

## Chemical Safety Data Sheet MSDS / SDS

## Piperazine dihydrochloride SDS

Revision Date:2024-04-25 Revision Number:1

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name: Piperazine dihydrochloride

CAS: 142-64-3

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

Relevant identified uses: For R&amp;D use only. Not for medicinal, household or other use.

Uses advised against: none

**Company Identification**

Company: Chemicalbook.in

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**SECTION 2: Hazards identification****Classification of the substance or mixture**

Skin irritation, Category 2

Eye irritation, Category 2

Skin sensitization, Category 1  
Respiratory sensitization, Category 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3  
Reproductive toxicity, Category 2

### GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

### Hazard statement(s)

H315 Causes skin irritation  
H319 Causes serious eye irritation  
H317 May cause an allergic skin reaction  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H412 Harmful to aquatic life with long lasting effects

### Precautionary statement(s)

#### Prevention

P264 Wash ... thoroughly after handling.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P284 [In case of inadequate ventilation] wear respiratory protection.  
P273 Avoid release to the environment.  
P203 Obtain, read and follow all safety instructions before use.

#### Response

P302+P352 IF ON SKIN: Wash with plenty of water/...  
P321 Specific treatment (see ... on this label).  
P332+P317 If skin irritation occurs: Get medical help.  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P333+P317 If skin irritation or rash occurs: Get medical help.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P342+P316 If experiencing respiratory symptoms: Get emergency medical help immediately.  
P318 IF exposed or concerned, get medical advice.

#### **Storage**

P405 Store locked up.

#### **Disposal**

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

#### **Other hazards which do not result in classification**

no data available

### **SECTION 3: Composition/information on ingredients**

#### **Substance**

Chemical name: Piperazine dihydrochloride

Common names and synonyms: Piperazine dihydrochloride

CAS number: 142-64-3

EC number: 205-551-2

Concentration: 100%

### **SECTION 4: First aid measures**

#### **Description of necessary first-aid measures**

##### **If inhaled**

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

##### **Following skin contact**

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

**Following eye contact**

Rinse with pure water for at least 15 minutes. Consult a doctor.

**Following ingestion**

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

**Most important symptoms/effects, acute and delayed**

Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact Symptoms: Irritation eyes, skin, respiratory system; skin burns, sensitization; asthma; gastrointestinal upset, headache, nausea, vomiting, incoordination, muscle weakness Target Organs: Eyes, skin, respiratory system, central nervous system (NIOSH, 2016)

**Indication of immediate medical attention and special treatment needed, if necessary****Minimum/Potential Fatal Human Dose**

2= slightly toxic; probable oral lethal dose (human) 5-15 g/kg, between 1 pint & 1 qt for 70 kg person (150 lb).

**Absorption, Distribution and Excretion**

Not absorbed through skin in acute toxic amt.

**SECTION 5: Firefighting measures****Suitable extinguishing media**

Use dry chemical, carbon dioxide or alcohol-resistant foam.

**Specific hazards arising from the chemical**

no data available

**Special protective actions for fire-fighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**SECTION 6: Accidental release measures**

### Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

## SECTION 7: Handling and storage

### Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

## SECTION 8: Exposure controls/personal protection

### Control parameters

### Occupational Exposure limit values

Component	Piperazine dihydrochloride			
CAS No.	142-64-3			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Australia	?	5	?	?

Belgium	?	5	?	?
Canada - Ontario	?	5	?	?
Canada - Québec	?	5	?	?
Denmark	?	5	?	10
Finland	0,028	0,1	0,084 (1)	0,3 (1)
France	?	5	?	?
Ireland	?	0,1	?	0,3 (1)
New Zealand	?	5	?	?
Singapore	?	5	?	?
South Korea	?	5	?	?
Spain	?	5	?	?
Switzerland	?	5 inhalable aerosol	?	?
USA - NIOSH	?	5	?	?
United Kingdom	?	0,1	?	0,3
	<b>Remarks</b>			
Finland	(1) 15 minutes average value			
Ireland	(1) 15 minutes reference period			

### Biological limit values

no data available

### Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Piperazine dihydrochloride is a white to cream-colored needles or powder. Mp: 318-20°C (with decomposition).
Colour:	CREAM COLORED CRYSTALLINE POWDER
Odour:	no data available
Melting point/freezing point:	320°C(dec.)(lit.)
Boiling point or initial boiling point and boiling range:	153°C/14mmHg(lit.)
Flammability:	Combustible Solid, but does not ignite easily.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	27°C(lit.)
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	41 % (NIOSH, 2016)
Partition coefficient n-octanol/water:	no data available
Vapour pressure:	no data available

Density and/or relative density:	1.92g/cm <sup>3</sup>
Relative vapour density:	no data available
Particle characteristics:	no data available

## SECTION 10: Stability and reactivity

### Reactivity

No rapid reaction with air No rapid reaction with water Water-soluble

### Chemical stability

Stable @ temp to 270 deg c & in neutral or acid media

### Possibility of hazardous reactions

This compound is incompatible with the following: Water, HEAT, flames, oxidizers. It absorbs moisture from air. It may create flammable condition upon contact with HEAT, FLAMES and OXIDIZERS.

### Conditions to avoid

no data available

### Incompatible materials

Water [Note: Slightly hygroscopic (i.e., absorbs moisture from the air)].

### Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of nitrous oxide and hydrogen chloride.

## SECTION 11: Toxicological information

### Acute toxicity



Oral: LD50 Rat oral 4,900 mg/kg

Inhalation: no data available

Dermal: no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

no data available

**Reproductive toxicity**

no data available

**STOT-single exposure**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

## SECTION 12: Ecological information

### Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### Persistence and degradability

no data available

### Bioaccumulative potential

no data available

### Mobility in soil

no data available

### Other adverse effects

no data available

## SECTION 13: Disposal considerations

### Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas

scrubbing is possible for combustible packaging materials.

## SECTION 14: Transport information

### UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

### Special precautions for user

no data available

### Transport in bulk according to IMO instruments

no data available

### **SECTION 15: Regulatory information**

**Safety, health and environmental regulations specific for the product in question**

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

**EC Inventory**

Listed.

**United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

**China Catalog of Hazardous chemicals 2015**

Not Listed.

**New Zealand Inventory of Chemicals (NZIoC)**

Listed.

**(PICCS)**

Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC)**

Not Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

### **SECTION 16: Other information**

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

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

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### **References**

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:  
[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website:  
<http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

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