



Ethidium Bromide Waste Management Bulletin

A new Standard Operating Procedure for ethidium bromide use and disposal was completed and introduced at Departmental/School Laboratory Safety Committees in 2010. This Bulletin describes the policy change and how it affects the way you manage your ethidium bromide waste.

Overview

Ethidium bromide is not currently regulated by the United States Environmental Protection Agency (EPA) or Massachusetts Department of Environmental Protection (DEP) as a hazardous waste nor is it currently listed as a carcinogen by multiple regulatory agencies. Since it tests positive in several mutagenicity assays, caution should be used when handling concentrated ethidium bromide stock solutions and ethidium bromide in crystal/powder form and resultant waste.

How to Manage & Label Your Waste (summary – see detailed chart on next page)

- Concentrated ethidium bromide stock solutions and ethidium bromide in crystal/powder form will continue to be collected in satellite accumulation areas and disposed of as hazardous waste through an approved hazardous waste vendor.
- Buffer solutions with trace amounts of ethidium bromide (<0.01% by wt.) will continue to be disposed down the drain.
- **Agarose gels with trace amounts of ethidium bromide (0.3- 0.5 µg/ml) may now be disposed of daily in regular trash. These gels must first be placed into a Ziploc™ style bag and properly sealed before being placed in the trash.** A secondary option for labs is to continue to place agarose gels in a designated pail in the laboratory labeled with a non-hazardous waste label (green label pictured below) and will be disposed of as part of the routine waste pickups but will NOT be inspected as part of the satellite accumulation area inspections.



Hazardous Waste



Non-Hazardous Waste Label

Ethidium Bromide Alternatives

SYBR Safe™ DNA gel and SYBR Green products have been evaluated by the Environmental Health and Safety Department (EHS) and as a result can be treated as non-hazardous materials **requiring no special waste disposal procedures**. Please contact your local EHS office to evaluate additional ethidium bromide alternatives for use and disposal.

Laboratory Safety

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Ethidium Bromide Waste Management Chart

Non-Hazardous Waste Streams		
Waste Stream	Description	Waste Management Procedure
Buffer Solutions	Typically contain very small concentrations of ethidium bromide (less than 0.01% by wt.)	May be discharged to sinks
Gels	Typically contain trace amounts of ethidium bromide (0.3-0.5 µg/ml)	Agarose gels with trace amounts of ethidium bromide may be disposed of daily in double bag-lined containers (e.g., five-gallon pails). This waste is not considered a hazardous waste. However, the chemical waste vendor will pick up any vendor-supplied pails that are labeled as "Non-Hazardous Ethidium Bromide Gel Waste". Cambridge labs that have mini-mains will have to bring the pails to the mini-mains when full.
Hazardous Waste Streams		
<i>Contact EHS for assistance or waste removal, at 495-2060 (Cambridge) or 432-1720 (Longwood)</i>		
Waste Stream	Description	Waste Management Procedure
Stock Solutions Crystals and Powders	Typically contain relatively high concentrations of pure ethidium bromide	Place empty stock solution bottles or unused stock solution bottles in double ziplock plastic bags. Place absorbents into bag if available. Keep waste containers in secondary containment bins, closed when not in use, and labeled as "Hazardous Waste, Ethidium Bromide (Mutagen)". When labeling, be sure to check the "Other" box under hazard type and specify "Ethidium Bromide (Mutagen)". Store waste containers at or near hazardous waste satellite accumulation area.
Spill Cleanup-Contaminated Debris	Includes ethidium bromide contaminated debris (e.g., gloves, mats, tips, spill clean-up waste) from spills of Stock Solution, Crystals or Powder	Collect waste in double bags. Bags must remain closed when not in use and labeled as "Hazardous Waste, Ethidium Bromide (Mutagen)". When labeling, be sure to check the "Other" box under hazard type and specify "Ethidium Bromide (Mutagen)". Store waste bags at or near hazardous waste satellite accumulation area.

NOTES:

- Ethidium bromide-contaminated pasteur pipettes and other sharps must be accumulated in sharps containers.
- If ethidium bromide is mixed with chemicals (e.g., solvents) that are required to be managed as hazardous waste, the waste must be managed and disposed as hazardous waste. For information on hazardous waste management and disposal see the [Chemical Waste page](#)