



FABRICA DE SULFATO EL AGUILA S.A. DE C.V.

SAFETY DATA SHEET

CAL – SDS – 1 - 05

Quimag Químicos Aguila Copper Sulfate Crystal CROP

Product Name: Copper Sulfate Pentahydrate

Date of issue: January, 2016

Revision date: January, 2023

Version: 8.0

Section 1 – Identification of the substance/mixture and of the company.

1.1 Product identifier: Copper Sulfate Pentahydrate

CAS #: 7758-99-8

Index-No.: 029-023-00-4

EPA Registration Number: 73385-3

1.2 Other means of identification: Bluestone; Blue Vitriol; Cupric sulfate

1.3 Recommended use of the dangerous chemical: For Commercial Use

1.4 Manufacturer information:

Fabrica de Sulfato el Aguila, S.A. de C.V.

Carr. Guadalajara-Chapala Km. 17.5 No. 8100

Tlajomulco de Zuñiga, Jalisco, Mexico C.P. 45640

Phone: (52+33) 3688-6719

1.5 Phone number in case of emergency: CHEMTREC (800) 424-9300 (24 hours)

Section 2 – Hazards identification.

2.1 Classification of the substance or mixture:

GHS Classification (Globally Harmonized System).

Acute Toxicity, Category 4, Oral, H302

Serious eye damage, Category 1, H318

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

2.2 Signaling elements, including precautionary statements and precautionary pictograms:

Signal word:

Danger.

Hazard Statements:

H302 Harmful if swallowed.

H318 Causes serious eye damage.

H410 Very toxic to aquatic life with long lasting effects.

Hazard pictograms:**Precautionary Statements:**

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338; P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

P330 Rinse mouth.

P362 Take off contaminated clothing and wash before reuse.

P391 Collect spillage.

P501 Dispose of contents/container in accordance with local authorities requirements.

P270 Do not eat, drink or smoke when using this product.

P264 Wash skin thoroughly after handling.

P321 Specific treatment (see ... on this label).

2.3 Other hazards:**OSHA Hazards:**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS and may deviate from GHS information.

Emergency Overview:

Copper Sulfate Crystal is a blue crystalline odorless solid. Potentially fatal if swallowed. May cause irritation to the eyes and skin. Fire may produce irritating, corrosive and / or toxic fumes. Firefighters should use full protective equipment and clothing

Section 3 – Composition / Information on Ingredients.
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3.1 Substance.

CAS #	Components	Percentage	EHS	NTP	IARC	SUB Z	SARA 313	OSHA PEL	ACGIH TLV	Other Limits
7758-99-8	Sulfato de cobre Pentahidratado	99%	N	N	N	Y	Y	1 mg/M3	1 mg/M3	1 mg/M3

Chemical Name: Copper Sulfate Pentahydrate.

Synonymous: Blue Vitriol; Copper Sulfate

Formula: $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

No. CE: 231-847-6

Molar Mass: 249,68 g/mol

CAS #: 7758-99-8

No. ONU: UN 3077

3.2 Mixture.

Not applicable

Section 4 - First aid measures.
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4.1 Description of first aid measure.**Route(s) of Entry:**

Eye, Skin, Ingestion, Inhalation.

Health Hazards (Acute and Chronic):

Can cause skin and eye irritation. Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated contact may cause conjunctivitis.

If in eyes:

< Flush with plenty of water. Call a physician.

If on skin:

< Wash with plenty of soap and water. Get medical attention.

If swallowed:

< Drink promptly a large quantity of milk, egg white, gelatin solution, or, if these are not available, large quantities of water. Avoid alcohol.

If inhaled:

< Move person to fresh air.

4.2 Most important symptoms and effects, both acute and chronic:

EYE: Can cause severe eye irritation and may result in irreversible eye damage.

SKIN CONTACT: Can cause slight skin irritation. May cause localized discoloration of the skin.

INGESTION: Can result in digestive tract irritation with abdominal pain.

INHALATION: Call a doctor for treatment advice.

4.3 Indication of any immediate medical attention and special treatment needed:

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

Section 5 – Fire-fighting measures.

