# STANDARD OPERATING PROCEDURES FOR HAZARDOUS AND PARTICULARLY HAZARDOUS CHEMICALS

For

## Ethidium Bromide

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| 1. PROCEDURE /  PROCESS | Ethidium Bromide is used in **Building, Room.**  **Insert procedure here:** |
| 2. CHEMICAL NAME(S)  and associated  PHYSICAL and  HEALTH  HAZARDS | **Ethidium Bromide- CAS# 1239-45-8**; also known as homidium bromide, EtBr,  3,8-Diamino-5-ethyl-6-phenylphenanthridinium bromide   * **Can be fatal if inhaled.** * **Ingestion of dust is toxic.** * **Suspected of causing genetic defects (mutagen).** * **Irritating to the skin, eyes, mucous membranes and respiratory tract.** * **Skin contact may cause inflammation and discoloration.** * **May be absorbed through the skin. Contact will stain the skin purple.**   Signal Word: **DANGER**   * Hazards may be different depending on the form of the material such as dust, liquid, gel and also the concentration. * Materials containing less than 0.1% of Ethidium Bromide will not require the same precautions as substances containing larger concentrations.   Toxicological Data:  **ORAL** **(LD50):** 1,503 - 2,177 mg/kg [Rat]  **SUBCUTANEOUS** **(LD50):** 110 mg/kg [Mouse]  **INTRAVENOUS** **(LD50):** 16 mg/kg [Rat]  **INHALATION** **(LC50):** 0.0118 - 0.134 mg/l 1 hour [Rat]  \***Always refer to the Safety Data Sheet for the most detailed information**\* |
| 3. NAME OF TRAINER /  RESOURCE  PERSON | **Principal Investigator Name, Building, Room, Phone Number**  **Secondary contact Name, Building, Room, Phone Number** |
| 1. LOCATION OF   HEALTH & SAFETY  INFORMATION | The Safety Data Sheet (SDS) for Ethidium Bromide is located in the Laboratory Safety Manual in **Building, Room**.  Labeling: In addition to the standard label that identifies contents, hazards, precautionary measures, and emergency contact information, containers should also be marked as toxic and mutagenic. |
| 5. PROTECTIVE  EQUIPMENT | Chemical safety goggles, nitrile rubber gloves, and a fully-buttoned lab coat are required when handling Ethidium Bromide. Wash hands thoroughly after removing gloves.  Ethidium Bromide in concentrations greater than 0.1% should always be used in the confines of a properly functioning certified laboratory chemical fume hood or other approved ventilated area. |
| 1. WASTE DISPOSAL   PROCEDURES | **Waste Ethidium Bromide** compounds should be kept in airtight compatible container, labeled with a completed Dangerous Waste label. Waste should be disposed of as soon as possible.  The authorized person using this material is responsible for the safe collection, preparation and proper disposal of waste unless otherwise stated below.  **Waste buffer solutions** and other dilute aqueous solutions containing very low concentrations (less than 0.1%) of ethidium bromide may be discharged to sinks.  **Waste stock solutions, crystals, gels and powders** containing ethidium bromide at concentrations greater than 0.1% should be collected in a waste container. A properly completed Dangerous Waste label should be attached when waste is first added to the container. When full the container must be accompanied by a completed Chemical Collection Request Form, and delivered to the Waste Accumulation Area Operator at **Building, Room, Phone Number**  **Gels (non-flow solid gel) and Contaminated debris** (e.g., gloves, mats, tips, etc.) solids containing very low concentrations of ethidium bromide (less than .1%) or debris that has been in contact with ethidium bromide in low concentrations (less than 0.1%) should be disposed by methods which prevent individuals handling waste from subsequent contact. Double bag contaminated materials, or any waste that has been in contact with ethidium bromide and dispose of as standard landfill waste.  **Biological Waste** - Ethidium bromide of concentrations less than 0.1% exposed to any biological hazards or rDNA must be collected, stored, and managed as biological waste. Do not autoclave or mix with chemical disinfectants to to decontaminate biological hazard or rDNA as harmful bi-products may be generated. Dispose as biohazardous waste destined for incineration in WSU’s incinerator. If ethidium bromide concentration is greater than 0.1% call EH&S for assistance. |
