



Health	2
Fire	1
Reactivity	0
Personal Protection	E

# Material Safety Data Sheet

## Cyclophosphamide, Monohydrate MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Cyclophosphamide, Monohydrate

**Catalog Codes:** SLC2971, SLC4759

**CAS#:** 6055-19-2

**RTECS:** RP6157750

**TSCA:** TSCA 8(b) inventory: No products were found.

**CI#:** Not available.

**Synonym:** Cyclophosphamide hydrate; Endoxan monohydrate; (Bis(chloro-2-ethyl)amino)-2-tetrahydro-3,4,5,6-oxazaphosphorine-1,3,2-oxide-2-monohydrate; 1-Bis(2-chloroethyl)amino-1-oxo-2-aza-5-oxaphosphoridine monohydrate; 2-(Bis(2-chloroethyl)amino)-1-oxa-3-aza-2-phosphocyclohexane 2-oxide monohydrate; 2-(Di(2-chloroethyl)amino)-1-oxa-3-aza-2-phosphacyclohexane-2-oxide monohydrate; Bis(2-chloroethyl)phosphoramidate cyclic propanolamide ester monohydrate; Cyclic N',O-propylene ester of N,N-bis(2-chloroethyl)phosphorodiamidic acid monohydrate; N,N-Bis(2-chloroethyl)tetrahydro-2H-1,3,2-oxaphosphorin-2-amine 2-oxide monohydrate; N,N-Bis(beta-chloroethyl)-N',O-propylenephosphoric acid ester amide monohydrate; N,N-Bis(beta-chloroethyl)-N',O-trimethylenephosphoric acid ester diamide monohydrate; N,N-Di(2-chloroethyl)amino-N,O-propylene phosphoric acid ester diamide monohydrate

**Chemical Name:** 2H-1,3,2-Oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, monohydrate

**Chemical Formula:** C7-H15-Cl2-N2-O2-P.H2O

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Cyclophosphamide, Monohydrate	6055-19-2	100

**Toxicological Data on Ingredients:** Cyclophosphamide, Monohydrate: ORAL (LD50): Acute: 94 mg/kg [Rat]. 350 mg/kg [Mouse]. 44 mg/kg [Dog].

### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of inhalation. Severe over-exposure can result in death.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to bladder, bone marrow. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.

**Skin Contact:**

Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

**Serious Skin Contact:** Not available.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Serious Ingestion:** Not available.

### Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:**

These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...), halogenated compounds, phosphates.

**Fire Hazards in Presence of Various Substances:**

Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.

**Explosion Hazards in Presence of Various Substances:**

Slightly explosive in presence of open flames and sparks. Non-explosive in presence of shocks.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Use appropriate tools to put the spilled solid in a convenient waste disposal container.

**Large Spill:**

Poisonous solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

## Section 7: Handling and Storage

**Precautions:**

Keep away from heat. Keep away from sources of ignition. Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, alkalis.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:** Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:** Not available.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 279.1 g/mole

**Color:** White to almost white

**pH (1% soln/water):** Not available.

**Boiling Point:** >110°C(230°F) @ 760 mm Hg

**Melting Point:** 49°C (120.2°F) - 53 C

**Critical Temperature:** Not available.

**Specific Gravity:** Not available.

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water.

**Solubility:**

Soluble in cold water. Solubility in water: 40 g/l

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Excessive heat, dust generation, incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, acids, alkalis.

**Corrosivity:** Not available.

**Special Remarks on Reactivity:** Sensitive to light.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 44 mg/kg [Dog].

**Chronic Effects on Humans:** May cause damage to the following organs: bladder, bone marrow.

**Other Toxic Effects on Humans:**

Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant, permeator), of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:**

May cause adverse reproductive effects and birth defects (teratogenic). May cause cancer. May affect genetic material (mutagenic)

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: May cause skin irritation. Eyes: May cause eye irritation. Inhalation: It may cause respiratory tract irritation. Ingestion: May be harmful if swallowed. It may cause nausea, vomiting, stomatitis, hemorrhagic colitis, diarrhea. Chills, fever, and sore throat may also occur and indicate leukopenia and/or infection. Unusual sweating and flushing of the face, swollen lips may occur. It may affect the cardiovascular system (tachycardia, cardiac tamponade, cardiotoxicity.) Cardiotoxicity is a less frequent side effect. Tachycardia associated with fever or chills and shortness of breath may be a sign of cardiac toxicity including acute myopericarditis. It may also affect metabolism (acidosis), blood (aplastic anemia, hemorrhage, leukopenia, thrombocytopenia, myelosuppression), skin (apoplecia, nail disorder, skin discoloration), endocrine system (hyperglycemia, antidiuretic hormone disorder), the urinary system (cystitis, renal failure, hyperuricemia, hematuria, dysuria), respiratory system (shortness of breath or dyspnea, pneumonitis, interstitial pulmonary fibrosis. It may also be neurotoxic and affect behavior/central nervous system (ataxia, dizziness, agitation, changes in mental status, seizures, cerebular dysfunction, coma, headache, polyneuropathy, fatigue, confusion). It may affect the liver and cause

hepatitis. It may also cause allergic reaction (anaphylaxis). Chronic Potential Health Effects: Ingestion: Prolonged or repeated ingestion may have similar effects that that of acute ingestion.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are as toxic as the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Toxic Solid, organic, n.o.s.(Cyclophosphamide) UNNA: 2811 PG: III

**Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

**Federal and State Regulations:**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Cyclophosphamide, Monohydrate  
California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Cyclophosphamide, Monohydrate  
California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Cyclophosphamide, Monohydrate  
California prop. 65 (no significant risk level): Cyclophosphamide, Monohydrate  
California prop. 65 (acceptable daily intake level): Cyclophosphamide, Monohydrate  
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Cyclophosphamide, Monohydrate  
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Cyclophosphamide, Monohydrate

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:**

**WHMIS (Canada):** CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).

**DSCL (EEC):**

**HMIS (U.S.A.):**

**Health Hazard:** 2

**Fire Hazard:** 1

**Reactivity:** 0

**Personal Protection:** E

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/09/2005 05:03 PM

**Last Updated:** 11/01/2010 12:00 PM

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