

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**
**Product Identifier**

Perihal Produk: **ETIDIUM BROMIDA**  
 Product Description: **Ethidium bromide**  
 Cat No. : 170960000; 170960010; 170960050  
 Synonyms Homidium bromide  
 CAS No 1239-45-8  
 Molecular Formula C<sub>21</sub> H<sub>20</sub> Br N<sub>3</sub>

**Relevant identified uses of the substance or mixture and uses advised against**

Recommended Use Laboratory chemicals.  
 Uses advised against No Information available

**Company**

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 CHEMTREC Malaysia **1-800-815-308** (Malay)  
 CHEMTREC Malaysia (Kuala Lumpur) **+(60)-327884561** (Malay)

**SECTION 2: HAZARDS IDENTIFICATION**
**Classification of the substance or mixture**

|   |                   |
|---|-------------------|
| Acute oral toxicity                         | Category 4 (H302) |
| Acute Inhalation Toxicity - Dusts and Mists | Category 2 (H330) |
| Germ Cell Mutagenicity                      | Category 2 (H341) |

**Label Elements**

**Signal Word**
**Danger**
**Hazard Statements**

H330 - Fatal if inhaled

# SAFETY DATA SHEET

Ethidium bromide

Revision Date 21-Mar-2025

H302 - Harmful if swallowed  
H341 - Suspected of causing genetic defects

## Precautionary Statements

### Prevention

P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P271 - Use only outdoors or in a well-ventilated area  
P284 - Wear respiratory protection  
P280 - Wear protective gloves/protective clothing/eye protection/face protection

### Response

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P310 - Immediately call a POISON CENTER or doctor  
P330 - Rinse mouth

### Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P405 - Store locked up

### Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

## Other Hazards

Toxic to terrestrial vertebrates  
This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Component   | CAS No    | Weight % |
|---|-----------|----------|
| 3,8-Diamino-1-ethyl-6-phenylphenantridinium bromide | 1239-45-8 | <=100    |

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

#### General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

#### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

#### Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately.

#### Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

#### Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

# SAFETY DATA SHEET

Ethidium bromide

Revision Date 21-Mar-2025

## Most important symptoms and effects, both acute and delayed

None reasonably foreseeable.

## Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### Extinguishing media

#### **Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam.

### Extinguishing media which must not be used for safety reasons

No information available.

### Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

### **Hazardous Combustion Products**

Nitrogen oxides (NO<sub>x</sub>), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Hydrogen halides.

### Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

### Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

### Methods and Material for Containment and Cleaning Up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

### Conditions for Safe Storage, Including any Incompatibilities

# SAFETY DATA SHEET

Ethidium bromide

Revision Date 21-Mar-2025

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

## Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

#### Exposure Controls

##### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### Personal protective equipment

##### **Eye Protection**

Goggles

##### **Hand Protection**

Protective gloves

##### **Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

##### **Respiratory Protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

##### **Recommended Filter type:**

Particulates filter conforming to EN 143

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

When RPE is used a face piece Fit Test should be conducted

#### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

#### Environmental exposure controls

No information available

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

#### **Appearance**

Purple

#### **Physical State**

Powder Solid

#### **Odor**

Slight

#### **Odor Threshold**

No data available

#### **pH**

4.0-7.0

2% aq.sol

# SAFETY DATA SHEET

Ethidium bromide

Revision Date 21-Mar-2025

|                     |                               |                                   |
|---------------------|-------------------------------|-----------------------------------|
| Melting Point/Range | 260 - 262 °C / 500 - 503.6 °F |                                   |
| Softening Point     | No data available             |                                   |
| Boiling Point/Range | No information available      |                                   |
| Flash Point         | > 100 °C / > 212 °F           | Method - No information available |

|                          |                          |       |
|--------------------------|--------------------------|-------|
| Evaporation Rate         | Not applicable           | Solid |
| Flammability (solid,gas) | No information available |       |
| Explosion Limits         | No data available        |       |

|                              |                          |       |
|------------------------------|--------------------------|-------|
| Vapor Pressure               | No information available |       |
| Vapor Density                | Not applicable           | Solid |
| Specific Gravity / Density   | No data available        |       |
| Bulk Density                 | No data available        |       |
| Water Solubility             | 40 g/L (25°C)            |       |
| Solubility in other solvents | No information available |       |

**Partition Coefficient (n-octanol/water)**  
**Component** **log Pow**  
3,8-Diamino-1-ethyl-6-phenylphenantri  
dinium bromide -0.38

|                           |                          |       |
|---------------------------|--------------------------|-------|
| Autoignition Temperature  | Not applicable           |       |
| Decomposition Temperature | No data available        |       |
| Viscosity                 | Not applicable           | Solid |
| Explosive Properties      | No information available |       |
| Oxidizing Properties      | No information available |       |

|                   |               |
|-------------------|---------------|
| Molecular Formula | C21 H20 Br N3 |
| Molecular Weight  | 394.3         |

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available.

