



ethidium bromide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 08/03/2015

Revision date: 08/12/2015

Version: 2.1

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Substance name	: ethidium bromide
Chemical name	: Ethidium Bromide
CAS No	: 1239-45-8
Product code	: RC-049, 085E
Formula	: C ₂₁ H ₂₀ BrN ₃
Synonyms	: 2,7-diamino-10-ethyl-9-phenylphenanthridium bromide / 2,7-diamino-9-phenyl-10-ethylphenanthridium bromide / 2,7-diamino-9-phenylphenanthridine ethobromide / 3,8-diamino-1-ethyl-6-phenylphenanthridinium bromide / 5-ethyl-3,8-diamino-6-phenylphenanthridium bromide / dromilac / homidium bromide / phenanthridinium, 3,8-diamino-5-ethyl-6-phenyl-, bromide / RD 1572 / Toxic solid, organic, n.o.s.
BIG no	: 26730

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	: Chemical substance for research
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1.3. Details of the supplier of the safety data sheet

Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
Saint Louis, 63132-1429 - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number

Emergency number	: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Acute toxicity (oral) Category 4 H302

Acute toxicity (inhalation:dust,mist) Category 2 H330

Full text of H statements : see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US)



GHS06

Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H302 - Harmful if swallowed
H330 - Fatal if inhaled

Precautionary statements (GHS-US)

: P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash hands 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 - [In case of inadequate ventilation] wear respiratory protection
P301 + P312 - If swallowed: Call a POISON CENTER if you feel unwell
P304 + P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P310 - Immediately call a poison center/doctor/...
P320 - Specific treatment is urgent (see ... on this label)
P330 - Rinse mouth
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to an approved waste disposal plant

ethidium bromide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification (GHS-US)
ethidium bromide (Main constituent)	(CAS No) 1239-45-8	100	Acute Tox. 4 (Oral), H302 Acute Tox. 2 (Inhalation:dust,mist), H330

Full text of H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
- First-aid measures after inhalation : Remove the victim into fresh air. Immediately consult a doctor/medical service.
- First-aid measures after skin contact : Wash immediately with lots of water. Take victim to a doctor if irritation persists.
- First-aid measures after eye contact : Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.
- First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : Irritation of the respiratory tract. Headache. Dizziness. Nausea. Vomiting.
- Symptoms/injuries after skin contact : Tingling/irritation of the skin. Blue/grey discolouration of the skin.
- Symptoms/injuries after eye contact : Irritation of the eye tissue.
- Symptoms/injuries after ingestion : Irritation of the gastric/intestinal mucosa. Vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- suitable extinguishing media : Water. Water spray. Polyvalent foam. ABC powder. Carbon dioxide.
- Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : DIRECT FIRE HAZARD. Non-flammable. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD. Heating increases the fire hazard.
- Explosion hazard : DIRECT EXPLOSION HAZARD. Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD. Dust cloud can be ignited by a spark.
- Reactivity : On burning: release of toxic and corrosive gases/vapours (nitrous vapours, hydrogen bromide, carbon monoxide - carbon dioxide).

5.3. Advice for firefighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
- Firefighting instructions : Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

ethidium bromide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit.
- Emergency procedures : Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes.
- Measures in case of dust release : In case of dust production: keep upwind. In case of dust production: consider evacuation. Dust production: have neighbourhood close doors and windows. Dust production: stop engines and no smoking. In case of dust production: no naked flames or sparks. Dust: spark-/explosionproof appliances/lighting equipment.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8 Exposure controls/personal protection".

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Take account of toxic/corrosive precipitation water. Powdered form: no compressed air for pumping over spills.
- Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Powdered: do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 8 : Exposure-controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Pulverization rapidly increases toxic concentration.
- Precautions for safe handling : Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Powdered form: no compressed air for pumping over. Avoid raising dust. Keep away from naked flames/heat. Finely divided: spark- and explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Observe strict hygiene. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in a well-ventilated place. Keep cool.
- Storage temperature : ambient temperature
- Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
- Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: reducing agents. water/moisture.
- Storage area : Store in a dry area. Store in a dark area. Keep container in a well-ventilated place. Keep locked up. Unauthorized persons are not admitted. May be stored under argon. Meet the legal requirements.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing. watertight. dry. clean. opaque. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
- Packaging materials : SUITABLE MATERIAL: No data available. MATERIAL TO AVOID: No data available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

