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CONTACT: +9122 28725393 /94/ 95 | EMAILID: CARE@SUVCHEM.COM

MATERIAL SAFETY DATA SHEET (MSDS)**SPERMINE (FOR BIOCHEMISTRY)****1 - Chemical Product**

Product Name:Spermine
Synonym:N,N'-Bis(3-Aminopropyl)-1,4-Butanediamine; 1,4-Bis(Aminopropyl) Butanediamine; Musculamine

Cas no:71-44-3

Product Coad: S0194300001

Molecular Formula: C₁₀H₂₆N₄
Molecular Weight: 202.34

2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	content	EINECS#
71-44-3	Spermine	97%	200-754-2

3 - HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

Harmful by inhalation, in contact with skin and if swallowed.Corrosive.

Potential Health Effects

Eye:Causes eye burns. May cause chemical conjunctivitis and corneal damage.

Skin:Causes skin burns. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.

Ingestion:May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. May cause cardiac disturbances. May cause central nervous system effects. May cause systemic effects.

Inhalation:Causes chemical burns to the respiratory tract. Aspiration may lead to pulmonary edema. May cause cardiac abnormalities. May cause systemic effects. Central nervous system effects, which appear to predominate in acute cases are characterized by abnormal fatigue, memory difficulties and dizziness.

Chronic:Effects may be delayed.

4 - FIRST AID MEASURES

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin:Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

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

Inhalation:Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician:

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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Containers may explode when heated. Non-combustible, substance itself does not burn but may decompose upon heating to produce irritating, corrosive and/or toxic fumes. Runoff from fire control or dilution water may cause pollution.

Extinguishing Media:Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

6 - ACCIDENTAL RELEASE MEASURES

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

Spills/Leaks:Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions.

Provide ventilation.

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7 - HANDLING and STORAGE

Handling: Use only in a well-ventilated area. Minimize dust generation and accumulation. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Discard contaminated shoes.

Storage: Keep container closed when not in use. Keep refrigerated. (Store below 4C/39F.)

8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits CAS# 71-44-3: 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

Color: white

Odor: Not available.

pH: Not available.

Vapor Pressure: Not available.

Viscosity: Not available.

Boiling Point: 150 - 150 deg C @ 5.00mmHg

Freezing/Melting Point: 28.00 - 30.00 deg C

Autoignition Temperature: Not applicable.

Flash Point: Not applicable.

Explosion Limits, lower: Not available.

Explosion Limits, upper: Not available.

Decomposition Temperature:

Solubility in water:

Specific Gravity/Density:

Molecular Formula: C10H26N4

Molecular Weight: 202.34

10 - STABILITY AND REACTIVITY

Chemical Stability:

Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid:

Incompatible materials, dust generation, excess heat, strong oxidants.

Incompatibilities with Other Materials:

Acid chlorides, acid anhydrides, acids, oxidizing agents.

Hazardous Decomposition Products:

Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, nitrogen.

Hazardous Polymerization: Has not been reported

11 - TOXICOLOGICAL INFORMATION

RTECS#:

CAS# 71-44-3: EJ7175000 LD50/LC50:

Not available.

Carcinogenicity: Spermine - Not listed by ACGIH, IARC, or NTP.

Other: See actual entry in RTECS for complete information.

12 - ECOLOGICAL INFORMATION

13 - DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

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MATERIAL SAFETY DATA SHEET (MSDS)**SPERMINE (FOR BIOCHEMISTRY)****14 - TRANSPORT INFORMATION**

IATA
Shipping Name: CORROSIVE LIQUID, N.O.S.*
Hazard Class: 8
UN Number: 1760
Packing Group: II
IMO
Shipping Name: CORROSIVE LIQUID, N.O.S.
Hazard Class: 8
UN Number: 1760
Packing Group: II
RID/ADR
Shipping Name: CORROSIVE LIQUID, N.O.S.
Hazard Class: 8
UN Number: 1760
Packing group: II

15 - REGULATORY INFORMATION

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN
Risk Phrases:
R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
Safety Phrases:
S 37/39 Wear suitable gloves and eye/face protection.
WGK (Water Danger/Protection)
CAS# 71-44-3: No information available.
Canada
CAS# 71-44-3 is listed on Canada's NDSL List.
CAS# 71-44-3 is not listed on Canada's Ingredient Disclosure List.
US FEDERAL
TSCA
CAS# 71-44-3 is listed on the TSCA inventory.

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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