

SIGMA-ALDRICH**Material Safety Data Sheet**Version 3.0
Revision Date 01/02/2009
Print Date 07/13/2010**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Spermine

Product Number : S4264
Brand : Sigma

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +18003255832
Fax : +18003255052
Emergency Phone # : (314) 776-6555

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Gerontine
N,N'-Bis(3-aminopropyl)-1,4-diaminobutane
Neuridine
Musculamine

Formula : $C_{10}H_{26}N_4$
Molecular Weight : 202.34 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
4,9-Diazadodecamethylenediamine			
71-44-3	200-754-2	-	-

3. HAZARDS IDENTIFICATION**Emergency Overview****OSHA Hazards**

Corrosive

HMIS Classification**Health Hazard:** 3**Flammability:** 0**Physical hazards:** 0**NFPA Rating****Health Hazard:** 3**Fire:** 0**Reactivity Hazard:** 0**Potential Health Effects****Inhalation**

May be harmful if inhaled. Material is extremely destructive to the tissue of the

Skin
Eyes
Ingestion

mucous membranes and upper respiratory tract.
May be harmful if absorbed through skin. Causes skin burns.
Causes eye burns.
May be harmful if swallowed. Causes burns.

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

In case of skin contact

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

In case of eye contact

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point 110.00 °C (230.00 °F) - closed cup

Ignition temperature no data available

Suitable extinguishing media

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

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions

Do not let product enter drains.

Methods for cleaning up

Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Storage

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: 2 - 8 °C

hygroscopic Store under inert gas. Air sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves.

Eye protection

Safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	amorphous
Colour	colourless

Safety data

pH	no data available
Melting point	28 - 30 °C (82 - 86 °F)
Boiling point	150 °C (302 °F) at 7 hPa (5 mmHg)
Flash point	110.00 °C (230.00 °F) - closed cup
Ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Density	0.937 g/cm ³
Water solubility	no data available

10. STABILITY AND REACTIVITY

Storage stability

Stable under recommended storage conditions.

Materials to avoid

acids, Acid chlorides, Acid anhydrides, Oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO_x)

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Intraperitoneal - rat - 33 mg/kg

Remarks: Lungs, Thorax, or Respiration:Other changes. Kidney, Ureter, Bladder:Changes in tubules (including acute renal failure, acute tubular necrosis). Nutritional and Gross Metabolic:Dehydration.

Irritation and corrosion

no data available

Sensitisation

no data available

Chronic exposure

IARC: 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.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Genotoxicity in vitro - mouse - lymphocyte
Cytogenetic analysis

Genotoxicity in vitro - Hamster - Kidney
DNA inhibition

Potential Health Effects

Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin May be harmful if absorbed through skin. Causes skin burns.

Eyes Causes eye burns.

Ingestion May be harmful if swallowed. Causes burns.

Additional Information

RTECS: EJ7175000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

no data available

Ecotoxicity effects

no data available

Further information on ecology

no data available

13. DISPOSAL CONSIDERATIONS

Product

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN-Number: 3259 Class: 8 Packing group: II
Proper shipping name: Polyamines, solid, corrosive n.o.s. (4,9-Diazadodecamethylenediamine)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN-Number: 3259 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: POLYAMINES, SOLID, CORROSIVE, N.O.S. (4,9-Diazadodecamethylenediamine)
Marine pollutant: No

IATA

UN-Number: 3259 Class: 8 Packing group: II
Proper shipping name: Polyamines, solid, corrosive n.o.s. (4,9-Diazadodecamethylenediamine)

15. REGULATORY INFORMATION**OSHA Hazards**

Corrosive

DSL Status

This product contains the following components listed on the Canadian NDSL list. All other components are on the Canadian DSL list.

4,9-Diazadodecamethylenediamine

CAS-No.
71-44-3

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

4,9-Diazadodecamethylenediamine

CAS-No. Revision Date
71-44-3

New Jersey Right To Know Components

4,9-Diazadodecamethylenediamine

CAS-No. Revision Date
71-44-3

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.