SAFETY DATA SHEET

According to 29 CFR 1910.1200

COPPER SULPHATE

Date of issue: July 01, 2014 **Revision date:** September 01, 2023 **Version.** 4

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

1.1 Product identifier

Product form Substance.

Substance name Copper sulphate

CAS No. 7758-99-8

Formula $CuSO_4$

Synonyms Not available.

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

Use of the substance/mixture Algae control, mineral processing, etc.

1.3 Details of the supplier of the safety data sheet

Pima Chemicals & Fertilizers, LLC
1370 Nogales, Az.
Tel. 011 52 (662) 182-0559
rgutierrez@qpima.com

Química Pima, S.A. de C.V.
Del Cobre 20, Parque Industrial Hermosillo.
Hermosillo, Sonora, México. C.P. 83297
Tel. 011 (662) 251-0010 ventas@qpima.com

1.4 Emergency telephone number

Emergency number CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

SECTION 2.- HAZARD IDENTIFICATION

2.1. GHS-US classification

Acute toxicity-Oral 4 H302
Skin corrosion/irritation 2 H315
Eye damage/irritation 2A H319
Hazardous to the aquatic environment - short-term (acute) hazard 1 H400
Hazardous to the aquatic environment - long-term (chronic) hazard 1 H410

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US)

Signal word (GHS-US): Warning

Hazard statement (GHS-US):
H302 Harmful if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation.
H400+H410 Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US):
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves and face protection.

P301 + P312 IF SWALLOWED: Call a doctor if you feel unwell.

P302 + P352 IF ON SKIN: Wash with plenty of 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.
P330 Rinse mouth.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P337+P313 If eye irritation persists: Get medical advice/attention.
P391 Collect spillage.

P501 Dispose of contents/container in accordance with local/regional/national/ international regulations.

2.3. Other hazards None.

2.4 Unknown acute toxicity (GHS-US) Not applicable.

SECTION 3.- COMPOSICION / INFORMATION OF INGREDIENTS

3.1 Substance

Substance type Mono-constituent.

Name	*Product identifier*	*%*	*GHS-US classification*
Copper sulphate	(CAS No.) 7758-99-8	> 99.00	H302, H315, H319, H400, H410

3.2 Mixture Not applicable.

SECTION 4.- FIRST AID MEASURE

4.1. Description of first air measure

First-aid measures general Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice.

First-aid measures after eye contact Rinse cautiously with water for at least 15 minutes, raising and lowering eyelids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after skin contact Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

First-aid measures after inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

First-aid measures after ingestion Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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

Symptoms/injuries after inhalatior	It can cause irritation of the upper respiratory tract. Acute or chronic exposure can cause perforation of the nasal septum. Individuals with "Wilson's disease" are predisposed to accumulate copper and should not be exposed occupationally.
Symptoms/injuries after skin contact	Repeated contact can cause skin irritation, itching and localized discoloration. The problem can be aggravated in cases of high humidity. It can cause allergic contact dermatitis.
Symptoms/injuries after eye contact	Causes serious eye irritation. Chronic exposure to particles can cause conjunctivitis, ulceration and corneal abnormalities. It can cause irreversible damage to the eyes.
Symptoms/injuries after ingestion	Harmful orally. It can cause gastritis, ulceration of the gastrointestinal tract, diarrhea, nausea, vomiting, kidney damage, anemia and death.
Chronic symptoms	Severe exposure to chronic exposure from ingestion or inhalation of copper sulfate can induce severe gastrointestinal distress (vomiting, local pain, local bleeding), a metallic taste in the mouth, prostration, anuria, hematuria, anemia, increased white blood cells, coma, breathing difficulties and circulatory problems. Prolonged skin contact can cause irritation and eczema. Chronic inhalation can cause anemia.

4.3. Indications of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5.- FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known.

5.2. Special hazard arising from the substance or mixture

Fire hazard	No specific fire hazard.
Explosion hazard	No specific explosion hazard.
Hazard thermal decomposition products	In case of fire, it can give off irritating and/or toxic fumes and gases, such as carbon monoxide, copper oxide, sulfur oxides and other substances derived from incomplete combustion.

5.3. Advice for firefighters

Protective equipment	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Emergency procedures	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

SECTION 6.- ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	Safety glasses.
Emergency procedures	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

6.1.2. For emergency responders

Protective equipment	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Emergency procedures	Do not breathe fumes or vapors from fire decomposition. If possible, stop flow of product. Contain and collect any solid. Ventilate area.

6.2. Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3. Methods and material for containment and cleaning up.

Small spill	Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

6.4 Reference to other sections See Heading 8. Exposure controls and personal protection.

SECTION 7.- HANDLING AND STORAGE

7.1. Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
Incompatible products	See Section 10.
Incompatible materials	See Section 10.

7.3 Specific end use(s) No additional information available.

SECTION 8.- EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	*ACGIH TLV*	*OSHA PEL*	*NIOSH IDLH*
Copper sulphate 7758-99-8	Not available.	Not available.	Not available.

