

SECTION 1: Identification

1.1. Identification

Product form : Mixtures
Product name : Copper Sulfate-Hydrochloric Acid
Product code : LC13450

1.2. Recommended use and restrictions on use

Use of the substance/mixture : For laboratory and manufacturing use only.
Recommended use : Laboratory chemicals
Restrictions on use : Not for food, drug or household use

1.3. Supplier

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute toxicity (oral)	H302	Harmful if swallowed
Category 4		
Skin corrosion/irritation	H314	Causes severe skin burns and eye damage
Category 1B		
Serious eye damage/eye irritation	H318	Causes serious eye damage
Category 1		
Hazardous to the aquatic environment - Acute	H401	Toxic to aquatic life
Hazard Category 2		
Hazardous to the aquatic environment - Chronic	H411	Toxic to aquatic life with long lasting effects
Hazard Category 2		

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS05

GHS07

GHS09

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) : P260 - Do not breathe mist, vapors, spray
P264 - Wash exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P280 - Wear protective gloves, protective clothing, eye protection, face protection
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
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/physician

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P363 - Wash contaminated clothing before reuse
P391 - Collect spillage
P405 - Store locked up
P501 - Dispose of contents/container to comply with local, state and federal regulations
If inhaled: Remove person to fresh air and keep comfortable for breathing

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Water	(CAS No) 7732-18-5	77.4	Not classified
Copper (II) Sulfate, Pentahydrate	(CAS No) 7758-99-8	17.8	Acute Tox. 3 (Oral), H301 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Hydrochloric Acid, 37% w/w	(CAS No) 7647-01-0	4.8	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 3, H402

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.

First-aid measures after eye contact : 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/physician.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/injuries : Causes severe skin burns and eye damage.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically. Obtain medical assistance.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Reactivity : Thermal decomposition generates : Corrosive vapors.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

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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. Gloves. Protective clothing. Face-shield.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

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

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe mist, vapors, spray.
Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash exposed skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.
Storage conditions : Keep container closed when not in use.
Incompatible products : Strong reducing agents. Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Copper (II) Sulfate, Pentahydrate (7758-99-8)

Not applicable

Water (7732-18-5)

Not applicable

Hydrochloric Acid, 37% w/w (7647-01-0)

ACGIH	ACGIH Ceiling (mg/m ³)	2.98 mg/m ³
ACGIH	ACGIH Ceiling (ppm)	2 ppm
OSHA	OSHA PEL (Ceiling) (mg/m ³)	7 mg/m ³
OSHA	OSHA PEL (Ceiling) (ppm)	5 ppm
IDLH	US IDLH (ppm)	50 ppm
NIOSH	NIOSH REL (ceiling) (mg/m ³)	7 mg/m ³
NIOSH	NIOSH REL (ceiling) (ppm)	5 ppm

8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.

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8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Face shield. Gloves. Safety glasses. Protective clothing.



Hand protection:

Wear protective gloves

Eye protection:

Chemical goggles or face shield

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Respiratory protection not required in normal conditions

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Blue
Odor	: None.
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 1.1 g/ml
Solubility	: Soluble in water.
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: Not applicable.
Oxidizing properties	: No data available.

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapors.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong reducing agents. Strong bases.

10.6. Hazardous decomposition products

Sulfur compounds. copper. Hydrogen chloride. Thermal decomposition generates : Corrosive vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Skin and eye contact
Acute toxicity : Oral: Harmful if swallowed.

Copper Sulfate-Hydrochloric Acid	
ATE US (oral)	1510.791 mg/kg body weight
Copper (II) Sulfate, Pentahydrate (7758-99-8)	
LD50 oral rat	300 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Experimental value; 482 mg/kg bodyweight; Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit; Literature study; OECD 402: Acute Dermal Toxicity)
ATE US (oral)	300.000 mg/kg body weight
Water (7732-18-5)	
LD50 oral rat	≥ 90000 mg/kg
ATE US (oral)	90000.000 mg/kg body weight
Hydrochloric Acid, 37% w/w (7647-01-0)	
LD50 oral rat	700 mg/kg
LD50 dermal rabbit	5010 mg/kg
ATE US (oral)	700.000 mg/kg body weight
ATE US (dermal)	5010.000 mg/kg body weight

Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Hydrochloric Acid, 37% w/w (7647-01-0)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Harmful if swallowed.
Symptoms/injuries after eye contact : Causes serious eye damage.

