

Liquid Copper Sulfate, 25%

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SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Liquid Copper Sulfate, 25%**

Other means of identification : Not available.

Recommended use of the chemical and restrictions on use

: Used for algae control, disinfection byproduct control, as a fungicide, and in flotation processes and metal finishing for plating.

Recommended restrictions: Each of these uses requires careful handling and adherence to safety guidelines. Use as directed. For other uses, contact sales or technical support.

Chemical family : Mixture

Name, address, and telephone number of the manufacturer:

Catalynt Solutions, Inc.

240 Foster Avenue
Bensenville, IL, USA
60106

Manufacturer's Telephone # : (630) 521-1600

24 Hr. Emergency Tel # : INFOTRAC: (800) 535-5053 (US and Canada); + 001 (352) 323-3500 (International)

Name, address, and telephone number of the supplier:

Refer to manufacturer

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

This material is not classified as hazardous under U.S. OSHA regulations (29 CFR 1910.1200) and Canadian WHMIS regulations (Hazardous Products Regulations).

Hazard classification:

Acute Toxicity (Oral) - Category 4

Skin Corrosion/Irritation - Category 2

Eye Damage/Irritation - Category 1

Label elements

Hazard pictogram(s)



Signal Word

Danger

Hazard statement(s)

Harmful if swallowed.

Causes skin irritation.

Causes serious eye damage.

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Precautionary statement(s)

Wear protective gloves and eye, face protection.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.

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 or doctor.
IF SWALLOWED: Call a POISON CENTRE or doctor if you feel unwell. Rinse mouth.
IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice. Take off contaminated clothing and wash it before reuse.

Dispose of contents or container in accordance with local, regional, national, international regulations.

Other hazards

Other hazards which do not result in classification:

Toxic fumes, gases or vapours may evolve on burning. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
Copper Sulphate Pentahydrate	Cupric sulfate pentahydrate	7758-99-8	10.0 - 30.0
Sulphuric acid	Battery acid; Hydrogen sulfate; Oil of vitriol	7664-93-9	0.5 - 1.5

The exact concentrations of the above listed chemicals are being withheld as a trade secret.

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Rinse mouth thoroughly. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration. Call a POISON CENTRE or doctor if you feel unwell.
- Inhalation* : Remove exposed person to fresh air immediately. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Get medical attention if irritation develops and persists.
- Skin contact* : IF ON SKIN: Wash with plenty of water. If skin irritation occurs, get medical attention. Take off contaminated clothing and wash it before reuse.
- Eye contact* : 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 CENTRE or doctor.

Most important symptoms and effects, both acute and delayed

- : Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Causes eye damage. Symptoms may include a burning sensation, pain, watering, and/or changes in vision (blurred vision). Causes skin irritation. Symptoms may include redness, itching and swelling.

Indication of any immediate medical attention and special treatment needed

- : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

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Suitable extinguishing media

- : Use media suitable for the surrounding area.

Unsuitable extinguishing media

- : Do not use a solid water stream as it may scatter and spread the fire.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Not considered flammable. Toxic fumes, gases or vapours may evolve on burning. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.

Flammability classification (OSHA 29 CFR 1910.106)

- : Not flammable.

Hazardous combustion products

- : Under fire conditions or when heated, copper(II) sulfate may release very toxic and corrosive sulfur dioxide and sulfur trioxide; copper and cupric oxide fumes, and cupric hydroxide.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Firefighters should wear an approved full-face, self-contained breathing apparatus (SCBA) and impervious clothing.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Contaminated surfaces may be slippery. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : Restrict access to area until completion of clean-up. Keep people away from and upwind of spill/leak. All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Do not allow material to contaminate ground water system. Prevent product from entering drains, sewers, waterways and soil.

Methods and material for containment and cleaning up

- : Ventilate the area. Remove all sources of ignition. Dike for water control. Absorb spill with vermiculite or other inert material. Place in clean, dry and labeled containers. Refer to Section 13 for disposal of contaminated material.

Special spill response procedures

- : Contact appropriate local and provincial environmental authorities for assistance and/or reporting requirements. US CERCLA Reportable quantity (RQ): Cupric sulfate 10 lbs

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Avoid breathing mist or vapor. Use in a well-ventilated area. Keep container tightly closed when not in use. Wear protective gloves and eye, face protection. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Keep away from incompatibles. Keep away from extreme heat and flame. Empty containers retain residue and can be dangerous.

Conditions for safe storage : Store in a cool, dry, well ventilated area. Store away from incompatible materials. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. No smoking. Inspect periodically for damage or leaks.

