

# Material Safety Data Sheet

Version: 1.0  
Creation Date: May 12, 2021  
Revision Date: May 12, 2023

## 1. Identification

### Product identifier

**Product Name** Polyhexamethylenebiguanide hydrochloride

### Recommended use of the chemical and restrictions on use

**Recommended use** Laboratory use

**Restrictions on use** Not to be used for human or animal consumption

### Details of the supplier of the safety data sheet

#### Supplier Address

Kaimosi BioChem Tech Co., Ltd

Tel :+86 571 87191913  
Fax : +86 571 87562572  
Email : sales@kaimosi.com  
Web : www.kaimosi.com

### Emergency telephone number

#### **Emergency Telephone**

For Hazardous Materials or Dangerous Goods Incident  
Spill, Leak, Fire Exposure, or Accident  
Call: 86-17300961653

## 2. Hazard(s) identification

### Classification

Classified according to OSHA.

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1B

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Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1


**Hazards not otherwise classified (HNOC)**

Not applicable

**Label elements**

**Danger**

**Hazard statements**  
 Classified according to OSHA.  
 Harmful if swallowed  
 Fatal if inhaled  
 Causes serious eye damage  
 May cause an allergic skin reaction  
 Suspected of causing cancer  
 Causes damage to organs through prolonged or repeated exposure  
 Very toxic to aquatic life with long lasting effects



**Precautionary Statements - Prevention**

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Wear protective gloves/protective clothing/eye protection/face protection
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- Wear respiratory protection
- Contaminated work clothing must not be allowed out of the workplace

**Precautionary Statements - Response**

- IF exposed or concerned: Get medical advice/attention
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- Immediately call a POISON CENTER or doctor

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IF ON SKIN: Wash with plenty of water and soap  
If skin irritation or rash occurs: Get medical advice/attention  
Wash contaminated clothing before reuse  
IF INHALED: Remove person to fresh air and keep comfortable for breathing  
Immediately call a POISON CENTER or doctor  
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell  
Rinse mouth

#### Precautionary Statements - Storage

Store locked up  
Store in a well-ventilated place. Keep container tightly closed

#### Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

#### Other information

No information available.

### 3. Composition/information on ingredients

#### Substance

Formula (C<sub>8</sub> H<sub>17</sub> N<sub>5</sub>.Cl-H)<sub>n</sub>

Chemical name	CAS No	Weight-%	Trade secret
Polyhexamethylenebiguanide hydrochloride	32289-58-0	100	*

### 4. First-aid measures

#### Description of first aid measures

**General advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. IF exposed or concerned: Get medical advice/attention.

#### Inhalation

If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Do not breathe dust. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask

equipped with a one-way valve or other proper respiratory medical device. If breathing is

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	difficult, (trained personnel should) give oxygen. Get medical attention immediately if symptoms occur.
<b>Eye contact</b>	Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water for at least 15 minutes. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.
<b>Ingestion</b>	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
<b>Self-protection of the first aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Do not breathe dust. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing.
<b><u>Most important symptoms and effects, both acute and delayed</u></b>	
<b>Symptoms</b>	Coughing and/ or wheezing. Difficulty in breathing. Burning sensation. Itching. Rashes. Hives.
<b><u>Indication of any immediate medical attention and special treatment needed</u></b>	
<b>Note to physicians</b>	May cause sensitization in susceptible persons. Treat symptomatically.

## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Large Fire</b>	CAUTION: Use of water spray when fighting fire may be inefficient.
<b>Unsuitable extinguishing media</b>	Do not scatter spilled material with high pressure water streams.

### Specific hazards arising from the chemical

Product is or contains a sensitizer. May cause sensitization by skin contact.

### Explosion data

**Sensitivity to mechanical impact** None.

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<b>Sensitivity to static discharge</b>	None.
<b>Special protective equipment and precautions for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.  Use personal protection equipment.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>Personal precautions</b>	Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid generation of dust. Do not breathe dust. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
<b>Other information</b>	Refer to protective measures listed in Sections 7 and 8.

### Methods and material for containment and cleaning up

<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	Pick up and transfer to properly labeled containers.

## 7. Handling and storage

### Precautions for safe handling

<b>Advice on safe handling</b>	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not breathe dust. Avoid generation of dust. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.
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### Conditions for safe storage, including any incompatibilities

<b>Storage Conditions</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up. Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA.
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## 8. Exposure controls/personal protection

### Control parameters Exposure Limits

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

### Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological 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**                      Tight sealing safety goggles. Avoid contact with eyes. Wear safety glasses with side shields (or goggles).

