polyethylene. neoprene. viton. GIVE LESS RESISTANCE: nitrile rubber. |
| Hand protection | : | Neoprene or rubber gloves. |
| Eye protection | : | Face shield. In case of dust production: protective goggles. |
| Skin and body protection | : | Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing. |
| Respiratory protection | : | Dust production: dust mask with filter type P3. On heating: Gas mask with filter type B. High dust production: self-contained breathing apparatus. |

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Solid |
| Appearance | : | Crystalline solid. Crystalline powder. |
| Molecular mass | : | 89.56 g/mol |
| Color | : | White to cream colored |
| Odor | : | Characteristic odour;Almost odourless |
| Odor threshold | : | No data available |
| pH | : | No data available |
| Relative evaporation rate (butyl acetate=1) | : | No data available |
| Melting point | : | 473 °C |
| Freezing point | : | No data available |
| Boiling point | : | No data available |
| Flash point | : | Not applicable |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | 473 °C |
| Flammability (solid, gas) | : | No data available |
| Vapor pressure | : | No data available |
| Relative vapor density at 20 °C | : | No data available |
| Relative density | : | 2.92 |
| Solubility | : | Insoluble in water. Substance sinks in water. Soluble in ethanol.<br>Water: < 0.1 g/100ml |
| Log Pow | : | No data available |
| Log Kow | : | No data available |
| Viscosity, kinematic | : | No data available |
| Viscosity, dynamic | : | No data available |
| Explosive properties | : | No data available |
| Oxidizing properties | : | No data available |
| Explosive limits | : | No data available |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Decomposes on exposure to temperature rise: release of toxic/corrosive/combustible gases/vapours (hydrogen cyanide, nitrous vapours). Reacts with (strong) oxidizers: (increased) risk of fire/explosion. Reacts with (some) acids: release of toxic/combustible gases/vapours (hydrogen cyanide).

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Temperature extremes and moisture

### 10.5. Incompatible materials

Iodine, Permanganates, Peroxides, Metallic salts, Chloral hydrate, Alkaloids, Chlorates, Nitrates, Magnesium

### 10.6. Hazardous decomposition products

Decomposes on exposure to temperature rise: release of toxic/corrosive/combustible gases/vapors (hydrogen cyanide, nitrous vapors).

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Fatal if swallowed. Dermal: Fatal in contact with skin. Inhalation: Fatal if inhaled.

| **Copper Cyanide ( \f )544-92-3** | |
|---|---|
| ATE US (oral) | 5.000 mg/kg body weight |
| ATE US (dermal) | 5.000 mg/kg body weight |
| ATE US (gases) | 100.000 ppmV/4h |
| ATE US (vapors) | 0.500 mg/l/4h |
| ATE US (dust, mist) | 0.050 mg/l/4h |
| LD50 | 1,265 mg / kg Oral - rat |

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Dangerous for the environment.

Ecology - air : TA-Luft Klasse 5.2.2/III.

Ecology - water : Severe water pollutant (surface water). Highly toxic to aquatic organisms.

| **Copper Cyanide (544-92-3)** | |
|---|---|
| TLM fish 1 | 1 - 10,96 h; Pisces |
| TLM other aquatic organisms 1 | 1 - 10,96 h |

### 12.2. Persistence and degradability

| **Copper Cyanide (544-92-3)** | |
|---|---|
| Persistence and degradability | Adsorbs into the soil. |

### 12.3. Bioaccumulative potential

| Copper Cyanide (544-92-3) | |
|---|---|
| Bioaccumulative potential | Bioaccumable. |

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

Effect on ozone layer :

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Precipitate/make insoluble. Remove to an authorized dump (Class I). Do not discharge into drains or the environment.

Additional information : Hazardous waste according to Directive 2008/98/EC.

