

MATERIAL SAFETY DATA SHEET

Product Name: Piperazine anhydrous

CAS No.: 110-85-0

Version: 0

1. Identification

Product Code : 91921
Company Name : Advent Chembio Private Limited
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2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
PIPERAZINE ANHYDROUS	110-85-0	98- 100%

3. Hazards Identification**Hazard classification****Health hazards**

Skin corrosion/irritation : Category 1B
Respiratory sensitization : Category 1
Skin sensitization : Category 1
Reproductive toxicity : Category 2

Environmental hazards : Not classified

Labels elements**Hazard symbol**

Signal word : Danger

Hazard statement : Causes severe skin burns and eye damage.
May cause allergy or asthma symptoms or breathing difficulties if Inhaled.
May cause an allergic skin reaction.
Suspected of damaging fertility. Suspected of damaging the unborn Child.

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Precautionary statement**Prevention**

: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Wash hands thoroughly after handling. Keep container tightly closed. Ground/bond container and receiving equipment.

Use only non-sparking tools.

Use explosion-proof electrical/ventilating/lighting/equipment.

Take precautionary measures against static discharge.

Wear protective gloves/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Avoid release to the environment.

Response

: If eye irritation persists: Get medical advice/attention. IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting. Collect spillage.

Storage

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

Disposal

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 GHS classification

: None .

4. First Aid Measures**General information**

: Get medical advice/attention if you feel unwell. If medical advice is needed, have product container or label at hand. Show this safety data sheet to the doctor in attendance.

Ingestion

: Call a physician or poison control center immediately. Do not induce vomiting without advice from poison control center. Never give liquid to an unconscious person.

Inhalation

: Move to fresh air. Get medical attention if symptoms persist. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration.

Skin contact

: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Eye contact

: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

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- Most important symptoms/effects, acute and delayed** : Burning sensation, Cough, Sore throat, Shortness of breath, Labored breathing, Wheezing, Abdominal pain, Nausea, Vomiting, Headache, Weakness, Convulsions, Collapse, Redness, Burn, Pain, Blistering
- Indication of immediate medical attention and special treatment needed** : Medical observation is indicated

5. Fire fighting measures

- General fire hazards** : Flammable liquid and vapor. In case of fire and/or explosion do not breathe fumes.
- Suitable (and unsuitable) extinguishing media**
- Suitable extinguishing media** : Water spray, foam, dry powder or carbon dioxide.
- Unsuitable extinguishing media** : Avoid water in straight hose stream; will scatter and spread fire.
- Specific hazards arising from the chemical** : Can be ignited easily and burns vigorously. Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Heat may cause the containers to explode.
- Special protective equipment and precautions for firefighters**
- Special fire fighting procedures** : Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out.
- Special protective equipment for fire-fighters** : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures** : ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.
- Methods and material for containment and cleaning up** : Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharges. Stop leak if

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possible without any risk. Use only non-sparking tools. All equipment used when handling the product must be grounded. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

- Notification Procedures** : Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.
- Environmental precautions** : Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and Storage

- Precautions for safe handling** : DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Contact with air and light may form explosive peroxides. If peroxide formation is suspected, do not open or move container. Use personal protective equipment as required. Avoid breathing mists or vapors. Do not taste or swallow. Use only with adequate ventilation. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling.
- Conditions for safe storage, including any incompatibilities** : Keep away from food, drink and animal feeding stuffs. Prolonged contact with air may cause formation of explosive peroxides. Nitrogen blanketing of containers is recommended. Keep container tightly closed in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. Exposure Controls Personal Protection

Control parameters

Occupational exposure limits

ACGIH TLV(TWA):	:	0.03 ppm (IFV) (sen)
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Appropriate engineering controls : No data available.

