

## Standard Operating Procedure: Ethidium Bromide

### What you should know about ethidium bromide

EtBr is a potent mutagen and may cause genetic damage; it is moderately toxic after acute exposure. It can be absorbed through skin, so it is important to avoid any direct contact with the chemical and is an irritant to the skin, eyes, mouth, and upper respiratory tract. It should be stored away from strong oxidizing agents in a cool, dry place, and the container must be kept undamaged and tightly closed.

### How to work with ethidium bromide

- To prevent inhalation, work with EtBr in a fume hood, or with **premixed** EtBr solutions.
- To prevent skin contact wear protective gloves, laboratory coat, and chemical goggles.
- Wear eye protection and ensure there is unobstructed access to eyewash/shower unit.
- As with any chemical, do not eat or drink where EtBr is handled, processed, or stored.
- Wash hands thoroughly after handling EtBr, even if gloves are used.
- Wear UV-blocking eyewear or work behind a UV shielding glass when using ultraviolet light to visualize EtBr.

### Emergency Procedures

**Eye care:** If EtBr comes in contact with the eyes, immediately flush with large amounts of cold or cool water for at least 15 minutes.

**Skin care:** If skin exposure, remove contaminated clothing and immediately wash the affected area with soap and large amounts of cold or cool water for 15 minutes.

**If swallowed or inhaled:** Obtain medical attention immediately. If EtBr dust is inhaled, move to a source of fresh air.

### Decontamination

Wear protective clothing when cleaning up EtBr spill. Use a UV light source to locate spill. If spill is **powder**, wipe up with wet paper towels and follow decontamination procedure. If spill is **liquid**, absorb freestanding liquid with dry paper towels. Use UV light to locate any remaining EtBr and follow decontamination procedure.

**Decontamination Solution:** 4.2 g sodium nitrite ( $\text{NaNO}_2$ , CAS # 7362-00-0) + 20 ml hypophosphorous acid (50 percent) ( $\text{H}_3\text{PO}_2$ , CAS # 6303-21-5) in 300 ml of water.

#### Decontamination Procedure:

- 1) Wash area with paper towel soaked in decontamination solution. Rinse area 5X with paper towels soaked in tap water.
- 2) Using UV light, check area to ensure all EtBr is removed.
- 3) Soak all decontamination towels for one hour and double-bag with any contaminated items.
- 4) Clearly label container of decontamination solution and bag of cleanup materials and contact EH&S.

### Filtration

For solutions containing ethidium bromide, filter liquid through filtration device provided.