

# SAFETY DATA SHEET

NAME OF PRODUCT Cyclophosphamide

## SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

### Product/Catalog Number(s):

60-113	1 mg/vial, 5 vials/pack
60-113.15	1.5 mg/vial, 5 vials/pack
60-113.25	0.25 mg/vial, 5 vials/pack
60-113.75	1.75 mg/vial, 5 vials/pack
60-113.6	0.6 mg/vial, 5 vials/pack
60-113.8	0.8 mg/vial, 5 vials/pack
60-113A100	100 µL of 1 mg/mL, 5 vials/pack
60-119	100 µL of 1 mg/mL, 5 vials/pack
60-133	150 µL of 1.0 mg/mL, 5 vials/pack
60-171	10 mg/ml, 1.0 ml/vial, 5 vials/pack

<b>Product name:</b>	<b>Cyclophosphamide</b>
<b>Synonyms:</b>	N,N-bis(2-chloroethyl)tetrahydro-2H-1,3,2-oxazaphosphorin-2-amine, monohydrate; Endoxan
<b>Manufacturer:</b>	Molecular Toxicology Inc.
<b>Address:</b>	157 Industrial Park Drive, Boone, North Carolina, 28607
<b>Phone:</b>	(1) 828 264 9099 (8:30 – 17:00 EST)
<b>Fax:</b>	828 264 0103
<b>Emergency contact (Chemtrec):</b>	Contact 1800-424-9300 (USA) or 703 527 3887 (International) at other times Email: <a href="mailto:chemtrec@chemtrec.com">chemtrec@chemtrec.com</a> ; <a href="http://www.chemtrec.com/">http://www.chemtrec.com/</a>
<b>Recommended use:</b>	Laboratory, For Research Only
<b>Restrictions on use:</b>	Not for clinical use

## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture per GSH and EU Directive 1272/2008



### Danger

<b>Physical hazards</b>	None known
<b>Health hazards</b>	Acute Toxicity, Oral (Category 3) Carcinogenicity (Category 1B)
<b>Environmental hazards</b>	See eco-toxicity section 12.

Version date 26 Sept 2023

Molecular Toxicology  
828-264-9099

# SAFETY DATA SHEET

## Labelling

<b>Hazard Statements</b>	H301 Toxic if swallowed H350 May cause cancer
<b>Precautionary Statements</b>	P201 Receive special instructions before use P202 Do not handle until all safety precautions are understood P264 Wash hands thoroughly after handling P270 Do not eat, drink or smoke when using this product P281 Use personal protection as required P301+310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician P308+313 IF exposed or concerned: Get medical advice/attention P321 Specific treatment (reference Section 4, First Aid Measures, if exposed) P330 Rinse mouth P405 Store locked up P501 Dispose of contents/container to a licensed disposal company
<b>Hazards not otherwise classified or not covered by GHS</b>	None

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

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### Substance

Component	Purpose	CAS-No	EC-No.	Weight %
C <sub>7</sub> H <sub>15</sub> Cl <sub>2</sub> N <sub>2</sub> O <sub>2</sub> P·H <sub>2</sub> O Cyclophosphamide	Biochemical used in the study of carcinogenesis	6055-19-2	200-015-4	Varies by product

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## SECTION 4. FIRST AID MEASURES

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### Description of first aid measures

Eye Contact	Get medical attention immediately. Rinse eyes and under eyelids immediately with plenty of water. Consult a doctor.
Skin Contact	Get medical attention immediately. Wash off immediately with plenty of soap and water and rinse thoroughly.
Ingestion	Get medical attention immediately. Rinse mouth with plenty of water. Never give anything by mouth to an unconscious person.
Inhalation	Get medical attention immediately. Move to fresh air. If required, provide artificial respiration. Keep patient warm.
Protection of first-aiders	Not required
In the event that symptoms develop or persists, obtain medical attention.	

### Most important symptoms and effects, both acute and delayed

Acute: No data available

Version date 26 Sept 2023

Molecular Toxicology  
828-264-9099

# SAFETY DATA SHEET

Chronic: May cause cancer in humans. May cause reproductive and fetal effects. May result in myelosuppression, gastrointestinal issues, cystitis, hair loss, or disorders of spermatogenesis or ovulation

## **Indication of any immediate medical attention and special treatment needed**

Seek medical attention if ingested or if breathing difficulties are observed.