### Chemical Stability

Stable under normal conditions.

### Possibility of Hazardous Reactions

|                          |  |
|--------------------------|--|
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions      | None under normal processing.            |

### Conditions to Avoid

Heat, flames and sparks. Incompatible products.

### Incompatible Materials

Strong oxidizing agents.

# SAFETY DATA SHEET

Ethidium bromide

Revision Date 21-Mar-2025

## Hazardous Decomposition Products

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Hydrogen halides.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

#### Product Information

##### (a) acute toxicity;

Oral

Category 4

Dermal

Based on available data, the classification criteria are not met

Inhalation

Category 2

| Component   | LD50 Oral        | LD50 Dermal               | LC50 Inhalation |
|---|------------------|---------------------------|-----------------|
| 3,8-Diamino-1-ethyl-6-phenylphenantridinium bromide | 1503 mg/kg (rat) | LD50 > 2000 mg/kg ( Rat ) | -               |

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

##### (d) respiratory or skin sensitization;

Respiratory

No data available

Skin

No data available

##### (e) germ cell mutagenicity;

Category 2

Ames test:; positive

##### (f) carcinogenicity;

No data available

The table below indicates whether each agency has listed any ingredient as a carcinogen

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

##### (i) STOT-repeated exposure;

No data available

Target Organs

None known.

##### (j) aspiration hazard;

Not applicable

Solid

Symptoms / effects,both acute and delayed No information available.

#### Endocrine Disrupting Properties

Assess endocrine disrupting properties for human health. This product does not contain any

# SAFETY DATA SHEET

Ethidium bromide

Revision Date 21-Mar-2025

known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

### Ecotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

### Persistence and degradability

#### Persistence

Persistence is unlikely.

### Bioaccumulative potential

Bioaccumulation is unlikely

| Component   | log Pow | Bioconcentration factor (BCF) |
|---|---------|-------------------------------|
| 3,8-Diamino-1-ethyl-6-phenylphenantridinium bromide | -0.38   | No data available             |

### Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

### Other adverse effects

No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

### Waste treatment methods

#### Waste from Residues/Unused Products

Waste is classified as hazardous Dispose of in accordance with the European Directives on waste and hazardous waste Dispose of in accordance with local regulations

#### Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

#### Other Information

Waste codes should be assigned by the user based on the application for which the product was used Do not empty into drains

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

|                      |   |
|----------------------|---|
| UN-No                | UN2811  |
| Hazard Class         | 6.1   |
| Packing Group        | I   |
| Proper Shipping Name | Toxic solid, organic, n.o.s. Ethidium bromide |

### Road and Rail Transport

|                      |   |
|----------------------|---|
| UN-No                | UN2811  |
| Hazard Class         | 6.1   |
| Packing Group        | I   |
| Proper Shipping Name | Toxic solid, organic, n.o.s. Ethidium bromide |

### IATA

|       |        |
|-------|--------|
| UN-No | UN2811 |
|-------|--------|

# SAFETY DATA SHEET

Ethidium bromide

Revision Date 21-Mar-2025

**Hazard Class** 6.1  
**Packing Group** I  
**Proper Shipping Name** Toxic solid, organic, n.o.s. Ethidium bromide

**Special Precautions for User** No special precautions required

## SECTION 15: REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

**International Inventories** X = listed

| Component   | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | IECSC | AICS | KECL     |
|---|-----------|------|-----|-------|------|------|-------|------|----------|
| 3,8-Diamino-1-ethyl-6-phenylphen<br>antridinium bromide | 214-984-6 | -    | -   | X     | -    |      | X     | X    | KE-09740 |

### National Regulations

**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 16: OTHER INFORMATION

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

### **Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Revision Date** 21-Mar-2025  
**Revision Summary** SDS sections updated.

ACR17096



# SAFETY DATA SHEET

Ethidium bromide

Revision Date 21-Mar-2025

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**In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013**

## **Disclaimer**

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**End of Safety Data Sheet**