

## Section 1 Chemical Product and Company Identification

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**1 703-741-5500 (from anywhere in the world).**  
For laboratory and industrial use only.  
Not for drug, food or household use.

<b>Product</b>	<b>COPPER(II) SULFATE, PENTAHYDRATE</b>
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<b>Synonyms</b>	Cupric Sulfate, 5-Hydrate
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## Section 2 Hazards Identification

**Signal word:** WARNING**Pictograms:** GHS07 / GHS09**Target organs:** Liver, Kidneys, Lungs, Spleen.**GHS Classification:**

Acute toxicity-oral (Category 4)

Skin irritation (Category 2)

Eye irritation (Category 2A)

Aquatic acute toxicity (Category 1)

Aquatic chronic toxicity (Category 1)

**GHS Label information: Hazard statement:**

H302: Harmful if swallowed.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H410: Very toxic to aquatic life with long lasting effects.

**Precautionary statement:**

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/protective clothing/eye protection/face protection.

P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.

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

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P332+P313: If skin irritation occurs: Get medical attention.

P337+P313: If eye irritation persists: Get medical attention.

P362+P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

**Hazards not otherwise classified:**

Health hazards not otherwise classified (HHNOC) - Not Known

Physical hazards not otherwise classified (PHNOC) - Not Known

## Section 3 Composition / Information on Ingredients

Chemical Name	CAS #	%	EINECS
Cupric sulfate	7758-99-8	>99%	231-847-6 (anhydrous)

## Section 4 First Aid Measures

**INGESTION:** HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

**INHALATION:** HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**EYE CONTACT:** CAUSES SEVERE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

**SKIN ABSORPTION:** CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

## Section 5 Fire Fighting Measures

**Suitable Extinguishing Media:** Use any media suitable for extinguishing supporting fire

**Protective Actions for Fire-fighters:** In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

**Specific Hazards:** During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

## Section 6 Accidental Release Measures

**Personal Precautions:** Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

**Environmental Precautions:** Avoid runoff into storm sewers and ditches which lead to waterways.

**Containment and Cleanup:** Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

**Precautions for Safe Handling:** Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

**Conditions for Safe Storage:** Store in a cool, dry, well-ventilated area away from incompatible substances.

## Section 8 Exposure Controls / Personal Protection

Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
	Copper, dusts and mists, as Cu	TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>

**Engineering controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

**Respiratory protection:** None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHA-approved respirator.

## Section 9 Physical &amp; Chemical Properties

<b>Appearance:</b> Blue, crystalline solid	<b>Evaporation rate ( = 1):</b> Not applicable	<b>Partition coefficient:</b> Data not available
<b>Odor:</b> Odorless	<b>Flammability (solid/gas):</b> Not applicable	<b>Auto-ignition temperature:</b> Data not available
<b>Odor threshold:</b> Data not available	<b>Explosion limits: Lower / Upper:</b> Not applicable	<b>Decomposition temperature:</b> 560°C (1040°F)
<b>pH:</b> 3.7-4.2 (10% solution)	<b>Vapor pressure (mm Hg):</b> 20 torr @ 22.5°C	<b>Viscosity:</b> Data not available.
<b>Melting / Freezing point:</b> 150°C (302°F)	<b>Vapor density (Air = 1):</b> Data not available	<b>Molecular formula:</b> CuSO <sub>4</sub> •5H <sub>2</sub> O
<b>Boiling point:</b> Decomposes	<b>Relative density (Specific gravity):</b> 2.284	<b>Molecular weight:</b> 249.68
<b>Flash point:</b> Non-flammable	<b>Solubility(ies):</b> 31.6 g/100 ml water @ 0°C	

## Section 10 Stability &amp; Reactivity

**Chemical stability:** Stable

**Hazardous polymerization:** Will not occur.

**Conditions to avoid:** Hygroscopic material. Stable when kept dry, under normal temperature and pressure. Avoid high temperatures, exposure to air and incompatible materials.

**Incompatible materials:** Reducing agents, acetylene or nitromethane, magnesium, strong bases, alkalines, phosphates, hydrazine, zirconium. Can corrode aluminum, steel and iron.

