

Safe Disposal of Ethidium Bromide Solutions and Gels

Treatment of Ethidium Bromide

Ethidium bromide (EtBr) wastes are commonly collected from laboratories involved in research in the biological and biotechnological sciences at KSU. Although this waste is not regulated as a hazardous waste, it is felt that the mutagenic properties of such wastes may present a hazard if disposed down the drain or in the regular trash.

Disposal

Solutions containing EtBr should either be treated or collected for disposal. Test tubes, gloves, papers, and other items may or may not require special treatment. If these items are clearly contaminated with EtBr, they should be disposed as hazardous waste. If these items are not clearly contaminated with EtBr, then they may be disposed in the normal trash. The laboratory user is usually the best person to determine reasonable disposal needs.

Trace amounts of ethidium bromide in gels should not pose a hazard. Higher concentrations, e.g., when the color of the gel is dark pink or red, should not be placed in laboratory trash. If gel contains less than 0.1% ethidium bromide it can be dried, placed in plastic bags and disposed of as normal trash. If a gel contains more than or equal to 0.1%, dry the gels and place them in plastic bags, label the bag with "Contains Ethidium Bromide", and place in the waste room for disposal. **It is a toxic waste, not a biohazardous waste and should not be put in red bags.**

Aqueous solutions containing <10ug/ml ethidium bromide can be released to the drain. Aqueous solutions containing >10ug/ml ethidium bromide can be deactivated using the method described below. Liquids >10ug/ml that are not treated, including those inside microcentrifuge tubes, should be emptied into poly containers with screw-cap tops. Label these containers with the contents (approx. concentration and chemical name), as well as your location (room no. and building name) and place in the hazardous waste room. Solutions containing heavy metals, organics, cyanides or sulfides should be disposed as hazardous waste.

Test tubes and other glass or metal objects classified as sharps should be placed in the special sharps containers. Other solids should be placed in plastic bags and labeled "Ethidium Bromide contaminated debris". If you decide to collect gels, use a wide-mouth poly jar with a screw cap top no larger than 1 gallon in size and label it accordingly.

Treatment

EtBr wastes can be treated in order to render them nonhazardous and suitable for disposal down the drain. The following procedure can be used for treatment of aqueous wastes containing EtBr.

1. Carry out the following steps in a fume hood.
2. For each 10 mg EtBr per 100 ml of solution, add 100 ml household bleach. (Bleach deteriorates over time upon exposure to air. If in doubt about the quality, use an excess and stir overnight.)
3. Stir at room temperature for 4 hours.
4. Rinse the destroyed EtBr solution down the sanitary sewer drain with 10 parts excess water.

Supelco provides a product that will filter EtBr waste to remove it from solution. However, the resin used to filter the waste must be disposed as hazardous waste. For product information call Supelco at 800-247-6628. Other companies specializing in separation technologies may also provide similar products.