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Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Copper (II) Sulfate, Pentahydrate (7758-99-8)

Threshold limit algae 2	0.368 mg/l (ErC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Pseudokirchneriella subcapitata; Static system; Fresh water; Read-across)
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Hydrochloric Acid, 37% w/w (7647-01-0)

LC50 fish 1	282 mg/l (LC50; 96 h)
EC50 Daphnia 1	< 56 mg/l (EC50; 72 h)

12.2. Persistence and degradability

Copper Sulfate-Hydrochloric Acid

Persistence and degradability	Not readily biodegradable. May cause long-term adverse effects in the environment.
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Copper (II) Sulfate, Pentahydrate (7758-99-8)

Persistence and degradability	Not established.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

Water (7732-18-5)

Persistence and degradability	Not established.
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Hydrochloric Acid, 37% w/w (7647-01-0)

Persistence and degradability	Biodegradability: not applicable. No test data on mobility of the components available.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

Copper Sulfate-Hydrochloric Acid

Bioaccumulative potential	Not established.
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Copper (II) Sulfate, Pentahydrate (7758-99-8)

Bioaccumulative potential	Bioaccumable. Not established.
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Water (7732-18-5)

Bioaccumulative potential	Not established.
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Hydrochloric Acid, 37% w/w (7647-01-0)

Log Pow	0.25 (QSAR)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

12.4. Mobility in soil

Copper Sulfate-Hydrochloric Acid

Ecology - soil	May be harmful to plant growth, blooming and fruit formation.
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Copper (II) Sulfate, Pentahydrate (7758-99-8)

Ecology - soil	Toxic to flora.
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Hydrochloric Acid, 37% w/w (7647-01-0)

Ecology - soil	May be harmful to plant growth, blooming and fruit formation.
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12.5. Other adverse effects

Effect on the global warming : No known effects from this product.

GWPmix comment : No known effects from this product.

Other information : Avoid release to the environment.

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SECTION 13: Disposal considerations

13.1. Disposal methods

- Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.
- Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

- Transport document description : UN1789 Hydrochloric acid, 8, II
- UN-No.(DOT) : UN1789
- Proper Shipping Name (DOT) : Hydrochloric acid
- Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
- Packing group (DOT) : II - Medium Danger
- Hazard labels (DOT) : 8 - Corrosive



- Dangerous for the environment : Yes
- Marine pollutant : Yes



- DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
- DOT Packaging Bulk (49 CFR 173.xxx) : 242
- DOT Special Provisions (49 CFR 172.102) : A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging.
A6 - For combination packaging, if plastic inner packaging are used, they must be packed in tightly closed metal receptacles before packing in outer packaging.
B3 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks and DOT 57 portable tanks are not authorized.
B15 - Packaging must be protected with non-metallic linings impervious to the lading or have a suitable corrosion allowance.
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
N41 - Metal construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.
T8 - 4 178.274(d)(2) Normal..... Prohibited
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
TP12 - This material is considered highly corrosive to steel.
- DOT Packaging Exceptions (49 CFR 173.xxx) : 154
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L
- DOT Vessel Stowage Location : C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.
- Other information : No supplementary information available.

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SECTION 15: Regulatory information

15.1. US Federal regulations

Copper Sulfate-Hydrochloric Acid

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Copper (II) Sulfate, Pentahydrate	CAS No 7758-99-8	17.8%
Hydrochloric Acid, 37% w/w	CAS No 7647-01-0	4.8%

Copper (II) Sulfate, Pentahydrate (7758-99-8)

RQ (Reportable quantity, section 304 of EPA's List of Lists)	10 lb
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Hydrochloric Acid, 37% w/w (7647-01-0)

EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

15.2. International regulations

CANADA

Copper (II) Sulfate, Pentahydrate (7758-99-8)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Copper (II) Sulfate, Pentahydrate (7758-99-8)

Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date	: 05/03/2017
Other information	: None.

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Full text of H-phrases: see section 16:

H301	Toxic if swallowed
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects

NFPA health hazard

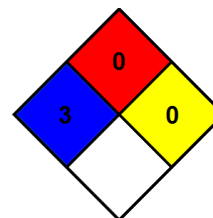
: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard

: 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.



HMIS III Rating

Health

: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability

: 0 Minimal Hazard - Materials that will not burn

Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection

: B
B - Safety glasses, Gloves

SDS US LabChem

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