

ALFAAA16064

Copper(II) chloride dihydrate

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明:
Product Description: 氯化铜(II)二水合物, 99%
Copper(II) chloride dihydrate

Cat No. : A16064
Synonyms Cupric chloride dihydrate
CAS No 10125-13-0
Molecular Formula Cl₂ Cu . 2 H₂ O

Supplier Avocado Research Chemicals Ltd.
(Part of Thermo Fisher Scientific)
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Lancashire, LA3 2XY,
United Kingdom
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Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.
Uses advised against No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Solid

Appearance
Blue green

Odor
Odorless

Emergency Overview

Toxic if swallowed. Causes skin irritation. May cause an allergic skin reaction. Suspected of damaging fertility or the unborn child.
Very toxic to aquatic life with long lasting effects. Harmful in contact with skin. Causes serious eye damage. Hygroscopic.

Classification of the substance or mixture

Acute Oral Toxicity	Category 3
Acute Dermal Toxicity	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Skin Sensitization	Category 1
Reproductive Toxicity	Category 2
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

Label Elements

Copper(II) chloride dihydrate



Signal Word

Danger

Hazard Statements

H301 - Toxic if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H361 - Suspected of damaging fertility or the unborn child
H410 - Very toxic to aquatic life with long lasting effects
H312 - Harmful in contact with skin
H318 - Causes serious eye damage

Precautionary Statements

Prevention

P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor
P330 - Rinse mouth
P362 + P364 - Take off contaminated clothing and wash it before reuse

Storage

P405 - Store locked up

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards

Hygroscopic.

Health Hazards

Harmful in contact with skin. Causes skin irritation. Toxic if swallowed. May cause an allergic skin reaction. Suspected of damaging fertility or the unborn child.

Environmental hazards

Very toxic to aquatic life with long lasting effects. Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

Other Hazards

Toxicity to Soil Dwelling Organisms. Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Copper (II) chloride dihydrate	10125-13-0	>95
Cupric chloride	7447-39-4	-

SECTION 4. FIRST AID MEASURES

General Advice

If symptoms persist, call a physician.

Copper(II) chloride dihydrate

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects

Causes severe eye damage. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Extinguishing media which must not be used for safety reasons

No information available.

Specific Hazards Arising from the Chemical

Corrosive material. Non-combustible. Thermal decomposition can lead to release of irritating gases and vapors. Do not allow run-off from fire-fighting to enter drains or water courses.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES**Personal Precautions**

Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation.

Environmental Precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

Methods for Containment and Clean Up

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE**Handling**

Copper(II) chloride dihydrate

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

Storage

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Store contents under argon. Corrosives area. Do not store in metal containers. Store under an inert atmosphere. Protect from moisture.

Specific Use(s)

Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control Parameters**

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
Copper (II) chloride dihydrate	TWA: 1 mg/m ³		IDLH: 100 mg/m ³ TWA: 1 mg/m ³	STEL: 2 mg/m ³ 15 min TWA: 1 mg/m ³ 8 hr	
Cupric chloride	TWA: 1 mg/m ³		IDLH: 100 mg/m ³ TWA: 1 mg/m ³	STEL: 2 mg/m ³ 15 min TWA: 1 mg/m ³ 8 hr	

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust MDHS 99 Metals in air by ICP-AES MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry

Exposure Controls**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber Nitrile rubber Neoprene PVC	See manufacturers recommendations	-	EN 374	(minimum requirement)

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Long sleeved clothing

Respiratory Protection No protective equipment is needed under normal use conditions.