ethidium bromide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

8.2. Exposure controls

Appropriate engineering controls	: Ensure good ventilation of the work station.
Materials for protective clothing	: GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: No data available. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: No data available.
Hand protection	: Gloves.
Eye protection	: Face shield. In case of dust production: protective goggles.
Skin and body protection	: Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing.
Respiratory protection	: Dust production: dust mask with filter type P3. High dust production: self-contained breathing apparatus.
Environmental exposure controls	: Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid.
Color	: Dark red
Odor	: Almost odourless
Odor threshold	: No data available
pH	: 4.4 (1 %)
pH solution	: 1 %
Melting point	: 260 °C
Freezing point	: Not applicable
Boiling point	: Not applicable
Flash point	: > 100 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: Not applicable
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: No data available
Relative density	: 1.0
Relative vapor density at 20 °C	: No data available
Density	: 1010 kg/m ³
Molecular mass	: 394.32 g/mol
Solubility	: Moderately soluble in water. Water: 5 g/100ml
Log Pow	: No data available
Self ignition temperature	: Not applicable
Decomposition temperature	: 260 °C
Viscosity	: No data available
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available

9.2. Other information

Other properties	: Hygroscopic. Substance has acid reaction.
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SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: release of toxic and corrosive gases/vapours (nitrous vapours, hydrogen bromide, carbon monoxide - carbon dioxide).

10.2. Chemical stability

Unstable on exposure to light. Hygroscopic.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

ethidium bromide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Inhalation:dust/mist: Fatal if inhaled.

ethidium bromide (1239-45-8)	
LD50 oral rat	1503 mg/kg (Rat)
LC50 inhalation rat (mg/l)	< 0.1 mg/l/4h (Rat)
ATE US (oral)	1503.000 mg/kg body weight
ATE US (dust,mist)	0.050 mg/l/4h

Skin corrosion/irritation : Not classified
pH: 4.4 (1 %)

Serious eye damage/irritation : Not classified
pH: 4.4 (1 %)

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : Irritation of the respiratory tract. Headache. Dizziness. Nausea. Vomiting.

Symptoms/injuries after skin contact : Tingling/irritation of the skin. Blue/grey discolouration of the skin.

Symptoms/injuries after eye contact : Irritation of the eye tissue.

Symptoms/injuries after ingestion : Irritation of the gastric/intestinal mucosa. Vomiting.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Water pollutant (surface water). Ground water pollutant. Harmful to aquatic organisms. pH shift.

12.2. Persistence and degradability

ethidium bromide (1239-45-8)	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

ethidium bromide (1239-45-8)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

ethidium bromide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste treatment methods : Waste treatment methods.
- Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Do not discharge into drains or the environment.
- Additional information : Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

- Transport document description : UN2811 Toxic solids, organic, n.o.s., 6.1, I
- UN-No.(DOT) : UN2811
- DOT Proper Shipping Name : Toxic solids, organic, n.o.s.
- Class (DOT) : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132
- Hazard labels (DOT) : 6.1 - Poison



- Packing group (DOT) : I - Great Danger
- DOT Packaging Non Bulk (49 CFR 173.xxx) : 211
- DOT Packaging Bulk (49 CFR 173.xxx) : 242
- DOT Symbols : G - Identifies PSN requiring a technical name
- DOT Special Provisions (49 CFR 172.102) : IB7 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Wooden (11C, 11D and 11F). Additional Requirement: Liners of wooden IBCs must be sift-proof
T6 - 4 178.274(d)(2) Normal..... 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter
- DOT Packaging Exceptions (49 CFR 173.xxx) : None
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 kg
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 50 kg
- DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded
- Other information : No supplementary information available.

TDG

No additional information available

ethidium bromide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Transport by sea

UN-No. (IMDG) : 2811
Class (IMDG) : 6.1 - Toxic substances
EmS-No. (1) : F-A
EmS-No. (2) : S-A

Air transport

UN-No.(IATA) : 2811
Class (IATA) : 6 -
Packing group (IATA) : I - Great Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

ethidium bromide (1239-45-8)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

No additional information available

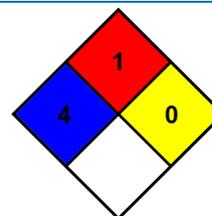
SECTION 16: Other information

Revision date : 08/12/2015

Full text of H-phrases::

H302	Harmful if swallowed
H330	Fatal if inhaled

NFPA health hazard : 4 - Very short exposure could cause death or serious residual injury even though prompt medical attention was given.
NFPA fire hazard : 1 - Must be preheated before ignition can occur.
NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product