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## **SECTION 5. FIREFIGHTING MEASURES**

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### **Extinguishing media**

Not flammable; use media suitable for extinguishing surrounding fire (carbon dioxide, extinguishing powder or water spray). Fight larger fires with water spray or alcohol resistant foam. A solid water stream may be insufficient.

### **Special hazards arising from the substance or mixture**

Hazardous thermal decomposition products: Carbon oxides, nitrogen oxides, oxides of phosphorus, hydrogen chloride gas

### **Advice for firefighters**

Fire-fighters should wear fully protective impervious protective equipment and self-contained breathing apparatus (SCBA).

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

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### **Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation. Evacuate surrounding areas. Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas.

### **Environmental precautions**

Do not release material into drains.

### **Methods and material for containment and cleaning up**

Dispose contaminated material as waste according to section 13. Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

### **Reference to other sections**

Refer to Sections 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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## **SECTION 7. HANDLING AND STORAGE**

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### **Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

### **Conditions for safe storage, including any incompatibilities**

Store according to product packaging, tightly sealed. Protect from light. Keep in a dry, well-ventilated place. Recommended storage temperature 2-8°C. Store under inert gas.

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**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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**Control parameters***Exposure limits*

Contains no substances with occupational exposure limit values.

*Monitoring methods*

N/A

**Exposure controls***Engineering Measures*

Ensure adequate ventilation, especially in confined areas

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimize release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source. Use of a properly operating chemical fume hood designed for hazardous chemicals is recommended.

*Personal protective equipment*

**Eye Protection:** Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

*Hand Protection*

Chemical resistant gloves; nitrile rubber recommended. Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves (refer to manufacturer/supplier for information). If material is solubilized, account for solvent in glove assessment.

Remove gloves with care avoiding skin contamination.

*Skin and body protection*

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

*Respiratory Protection*

Exposure risk assessment must be performed by a qualified Industrial Hygienist. Where risk assessment shows air purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. NIOSH approved Respiratory Protection is required by EPA. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hygiene Measures** - Handle in accordance with good industrial hygiene and safety practice. Wash hands, forearms and face thoroughly after handling chemical products, before smoking, eating and using lavatory, and at the end of the work period. Employ techniques to avoid contamination of clothing. Keep away from food, beverages, and feed.

**Environmental exposure controls** – Properly operating chemical fume hood designed for hazardous chemicals.

**Exposure limits**

Permissible Exposure Limits and Threshold Limit Values not specified by OSHA.

# SAFETY DATA SHEET

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Information on basic physical and chemical properties

#### Appearance

60-113	
60-113.15	
60-113.25	
60-113.6	Crystalline, white
60-113.75	
60-113.8	
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60-113A100	
60-119	
60-133	Liquid, clear
60-171	

Auto-ignition temperature	no data available
Boiling point	no data available
Decomposition temperature	90°C
Evaporation Rate	no data available
Flammable limits in air	no data available
Flash point	113°C
Formula	C <sub>7</sub> H <sub>15</sub> Cl <sub>2</sub> N <sub>2</sub> O <sub>2</sub> P·H <sub>2</sub> O
Melting point	49-51°C
Molecular weight	279.09 g/mol
Odor threshold	Odorless
Osmolality	no data available
Partition coefficient	no data available
pH	no data available
Solubility in water	40 g/L
Specific gravity	no data available
Vapor density	no data available
Vapor pressure	0.000033 HPa at 20°C
Viscosity	no data available

#### Other information

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## SECTION 10. STABILITY AND REACTIVITY

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#### Reactivity

Not reactive.

#### Chemical stability

Stable under normal conditions. Decomposition will not occur if used and stored appropriately.

# SAFETY DATA SHEET

## Possibility of hazardous reactions

No hazardous reactions known.

