MATERIAL SAFETY DATA SHEET

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Section 1 - Product and Company Information

Product Name	ETHIDIUM BROMIDE SOLUTION, BIOREAGENT, FOR MOLECULAR BIOLOGY , 10 MG/ML IN H2O
Product Number	E1510
Brand	SIGMA
Company	Sigma-Aldrich
Address	3050 Spruce Street SAINT LOUIS MO 63103 US
Technical Phone:	800-325-5832
Fax:	800-325-5052
Emergency Phone:	314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
ETHIDIUM BROMIDE, 1 WT% AQUEOUS SOLUTION	None	No

Ingredient Name	CAS #	Percent	SARA 313
WATER	7732-18-5	99	No
ETHIDIUM BROMIDE, POWDER	1239-45-8	1	No

Synonyms: 2,7-Diamino-10-ethyl-9-phenylphenanthridinium bromide * 3,8-Diamino-5-ethyl-6-phenylphenanthridinium bromide * 2,7-Diamino-9-phenyl-10-ethylphenanthridinium bromide * 2,7-Diamino-9-phenylphenanthridine ethobromide * Dromilac * Ethidium bromide * Homidium bromide * RD 1572

RTECS Number: SF7950000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Highly Toxic (USA) Toxic (EU).
Harmful if swallowed. Very toxic by inhalation. Irritating to eyes, respiratory system and skin. Possible risk of irreversible effects.

HMIS RATING
- HEALTH: 3*
- FLAMMABILITY: 0
- REACTIVITY: 0

NFPA RATING
- HEALTH: 3
- FLAMMABILITY: 0
- REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Combine material with commercial bleach, absorb on sand or vermiculite and place in a closed container for disposal. Wash spill site with commercial bleach followed by water.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe mist. Avoid prolonged or repeated exposure. Avoid contact with eyes, skin, and clothing.

STORAGE
Suitable: Keep tightly closed.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Use only in a chemical fume hood. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance Physical State: Liquid

Property	Value	At Temperature or Pressure
Molecular Weight	394.31 AMU	
pH	4.0 - 7.0	
BP/BP Range	N/A	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Hydrogen bromide gas.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: Toxic if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Subcutaneous
Mouse
110 MG/KG
LD50

CHRONIC EXPOSURE - MUTAGEN
Result: Laboratory experiments have shown mutagenic effects.

Species: Human
Dose: 2 UMOL/L
Cell Type: fibroblast
Mutation test: DNA

Species: Human
Dose: 5 MG/L
Cell Type: leukocyte
Mutation test: DNA damage

Species: Human
Dose: 40 UMOL/L
Cell Type: HeLa cell
Mutation test: DNA inhibition

Species: Rat
Dose: 40 MG/L
Cell Type: Other cell types
Mutation test: DNA damage

Species: Rat
Dose: 200 UMOL/L
Cell Type: liver
Mutation test: DNA

Species: Rat
Dose: 2500 NMOL/L

Cell Type: liver
Mutation test: Unscheduled DNA synthesis

Species: Rat
Dose: 500 NMOL/L
Cell Type: liver
Mutation test: DNA inhibition

Species: Rat
Dose: 10 MG/L
Cell Type: liver
Mutation test: Sister chromatid exchange

Species: Mouse
Dose: 117 UMOL/L
Cell Type: Ascites tumor
Mutation test: DNA damage

Species: Mouse
Dose: 100 NMOL/L
Cell Type: mammary gland
Mutation test: DNA damage

Species: Mouse
Route: Intraperitoneal
Dose: 100 MG/KG
Mutation test: DNA inhibition

Species: Mouse
Dose: 500 UMOL/L
Cell Type: Other cell types
Mutation test: DNA inhibition

Species: Mouse
Dose: 500 UMOL/L
Cell Type: leukocyte
Mutation test: DNA inhibition

Species: Mouse
Dose: 500 UMOL/L
Cell Type: leukocyte
Mutation test: Other mutation test systems

Species: Mouse
Dose: 100 UMOL/L
Cell Type: lymphocyte
Mutation test: DNA inhibition

Species: Mouse
Dose: 100 UMOL/L
Cell Type: lymphocyte
Mutation test: Other mutation test systems

Species: Mouse
Dose: 1 MG/L
Cell Type: fibroblast
Mutation test: Cytogenetic analysis

Species: Mouse
Dose: 5 MG/L
Cell Type: leukocyte
Mutation test: Cytogenetic analysis

Species: Mouse
Dose: 10 MG/L
Cell Type: Other cell types
Mutation test: Cytogenetic analysis

Species: Mouse
Route: Intravenous
Dose: 80 MG/KG
Mutation test: Sister chromatid exchange

Species: Hamster
Dose: 10 MG/L
Exposure Time: 30M
Cell Type: fibroblast
Mutation test: DNA damage

Species: Hamster
Dose: 10 MG/L
Cell Type: ovary
Mutation test: Cytogenetic analysis

Species: Hamster
Dose: 10 MG/L
Cell Type: fibroblast
Mutation test: Cytogenetic analysis

Species: Hamster
Dose: 41 MG/L
Cell Type: lung
Mutation test: Cytogenetic analysis

Species: Hamster
Dose: 10 MG/L
Cell Type: lung
Mutation test: Sister chromatid exchange

Species: Hamster
Dose: 75 UMOL/L
Cell Type: lung
Mutation test: Mutation in mammalian somatic cells.

Species: Hamster
Dose: 45 MG/L
Cell Type: ovary
Mutation test: Mutation in mammalian somatic cells.

Species: Bird (wild)
Dose: 37500 NMOL/L
Cell Type: leukocyte
Mutation test: DNA

Species: Bird
Dose: 1 MMOL/L
Cell Type: leukocyte
Mutation test: DNA damage

Species: Bird
Dose: 1 MMOL/L
Cell Type: liver
Mutation test: DNA damage

Species: Bird
Dose: 1 MMOL/L
Cell Type: Other cell types
Mutation test: DNA damage

Species: Chicken
Route: Parenteral
Dose: 847 UG/KG
Mutation test: Sister chromatid exchange

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
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. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Toxic, liquids, organic, n.o.s.
UN#: 2810
Class: 6.1
Packing Group: Packing Group III
Hazard Label: Toxic substances.
PIH: Not PIH

IATA
Proper Shipping Name: Toxic liquid, organic, n.o.s.
IATA UN Number: 2810
Hazard Class: 6.1
Packing Group: III

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION
Symbol of Danger: T
Indication of Danger: Toxic.
R: 23-68
Risk Statements: Toxic by inhalation. Possible risk of irreversible effects.
S: 36/37-45
Safety Statements: Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Highly Toxic (USA) Toxic (EU).
Risk Statements: Harmful if swallowed. Very toxic by inhalation. Irritating to eyes, respiratory system and skin. Possible risk of irreversible effects.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately

(show the label where possible).

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: No
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
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 Inc., 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.
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