Individual protection measures, such as personal protective equipment

General information : Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If

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applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

Eye/face protection	:	Chemical goggles and face shield are recommended .
Hand protection	:	Chemical resistant gloves .
Other	:	Wear suitable protective clothing.
Respiratory protection	:	In case of inadequate ventilation use suitable respirator. Chemical respirator with organic vapor cartridge and full facepiece.
Hygiene measures	:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

9. Physical and Chemical Properties

Appearance	:	White crystal powder.
Odor	:	Pungent
pH	:	10.8 - 11.8 (10% soln.H ₂ O).
Melting point/freezing point	:	112°C
Initial boiling point and boiling range	:	112°C
Flash Point	:	No data available (Calculated value:>60°C)
Vapor pressure	:	21Pa/20°C
Vapor density	:	3
Relative density	:	No data available
Solubility in water	:	Soluble (15 g/100mL, 20°C)
Solubility (other)	:	Glycerol, Glycol
Formula	:	C ₄ H ₁₀ N ₂
Molecular Weight	:	86.14 g/mol

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10. Stability and Reactivity

Reactivity	: No data available.
Chemical stability	: Highly hygroscopic (deliquescent).
Possibility of hazardous reactions	: No special reactivity has been reported.
Conditions to avoid	: No data available
Incompatible materials	: Oxidizing agents, Acids, Acid anhydrides, Metals
Hazardous decomposition products	: Carbon monoxide, Carbon dioxide, Nitrogen oxides (NO _x)

11. Toxicological Information**Information on likely routes of exposure****Acute toxicity (list all possible routes of exposure)**

Oral Product	: LD50 Oral - rat - 2.600 mg/kg (OECD Test Guideline 401)
Dermal Product	: LD50 Dermal - rabbit - 8.300 mg/kg (OECD Test Guideline 402)
Inhalation Product	: LC0 Inhalation - rat - 4 h - 0,8 mg/l
Repeated dose toxicity Product	: No data available.
Skin corrosion/irritation Product	: Skin - rabbit Result: Causes burns.
Serious eye damage/eye irritation Product	: Eyes - rabbit Result: Severe eye irritation - 24 h
Respiratory or skin sensitization Product	: Maximisation Test - guinea pig May cause sensitisation by skin contact.
Carcinogenicity Product	: This substance has no evidence of carcinogenic properties.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans DIOXANE	: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
US. National Toxicology Program (NTP) Report on Carcinogens DIOXANE	: No carcinogenic components identified.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050 Germ cell mutagenicity In vitro Product	: No carcinogenic components identified. : No mutagenic components identified .

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In vivo Product : No mutagenic components identified .
Reproductive toxicity Product : No components toxic to reproduction.
Specific target organ toxicity - single exposure Product : No data available.
Specific target organ toxicity - repeated exposure Product : None known.
Aspiration hazard Product : Not classified
Other effects : No data available.

12. Ecological Information

Toxicity
Fish Product : LC50 - Poecilia reticulata (guppy) - > 1.800 mg/l - 96,0 h
Aquatic invertebrates Product : EC50 - Daphnia magna (Water flea) - 21 mg/l - 48 h
Toxicity to Aquatic Plants : EC50 - Pseudokirchneriella subcapitata (green algae) - > 1.000 mg/l - 72 h
Product:
Persistence and degradability
Biodegradation Product : There are no data on the degradability of this product.
BOD/COD ratio Product : No data available.
Bioaccumulative potential
Bioconcentration factor (BCF) Product : No data available on bioaccumulation.
Product
Partition coefficient n-octanol / water (log Kow) Product : No data available.
Mobility in soil : No data available.
Other adverse effects : No data available.

13. Disposal consideration

Disposal instructions : Discharge, treatment, or disposal may be subject to national, state, or local laws. 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 .
Contaminated packaging : Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

	UN No.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant

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DOT	UN 2579	Piperazine	8	III	No
IMDG	UN 2579	Piperazine	8	III	No
IATA	UN 2579	Piperazine	8	III	No

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture
No Data Available.

16. Other Information**Issue Date :01/08/2014****Version : 0**

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