## SECTION 14: Transport information

In accordance with DOT

Transport document description : UN1587 Copper cyanide, 6.1, II

UN-No.(DOT) : UN1587

Proper Shipping Name (DOT) : Copper cyanide

Transport hazard class(es) (DOT) : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132

Hazard labels (DOT) : 6.1 - Poison inhalation hazard


Packing group (DOT) : II - Medium Danger

DOT Special Provisions (49 CFR 172.102) : IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.
IP4 - Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner.
T3 - 2.65 178.274(d)(2) Normal..... 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 153

DOT Packaging Non Bulk (49 CFR 173.xxx) : 204

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 25 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 100 kg

DOT Vessel Stowage Location : A - The material may be stowed ''on deck'' or ''under deck'' on a cargo vessel and on a passenger vessel.

DOT Vessel Stowage Other : 52 - Stow ''separated from'' acids

Marine pollutant : P

### Additional information

Other information : Marine pollutant : YES.

### ADR

Transport document description : UN 1587, 6.1, II, (D/E)

Packing group (ADR) : II

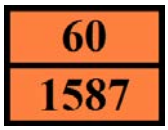
Class (ADR) : 6.1 - Toxic substances

Hazard identification number (Kemler No.) : 60

Classification code (ADR) : T5

Hazard labels (ADR) : 6.1 - Toxic substances


Orange plates :




Tunnel restriction code (ADR) : D/E

### Transport by sea

UN-No. (IMDG) : 1587

Proper Shipping Name (IMDG) : COPPER CYANIDE

Class (IMDG) : 6.1 - Toxic substances

Packing group (IMDG) : II - substances presenting medium danger

EmS-No. (1) : F-A

MFAG-No : 18

EmS-No. (2) : S-A

### Air transport

UN-No.(IATA) : 1587

Proper Shipping Name (IATA) : Copper cyanide

Class (IATA) : 6 -

Packing group (IATA) : II - Medium Danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

| **Copper Cyanide (544-92-3)** | |
|---|---|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory<br>Listed on United States SARA Section 313 | |
| RQ (Reportable quantity, section 304 of EPA's List of Lists) | 10 lb |
| SARA Section 302 Threshold Planning Quantity (TPQ) | None to our knowledge |
| SARA Section 311/312 Hazard Classes | Immediate (acute) health hazard |
| SARA Section 313 - Emission Reporting | Listed on United States SARA Section 313 |

### 15.2. International regulations

**CANADA**
No additional information available

**EU-Regulations**
No additional information available

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**
Acute Tox. 2 (Inhalation) H330
Acute Tox. 1 (Dermal) H310
Acute Tox. 2 (Oral) H300
Aquatic Acute 1 H400
Aquatic Chronic 1 H410
Full text of H-phrases: see section 16

**Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]**

T+; R26/27/28
R32
N; R50/53

Full text of R-phrases: see section 16

#### 15.2.2. National regulations

### 15.3. US State regulations

| **Copper Cyanide(544-92-3)** | |
|---|---|
| State or local regulations | U.S. - Massachusetts - Right To Know List<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - Pennsylvania - RTK (Right to Know) List |

## SECTION 16: Other information

Full text of H-phrases:

| | |
|---|---|
| Acute Tox. 1 (Dermal) | Acute toxicity (dermal) Category 1 |
| Acute Tox. 2 (Inhalation) | Acute toxicity (inhalation) Category 2 |
| Acute Tox. 2 (Oral) | Acute toxicity (oral) Category 2 |
| Aquatic Acute 1 | Hazardous to the aquatic environment - Acute Hazard Category 1 |
| Aquatic Chronic 1 | Hazardous to the aquatic environment - Chronic Hazard Category 1 |
| H300 | Fatal if swallowed |
| H310 | Fatal in contact with skin |
| H330 | Fatal if inhaled |
| H400 | Very toxic to aquatic life |
| H410 | Very toxic to aquatic life with long lasting effects |

| HMIS III Rating | | |
|---|---|---|
| Health | : | 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given |
| Flammability | : | 0 Minimal Hazard |
| Physical | : | 0 Minimal Hazard |
| Personal Protection | : | : |

SDS US (GHS HazCom 2012)

*The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to themanufacturer.*