



# Copper Sulphate Monohydrate

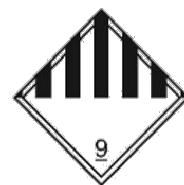
Date reviewed: Dec. 2022  
Version 4

## Use of the substance/ preparation

Agribusiness | Other industrial uses

## Company name

Industrias emu s.a.s.



1. **Product and Company identification** **Synonyms:** Copper sulphate, blue vitriol.

### Product and Company identification

**N° CAS:** 10257-54-2  
**Molecular weight:** 177,62 g/mol  
**Chemical formula:** CuSO<sub>4</sub>·H<sub>2</sub>O

#### Company name

Company: **Industrias emu s.a.s.**  
Address: Carrera 41 N° 46-132 Itagüí - Antioquia | Calle 30 N° 13 - 278 Soledad - Atlantico | Calle 80 Km. 1.5 Via Siberia Cota - Cundinamarca  
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#### Emergency contacts:

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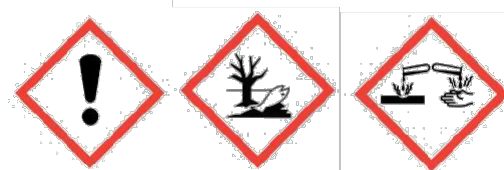
2. **Hazard identification** **Classification of substance or mixture:**

### Hazard identification

Acute toxicity, Category 4, oral, H302 Skin irritation, Category 2, H315 Eye irritation, Category 2, H319 Acute aquatic toxicity, Category 1, H400 Chronic aquatic toxicity, Category 1, H410

#### Label elements

*Hazard pictograms*



*Word of warning*  
Attention

#### Danger indications

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H319 Causes severe eye irritation.  
H410 Very toxic to aquatic organisms, with lasting harmful effects.

#### Precautionary statements

*Preventing*

P264 Wash carefully after handling.  
P270 Do not eat, drink, or smoke while handling this product.  
P273 Avoid its release to the environment.



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### Intervention

P301 + P312 IF SWALLOWED: Call a poison information center or doctor if you are ill.

P302 + P352 IN CASE OF SKIN CONTACT: wash with plenty of soap and water.

P305 + P351 + P338 IN CASE OF EYE CONTACT: wash carefully with water for several minutes. Remove contact lenses, if worn and easy. Keep clarifying.

P391 Collect the spills.

### Other dangers

None known

### 3. Composition/ Information on the components

#### Substance

Chemical name Monohydrated copper sulphate

Chemical Formula  $\text{CuSO}_4 \cdot \text{H}_2\text{O}$

Concentration 35% Cu

N°. CAS 10257-54-2

N°. CE 231-847-6

### 4. First aid measures

#### Description of the first aid

*Inhalation of material can be harmful* After inhalation: fresh air. Transfer to the doctor.

*Contact can cause skin and eye burns*

In case of skin contact: remove immediately all contaminated garments. Wash skin with water/shower for at least 20 minutes. If there is a strong irritation after prolonged contact with the solid consult the doctor.

After eye contact: wash with plenty of water for 10 minutes. Consult the ophthalmologist.

After ingestion: If the patient is conscious, ask the patient to drink 1 glass of water (about 200 ml).

If vomiting does not start spontaneously: induce vomiting, during spontaneous or induced vomiting, keep the patient's head down with the body on the stomach to avoid aspiration. Transfer to the medical center.

#### Main symptoms and effects, acute and delayed

Irritating effects, conjunctivitis, stomach pain, diarrhea, vomiting, collapse and death. Risk of corneal turbidity.



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### Indication of medical care and special treatments required dispense immediately

Make sure medical personnel are aware of the materials involved and take precautions to protect themselves.  
Move the patient to where he breathes fresh air.  
Supply oxygen if breathing with difficulty.  
Remove and isolate contaminated clothing and footwear.

### 5. Measures in case of fire Means of extinction

#### Measures in case of fire

The substance is non-combustible. Select fire extinguishing measures from according to the surrounding conditions.

#### *Small fire*

Dry chemical powders, CO<sub>2</sub>, water spray or regular foam.

#### *Big fire*

Use water spray, fog or regular foam.

Do not disperse spilled material with high pressure water jets.

Move containers from the fire area if you can safely do so. Make a dam for the water that controls the fire for its subsequent disposal.

### Specific hazards arising from the substance or mixture

Non-fuel: non-fuel substances do not ignite themselves, but can react by heating and produce toxic fumes.

Possibility of formation of dangerous vapors by fire in the environment.

Fire can cause sulfur oxide emissions.

### Recommendations for fire fighting personnel

#### *Special protective equipment for fire-fighting personnel.*

Use self-contained positive pressure air (SCBA) equipment.

The suit for professional firefighters will provide only limited protection. Stay in the risk area only with artificial respiration systems independent of the environment.

#### *Other information*

Repress gases/vapours/mists with powdered water.

Prevent contamination of surface water or groundwater by water that has served to extinguish fires.



