

## Chemical Safety Data Sheet MSDS / SDS

## 4-BIS(2-CHLORETHYL)-AMINO-L-PHENYLALANINE HYDROCHLORIDE

Revision Date:2026-05-31 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Product identifier**

Product name : 4-BIS(2-CHLORETHYL)-AMINO-L-PHENYLALANINE HYDROCHLORIDE  
CBnumber : CB9105234  
CAS : 3223-07-2  
EINECS Number : 643-091-8  
Synonyms : Melphalan hydrochloride, Melphalan HCl

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

**GHS Label elements, including precautionary statements**

Symbol(GHS)



Signal word

Danger

**Precautionary statements**

P501 Dispose of contents/container to.....

P405 Store locked up.

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

P320 Specific treatment is urgent (see ... on this label).

P310 Immediately call a POISON CENTER or doctor/physician.

P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

P284 Wear respiratory protection.

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

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P501 Dispose of contents/container to.....

P405 Store locked up.  
P330 Rinse mouth.  
P321 Specific treatment (see ... on this label).  
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P270 Do not eat, drink or smoke when using this product.  
P264 Wash skin thoroughly after handling.  
P501 Dispose of contents/container to.....  
P405 Store locked up.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P281 Use personal protective equipment as required.  
P202 Do not handle until all safety precautions have been read and understood.  
P201 Obtain special instructions before use.  
P501 Dispose of contents/container to.....  
P405 Store locked up.  
P363 Wash contaminated clothing before reuse.  
P361 Remove/Take off immediately all contaminated clothing.  
P322 Specific measures (see ...on this label).  
P310 Immediately call a POISON CENTER or doctor/physician.  
P302+P350 IF ON SKIN: Gently wash with plenty of soap and water.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P270 Do not eat, drink or smoke when using this product.  
P264 Wash skin thoroughly after handling.  
P262 Do not get in eyes, on skin, or on clothing.

#### **Hazard statements**

H300 Fatal if swallowed  
H310 Fatal in contact with skin  
H350 May cause cancer  
H340 May cause genetic defects  
H361 Suspected of damaging fertility or the unborn child  
H330 Fatal if inhaled

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: 4-BIS(2-CHLORETHYL)-AMINO-L-PHENYLALANINE HYDROCHLORIDE
Synonyms	: Melphalan hydrochloride, Melphalan HCl
CAS	: 3223-07-2
EC number	: 643-091-8
MF	: C <sub>13</sub> H <sub>19</sub> Cl <sub>3</sub> N <sub>2</sub> O <sub>2</sub>
MW	: 341.66

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## SECTION 4: First aid measures

## **First Aid Measures**

### **General advice**

Consult a physician if necessary. Remove to fresh air.

### **Eye contact**

Wash with plenty of water.

### **Skin Contact**

Wash skin with soap and water.

### **Inhalation**

Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.

### **Ingestion**

Never give anything by mouth to an unconscious person. Clean mouth with water.

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

### **Symptoms**

No information available.

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

### **Note to physicians**

Treat symptomatically.

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## SECTION 5: Firefighting measures

### **Suitable Extinguishing Media**

#### **Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### **Unsuitable Extinguishing Media**

None.

### **Specific hazards arising from the chemical**

#### **Specific hazards arising from the chemical**

Thermal decomposition can lead to release of toxic/corrosive gases and vapors.

#### **Hazardous combustion products**

Carbon oxides. Nitrogen oxides (NO<sub>x</sub>). Phosgene.

### **Explosion data**

#### **Sensitivity to Mechanical Impact**

No information available.

#### **Sensitivity to Static Discharge**

No information available.

### **Protective equipment and precautions for firefighters**

#### **Protective equipment and precautions for firefighters**

As in any fire, wear self contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

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## SECTION 6: Accidental release measures

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

#### **Personal precautions**

Ensure adequate ventilation, especially in confined areas.

#### **Environmental precautions**

#### **Environmental precautions**

See Section 12 for additional Ecological Information.

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

#### **Methods for containment**

Prevent further leakage or spillage if safe to do so.

#### **Methods for cleaning up**

Use personal protective equipment as required. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically, placing in appropriate containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly.

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## SECTION 7: Handling and storage

### **Precautions for safe handling**

#### **Advice on safe handling**

Handle in accordance with good industrial hygiene and safety practice. Corrosive hazard.

Wear protective gloves/clothing and eye/face protection. Thermal decomposition can lead to release of toxic/corrosive gases and vapors.

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

#### **Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Store at room temperature.

#### **Incompatible materials**

None known based on information supplied.

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## SECTION 8: Exposure controls/personal protection

### **Control parameters**

#### **Exposure Guidelines**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

### **Appropriate engineering controls**

#### **Engineering Controls**

Showers

Eyewash stations

Ventilation systems

## Individual protection measures, such as personal protective equipment

### Eye/face protection

Wear safety glasses with side shields (or goggles).