Incompatible materials : Powdered metals

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:				
<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Copper Sulphate Pentahydrate	1 mg/m ³ (dust and mist, as Cu)	Not available	1 mg/m ³ (dust and mist, as Cu)	Not available
Sulphuric acid	0.2 mg/m ³ (thoracic fraction)	Not available	1 mg/m ³	Not available

Exposure controls

Ventilation and engineering measures

- : Use only in well-ventilated areas. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection

- : If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Use a NIOSH approved dust respirator if dust levels exceed exposure limits. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02. Advice should be sought from respiratory protection specialists.

Skin protection

- : Wear protective gloves. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye / face protection

- : Chemical goggles must be worn to prevent dusts from entering the eyes.

Other protective equipment

- : Emergency showers and eyewash facilities should be nearby. Other equipment may be required depending on workplace standards.

General hygiene considerations

- : Avoid breathing mist or vapor. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. Wash hands thoroughly after using this product, and before eating, drinking or smoking. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	: Liquid
Colour	: Clear, blue
Odour	: Odorless.
Odour threshold	: Not applicable
pH	: 2.0 - 2.8
Melting Point/Freezing point	: 150°C/ -2°C
Initial boiling point and boiling range	: Not available.
Flash point	: Not applicable.
Flashpoint (Method)	: Not applicable.
Evaporation rate (BuAe = 1)	: Not available
Flammability	: Not applicable.
Lower explosion or flammability limit (% by vol.)	: Not applicable.

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Upper explosion or flammability limit (% by vol.)

: Not applicable.

Oxidizing properties

: None.

Explosive properties

: Not explosive

Vapour pressure

: Not available.

Relative vapour density

: Not available.

Relative density / Specific gravity

: 1.19 g/cm³ | 9.92 lbs/gal

Solubility in water

: Soluble

Other solubility(ies)

: Soluble in methanol

Partition coefficient: n-octanol/water or Coefficient of water/oil distribution

: Not available.

Auto-ignition temperature

: Not available.

Decomposition temperature

: Not available.

Viscosity

: Not available.

Particle characteristics

: Not applicable.

Volatiles (% by weight)

: Not available.

Volatile organic Compounds (VOC's)

: Not available.

Absolute pressure of container

: Not applicable.

Flame projection length

: Not applicable.

Other physical/chemical comments

: Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity

: Not normally reactive.

Chemical stability

: Stable under normal conditions.

Possibility of hazardous reactions

: Hazardous polymerization does not occur. No dangerous reaction known under conditions of normal use.

Conditions to avoid

: Avoid contact with incompatible materials. Do not use in areas without adequate ventilation. Keep away from extreme heat and flame.

Incompatible materials

: Powdered metals.

Hazardous decomposition products

: Some possible thermal decomposition products are very toxic and corrosive sulfur dioxide and sulfur trioxide, cupric hydroxide sulfate, cupric hydroxide, and cupric oxide

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Routes of entry inhalation

: YES

Routes of entry skin & eye

: YES

Routes of entry Ingestion

: YES

Routes of exposure skin absorption

: NO

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Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

: Inhalation of mists or sprays may mildly irritate the upper respiratory tract and cause coughing or sneezing.

Sign and symptoms ingestion

: Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Sign and symptoms skin

: Causes skin irritation. Symptoms may include redness, blistering, pain and swelling.

Sign and symptoms eyes

: Causes serious eye damage. Symptoms may include a burning sensation, pain, watering, and/or changes in vision (blurred vision).

Potential Chronic Health Effects

: Prolonged or repeated exposure may cause anemia, leukopenia, headache, stomach symptoms, and copper deficiency.

Mutagenicity

: Not expected to be mutagenic in humans.

Carcinogenicity

: No component of this product present at levels greater than, or equal to, 0.1% is identified as a carcinogen or potential carcinogen by ACGIH, IARC, OSHA, or NTP.

Reproductive effects & Teratogenicity

: Not expected to cause reproductive effects.

Sensitization to material

: Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

: According to the classification criteria of U.S. OSHA regulations (29CFR 1910.1200) and Canadian WHMIS regulations (Hazardous Products Regulations), this product is not expected to cause target organ toxicity through single or repeated exposures.

Medical conditions aggravated by overexposure

: Not available.

Synergistic materials

: Not available.

Toxicological data

: There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data. ATE oral = 1906 mg/kg

<u>Chemical name</u>	<u>LC₅₀(4hr)</u>	<u>LD₅₀</u>	
	<u>inh, rat</u>	<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Copper Sulphate Pentahydrate	Not available	481 mg/kg rat (ECHA)	> 2000 mg/kg rat (ECHA)
Sulphuric acid	0.255 mg/L rat (RTECS), 0.160 mg/L mouse (RTECS)	2140 mg/kg rat (RTECS)	Not available

Other important toxicological hazards

: Not applicable

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

: Very toxic to aquatic life with long lasting effects. Do not allow material to contaminate ground water system.