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### 6. Measures in Personal precautions

#### accidental dumping

Do not touch or walk on spilled material.

Stop the spill, should you be able to do so safely using personal protection (*see section 8*).  
Prevent the dust cloud.

#### Small spill

With a clean shovel place the material in a clean and dry container and cover loosely; remove containers from the spill area.

#### Big spill

Cordon off the area with a signaling tape.  
Cover the dust spill with a plastic sheet or tarp to minimize your spreading.  
Prevent entry into waterways, sewers, basements or areas confined.

#### Reference to other sections

For details on waste treatment, *see Section 13*.

### 7. Handling and Precautions for safe handling

#### storage

#### Hygiene measures

Replace the contaminated clothing. Wash hands after work.

#### Safe storage conditions, including possible incompatibilities

#### Storage conditions

Do not use any food containers.  
Packaging must be clearly and permanently labelled.  
Store in the original container as much as possible.  
Keep the container tightly closed.  
Storage recommended at room temperature.  
Store in a dry and aerated place.

For possible incompatibilities *see section 10*.

### 8. Controls of Control parameters

#### exposure and personal protection

- OSHA Permissible exposure limit (PEL): 1 mg/m<sup>3</sup> (TWA) for dust and mists of Copper as Cu.
- ACGIH Threshold limit value (TLV): 1 mg/m<sup>3</sup> (TWA) for copper powders and mists such as Cu.

#### Exposure controls

#### Ventilation system

A local and/or general exhaust aeration system is recommended to keep employee exposures below exposure limits. Local exhaust ventilation is generally preferred because emissions can be controlled



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of the contaminant at its source, preventing its dispersion in the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Best Practice Manual, latest edition, for details.*

### Personal Respirators (NIOSH Approved)

If the exposure limit is exceeded and engineering controls are not feasible, a medium mask particle respirator (NIOSH type N95 or better filters) it shall be used if it is exposed 10 times above the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or the respirator provider, whichever is lower. A complete mask particulate respirator (NIOSH type N100 filters) shall be used if 50 times above the exposure limit or maximum use concentration specified by the appropriate regulatory agency or the respirator provider, whichever is lower. If oil particles (e.g., lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R particle filter or a P filter. For emergencies or cases where exposure levels are not known, use a full positive pressure mask, a self-contained respirator.

WARNING: Self-contained respirators do not protect workers in oxygen-deficient atmospheres.

### Skin protection

Submergence	Material of the glove: nitrile rubber Thickness of the glove: 0,11 mm Penetration time: > 480 min
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Spatter	Material of the glove: nitrile rubber Thickness of the glove: 0,11 mm Time of penetration: > 480 min
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### Eye protection

Wear protective chemical goggles.

Keep an eye wash fountain and emergency showers in the work area.

### Environmental exposure controls

Do not let the product enter the sewer system.

## 9. Physical and chemical properties

### Information on property basic physical and chemical

Way	Tricyclic crystals.
Fitness	Solid.
Color	Blue.
Smell	Characteristic.
Olfactory threshold	Not applicable
pH	3.5 - 4.5 to 50 g/l 20 °C
Melting point	Not applicable.
Boiling point/interval	Not applicable.



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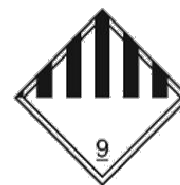
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Flash point	It does not swell.
Evaporation rate	No information is available.
Flammability (solid, gas)	The product is not flammable.
Explosion limit, lower	Not applicable.
Limit of explosion, upper	Not applicable.
Vapour pressure	No information is available.
Relative density of steam	No information is available.
Density	2,284 g/cm <sup>3</sup> to 20 °C
Relative density	No information is available.
Water solubility	317 g/l to 20 °C
Distribution coefficient n-octanol/water	No information is available.
Self-ignition temperature	No information is available.
Temperature of decomposition	88 - 245 °C
Disposal of water from the crystallization	340 - 650 °C
Viscosity, dynamic	No information is available.
Explosive properties	Not classified as explosive.
Oxidising properties	None.
Corrosive properties	No information is available.
<b>Other information</b>	
Ignition temperature	Not applicable.

## 10. Stability and Reactivity

**Stability and reactivity** See "*Possibility of dangerous reactions*"

### Chemical stability

The product is chemically stable under normal conditions (at room temperature).  
Loses crystallization water at 250 °C

### Possibility of dangerous reactions

Exothermic reaction with:  
strong oxidizing agents, hydroxylamine, magnesium.

### Conditions to be avoided

Strong heating (decomposition).

### Incompatible materials

Information not available.

### Dangerous decomposition products

In case of fire: see *Section 5*.



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## 11. Toxicological Information

### Information on toxicological effects

#### Acute oral toxicity

LDLO man: 1.088 mg/kg

(RTECS)

DL50 rata: 960 mg/kg

(HSDB)

Symptoms: stomach pains, vomiting, diarrhea.

#### Acute toxicity by inhalation

Possible consequences: irritation of mucous membranes.

