

Order Number

Customer Number

1. Identification of the substance/preparation and of the company/undertaking

Product name : Cyclophosphamide Monohydrate **Catalog #** : 239785

Chemical formula : $C_7H_{15}Cl_2N_2O_2P \cdot H_2O$ **Supplier** : EMD Biosciences, Inc.
10394 Pacific Center Court
San Diego, CA 92121
(858)450-5558/(800)854-3417
FAX: (858)453-3552

Synonym : N,N-bis(2-Chloroethyl)tetrahydro-2H-1,3,2-oxazaphosphorin-2-amine-2-Monohydrate

Emergency telephone number : Call Chemtrec®
(800)424-9300 (within U.S.A.)
(703)527-3887 (outside U.S.A.)

2. Composition / information on ingredients

Substance/Preparation : Substance

Chemical name*	CAS No.	EC Number	Symbol	R-Phrases
2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, monohydrate	6055-19-2	Not available.	T	R24/25, R45, R61

3. Hazards identification

Physical/chemical hazards : Not applicable.

Human health hazards : WARNING!
CANCER HAZARD.
CAN CAUSE CANCER.
CAN CAUSE HERITABLE GENETIC EFFECTS.
HARMFUL IF ABSORBED THROUGH SKIN OR IF SWALLOWED.
MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA.

4. First-aid measures

First-Aid measures

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

Skin Contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

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.

Effects and symptoms

Ingestion : Very hazardous in case of ingestion. May be fatal if swallowed

Skin Contact : Very hazardous in case of skin contact (permeator). Severe over-exposure can result in death

Aggravating conditions : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

5. Fire-fighting measures

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

Extinguishing Media

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

Hazardous thermal (de)composition products : These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), halogenated compounds, phosphates, hydrogen chloride.

Special fire-fighting procedures : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Protection of fire-fighters : Be sure to use an approved/certified respirator or equivalent.

6. Accidental release measures

- Personal precautions** : 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.
- Small Spill and Leak** : Use appropriate tools to put the spilled solid in a convenient waste disposal container.
- Large Spill and Leak** : 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.

7. Handling and storage

- Handling** : Keep locked up. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with skin. 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. Do not store above 4°C (39.2°F).
- Packaging materials**
- Recommended use** : Use original container.

8. Exposure controls/personal protection

- Engineering measures** : 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.
- Hygiene measures** : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
Cyclophosphamide Monohydrate	Not available.

Personal protective equipment

- Respiratory system** : Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
- Skin and body** : Lab coat.
- Hands** : Gloves.
- Eyes** : Safety glasses.
- Protective Clothing (Pictograms)** :



9. Physical and chemical properties

- Physical state** : Solid. (Crystalline solid.)
- Color** : White.
- Molecular Weight** : 279.1 g/mole
- Melting Point** : 49.06 to 51.06°C (120.3 to 123.9°F)
- Solubility** : Easily soluble in cold water.
- Flash point** : CLOSED CUP: >109.9°C (229.8°F).
- Explosive properties** : Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

10. Stability and reactivity

- Stability** : The product is stable.
- Conditions to avoid** : Not available.
- Materials to avoid** : Reactive with oxidizing agents, acids, alkalis.
- Hazardous Decomposition Products** : These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), halogenated compounds, phosphates, hydrogen chloride.

11. Toxicological information

RTECS # : RP6157750

Local effects

Skin irritation : Not available.

Acute toxicity : Acute oral toxicity (LD50): 94 mg/kg [Rat].

Chronic toxicity : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Other Toxic Effects on Humans : Toxic for humans or animal life.
Very hazardous in case of skin contact (permeator), of ingestion.

May cause tumors. Laboratory experiments have shown mutagenic effects. May cause congenital malformations in the foetus.

Not available.

Specific effects

Carcinogenic effects : Classified 1 (Proven for human.) by IARC, 1 (Proven for human.) by European Union. Classified None. by NIOSH.

Mutagenic effects : Classified 1 by European Union. Classified POSSIBLE for human. Mutagenic for mammalian germ and somatic cells based on *in vitro* studies.

Reproduction toxicity : Not available.

Teratogenic effects : Classified POSSIBLE for human.

12. Ecological information

Ecotoxicity : Not available.

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

13. Disposal considerations

Methods of disposal; Waste of residues; Contaminated packaging : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. Transport information

International transport regulations

UN number : UN2811

Land - Road/Railway

Proper shipping name : Toxic solid, organic, n.o.s.*

ADR/RID Class : CLASS 6.1: Toxic substance.

Packing Group : II

ADR/RID label : 

Sea

Proper shipping name : Toxic solid, organic, n.o.s.*

IMDG Class : CLASS 6.1: Toxic substance.

Packing Group : II

IMDG label : 

Air

Proper shipping name : Toxic solid, organic, n.o.s.*

UN/ID Number : UN2811

IATA-DGR Class : CLASS 6.1: Toxic substance.

Packing Group : II

IATA label : 

Special Provisions for Transport : Not available.

15. Regulatory information

EU Regulations

Hazard symbol(s)



Classification

: Toxic

Risk Phrases

: R24/25- Toxic in contact with skin and if swallowed.
R45- May cause cancer.
R46- May cause heritable genetic damage.
R61- May cause harm to the unborn child.

Safety Phrases

: S53- Avoid exposure - obtain special instructions before use.
S22- Do not breathe dust.
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains

: - 2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, monohydrate

U.S. Federal Regulations

: TSCA: No products were found.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: 2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, monohydrate

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: 2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, monohydrate: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

SARA 313 toxic chemical notification and release reporting: No products were found.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were found.

Clean air act (CAA) 112 regulated toxic substances: No products were found.

HCS Classification

: CLASS: May cause cancer.
CLASS: Toxic.

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:

2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, 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: 2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, 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: 2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, monohydrate

California prop. 65 (no significant risk level): 2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, 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: 2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, 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: 2h-1,3,2-oxazaphosphorine, tetrahydro-2-(bis(2-chloroethyl)amino)-, 2-oxide, monohydrate

WHMIS (Canada)

: CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
CLASS D-2B: Material causing other toxic effects (TOXIC).

No products were found.

16. Other information

Hazardous Material
Information System
(U.S.A.)

Health	*	3
Fire Hazard		1
Reactivity		0
Personal Protection		E

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



Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. **This product is intended for research use only.**

Catalog # 239785

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