Flash Point: *

Upper Flammable Limit: *

Auto Ignition: *

Rate of Burning: *

Method Used: *

Lower Flammable Limit: *

Flammability Classification: *

* see Section 9.

5.1 Extinguishing media:

Dry chemical, carbon dioxide, water spray or foam. For large fires use water spray, for or alcohol foam.

5.2 Special hazards arising from the substance or mixture:

Copper Sulfate Pentahydrate is not combustible, but may decompose in the heat of a fire to produce corrosive and/or toxic fumes.

Hazardous Combustion Products:

Sulphur oxides.

5.3 Advice for firefighters:

Firefighters should wear full protective clothing including self-contained breathing apparatus. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. Avoid direct water stream on molten material, move containers from fire area if possible, do not scatter spilled area with more water than needed for fire control, dike fire control water for later disposal. Use agents suitable for type of fire. Avoid breathing vapors or dust.

Section 6 - Accidental release measures.
Steps to be Taken in Case Material is Released or Spilled:**6.1 Personal precautions, protective equipment and emergency procedures.**

Use clean-up methods that avoid dust generation (vacuum, wet). Wear a NIOSH or MSHA approved respirator if dust will be generated in clean-up. Use protective clothing if skin contact is likely. Copper sulfate solution may deteriorate concrete.

6.2 Environmental precautions.

Prevent accidental entry of solution into streams and other water bodies. Shovel any spills into plastic bags and seal with tape.

6.3 Methods and materials for containment and cleaning up.

If spilled solution is in a confined area, introduce lime or soda ash to form insoluble copper salts and dispose of by approved method.

Section 7 - Handling and storage.

7.1 Precautions for safe handling:

Avoid breathing dust or solution mist. Sweep up crystals or powder, vacuum is preferred. Eye wash stations should be available in work areas. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

7.2 Conditions for safe storage:

Store in closed containers in cool, dry, well-ventilated area away from heat sources and reducing agents. Store copper sulfates in stainless steel, fiberglass, polypropylene, PVC=s or plastic equipment. If container or bag is damaged, place the container or bag in a plastic bag. Use good housekeeping practices to avoid dust accumulation.

Section 8 - Exposure controls / personal protection.

8.1 Control parameters.

Occupational Exposure Limits: Required to include OSHA Permissible Exposure Limits (PEL) or ACGIH Threshold Limit Values (TLV) if applicable. For the copper sulfate pentahydrate, could provide the ACGIH generic limit assigned to copper, dusts and mists 8-hr TLV of 1 mg/m³.

8.2 Exposure controls:

Use adequate general or local ventilation to keep airborne concentrations below the exposure limits.

8.3 Individual protection measures (personal protective equipment):

Respirator:	NIOSH approved respirator for toxic dust mist. The respirator selected must be based on contamination levels found in the work area. Supply air respirator with full-face piece.
Immediately Dangerous Life or Health Conditions:	Self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
Clothing:	Individuals must wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact.
Gloves:	Individuals must wear appropriate gloves to prevent contact with substance.
Eye-Protection:	Individuals must wear splash proof or dust resistance safety goggles to prevent eye contact with this substance.

Section 9 - Physical and chemical properties.
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- 9.1 **Appearance:** Blue crystals.
- 9.2 **Odor:** Odorless.
- 9.3 **Odor Threshold:** Not applicable.
- 9.4 **pH:** 3.5 to 4.5 (at 50 g / l and 20 °C).
- 9.5 **Melting Point:** Not applicable.
- 9.6 **Initial boiling point and boiling range:** Not applicable.
- 9.7 **Flash point:** Not applicable.
- 9.8 **Evaporation Rate:** No information available.
- 9.9 **Flammability:** Product is not flammable.
- 9.10 **Upper / Lower Flammable or Explosive Limit:** Not applicable.
- 9.11 **Vapor Pressure:** No information available.
- 9.12 **Vapor density:** No information available.
- 9.13 **Relative density:** No information available.
- 9.14 **Solubility (H₂O):** 317 g / l at 20 °C.
- 9.15 **Partition coefficient n-octanol / water:** No information available.
- 9.16 **Autoignition Temperature:** No information available.
- 9.17 **Decomposition Temperature:** 88-245 °C
 Removing water from the crystallization
 340-650 °C
- 9.18 **Viscosity:** No information available.
- 9.19 **Molar Mass:** 249,68 g/mol.
- 9.20 **Other data:**
Solvent solubility: Solvent methanol, glycerol and slightly soluble in ethanol.
Physical State: Solid.