#### Acute skin toxicity

DL50 Rata: > 2.000 mg/kg

(RTECS)

#### Skin irritation

It causes skin irritation.

#### Eye irritation

Risk of corneal turbidity.

Conjunctivitis.

It causes severe eye irritation.

#### Sensitization

This information is not available.

#### Mutagenicity in germ cells

Genotoxicity in vivo

Mutagenicity (mammalian cell test)

Result: negative.

(National Toxicology Program)

#### In vitro genotoxicity

Ames salmonella Typhimurium test

Result: negative.

(Literature)

#### Carcinogenicity

This information is not available.

#### Reproductive toxicity

This information is not available.

#### Teratogenicity

This information is not available.

**Specific toxicity in certain organs- single exposure** This information is not available.



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*Specific toxicity to certain organs - repeated exposures* This information is not available.

### **Aspiration hazard**

This information is not available.

### **Other information**

After absorption:

Decreased blood pressure, tachycardia, collapse, acidosis.

After latency time: death.

Fevers from inhalation of large amounts of metal vapors.

Handle with proper industrial hygiene precautions and respect safety practices.

12.

## Ecological

## Information

### **Toxicity**

#### **Toxicity to fish**

CL50 *Oncorhynchus mykiss* (Irised trout): 0.11 mg/l; 96 h (anhydrous substance) (ECOTOX database)

#### *Toxicity to Daphnia and other aquatic invertebrates*

CE50 *Daphnia magna* (Big sea flea): 0.02 mg/l; 48 h (anhydrous substance) (ECOTOX database)

#### **Persistence and degradability**

No information is available.

#### **Bioaccumulation potential**

No information is available.

#### **Floor mobility**

No information is available.

#### **Results of the PBT and MPMB assessment**

A PBT and MPMB assessment was not made due to the fact that a chemical hazard assessment is not necessary or does not exist.

#### **Other adverse effects**

##### *Complementary environmental information*

Fungicide. Discharge into the environment should be avoided.

## 13. Disposition considerations

According to Resolution 1704 of 2018, the final disposition of this packaging must be made with a hazardous waste manager.

Any amount that cannot be saved by recovery or recycling must be handled at an appropriate and approved waste disposal facility. The processing, use or contamination of this product can change waste management options. Departmental disposal regulations may differ from national disposal regulations. Discard the container and do not use the residue.





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## 14. Transport information

### Transporte terrestre

United Nations official transport designation

Solid substance hazardous to the environment, N.E.P. (Copper Sulphate Monohydrate)

N°UN/ID

3077

Danger class

9

Packing group

III

Instructions for packaging/ packaging

P002, IBC08, LP02 \*

Special packaging/packaging requirements

PP12, B3 \*

Environmentally dangerous

Si

Special precautions for users

Si

*\*For further information please refer to the United Nations Orange Book section 4.1.4*

### Air transport (IATA)

Official designation of transport of United Nations

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S (COPPER(II)-SULPHATE)

N° UN/ID

3077

Class

9

Packing group

III

Environmentally dangerous

Si

Special precautions for the users

Not

### Maritime transport (IMDG)

Official designation of transport of United Nations

ENVIRONMENTALLY HAZARDOUS



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SUBSTANCE, SOLID, N.O.S  
(COPPER(II)-SULPHATE)

N° UN/ID	3077
Class	9
Packing group	III
Environmentally dangerous	Si
Special precautions for the users	Si
Segregation Group	007 Heavy Metals and their salts (incl. their organometallic compounds).

## 15. Regulatory information

### Chemical Inventory Status - Part 1.

Ingrediente	TSCA	EC	Japan	Australia
Cupric sulfate monohydrate (7758-98-7)	Yes	Yes	Yes	Yes

### Chemical Inventory Status - Part 2.

Ingrediente	Korea	Canada	DSL	NDSL	Phil
Cupric sulfate monohydrate (7758-98-7)	Yes	_____	Yes	Not	Yes

### Federal, State and International Regulations - Part 1.

Ingrediente	SARA 302		SARA 313	
	RQ	TPQ	List	Cat.Quimico
Cupric sulfate monohydrate (7758-98-7)	Not	Not	Not	Copper Components

### Federal, State and International Regulations - Part 2.

Ingrediente	CERCLA	RCRA	TSCA
Cupric sulfate monohydrate (7758-98-7)	10	261.33	8 (d)
		Not	Not

**Chemical Weapons Conversion:** No | **TSCA 12 (b):** No | **CDTA:** No  
**SARA 311/312:Acute:** Yes | **Chronic:** No | **Flammability:** No | **Pressure:** No  
**Reactividad:** No (Puro / Sólido)

**Australian Hazchem Code:** None assigned.  
**Frase veneno:** S5



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### WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the MSDS contains all the information required by the CPR.

## 16. Other information

### Advice relating to training

Workers must be provided with adequate information and practical training.

### Transport labelling

Level of danger: 9



### Special labelling



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