## Conditions to avoid

Dust generation, excess heat

## Incompatible materials

Strong oxidizers, strong bases, strong acids

## Hazardous decomposition products

Hydrogen chloride gas, nitrogen oxides, phosphine, carbon monoxide, oxides of phosphorus, carbon dioxide

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## SECTION 11. TOXICOLOGICAL INFORMATION

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### Information on toxicological effects

#### Acute toxicity

LD <sub>50</sub>	oral, rat:	94 mg/kg
LD <sub>50</sub>	oral, mouse	350 mg/kg
TDLO	oral, rat	140 mg/kg/2W (intermittent)
TDLO	oral, mouse	240 mg/kg/4W (intermittent)
TDLO	intraperitoneal, rat	50 mg/kg
TDLO	intraperitoneal, mouse	480 mg/kg/24D(continuous)

#### Other information on acute toxicity

None available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

Investigated as a mutagen. May alter genetic material.

#### Carcinogenicity

This substance is carcinogenic according to IARC, ACGIH, NTP, and OSHA classifications

IARC: 1-Group 1: Carcinogenic to humans (Cyclophosphamide)

ACGIH: 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.

NTP: Known to be human carcinogen (Cyclophosphamide)

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

Investigated as a reproductive effector and tumorigen. May cause congenital malformation in the fetus.

Version date 26 Sept 2023

Molecular Toxicology  
828-264-9099

# SAFETY DATA SHEET

## **Teratogenicity**

No data available

## **Specific target organ toxicity - single exposure (Globally Harmonized System)**

Stomach irregularities

## **Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

No data available

## **Aspiration hazard**

No data available

## **Potential health effects**

**Inhalation** May be harmful if inhaled.

**Ingestion** Toxic if swallowed.

**Skin** Causes skin irritation.

**Eyes** Causes eye irritation.

## **Synergistic effects**

No data available

## **Additional toxicological information:**

RTECS: RP6157750

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## **SECTION 12. ECOLOGICAL INFORMATION**

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### **Toxicity**

**Aquatic ecotoxicity:** No further relevant information available.

### **Persistence and degradability:**

Degradation (28 days) <1%, not easily biodegradable, OECD 301 E

**Behavior in environment systems:** No further relevant information available.

**Bioaccumulative potential:** No further relevant information available.

**Mobility in soil:** No further relevant information available.

### **Additional ecological information:**

General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course, or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

### **Results of PBT and vPVB Assessment**

**PBT:** Not applicable

**vPvB:** Not applicable

**Other adverse effects:** No further relevant information available.

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

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### **Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

### **Contaminated packaging**

Dispose of as unused product.

# SAFETY DATA SHEET

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## SECTION 14. TRANSPORT INFORMATION

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### DOT regulations:

UN Number: UN 3464

Class: 6.1

Packing Group: III

Proper shipping name: Organophosphorus compound, solid, toxic, n.o.s. (Cyclophosphamide)

Reportable Quantity: 10 lbs

Marine pollutant: No

Poison inhalation hazard: No

### Land transport ADR/RID (cross-border)

UN Number: UN 3464

Class: 6.1

Packing Group: III

Proper shipping name: Organophosphorus compound, solid, toxic, n.o.s. (Cyclophosphamide)

### Maritime transport IMDG:

UN Number: UN 3464

Class: 6.1

Packing Group: III

Proper shipping name: Organophosphorus compound, solid, toxic, n.o.s. (Cyclophosphamide)

EMS-No: F-A, S-A

Marine pollutant: No

### Air transport ICAO\_TI and IATA-DGR:

UN Number: UN 3464

Class: 6.1

Packing Group: III

Proper shipping name: Organophosphorus compound, solid, toxic, n.o.s. (Cyclophosphamide)

Special precautions for user: Not applicable

Transport/Additional information:

When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

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## SECTION 15. REGULATORY INFORMATION

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### OSHA Hazards

No chemicals in this product are considered highly hazardous by OSHA

### SARA 302 Components

SARA 302: No chemicals in this product are subject to reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

Version date 26 Sept 2023

Molecular Toxicology  
828-264-9099



# SAFETY DATA SHEET

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

## **SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

## **Massachusetts Right To Know Components**

6055-19-2      Cyclophosphamide

## **Pennsylvania Right To Know Components**

6055-19-2      Cyclophosphamide

## **New Jersey Right To Know Components**

6055-19-2      Cyclophosphamide

## **California Prop. 65 Components**

WARNING! This product contains a chemical known to the State of California to cause cancer.

6055-19-2      Cyclophosphamide

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## **SECTION 16. OTHER INFORMATION**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Molecular Toxicology, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.moltox.com](http://www.moltox.com) and/or the invoice or packing slip for additional terms and conditions of sale.