**Hazardous decomposition products:** Oxides of sulfur and copper fumes.

## Section 11 Toxicological Information

**Acute toxicity:** Oral-rat LD50: 300 mg/kg [Copper sulfate anhydrous]

**Skin corrosion/irritation:** Data not available

**Serious eye damage/irritation:** Data not available

**Respiratory or skin sensitization:** Data not available

**Germ cell mutagenicity:** Data not available

**Carcinogenicity:** Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

**Reproductive toxicity:** Data not available

**STOT-single exposure:** Data not available

**STOT-repeated exposure:** Data not available

**Aspiration hazard:** Data not available

**Potential health effects:**

Inhalation: May cause irritation to the mucous membranes and upper respiratory tract.

Ingestion: Ingestion can cause irritation to the digestive tract and abdominal pain.

Skin: Contact with skin causes slight irritation. Excessive exposure may cause allergic dermatitis. May cause irritation or burns on wet skin.

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

**Signs and symptoms of exposure:** *Note to physician:* Probable mucosal damage may contradict the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be needed. Wilson's disease can be aggravated by excessive exposure. Symptoms include nausea, vomiting, gastrointestinal pain, diarrhea, dizziness, jaundice, and general debility.

**Additional information:** RTECS #: GL8900000

## Section 12 Ecological Information

**Toxicity to fish:** *Salmo gairdneri* (fish, estuary, fresh water), LC50 = < 0.75-0.84 mg/L [Copper sulfate anhydrous]

**Toxicity to daphnia and other aquatic invertebrates:** No data available

**Toxicity to algae:** No data available

**Persistence and degradability:** No data available

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**PBT and vPvB assessment:** No data available

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

## Section 14 Transport Information (US DOT / CANADA TDG)

**UN/NA number:** UN3077

**Shipping name:** Environmentally hazardous substances, solid, n.o.s., (Cupric sulfate)

**Hazard class:** 9

**Packing group:** III

**Reportable Quantity:** 10 lbs (4.54 kg)

**Marine pollutant:** Yes

**Exceptions:** Non regulated equal to or less than 4.539 Kg ; Reportable quantity equal to or more than 4.54 Kg

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## Section 15 Regulatory Information

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.

Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	CA Prop 65
Cupric sulfate	Listed	10 lbs (4.54 kg)	Not listed	Not listed	Not listed	This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

## Section 16 Other Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

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<b>Product</b>	<b>SODIUM HYDROXIDE, ANHYDROUS</b>
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<b>Synonyms</b>	Caustic Soda
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## Section 2 Hazards Identification

**Signal word:** DANGER**Pictograms:** GHS05**Target organs:** Respiratory tract, gastrointestinal tract, eyes, skin.**GHS Classification:**

Skin, Corr. (Category 1A)

Serious Eye Damage/Eye Irritation (Category 1)

**GHS Label information: Hazard statement:**

H314: Causes severe skin burns and eye damage.

**Precautionary statement:**

P260: Do not breathe dust.

P264: Wash hands thoroughly after handling.

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

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P310: Immediately call a POISON CENTER or doctor.

P363: Wash contaminated clothing before reuse.

P405: Store locked up.

P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

**Hazards not otherwise classified:**

Health hazards not otherwise classified (HHNOC) - Not Known

Physical hazards not otherwise classified (PHNOC) - Not Known

## Section 3 Composition / Information on Ingredients

Chemical Name	CAS #	%	EINECS
Sodium hydroxide	1310-73-2	96-100%	215-185-5

## Section 4 First Aid Measures

**INGESTION:** MAY BE FATAL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**EYE CONTACT:** CAUSES SEVERE DAMAGE. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

**SKIN ABSORPTION:** CAUSES SEVERE BURNS. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

## Section 5 Fire Fighting Measures

**Suitable Extinguishing Media:** Flood with water, taking care not to splash or scatter. Avoid carbon dioxide as it reacts exothermically with this material.