SAFETY DATA SHEET

Copper(II) chloride dihydrate

Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Small scale/Laboratory use	Maintain adequate ventilation

Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Blue green	
Physical State	Solid	
Odor	Odorless	
Odor Threshold	No data available	
pH	3.0-3.8	
Melting Point/Range	598 °C / 1108.4 °F	
Softening Point	No data available	
Boiling Point/Range	993 °C / 1819.4 °F	
Flash Point	No information available	Method - No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	Not flammable	
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	2.54 (H2O=1)	
Bulk Density	1.07 kg/m ³	
Water Solubility	1150 g/L (20°C)	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Autoignition Temperature	Not applicable	
Decomposition Temperature	110 °C	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	Not oxidising	
Molecular Formula	Cl ₂ Cu . 2 H ₂ O	
Molecular Weight	170.48	

SECTION 10. STABILITY AND REACTIVITY

Stability	Hygroscopic.
Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to Avoid	Avoid dust formation. Incompatible products. Excess heat. Exposure to moist air or water.
Materials to avoid	Strong oxidizing agents. Metals.
Hazardous Decomposition Products	Copper oxides. Hydrogen chloride gas.

SECTION 11. TOXICOLOGICAL INFORMATION

SAFETY DATA SHEET**Copper(II) chloride dihydrate****Product Information****(a) acute toxicity;**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cupric chloride	584 mg/kg (Rat)	1224 mg/kg (Rat)	

(b) skin corrosion/irritation; Category 2**(c) serious eye damage/irritation;** Category 1**(d) respiratory or skin sensitization;**

Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity; No data available**(f) carcinogenicity;** No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available**(h) STOT-single exposure;** No data available**(i) STOT-repeated exposure;** No data available**Target Organs** No information available.**(j) aspiration hazard;** Not applicable
Solid**Symptoms / effects, both acute and delayed** Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity effects**

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Copper (II) chloride dihydrate				= 0.16 mg/L EC50 Photobacterium phosphoreum 30 min as Cu++ = 0.27 mg/L EC50 Photobacterium phosphoreum 15 min as Cu++ = 1.29 mg/L EC50 Photobacterium phosphoreum 5 min as Cu++
Cupric chloride	LC50: 0.120-0.130	EC50: 0.04 mg/L/48h	EC50: 0.12 - 0.2	

SAFETY DATA SHEET**Copper(II) chloride dihydrate**

	mg/L/96h (Carp) LC50: 0.9 mg/L/96h (Bluegill sunfish) LC50: 0.08 mg/L/96h (Rainbow trout)		mg/L/96h	
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Persistence and Degradability

Persistence
Degradability
Degradation in sewage
treatment plant

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary
May persist, based on information available.
Not relevant for inorganic substances.
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative Potential

May have some potential to bioaccumulate

Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility Highly mobile in soils

Endocrine Disruptor Information
Persistent Organic Pollutant
Ozone Depletion Potential

This product does not contain any known or suspected endocrine disruptors
This product does not contain any known or suspected substance
This product does not contain any known or suspected substance

SECTION 13. DISPOSAL CONSIDERATIONS**Waste from Residues/Unused Products**

Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

Other Information

Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

SECTION 14. TRANSPORT INFORMATION**Road and Rail Transport**

UN-No	UN2802
Proper Shipping Name	COPPER CHLORIDE
Hazard Class	8
Packing Group	III

IMDG/IMO

UN-No	UN2802
Proper Shipping Name	COPPER CHLORIDE
Hazard Class	8
Packing Group	III

IATA

UN-No	UN2802
Proper Shipping Name	COPPER CHLORIDE
Hazard Class	8
Packing Group	III

Copper(II) chloride dihydrate

Special Precautions for User No special precautions required

SECTION 15. REGULATORY INFORMATION

International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
Copper (II) chloride dihydrate	-	-	X	X	-	-	-	X	-		X	-
Cupric chloride	X	-	X	X	231-210-2	X	X	X	X	X	X	KE-08923

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By Health, Safety and Environmental Department
 Creation Date 28-Nov-2010
 Revision Date 23-Apr-2024
 Revision Summary New emergency telephone response service provider.

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

First aid for chemical exposure, including the use of eye wash and safety showers.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

Chemical incident response training.

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

MARPOL - International Convention for the Prevention of Pollution from Ships

Copper(II) chloride dihydrate

OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor

ATE - Acute Toxicity Estimate
VOC - (Volatile Organic Compound)

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet