

ETHIDIUM BROMIDE WASTE DISPOSAL GUIDANCE

(Including other common fluorescent dyes, i.e. Propidium Iodide, Acridine Orange, SYBR Green)

This guidance has been developed to ensure proper disposal of ethidium bromide and other common fluorescent dyes (gels and solutions), which are commonly used in electrophoresis for the identification of DNA. Ethidium bromide is the most commonly used dye for this type of DNA work and is the most toxic. Other common fluorescent dyes used in electrophoresis are; propidium iodide, acridine orange, SYBR Green, etc. When these materials become waste, they are managed by the same guidelines as ethidium bromide wastes.

This guidance is intended to clarify disposal of these materials in accordance with TWU's [Regulated Waste Management Procedure](#), and is not a replacement for that procedure. Any waste that is hazardous as per the Regulated Waste Management procedure, regardless of whether or not it also contains fluorescent dyes, must be disposed of accordingly. This is particularly relevant to filtration of buffer solutions discussed below, which would not be permissible if other hazardous components are present.

The following three types of wastes are commonly generated from electrophoresis methods (which contain ethidium bromide and/or other common fluorescent dyes i.e. propidium iodide, acridine orange, SYBR green, etc.):

- Stock Solutions
- Gels and Contaminated Non-Sharp Debris, (i.e. gloves, tips, paper towels, etc.)
- Buffer Solutions

Stock Solutions

- **Collect** all electrophoresis stock solutions in an appropriately sized container. The container cap should be closed securely when waste is not actively being placed in the container.
- **Label** all electrophoresis stock solutions with a Hazardous/Regulated Waste label, in accordance with TWU's [Regulated Waste Management Procedure](#).
- **Dispose** of all electrophoresis stock solutions through Risk Management.

Electrophoresis Gels and Contaminated Non-Sharp Debris (i.e. gloves, tips, paper towels, etc. – at any concentration)

- **Collect** electrophoresis gels and contaminated non-sharp debris in containers with a clear plastic liner that will resist punctures from the contained waste, or similar leak-proof container.
- **Label** electrophoresis gels and contaminated non-sharp debris with a Hazardous/Regulated Waste label, in accordance with TWU's [Regulated Waste Management Procedure](#).
- **Dispose** of all electrophoresis gels and contaminated non-sharp debris through Risk Management.

Electrophoresis Buffer Solutions

Buffer Solutions

- Buffer solutions must be collected for disposal through Risk Management (follow the directions above for disposal of stock solutions),
OR

- Buffer solutions can be filtered through a filtration system and the effluent can be disposed via the sanitary sewer (see details below). If a spent buffer contains any constituents, other than the organic fluorescence dyes, which are not acceptable for sanitary disposal, then do not treat the waste. Manage the used buffer solution as a hazardous waste in accordance with TWU's [Regulated Waste Management Procedure](#).

Filtration of Buffer Solutions

1. **Filter:** If the buffer solution contains only constituents which are acceptable for sanitary sewer disposal (other than the organic fluorescence dyes), then filter the solution through a bed or column of activated charcoal or ion exchange resin. Follow the manufacturer's directions for the filter's proper use and ensure the filter is replenished as necessary to ensure effectiveness. The following filter kits are examples of products available:

Company Name	Product Name	Product Code	Phone #	Website
Amresco, Inc.	Destaining Bags	E732	800-829-2805	amresco-inc.com
BD Biosciences-Clontech	BondEX Detoxification Cartridges	K3080-1	877-232-8995	clontech.com
Qbiogene	Green Bag Disposal Kit	2350-200	800-854-0530	qbiogene.com
VWR International	Extractor Waste Reduction System	28165-500	800-932-5000	us.vwr.com

2. **Flush:** Discharge the filtered solution to the sanitary sewer with copious amounts of water.
3. **Dispose:** Dispose of the used filter cartridges/resins through Risk Management as per the Electrophoresis Gels and Contaminated Non-Sharp Debris instructions above.

For additional information or guidance, please contact Risk Management at x4001.