| 7. DESIGNATED AREA  INFORMATION | The ethidium bromide is stored and dispensed in **Building, Room**.  **Always work in a properly functioning, certified laboratory chemical fume hood.**  The designated area(s) should be shown on the floor plan in Laboratories Chemical Hygiene Plan. |
| 8. DECONTAMINATION  PROCEDURES | **Upon Accidental Exposure**:  In case of **eye contact**, flush eyes with copious amounts of water at an emergency eyewash station for at least 15 minutes and consult a physician.  In case of **skin contact**, flush skin with copious amounts of water for 15 minutes and consult a physician. For exposure over a large portion of the body, remove clothing and shoes and rinse thoroughly in an emergency shower for at least 15 minutes. Seek medical attention.  In case of **inhalation**, move person to fresh air and immediately seek medical attention.  In case of **ingestion**, immediately seek medical attention and follow instructions on SDS.  **Upon Accidental Release**:  **Large Spill:** If a large amount of ethidium bromide is released outside the fume hood, immediately evacuate, secure area and call 911 to contact EH&S.  **Small Spill:** If a small amount of ethidium bromide is released (it can be cleaned up in 10 minutes) and you have been trained to clean it up you may do so. Wear appropriate PPE for the concentration, quantity and type of material spilled. At minimum, double nitrile rubber gloves, chemical splash goggles, and a fully-buttoned lab coat are required.  Additional PPE such as respirators may be necessary depending upon material, concentration and quantity released. (Note: You must be medically cleared, fit tested and enrolled in WSU’s respiratory protection program to wear a respirator). If you are trained, don a half mask or powered air purifying respirator equipped with organic vapor cartridge in addition to the other PPE.  [If it is necessary to use a respirator and personnel are not cleared to wear a respirator and not trained to appropriately clean up the spill, the employee should immediately evacuate, secure area, and call 911 to contact EH&S.]  Spills of ethidium bromide should be cleaned by absorbing the spill using a preprepared hypophosphorous decontamination solution. Bleach is not considered adequate for ethidium bromide decontamination. Rinse the area five times and place waste in appropriate containers and dispose of as hazardous waste (see above WASTE DISPOSAL PROCEDURES).  As with all accidents, report any exposure as soon as possible to your Principal Investigator or Supervisor. Additional health and safety information on ethidium bromide can be obtained by referring to the SDS or by calling the EH&S Office (335-3041). |
| 1. SPECIAL STORAGE   AND HANDLING  PROCEDURES | The user must demonstrate competency and familiarity regarding the safe handling and use of this material prior to purchase. Users should receive special training on the hazards and safe use of this substance.  Avoid dust formation and control ignition sources. Employ grounding, venting and explosion relief provisions in accord with accepted engineering practices in any process capable of generating dust and/or static electricity.  Emptying contents into a non-inert atmosphere where flammable vapors may be present could cause a flash fire or explosion due to electrostatic discharge.  Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.  Keep away from incompatibles such as strong oxidizing agents. |

**Certification of Hazard Assessment**

Is this document a certification of Hazard Assessment for the processes identified within? ***Yes No***

If yes, provide the name of the person certifying the Hazard Assessment and the date it was performed:

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Name Date

The location of the Hazard Assessment is indicated in the document preceding this form.

**Certificate of Employee Training**

Name of person providing training for employees working with this process:

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The following employees have been trained in when, where and how to use selected PPE, the maintenance, limitations and disposal of the PPE selected, and have demonstrated the correct use of the PPE selected on the reverse of this certification.

**Name**  **Date Trained**

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