### Skin and Body Protection

Wear protective gloves and protective clothing.

### Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

### General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical State	Solid
Appearance	No information available
Odor	No information available
pH	No information available
Melting point/freezing point	No information available
Boiling point	No information available
Flash point	No information available
Density	No information available
Evaporation rate	No information available
Upper flammability limits	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Specific gravity	No information available
Water solubility	No information available
Solubility in other solvents	No information available
Partition coefficient	-0.52
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Solubility	Aqueous Acid (Slightly), DMSO (Slightly), Methanol (Slightly)
Colour	White to Off-White

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## SECTION 10: Stability and reactivity

### **Reactivity**

Not applicable

### **Chemical stability**

Stable under recommended storage conditions.

### **Possibility of Hazardous Reactions**

None under normal processing.

### **Hazardous polymerization**

No information available.

### **Conditions to avoid**

Extremes of temperature and direct sunlight.

### **Incompatible materials**

Strong oxidizing agents.

### **Hazardous Decomposition Products**

Carbon oxides. Nitrogen oxides (NOx). Phosgene.

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## SECTION 11: Toxicological information

### **Information on likely routes of exposure**

#### **Inhalation**

Classified based on available data. For more details, see section 2.

#### **Eye contact**

Classified based on available data. For more details, see section 2.

#### **Skin Contact**

Classified based on available data. For more details, see section 2.

#### **Ingestion**

Classified based on available data. For more details, see section 2.

### **Information on toxicological effects**

#### **Symptoms**

Classified based on available data. For more details, see section 2.

### **Delayed and immediate effects as well as chronic effects from short and long-term exposure**

#### **Chronic Toxicity**

Classified based on available data. For more details, see section 2. Carcinogenicity The table below indicates whether each agency has listed

any ingredient as a carcinogen.

## **Chemical Name ACGIH IARC NTP OSHA**

### **Melphalan hydrochloride - Group**

1 - X 3223-07-2

### **Numerical measures of toxicity - Product Information**

#### **Unknown acute toxicity**

Classified based on available data. For more details, see section 2

The following values are calculated based on chapter 3.1 of the GHS document

#### **ATEmix (oral)**

0 mg/kg

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## **SECTION 12: Ecological information**

### **Ecotoxicity**

May cause long lasting harmful effects to aquatic life

100% of the mixture consists of component(s) of unknown hazards to the aquatic environment.

### **Persistence and degradability**

No information available.

### **Bioaccumulation**

No information available.

### **Mobility**

No information available.

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## **SECTION 13: Disposal considerations**

### **Disposal of wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

### **Contaminated packaging**

Do not reuse container.

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## **SECTION 14: Transport information**

### **DOT**

#### **UN/ID no**

UN2811

#### **Hazard Class**

6.1

**Packing Group**

I

**Proper shipping name**

Toxic solids, organic, n.o.s.

**Description**

UN2811, Toxic solids, organic, n.o.s., 6.1, I, POISON

**Emergency Response Guide Number**

154

**IMDG**

**UN/ID no**

UN2811

**Hazard Class**

6.1

**Packing Group**

I

**Proper shipping name**

Toxic solid, organic, n.o.s.

**Description**

UN2811, Toxic solid, organic, n.o.s., 6.1, I

**Special Provisions**

274

**EmS-No**

F-A, S-A

**IATA**

**UN/ID no**

UN2811

**Hazard Class**

6.1

**Packing Group**

I

**Proper shipping name**

Toxic solid, organic, n.o.s.

**Description**

UN2811, Toxic solid, organic, n.o.s., 6.1, I

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## SECTION 15: Regulatory information

### International Inventories

All of the components in the product are on the following Inventory lists

X - Listed

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

## **US Federal Regulations**

### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

### **SARA 311/312 Hazard Categories**

#### **Acute health hazard**

No

#### **Chronic Health Hazard**

No

#### **Fire hazard**

No

#### **Sudden release of pressure hazard**

No

#### **Reactive hazard**

No

### **CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

## **US State Regulations**

### **California Proposition 65**

This product does not contain any Proposition 65 chemicals.

### **U.S. State Right-to-Know Regulations**

This product does not contain any substances regulated by state right-to-know regulations

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## **SECTION 16: Other information**

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

TWA: Time-Weighted Average

STEL: Short-Term Exposure Limit

LD50: Lethal Dose 50%

LC50: Lethal Concentration 50%

EC50: Effective Concentration 50%

PEL: Permissible Exposure Limit

TLV: Threshold Limit Value

IMDG: International Maritime Dangerous Goods Code

IATA: International Air Transport Association

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

DOT: US Department of Transportation

NFPA: National Fire Protection Association

NIOSH: National Institute for Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.