**Protective Actions for Fire-fighters:** In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

**Specific Hazards:** Contact with metals can generate hydrogen gas. Contact with water produces intense heat and highly irritating and corrosive mist. Hot or molten material will react violently with water liberating heat and causing splashing. Contact with water may generate sufficient heat to ignite combustible materials.

## Section 6 Accidental Release Measures

**Personal Precautions:** Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

**Environmental Precautions:** Avoid runoff into storm sewers and ditches which lead to waterways.

**Containment and Cleanup:** Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

**Precautions for Safe Handling:** Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

**Conditions for Safe Storage:** Store in a cool, dry, well-ventilated area away from incompatible substances.

## Section 8 Exposure Controls / Personal Protection

Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
	Sodium hydroxide	STEL: C 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	STEL: C 2 mg/m <sup>3</sup>

**Engineering controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

**Respiratory protection:** None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHA-approved respirator.

## Section 9 Physical &amp; Chemical Properties

<b>Appearance:</b> Solid white beads or pellets. <b>Odor:</b> No odor. <b>Odor threshold:</b> Data not available. <b>pH:</b> 13.0 - 14.0 <b>Melting / Freezing point:</b> 318°C (604°F) <b>Boiling point:</b> 1390°C (2534°F) <b>Flash point:</b> Not applicable.	<b>Evaporation rate ( = 1):</b> Not applicable. <b>Flammability (solid/gas):</b> Data not available. <b>Explosion limits: Lower / Upper:</b> Not applicable. <b>Vapor pressure (mm Hg):</b> 1 mm Hg @ 739°C <b>Vapor density (Air = 1):</b> Not applicable. <b>Relative density (Specific gravity):</b> 2.13 @ 25°C (77°F) <b>Solubility(ies):</b> 29.6 @ 0°C (32°F) in water	<b>Partition coefficient: (n-octanol / water):</b> Data not available. <b>Auto-ignition temperature:</b> Not applicable. <b>Decomposition temperature:</b> Data not available. <b>Viscosity:</b> Not applicable. <b>Molecular formula:</b> NaOH <b>Molecular weight:</b> 40.00
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## Section 10 Stability &amp; Reactivity

**Chemical stability:** Stable  
**Hazardous polymerization:** Will not occur.  
**Conditions to avoid:** Deliquescent material. Absorbs moisture from air. Can react with carbon dioxide to form sodium carbonate.  
**Incompatible materials:** Metals, acids, organic compounds, organic nitro compounds.  
**Hazardous decomposition products:** Sodium oxide. Reacts with metals to form flammable and explosive hydrogen gas.

## Section 11 Toxicological Information

**Acute toxicity:** Data not available  
**Skin corrosion/irritation:** Skin - rabbit - Causes severe burns. - 24 h  
**Serious eye damage/irritation:** Eyes - rabbit - Severe eye irritation - 24 h  
**Respiratory or skin sensitization:** Data not available  
**Germ cell mutagenicity:** Data not available  
**Carcinogenicity:** Data not available  
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.  
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.  
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.  
**Reproductive toxicity:** Data not available  
**STOT-single exposure:** Data not available  
**STOT-repeated exposure:** Data not available  
**Aspiration hazard:** Data not available  
**Potential health effects:**  
Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
Ingestion: May be harmful if swallowed.  
Skin: May be harmful if absorbed through skin. Causes skin burns.  
Eyes: Causes eye burns. Causes severe eye burns.  
**Signs and symptoms of exposure:** Spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.  
**Additional information: RTECS #:** WB4900000

## Section 12 Ecological Information

**Toxicity to fish:** LC50 - Gambusia affinis (Mosquito fish) - 125 mg/l - 96 h  
**Toxicity to daphnia and other aquatic invertebrates:** Immobilization EC50 - Daphnia - 40.38 mg/l - 48 h  
**Toxicity to algae:** No data available  
**Persistence and degradability:** No data available  
**Bioaccumulative potential:** No data available  
**Mobility in soil:** No data available  
**PBT and vPvB assessment:** No data available  
**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

## Section 14 Transport Information (US DOT / CANADA TDG)

**UN/NA number:** UN1823  
**Shipping name:** Sodium hydroxide, solid  
**Hazard class:** 8  
**Packing group:** II  
**Reportable Quantity:** 1,000 lbs (454 kg)  
**Marine pollutant:** No  
**Exceptions:** Limited quantity equal to or less than 1 Kg  
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## Section 15 Regulatory Information

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.

Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	CA Prop 65
Sodium hydroxide	Listed	1,000 lbs (454 kg)	D002	Listed	Not listed	This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

## Section 16 Other Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

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**Product** HYDROGEN PEROXIDE, 30%, STABILIZED**Synonyms** Hydrogen Dioxide**Section 2 Hazards Identification****Signal word:** DANGER**Pictograms:** GHS03 / GHS05 / GHS07**Target organs:** Respiratory and gastrointestinal systems, skin, eyes**GHS Classification:**

Oxidizing liquid (Category 2)

Acute toxicity (Category 4)

Skin irritation (Category 2)

Eye damage (Category 1)

STOT-SE (Category 3)

**GHS Label information: Hazard statement:**

H272: May intensify fire; oxidizer.

H302: Harmful if swallowed.

H315: Causes skin irritation.

H318: Causes serious eye damage.

H335: May cause respiratory irritation.

**Precautionary statement:**

P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P220: Keep away from clothing/incompatible/combustible materials.

P221: Take any precaution to avoid mixing with combustibles/acids/oxidizers.

P370+P378: In case of fire: Use WATER ONLY to extinguish.

P261: Avoid breathing mist/vapours/spray.

P264: Wash hands thoroughly after handling.

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

P271: Use only outdoors or in a well-ventilated area.

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

P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.

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

P332+P313: If skin irritation occurs: Get medical attention.

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.

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTER or doctor if you feel unwell.

P362+P364: Take off contaminated clothing and wash it before reuse.

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

**Supplementary information:**

Do not tamper with venting mechanism.

**Hazards not otherwise classified:**

Health hazards not otherwise classified (HHNOC) - Not Known

Physical hazards not otherwise classified (PHNOC) - Not Known

**Section 3 Composition / Information on Ingredients**

Chemical Name	CAS #	%	EINECS
Water	7732-18-5	<70%	231-791-2
Hydrogen peroxide	7722-84-1	30%	231-765-0
Acetanilide	103-84-4	0.05%	203-150-7

**Section 4 First Aid Measures**

**INGESTION:** HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

**INHALATION:** MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**EYE CONTACT:** CAUSES IRRITATION AND / OR BURNS TO EYES. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

**SKIN ABSORPTION:** MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES IRRITATION AND / OR BURNS TO THE SKIN. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

**Section 5 Fire Fighting Measures**

**Suitable Extinguishing Media:** Water only! Apply vast amounts for cooling and dilution.

**Protective Actions for Fire-fighters:** In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.

**Specific Hazards:** During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This product is a strong oxidizer which may release oxygen and promote the combustion of flammable materials. Spontaneous combustion can occur if allowed to remain in contact with oxidizable materials. Drying of product on clothing or combustible material may cause fire.

**Section 6 Accidental Release Measures**

**Personal Precautions:** Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.

**Environmental Precautions:** Avoid runoff into storm sewers and ditches which lead to waterways.

**Containment and Cleanup:** Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.



**Precautions for Safe Handling:** Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale vapors, spray or mist. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

**Conditions for Safe Storage:** Store in a cool, well-ventilated area away from incompatible substances. Keep away from ignition sources. Do not allow temperature of storage to rise above 100°F.

## Section 8 Exposure Controls / Personal Protection

Exposure Limits:	Chemical Name	ACGIH (TLV)	OSHA (PEL)	NIOSH (REL)
	Hydrogen peroxide	TWA: 1 ppm ; 1.4 mg/m <sup>3</sup> (A3)	TWA: 1 ppm ; 1.4 mg/m <sup>3</sup>	TWA: 1 ppm ; 1.4 mg/m <sup>3</sup>