Section 10 - Stability and reactivity.

- 10.1 **Reactivity:** Stable
- 10.2 **Chemical stability:** Stable under normal temperatures and pressures.
- 10.3 **Possibility of hazardous reactions:** None when product remains dry. Acetylene gas, aluminum powder, hydroxylamine, magnesium, moist air. Contact with magnesium metal can generate dangerous levels of hydrogen gas.
- 10.4 **Conditions to Avoid:** Strong heating (decomposition).
- 10.5 **Incompatible materials:** No information available.
- 10.6 **Possibility of hazardous:** At temperatures >600 °C material decomposes to cupric oxide and sulfur dioxide.

Section 11 - Toxicological information.
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Code:	Hazard statements	Classification	Category
H302	Harmful if swallowed	Acute toxicity	4
H318	Causes serious eyes damage	Serious eye damage	1

Acute Toxicity Estimates (ATE): Oral: (ATE) = 481 mg/kg

Dermal LD50: >5050 mg/kg (rabbit)

Oral LD50: 246 mg/kg (rat)

Inhalation LC50: >2.95 mg/L

Primary Eye Irritation: Irritant

Primary Skin Irritation: Slight Irritant

Carcinogenic: Not listed by NTP, IARC, or OSHA.

Poisoning may affect the liver and/or kidneys and gastrointestinal tract. Persons with a history of chronic respiratory or skin disease may be at increased risk from exposure.

Section 12 - Ecological information.

12.1 Toxicity.

This pesticide is toxic to fish. Direct application of copper sulfate to water may cause a significant reduction in population of aquatic invertebrates, plants and fish. Do not treat more than one-half of a lake or pond at one time in order to avoid depletion of oxygen from decaying vegetation. Allow 1 to 2 weeks between treatment for oxygen levels to recover. Trout and other species of fish may be killed at application rates recommended on this label, especially in soft or acid waters. However, fish toxicity generally decreases as the hardness of water increases. Do not contaminate water by cleaning of equipment or disposal of wastes.

This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority, except when product is labeled for use in sewers and bears such use instructions. For guidance, contact your State Water Board or Regional Office of the EPA.

Subacute Dietary LC50: >10,000 ppm (quail and duck)

96-hr Acute Toxicity LC50: 0.65 ppm (bluegill), 0.056 ppm (trout), 16 ppm (pink shrimp)

48-hr EC50: 54 ppb (eastern oysters)

48-hr LC50: 17 ppm (pink shrimp), 600 ppb (daphnia)

24-hr LC50: 6.9 ppm (blue crab), 600 ppb (daphnia)

12.2 Persistence and degradability.

Not applicable for inorganic substance.

12.3 Bioaccumulative potential.

Not information available.

12.4 Mobility in soil.

Not information available.

Section 13 - Disposal considerations.

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: (Paper Bag)

If empty: Do not reuse this container. Dispose of empty bag in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

If partly filled: Call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

Container Disposal: (Plastic Pail)

If empty: Do not reuse this container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.




If partly filled: Call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

Section 14 - Transport information.

	Proper Shipping Name	Hazard Class	ID	PG
DOT	Environmentally Hazardous Substance, Solid, N.O.S., (Cupric Sulfate)*	9	UN3077	III
	Reportable Quantity (RQ) = 10 pounds (4.54 kg)			



*Applicable when product is shipped in packaging of 10 pounds or greater.

