

CHAITANYA CHS, 2nd FLOOR, OFFICE # 206, SIDDHARTH NAGAR, S.V.ROAD, GOREGAON (W), MUMBAI 400062, MH, INDIA.
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MATERIAL SAFETY DATA SHEET (MSDS)

PIPERAZINE (ANHYDROUS) (FOR SYNTHESIS)

1. Product Identification

Synonyms: Antitren; 1,4-Diethylenediamine; N,N-Diethylenediamine; Hexahydro-1,4-diazine; Piperazidine; Pyrazine hexahydrate
CAS No.: 110-85-0

Product Coad: P0161401000

Molecular Weight: 86.14
Chemical Formula: C₄H₁₀N₂

2. Composition/Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
110-85-0	Piperazine, anhydrous	100	203-808-3

3. Hazards Identification

EMERGENCY OVERVIEW

Appearance: Not available. Flash Point: 82 deg C.

Danger! Corrosive. Causes severe eye and skin burns. May cause severe allergic respiratory reaction. May cause severe respiratory and digestive tract irritation with possible burns. Light sensitive. May cause dermatitis. Hygroscopic (absorbs moisture from the air).

Target Organs: None.

Potential Health Effects

Eye: Contact with eyes may cause severe irritation, and possible eye burns.

Skin: May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Contact with skin causes irritation and possible burns, especially if the skin is wet or moist.

Ingestion: May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns.

Inhalation: May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. May cause asthmatic attacks due to allergic sensitization of the respiratory tract. Causes chemical burns to the respiratory tract.

Chronic: Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration. Prolonged or repeated exposure may cause permanent eye damage. Repeated exposure may cause allergic respiratory reaction (asthma).

4. First Aid Measures

Eyes: Get medical aid immediately. Gently lift eyelids and flush continuously with water.

Skin: Get medical aid immediately. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Treat symptomatically and supportively.

5. Fire Fighting Measures

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

Extinguishing Media: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

Flash Point: 82 deg C (179.60 deg F)

Autoignition Temperature: 340 deg C (644.00 deg F)

Explosion Limits, Lower:4.00 vol %

Upper: 14.00 vol %

NFPA Rating: 3 - health, 2 - flammability, 0 - instability

6. Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Sweep up, then place into a suitable container for disposal.

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7. Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Do not get on skin or in eyes. Do not ingest or inhale.

Storage: Keep away from heat, sparks, and flame. Store in a cool, dry place. Corrosives area.

8. Exposure Controls, Personal Protection

Engineering Controls: Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Piperazine, anhydrous	none listed	none listed	none listed

OSHA Vacated PELs: Piperazine, anhydrous: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: 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: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: 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.

9. Physical and Chemical Properties

Physical State: Solid

Appearance: Not available.

Odor: Ammonia-like odor.

pH: Not available.

Vapor Pressure: .8 mm Hg

Vapor Density: 3 (Air=1)

Evaporation Rate:Negligible.

Viscosity: Not available.

Boiling Point: 145.0 - 146.0 deg C @ 760.00mm Hg

Freezing/Melting Point:108.00 - 110.00 deg C

Decomposition Temperature:Not available.

Solubility: practically insoluble in ether

Specific Gravity/Density:Not available.

Molecular Formula:C4H10N2

Molecular Weight:86.14

10. Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials.

Incompatibilities with Other Materials: Strong oxidizing agents; strong acids; acid chlorides; acid anhydrides; light; moisture; dicyanofurazan.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide, nitrogen.

Hazardous Polymerization: Will not occur.

11. Toxicological Information

RTECS#:

CAS# 110-85-0: TK7800000

LD50/LC50:

CAS# 110-85-0:

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Draize test, rabbit, eye: 250 ug Severe;

Draize test, rabbit, eye: 250 ug/24H Severe;
Inhalation, mouse: LC50 = 5400 mg/m³/2H;
Oral, mouse: LD50 = 600 mg/kg;
Oral, rat: LD50 = 1900 mg/kg;

Skin, rabbit: LD50 = 4 mL/kg;

Carcinogenicity:

CAS# 110-85-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Piperazine can combine with nitrites or other nitrosating agents to form nitrosamines which have been found to cause cancer in laboratory animals. Piperazine alone was found to be noncarcinogenic. According to Patty's Industrial Hygiene and toxicology, Piperazine alone was found to be noncarcinogenic.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: No data available.

Other Studies:

12. Ecological Information

No information available.

13. Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

14. Transport Information

Shipping Name:	US DOT PIPERAZINE	Canada TDG PIPERAZINE
Hazard Class:	8	8
UN Number:	UN2579	UN2579
Packing Group:	III	III

15. Regulatory Information

US FEDERAL

TSCA

CAS# 110-85-0 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 110-85-0: immediate, fire.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

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MATERIAL SAFETY DATA SHEET (MSDS)**PIPERAZINE (ANHYDROUS) (FOR SYNTHESIS)**

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 110-85-0 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

C

Risk Phrases:

R 34 Causes burns.

R 42/43 May cause sensitization by inhalation and skin contact.

R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 22 Do not breathe dust.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 110-85-0: 2

Canada - DSL/NDSL

CAS# 110-85-0 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 110-85-0 is listed on the Canadian Ingredient Disclosure List.

16. Other Information

Product Use: Laboratory Reagent.

In accordance with REACH Regulation (CE) N° 1907/2006 and with CLP Regulation (CE) N° 1272/2008

DISCLAIMER:

- **SUVCHEM** Products are to be used as Lab Chemicals for R&D only. Not for drug, medicinal, household or other uses.
- **SUVCHEM** shall not be responsible for any damage resulting from handling or from contact with the above product.
- **SUVCHEM** provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.

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