

Ethidium Bromide

This SOP addresses only ethidium bromide. Users must also follow the electrophoresis SOP and any other SOPs relevant to their particular procedure (e.g. UV light box use, etc.).

IMPORTANT NOTE: Ethidium bromide use has been discontinued in Biology and Wildlife laboratories. Alternatives such as GelRed and SybrGreen are safe and effective alternatives, making the risks associated with ethidium bromide unwarranted. If you believe that your procedure requires ethidium bromide to visualize your results, you must get permission in advance from the Laboratory Supervisor to ensure that appropriate safety and decontamination procedures are in place.

Location(s): Murie 204, 206, 306

Chemical(s): Ethidium Bromide, CAS # 1239-45-8

Specific Hazards:

- GHS Classification in accordance with [29 CFR 1910.1200](#) (6/27/92)

1(s):

3. Authorized personnel:

- All authorized personnel must have completed all required employee and laboratory safety training.
- The Instructor is authorized to train their TAs on the proper preparation, handling, storage and disposal of this material. The instructor may delegate training to the B&W Laboratory Supervisor by making arrangements at least two (2) weeks in advance.
- TAs, once trained, are authorized to train and supervise their students.
- Students must be trained in the use of this material in accordance with this SOP before they run gels.

4. Training requirements:

The user must demonstrate competency and familiarity regarding the safe handling and use of these materials prior to using them. Training shall include the following:

- Review of this SOP
- In-person review of procedures.

5. Use location:

- Murie B&W teaching labs, rooms 204, 206, 306
- On tables or lab benches isolated from sinks.
- This material shall NOT be used near a sink. In the event of a leak or spill, this material must be contained and may not enter the drain.

6. Personal protective equipment (PPE):

- All personnel are required to wear the following personal protective equipment (PPE) whenever conducting this procedure:
 - Nitrile gloves, thickness of 0.11mm
 - Safety goggles
 - Lab coat, long sleeved
- PPE must be inspected prior to use and replaced if damaged.
- PPE must be removed as appropriate to avoid contaminating surfaces and items in the lab or outside of the lab that should not be contaminated. In particular, PPE must be removed before leaving the lab, before handling personal items such as cell phones or laptops, and before moving on to other procedures in the lab. If a subsequent lab procedure also requires gloves, ethidium bromide-contaminated gloves must be removed and disposed of appropriately, and fresh gloves must be donned.

7. Spill equipment:

- Absorbent bench paper shall be used to cover the benchtops in areas where this material will be used. Bench paper must be secured to the table (masking tape is acceptable), absorbent side up and plastic barrier side down. Bench paper must be placed in areas where ethidium bromide containing solutions and/or gels will be manipulated and under gel rigs that will contain ethidium bromide.
- PPE as specified in section 6 of this document.
- Inert absorbent material. Paper towels are suitable.
- Waste containers to keep contaminated material separate from trash.

In the event of a spill, follow the directions in section 12, below.

8. Procedure:

Materials needed:

- ethidium bromide
- agarose and gel casting trays or precast agarose gels
- pipet and pipette (use an ethidium bromide designated pipet as it is difficult to fully decontaminate pipets)
- absorbent bench paper
- masking tape
- waste container for collecting liquid waste
- waste container for collecting solid waste (including gels)

Procedure Notes:

PPE must be used appropriately throughout the procedures.

Procedure Steps:

1. Don appropriate PPE. Mark off and set up a work area.
2. The TA will add ethidium bromide to the gel and/or buffer following the laboratory protocol provided by the instructor. Ethidium bromide should be handled in the fume hood; B

9. Waste disposal and clean up:

- All contaminated equipment (including glassware) shall be kept in the designated work space. It shall NOT be washed or cleaned by the students, TAs or instructors.
- Collect used buffers in an appropriate container. Containers shall be obtained in advance from the B&W Laboratory Technician.
- Containers must be kept securely capped and in secondary containment that is sufficient to hold more than the volume of the primary waste container.
- Label the waste container with "Waste (*specify type of buffer*) contaminated with ethidium bromide," the course, the instructor name, and the date that collection of waste began.
- Use the contaminated gels, pipettes, gloves

12. Spills:

- If a spill occurs, personal safety should come first.
- Alert everyone in the area where the spill occurred. Students should be directed to move out of the way and allow the TA to clean up the spill.
 - If the spill occurred on the absorbent bench paper and the paper was sufficient to absorb the spill the equipment on the wet paper should be moved to clean bench paper. The wet bench paper can be carefully collected to prevent the spill from contacting any surfaces. The contaminated paper shall be disposed of as solid hazardous waste.
 - If the spill occurred outside the designated area, paper towels should be placed on the spilled liquid to contain it. These paper towels must be collected and disposed of as hazardous waste. The area of the spill should be taped off and warning signs clearly posted to indicate the contaminated area and identify the hazard and contaminant. The LSA

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