**Hand protection**                              Wear suitable gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear protective butyl rubber gloves.

**Skin and body protection**                      Wear suitable protective clothing.

**Respiratory protection**                      When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

**Environmental exposure controls**                      Do not allow into any sewer, on the ground or into any body of water.

**General hygiene considerations**                      Do not breathe dust. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection.

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## 9. Physical and chemical properties

### Information on basic physical and chemical properties

<b>Physical state</b>	Solid or liquid
<b>Appearance</b>	Solid or liquid
<b>Color</b>	white to slightly yellow
<b>Odor</b>	Ammonia-like odor
<b>Odor threshold</b>	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
<b>Melting point / freezing point</b>	78.9 - 136.3 °C / 174 - 277.3 °F	

None known

<b>Initial boiling point and boiling range</b>	205 - 210 °C / 401 - 410 °F	None known
<b>Flash point</b>	No data available	None known
<b>Evaporation rate</b>	No data available	None known
<b>Flammability</b>	No data available	None known
<b>Flammability Limit in Air</b>		None known

**Upper flammability or explosive limits**  
**Lower flammability or explosive limits**

No data available No data available

<b>Vapor pressure</b>	0.0132 hPa @20 °C	None known
<b>Relative vapor density</b>	No data available	None known
<b>Relative density</b>	No data available	None known
<b>Water solubility</b>	No data available	None known
<b>Solubility(ies)</b>	No data available	None known
<b>Partition coefficient</b>	2.3	None known
<b>Autoignition temperature</b>	No data available	None known
<b>Decomposition temperature</b>		None known
<b>Kinematic viscosity</b>	No data available	None known
<b>Dynamic viscosity</b>	No data available	None known

### Other information

<b>Explosive properties</b>	No information available
<b>Oxidizing properties</b>	No information available
<b>Softening point</b>	No information available

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<b>Molecular weight</b>	219.72
<b>VOC content</b>	No information available
<b>Liquid Density</b>	No information available
<b>Bulk density</b>	No information available

## 10. Stability and reactivity

<b>Reactivity</b>	No information available.
<b>Chemical stability</b>	Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	None under normal processing.
<b>Conditions to avoid</b>	Excessive heat.
<b>Incompatible materials</b>	Strong acids. Strong bases. Strong oxidizing agents.
<b>Hazardous decomposition products</b>	None known based on information supplied.

## 11. Toxicological information

### Information on likely routes of exposure

#### Product Information

<b>Inhalation</b>	Specific test data for the substance or mixture is not available. Fatal if inhaled. (based on components).
<b>Eye contact</b>	Specific test data for the substance or mixture is not available. Causes serious eye damage. May cause irreversible damage to eyes.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available. May cause irritation. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components).
<b>Ingestion</b>	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed. (based on components).

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Symptoms</b>	Coughing and/ or wheezing. Difficulty in breathing. Redness. Burning. May cause blindness. Itching. Rashes. Hives.
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## Acute toxicity

### Numerical measures of toxicity

#### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Polyhexamethylenebiguanide hydrochloride 32289-58-0	= 1049 mg/kg ( Rat )	-	-

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

<b>Skin corrosion/irritation</b>	May cause skin irritation.
<b>Serious eye damage/eye irritation</b>	Classification based on data available for ingredients. Causes burns. Causes serious eye damage.
<b>Respiratory or skin sensitization</b>	May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	No information available.
<b>Carcinogenicity</b>	Contains a known or suspected carcinogen. Classification based on data available for ingredients. Suspected of causing cancer.
<b>Reproductive toxicity</b>	No information available.
<b>STOT - single exposure</b>	No information available.
<b>STOT - repeated exposure</b>	Causes damage to organs through prolonged or repeated exposure.
<b>Aspiration hazard</b>	No information available.
<b>Other adverse effects</b>	No information available.
<b>Interactive effects</b>	No information available.

## 12. Ecological information

<b>Ecotoxicity</b>	Very toxic to aquatic life with long lasting effects.
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Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Polyhexamethylenebiguanide hydrochloride 32289-58-0	-	LC50: = 0.11 mg/L (96h, Fish)	-	-

**Persistence and degradability** No information available.

**Bioaccumulation** There is no data for this product.

#### Component Information

Chemical name	Partition coefficient
Polyhexamethylenebiguanide hydrochloride	2.3

32289-58-0	
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**Other adverse effects** No information available.

