



## MATERIAL SAFETY DATA SHEET (MSDS)

### SECTION 1: Identification

#### 1.1 Product identifiers

**Product Name :** Piperazine  
**Cat No.:** AC131290000; AC131290025; AC131290050; AC131290100;  
AC131291000; AC131295000  
**CAS No. :** 110-85-0

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Recommended uses :** Laboratory chemicals  
**Uses advised against:** Food, drug, pesticide or biocidal product use.

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

**Company :** Krishna Solvechem Limited.  
B/503, Sahayog, S. V. Road,  
Kandivali (West), Mumbai – 400067. India.  
**Telephone :** +91-22-6123 0222  
**Email :** exports@kscl.co.in

#### 1.4 Emergency telephone number

**Emergency Phone :** +91-8657457330

### SECTION 2: Hazards identification

#### 2.1 Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	(Category 1)
Skin Corrosion/Irritation	(Category 1 B)
Serious Eye Damage/Eye Irritation	(Category 1)
Respiratory and skin Sensitization	(Category 1)
Productive toxicity	(Category 2)

#### 2.2 Label elements

**Pictogram :**



**Signal word**

Danger

**Hazard statement (s)**

May cause allergy or asthma symptoms or breathing difficulties if inhaled  
Suspected of damaging fertility. Suspected of damaging the unborn child



**Precautionary statement (s)**

**Prevention**

Flammable solid  
Causes severe skin burns and eye damage  
Cause an allergic skin reaction

Wash face, hands and any exposed skin thoroughly after handling  
Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Wear protective gloves/protective clothing/eye protection/face protection  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Use explosion-proof electrical/ventilating/lighting/equipment

**Inhalation :**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Call a POISON CENTER or doctor/physician if you feel unwell

**IF ON SKIN (or hair):**

If skin irritation occurs: Get medical advice/attention

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

**Eyes:**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing If eye irritation persists: Get medical advice/attention

**Ingestion:**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

**Fire**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

**Storage:**

Store locked up



<b>Hazards not otherwise classified (HNOC)</b>	<b>Disposal:</b> Dispose of contents/container to an approved waste disposal plant None identified
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**SECTION 3: Composition / information on ingredients**

**3.1**

Component	CAS-No	Weight %
Piperazine	110-85-0	>60 - <70

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

<b>If inhalation :</b>	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
<b>In case of skin contact :</b>	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
<b>In case of eye contact :</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Ingestion :</b>	Clean mouth with water and drink afterwards plenty of water.

**4.2 Most important symptoms and effects :** Causes burns by all exposure routes. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**4.3 Notes to Physician :** Treat symptomatically

**SECTION 5: Firefighting effects**

**5.1 Extinguishing media**

<b>Suitable extinguishing media :</b>	carbon dioxide (CO <sub>2</sub> ), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.
<b>Unsuitable Extinguishing Media :</b>	No information available

**5.2 Flash Point :** 65 °C / 149 °F  
**Method :** No information available



<b>Autoignition Temperature:</b>	320 °C / 608 °F
<b>Explosion Limits:</b>	
<b>Upper</b>	14.00%
<b>Lower</b>	4.00%
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available
<b>Specific Hazards Arising from the Chemical :</b>	Flammable. Containers may explode when heated. Combustible material.
<b>Hazardous Combustion Products :</b>	Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ). Nitrogen oxides (NO <sub>x</sub> )

<b>5.4 Protective Equipment and Precautions for Firefighters:</b>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.			
<b><u>NFPA:</u></b>	<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
	3	2	1	N/A

## SECTION 6: Accidental release measures

<b>6.1 Personal precautions, protective equipment and emergency procedures</b>	Remove all sources of ignition. Take precautionary measures against static discharges
<b>6.2 Environmental precautions</b>	See section 12 for additional Ecological Information
<b>6.3 Methods and materials for containment and cleaning up</b>	Sweep up and shovel into suitable containers for disposal. Remove all sources of ignition.

## SECTION 7: Handling and storage

<b>7.1 Precautions for safe handling</b>	Do not breathe dust. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges. Handle product only in closed system or provide appropriate exhaust ventilation. Keep away from open flames, hot surfaces and sources of ignition.
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## 7.2 Conditions for safe storage

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks and flame. Protect from direct sunlight. Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Incompatible Materials. Strong oxidizing agents. Strong acids. Acid anhydrides. Acid chlorides.