Sea transport (IMDG):


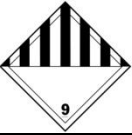
UN Number	3077	
Proper shipping name	Environmentally hazardous substance, Solid. N.O.S., (Cooper II Sulfate)	
Class	9	
Packing group	III	
Environmentally Hazardous	Yes	
Special precautions for use	Yes	
Sea transport (IMDG)	EmS: F-A, S-F	

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code.
Not relevant.

Air transport (IATA):

UN Number	3077	
Proper shipping name	Environmentally hazardous substance, Solid. N.O.S., (Cooper II Sulfate)	
Class	9	
Packing group	III	
Environmentally Hazardous	-	
Special precautions for use	No	

Land transport (ADR):

UN Number	3077	
Land Transport (DOT) Proper shipping name	Environmentally hazardous substance, Solid. N.O.S., (Cooper II Sulfate)	
Class	9	
Packing group	III	
Environmentally Hazardous	-	
Special precautions for user	No	

Section 15 - Regulatory information.

OSHA STATUS: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

Harmful if swallowed.
Skin irritant.
Eye irritant.

TSCA STATUS: This product is exempt from TSCA Regulation under FIFRA Section 3(2)(B)(ii) when used as a pesticide.

SARA TITLE III:

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: None (No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302).

SECTION 311/312 HAZARD CATEGORIES: Immediate Health Hazard, Delayed Health Hazard (Acute Health Hazard).

Acute: Yes / Chronic: Yes / Fire: No / Pressure: No

SECTION 313 TOXIC CHEMICALS: Copper Sulfate Pentahydrate
CAS # 7758-98-8

RCRA STATUS: When discarded in its purchased form, this product is a listed RCRA hazardous waste and should be managed as a hazardous waste. (40 CFR Part 261.20-24)

Clean Water Act (U.S.), section 311, table 116.4, table 117.3:

Ingredients

Copper sulphate.

DEA List I: Not listed.

DEA List II: Not listed.

US State Regulations

Massachusetts Right To Know Ingredients	Pennsylvania Right To Know Ingredients	New Jersey Right To Know Ingredients	California Prop 65 Components
Copper (II) sulphate pentahydrate			This product does not contain any chemicals known to the State of California to cause cancer, birth or any other reproductive defects.

Hazard Data	Classification FIFRA / Label EPA	Globally Harmonized System / Section 2 of the SDS
Signal Word	Danger	Danger
Acute toxicity, oral LD50=246 mg/kg	Category II May be fatal if swallowed.	Category 4, Oral H302 Harmful if swallowed.
Acute toxicity, inhalation LC50>2.95 mg/L	Category IV No required hazard labeling	P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Eye irritation, Severely irritating	Category I Causes irreversible eye damage	Category 1 H318 Causes serious eye damage. P305+P351+P338; P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
Skin sensitization, Non-sensitizer	Not Classified	Not Classified
Acute aquatic toxicity 96-hr Acute toxicity LC50: 0,65 ppm (bluegill), 0.056 ppm (trout), 16 ppm (pink shrimp).	This pesticide is toxic to fish and aquatic invertebrates.	Category 1 H410 Very toxic to aquatic life with long lasting effects.
Chronic aquatic toxicity Very Toxic to aquatic organisms. It can cause long-term adverse effects in the aquatic environment. Fungicide effect.	This pesticide is toxic to fish and aquatic invertebrates.	Category 1 H410 Very toxic to aquatic life with long lasting effects.
Carcinogenicity	Not Classified	No Classified

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

DANGER

Corrosive. Causes irreversible eye damage. May be fatal if swallowed. Do not get in eyes, or on clothing.

This pesticide is toxic to fish and aquatic invertebrates.

Section 16 - Other information.

Date of preparation of the SDS or last change to it January 2023

The information and statements in this Safety Data Sheet are believed to accurately reflect the scientific evidence used in making the hazard determination, but is not to be construed as a warranty or representation for which we assume legal responsibility. Additional information may be necessary or desirable depending on particular, exceptional or variable conditions or circumstances of use or storage or because of locally applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information available to you and must make independent determinations of the suitability of the information for your particular circumstances or conditions and of the completeness of the information available from all sources to assure both the proper use of the material described herein and the safety and health of employees.