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Ecotoxicity data:

<u>Ingredients</u>	CAS #	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Copper Sulphate Pentahydrate	7758-99-8	0.032 mg/L (Rainbow trout)	Not available	10
Sulphuric acid	7664-93-9	Not available	Not available	None.

<u>Ingredients</u>	CAS #	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Copper Sulphate Pentahydrate	7758-99-8	0.18 mg/L (Daphnia magna)	Not available	1
Sulphuric acid	7664-93-9	Not available	Not available	None.

<u>Ingredients</u>	CAS #	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Copper Sulphate Pentahydrate	7758-99-8	Not available	Not available	Not available
Sulphuric acid	7664-93-9	>100mg/L (Green algae)	Not available	None.

Persistence and degradability

: Biodegradation is not applicable to inorganic substances.

Bioaccumulation potential

: Accumulation in aquatic organisms is expected.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Copper Sulphate Pentahydrate (CAS 7758-99-8)	Not applicable	Not applicable
Sulphuric acid (CAS 7664-93-9)	Not applicable	no bioaccumulation

Mobility in soil : There is no data available for this product.

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal

: Handle in accordance with good industrial hygiene and safety practice. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Refer to protective measures listed in sections 7 and 8.

Methods of Disposal

: Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA

: If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method.

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SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Copper Sulfate Pentahydrate)	9	III	 
TDG Additional information	Refer to TDG regulations for further information.				
49CFR/DOT	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Copper Sulfate Pentahydrate)	9	III	 
49CFR/DOT Additional information	Refer to 49 CFR/DOT regulations for further information.				
ICAO/IATA	UN3082	Environmentally hazardous substance, liquid, n.o.s. (Copper Sulfate Pentahydrate)	9	III	 
ICAO/IATA Additional information	Refer to IATA regulations for further information.				
IMDG	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Copper Sulfate Pentahydrate)	9	III	 
IMDG Additional information	Refer to the IMDG regulations for further information.				

Special precautions for user : Keep away from extreme heat and flame. Appropriate advice on safety must accompany the package.

Environmental hazards : This substance meets the criteria for an environmentally hazardous substance according to the IMDG Code. See ECOLOGICAL INFORMATION, Section 12.

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de Minimis Concentration
Copper Sulphate Pentahydrate	7758-99-8	Yes	Not applicable	Not applicable	No	N/Ap
Sulphuric acid	7664-93-9	Yes	1000 lb/ 454 kg	1000 lb TPQ	Yes	1%

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Acute toxicity ;Skin irritation; Eye Damage.

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US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Copper Sulphate Pentahydrate	7758-99-8	No	Not applicable	No	No	No	No	No	No
Sulphuric acid	7664-93-9	No	Not available	Yes	Yes	Yes	Yes	Yes	Yes

Canadian Information:

Copper Sulfate Pentahydrate is listed on the DSL in its anhydrous form (CAS# 7758-98-7)

International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	CAS #	European EINECS	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Copper Sulphate Pentahydrate	7758-99-8	231-847-6 (anhydrous)	Present	Present	(1)-300 (anhydrous)	KE-08956 (anhydrous)	Present	HSR003126
Sulphuric acid	7664-93-9	231-639-5	Present	Present	(1)-724; (1)-430	KE-32570	Present	HSR001572, HSR001573, HSR001588 (dilution)

SECTION 16. OTHER INFORMATION

Legend

- : ACGIH: American Conference of Governmental Industrial Hygienists
- AICS: Australian Inventory of Chemical Substances
- CAS: Chemical Abstract Services
- CFR: Code of Federal Regulations
- EC50: Effective Concentration 50%
- EINECS: Existing and New Chemical Substances
- EPA: Environmental Protection Agency
- IECSC: Inventory of Existing Chemical Substances
- IOC: Inventory of Chemicals
- KECI: Korean Existing Chemicals Inventory
- KECL: Korean Existing Chemicals List
- LC: Lethal Concentration
- LD: Lethal Dose
- N/Ap: Not Applicable
- N/Av: Not Available
- NIOSH: National Institute of Occupational Safety and Health
- NOEC: No observable effect concentration
- NTP: National Toxicology Program
- OSHA: Occupational Safety and Health Administration
- PEL: Permissible exposure limit
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- RTECS: Registry of Toxic Effects of Chemical Substances
- SARA: Superfund Amendments and Reauthorization Act
- STEL: Short Term Exposure Limit
- TDG: Canadian Transportation of Dangerous Goods Act & Regulations

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TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average

- References** :
1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices
 2. ECHA - European Chemical Agency
 3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases
 4. Safety Data Sheets from manufacturer.
 5. US EPA Title III List of Lists
 6. California Proposition 65 List
 7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal

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Other special considerations for handling

: Provide adequate information, instruction and training for operators.

Prepared for:

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