## SECTION 8: Exposure controls/personal protection

### 8.1 Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Piperazine	TWA: 0.03 ppm			TWA: 0.03 ppm

#### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

### 8.2 Exposure controls

#### Personal protective equipment -

##### Eye / Face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

##### Skin protection and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

##### Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

##### Hygiene Measures

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

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Off white solid
b) Odour	Ammonia -like
c) Odour Threshold	No information available
d) pH	12 15% aq.solution
e) Melting point / freezing point	107 - 111 °C / 224.6 - 231.8 °F
f) Initial boiling point and	146 - 148 °C / 294.8 - 298.4 °F @ 760 mmHg



<b>boiling range</b>	
<b>g) Flash point</b>	65 °C / 149 °F
<b>h) Evaporation rate</b>	No information available
<b>i) Flammability (solid, gas)</b>	Not applicable
<b>j) Upper/lower flammability or explosive limits</b>	Upper : 14.00% Lower : 4.00%
<b>k) Vapour pressure</b>	15 mbar @ 50 °C
<b>l) Vapour density</b>	Not applicable
<b>m) Specific Gravity</b>	No information available
<b>n) Solubility</b>	No information available
<b>o) Partition coefficient: n octanol/water</b>	No data available
<b>p) Auto-ignition temperature</b>	320 °C / 608 °F
<b>q) Decomposition temperature</b>	No information available
<b>r) Viscosity</b>	Not applicable
<b>s) Molecular formula</b>	C4 H10 N2
<b>t) Molecular Weight</b>	86.14

### SECTION 10: Stability and Reactivity

<b>10.1 Reactive Hazard :</b>	None known, based on information available
<b>10.2 Chemical stability :</b>	Stable under normal conditions. Hygroscopic. Light sensitive
<b>10.3 Possibility of hazardous reactions :</b>	None under normal processing.
<b>10.4 Conditions to avoid :</b>	Keep away from open flames, hot surfaces and sources of ignition. Exposure to moist air or water. Exposure to light. Incompatible products.
<b>10.5 Incompatible materials:</b>	Strong oxidizing agents, Strong acids, Acid anhydrides, Acid chlorides
<b>10.6 Hazardous decomposition products :</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Nitrogen oxides (NO <sub>x</sub> )
<b>10.7 Hazardous Polymerization</b>	Hazardous polymerization does not occur



## SECTION 11: Toxicological information

### 11.1

#### Information on toxicological effects

#### Acute toxicity:

#### Product Information:

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Piperazine	2600 mg/kg ( Rat )	4 mL/kg ( Rabbit )	Not listed

**Toxicologically Synergistic Products** No information available

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

**Irritation :** No information available

**Sensitization:** No information available

**Carcinogenicity :** The table below indicates whether each agency has Any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Piperazine	110-85-0	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects:** Not mutagenic in AMES Test

**Reproductive Effects:** No information available.

**Developmental Effects :** No information available.

**Teratogenicity:** No information available.

**STOT - single exposure :** None known

**STOT - repeated exposure:** None known

**Aspiration hazard :** No information available.

**Symptoms / effects, both acute and delayed:** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**Endocrine Disruptor Information :** No information available

**Other Adverse Effects :** The toxicological properties have not been fully investigated.



## SECTION 12: Ecological information

### 12.1

#### Ecotoxicity:

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Piperazine	Not listed	LC50: > 10000 mg/L, 96h static (Lepomis macrochirus)	Not listed	Not listed

**12.2 Persistence and degradability:** Soluble in water Persistence is unlikely based on information Available.

**Bioaccumulation/  
Accumulation** No information available

**12.3 Mobility:** Will likely be mobile in the environment due to its water solubility.

## SECTION 13: Disposal considerations

**13.1 Waste treatment methods:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## SECTION 14: Transport information

### 14.1 UN number :

DOT : UN2579      TDG : UN2579  
IATA : UN2579      IMDG : UN2579

### 14.2 UN proper shipping name

**DOT :** PIPERAZINE  
**TDG :** PIPERAZINE  
**IMDG :** PIPERAZINE  
**IATA :** PIPERAZINE

**14.3 Transport hazard class(es)** DOT: 8      TDG: 8      IMDG: 8      IATA: 8

**14.4 Packaging group:** DOT: III      TDG: III      IMDG: III      IATA: III

## SECTION 15: Regulatory information

### 15.1 United states of America Inventory:

Component	CAS-No	TSCA	TSCA Inventory notification Active/Inactive	TSCA - EPA Regulatory Flags
Piperazine	110-85-0	X	ACTIVE	-

**Legend:**





**TSCA - Toxic Substances Control Act, (40 CFR Part 710)**

X - Listed

'-' - Not Listed

**TSCA 12(b) - Notices of Export** Not applicable

**International Inventories:**

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia(AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Piperazine	110-85-0	X	-	203-808-3	X	X	X	X	X	KE-28758

**U.S. Federal Regulations**

**SARA 313** Not applicable

**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA - Occupational Safety and Health Administration** Not applicable

**CERCLA** Not applicable

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**15.2 U.S. State Right-to-Know Regulations:**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Piperazine	X	X	X	X	-

**U.S. Department of Transportation**

Reportable Quantity (RQ): N



DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** - This product does not contain the any DHS Chemicals.

**Other International Regulations**

**Mexico – Grade** No information available

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Piperazine	110-85-0	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Piperazine	110-85-0	Not applicable	Not applicable	Not applicable	Not applicable

**SECTION 16: Other information**

**16.1 Prepared By:** Regulatory affairs  
 Krishna Solvechem Limited  
**Email:** exports@kscl.co.in  
**Creation Date:** 23-Mar-2012  
**Revision Date:** 19-Jan-2023  
**Print Date:** 19-Jan-2023  
**Revision Summary:** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 C F R 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**16.2 Disclaimer:**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.