## 13. Disposal considerations

#### Disposal methods

##### Waste from residues/unused products

Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## 14. Transport information

#### DOT

**UN number or ID number** UN2811  
**Extended proper shipping name** Toxic solids, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride)  
**Transport hazard class(es)** 6.1

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**Packing group** II  
**Special Provisions** IB8, IP2, IP4, T3, TP33  
**DOT Marine Pollutant** I  
**Description** UN2811, Toxic solids, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride), 6.1, II, Marine pollutant

## Emergency Response Guide Number

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## TDG

**UN number or ID number** UN2811  
**UN proper shipping name** Toxic solid, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride)  
**Transport hazard class(es)** 6.1  
**Packing group** II  
**Special Provisions** 16  
**Marine pollutant** P  
**Description** UN2811, Toxic solid, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride), 6.1, II

## MEX

**UN number or ID number** UN2811  
**UN proper shipping name** Toxic solid, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride)  
**Transport hazard class(es)** 6.1  
**Packing group** II  
**Technical Name** Polyhexamethylenebiguanide hydrochloride  
**Description** UN2811, Toxic solid, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride), 6.1, II  
**Special Provisions** 274

## IATA

**UN number or ID number** UN2811  
**UN proper shipping name** Toxic solid, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride)  
**Transport hazard class(es)** 6.1  
**Packing group** II  
**Technical Name** Polyhexamethylenebiguanide hydrochloride  
**Description** UN2811, Toxic solid, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride), 6.1, II  
**Special Provisions** A3, A5  
**ERG Code** 6L

## IMDG

**UN number or ID number** Not regulated  
**UN number or ID number** UN2811  
**UN proper shipping name** Toxic solid, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride)  
**Transport hazard class(es)** 6.1  
**Packing group** II  
**EmS-No.** F-A, S-A  
**Special Provisions** 274  
**Marine pollutant** P

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**Marine Pollutant**  
**Description**

Polyhexamethylenebiguanide hydrochloride  
 UN2811, Toxic solid, organic, n.o.s. (Polyhexamethylenebiguanide hydrochloride), 6.1, II,  
 Marine pollutant

## 15. Regulatory information

### International Inventories

**TSCA** Complies under research and development exemption or is regulated by a different government agency.

Chemical name	CAS No	US TSCA Inventory listing	US TSCA inactive/active designation
Polyhexamethylenebiguanide hydrochloride	32289-58-0	-	-

\*Contact supplier for details. One or more substances in this product are either not listed on the US TSCA inventory, listed on the confidential US TSCA inventory or are otherwise exempted from inventory listing requirements

**DSL/NDSL** Contact supplier for inventory compliance status.  
**EINECS/ELINCS** Contact supplier for inventory compliance status.  
**ENCS** Contact supplier for inventory compliance status.  
**IECSC** Contact supplier for inventory compliance status.  
**KECL** Contact supplier for inventory compliance status.

**PICCS** Contact supplier for inventory compliance status.  
**AIIC** Contact supplier for inventory compliance status.

**Legend:**

**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  
**AICS** - Australian Inventory of Chemical Substances

### US Federal Regulations

#### **SARA 313**

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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**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

### **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).

### **CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

### **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 under applicable state right-to-know regulations

### **U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

## 16. Other information

<b><u>NFPA</u></b>	<b>Health hazards</b> 4	<b>Flammability</b> 0	<b>Instability</b> 0	<b>Special hazards</b> -
<b><u>HMIS</u></b>	<b>Health hazards</b> 4 *	<b>Flammability</b> 0	<b>Physical hazards</b> 0	<b>Personal protection</b> X
<i>Chronic Hazard Star Legend</i>	<i>* = Chronic Health Hazard</i>			

### **Key or legend to abbreviations and acronyms used in the safety data sheet**

#### **Legend Section 8: Exposure controls/personal protection**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

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## **Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
EPA (Environmental Protection Agency)  
Acute Exposure Guideline Level(s) (AEGL(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
Japan GHS Classification  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

## **Disclaimer**

**The information in this Safety Data Sheet meets the requirements of the United States OCCUPATIONAL SAFETY AND HEALTH ACT and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) This document is intended only as a guide to the appropriate precautionary handling of the material by a person trained in, or supervised by a person trained in, chemical handling. The user is responsible for determining the application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, we cannot warn of all of the potential dangers of use or interaction with other chemicals or materials. We warrant that the chemical meets the specifications set forth on the label. We (Kaimosi BioChem Tech Co., Ltd) disclaim any other warranties, expressed or implied with regard to the product supplied hereunder, its merchantability or its fitness for a particular purpose. The user should recognize that this product can cause severe injury and even death, especially if improperly handled or the known dangers of use are not heeded. Read all precautionary information.**