**Engineering controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

**Respiratory protection:** None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHA-approved respirator.

## Section 9 Physical &amp; Chemical Properties

<b>Appearance:</b> Clear, colorless liquid. <b>Odor:</b> Pungent odor. <b>Odor threshold:</b> Data not available. <b>pH:</b> 0-3 <b>Melting / Freezing point:</b> -26 to -52°C (-18 to -62°F) <b>Boiling point:</b> 104-113°C (220-237°F) <b>Flash point:</b> Not applicable	<b>Evaporation rate ( Butyl acetate = 1):</b> >1 <b>Flammability (solid/gas):</b> Data not available. <b>Explosion limits: Lower / Upper:</b> Data not available <b>Vapor pressure (mm Hg):</b> 18-27 @ 30°C (86°F) <b>Vapor density (Air = 1):</b> 0.8 - 1.0 (calculated) <b>Relative density (Specific gravity):</b> 1.1 - 1.2 <b>Solubility(ies):</b> Complete in water.	<b>Partition coefficient:</b> Data not available <b>Auto-ignition temperature:</b> Data not available <b>Decomposition temperature:</b> Data not available. <b>Viscosity:</b> Data not available. <b>Molecular formula:</b> Mixture <b>Molecular weight:</b> Mixture
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## Section 10 Stability &amp; Reactivity

**Chemical stability:** Stable

**Hazardous polymerization:** Will not occur.

**Conditions to avoid:** Excessive temperatures, heat, sparks, open flame and other sources of ignition. Contact with combustible materials may result in spontaneous combustion.

**Incompatible materials:** Acids, bases, metals, metal salts, reducing agents, organic materials, alkalies, dust and dirt contaminants, flammable substances, oxidizable materials.

**Hazardous decomposition products:** Oxygen, which will promote the combustion of flammable material.

## Section 11 Toxicological Information

**Acute toxicity:** Oral-rat LD50: 800 mg/kg [50% hydrogen peroxide]

**Skin corrosion/irritation:** Skin-rabbit - Slight irritant.

**Serious eye damage/irritation:** Eyes-rabbit - Severe irritant.

**Respiratory or skin sensitization:** Data not available

**Germ cell mutagenicity:** Data not available

**Carcinogenicity:** Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC classified: Group 3: Not classifiable as to its carcinogenicity to humans.

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

**Reproductive toxicity:** Data not available

**STOT-single exposure:** The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

**STOT-repeated exposure:** Data not available

**Aspiration hazard:** Data not available

**Potential health effects:**

Inhalation: Expected to be irritating to respiratory tract.

Ingestion: Expected to cause burns to the gastrointestinal tract.

Skin: Expected to cause irritation and/or burns. As the concentration or time of exposure increases, the extent of damage increases.

Eyes: Expected to cause irritation and/or burns. Could cause corneal damage which may occur several days later.

**Signs and symptoms of exposure:** See Potential health effects above. Medical conditions which may be aggravated by exposure include conjunctivitis of the eye, dermatitis of the skin, asthma and respiratory diseases.

**Additional information:** RTECS #: MX0900000 [Hydrogen peroxide]

## Section 12 Ecological Information

**Toxicity to fish:** Gambusia affinis (fish, fresh water), NOEC = 2.38 - 9.86 mg/l [Hydrogen peroxide]

**Toxicity to daphnia and other aquatic invertebrates:** Daphnia magna (Crustacea), EC50 = 7.7 mg/l/24 hours [Hydrogen peroxide]

**Toxicity to algae:** Chlorella vulgaris (Algae), EC50 = 2.5 mg/l/growth rate [Hydrogen peroxide]

**Persistence and degradability:** No data available

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**PBT and vPvB assessment:** No data available

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

## Section 14 Transport Information (US DOT / CANADA TDG)

**UN/NA number:** UN2014

**Shipping name:** Hydrogen peroxide, aqueous solutions

**Hazard class:** 5.1, (8)

**Packing group:** II

**Reportable Quantity:** No

**Marine pollutant:** No

**Exceptions:** No exceptions

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## Section 15 Regulatory Information

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.

Component	TSCA	CERLCA (RQ)	RCRA code	DSL	NDSL	CA Prop 65
Hydrogen peroxide, 30%	Listed	Not listed	Not listed	Listed	Not listed	This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity.

## Section 16 Other Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.