8.2. Exposure controls

Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Eye protection	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
Respiratory protection	Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Other information	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

SECTION 9.- PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state:	Solid.	**Appearance:**	Crystalline/blue solid. Powder. Grains
Odor:	Odorless.	**Color:**	Transparent blue

Molecular mass	249.68 g/mol
Odor threshold	No data available.
pH	4.0
pH solution	5%
Relative evaporation rate (butyl acetate=1)	No data available.
Melting/Freezing point	110°C(230°F)
Boiling point	No data available.
Flash point	No data available.
Self ignition temperature	No data available.
Decomposition temperature	110°C (230°F)
Flammability (solid, gas)	No data available.
Vapor pressure	No data available.
Relative vapor density at 20°C	No data available.

Density	2,284	g/cm^3
Solubility	Water: 316 g/l (0°C); 2,033 g/l (100°C)	
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	Reactions or decompositions of the product are not expected under normal storage conditions. Does not contain organic peroxides. It can be corrosive to metals. It does not react with water.
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	Avoid alkaline environments, high temperatures and humidity.
10.5 Incompatible materials	Alkaline substances, contact with metals. The contact with metallic magnesium can generate dangerous levels of hydrogen, on contact with aluminum it will release less gas. The powder can react with acetylene gas to form copper acetylides sensitive to shocks. Contact with hydroxylamine will ignite it.
10.6 Hazardous decomposition products	In case of heating it can give off irritating and toxic vapors.

SECTION 11.-TOXICOLOGICAL INFORMATION

11. 1. Information on toxicological effects

Acute toxicity: Not classified.

Name	LD_{50} oral	LD_{50} dermal	LC_{50} inhalation
Copper sulphate	472.5 mg/kg (rat)	> 8.0 g/kg (rabbit)	> 2.95 mg/l (rat, 4h)

Skin corrosion/irritation	No known significant effects or critical hazards.
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitization	Not available.
Germ cell mutagenicity	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Reproductive toxicity	No known significant effects or critical hazards.
Specific target toxicity (single exposure)	Not available.

Specific target toxicity (repeat exposure)	Not available.
Aspiration hazard	Not available.
Potential adverse human health effects and symptoms	Based on available data, the classification criteria are not met.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Copper sulphate (7758-99-8)	
L. macrochirus	CE50 (96 h): 0,65 mg/l
O. mykiss	CE50 (96 h): 0,056 mg/l
D. magna	CL50 (24 h): 0,6 mg/l
C. sapidus	CL50 (24 h): 6,9 mg/l
P. borealis	CL50 (48 h): 17 mg/l
P. borealis	CL50 (96 h): 16 mg/l
C. virginica	CE50 (48 h): 0,054 mg/l
P. subcapitata	ETA-CE50 (calc., 48 h): < 1 mg/l
T. pyriformis	ETA-CE50 (calc., 48 h): < 1 mg/l
D. rerio	ETA-CSEO (calc., 14 d): < 0,1 mg/l
D. magna	ETA-CSEO (calc., 14 d): < 0,1 mg/l

12.2 Persistence and degradability

Copper sulphate (7758-99-8)	
Persistence and degradability	Not available.

12.3 Bioaccumulative potential

Copper sulphate (7758-99-8)	
Bioaccumulative potential	Not available.

12.4 Mobility in soil

No additional information available.

12.5 Other adverse effects

Other information No known significant effects or critical hazards.

SECTION 13.- DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste disposal recommendations	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Ecology-waste materials	Waste packaging should be recycled. Incineration or landfill should only be considered

when recycling is not feasible. Care should be taken when handling empty containers that have not been cleaned or rinsed.

SECTION 14.- TRANSPORT INFORMATION

14.1.UN number	Not regulated.
14.2. UN proper shipping name	Not regulated.
14.3. Additional information	
Other information	Not regulated.
Overland transport	Not regulated.
Transport by sea	Not regulated.
Air transport	Not regulated.

SECTION 15.- REGULATORY INFORMATION

15.1 US Federal regulations

Copper sulphate (7758-99-8)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2 International regulations

CANADA

Copper sulphate (7758-99-8)	
Not listed on the Canadian DSL (Domestic Substances List) inventory.	
WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations

No additional information available.

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity-Oral 4 H302
Skin corrosion/irritation 2 H315
Eye damage/irritation 2A H319
Hazardous to the aquatic environment - short-term (acute) hazard 1 H400
Hazardous to the aquatic environment - long-term (chronic) hazard 1 H410

Classification according to Directive 67/548/EEC or 1999/45/EC

Not available.

15.2.2. National regulations

Copper sulphate (7758-99-8)
Not listed on the Canadian Ingredient Disclosure List.

15.3 US State regulations

No additional information available.

SECTION 16.- OTHER INFORMATION

NFPA	NFPA health hazard	2	NFPA fire hazard	0	NFPA instability hazard	0	NFPA Special hazard	-

HMIS III	Health	2	Flammability	0	Physical	0	Personal Protection	E

E Safety glasses, gloves and dust respirator.



Other information:	None.
Made for:	Quimica Pima, S.A. de C.V. Del Cobre No. 20 Parque Industrial. Hermosillo, Sonora, México. 83297.
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End of Safety Data Sheet