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FOR ENGINEERING AND SCIENCE

# Appendix - Safety in Research Laboratories

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## Description

Appendix to a student's project about research safety in laboratories.

## Body

# 7.02 INTRODUCTION TO LAB MANUAL 2/2/95

**7.02 Standard Operating Procedure** Ethidium bromide (EtBr); C<sub>21</sub>H<sub>20</sub>BrN<sub>3</sub> CAS # 1239-45-8

Health: **Inhalation:** irritates upper respiratory tract; alters genetic material **Skin and eyes:** irritant **Ingestion:** potent mutagen (chronic effect) **In case of eye contact,** flush with cold water for 15 minutes and get medical attention. In case of skin contact, wash with soap and cold water. If swallowed, wash out mouth with water. In all cases, seek immediate medical attention.

Flammability: none; however, emits toxic fumes of carbon monoxide, nitrogen oxides, and hydrogen bromide gas if involved in a fire. Incompatibilities - strong oxidizing agents

PROTECTIVE EQUIPMENT: gloves, goggles, lab coat for dilute solutions; concentrated solutions (>100ng/ml) and powder must be handled under a fume hood.

USE AND HANDLING PROCEDURES: Weigh powder and mix in hood to make 10mg/ml stock solution. Wrap stock bottle in foil and store tightly capped at 4 C in the Carcinogen Stomp Box. The stock solution is added to melted agarose solutions at 10 microl/L to visualize nucleic acid bands in agarose gels. Addition is done under the hood on spill paper; tips are put in the EtBr waste container. Promptly close the stock bottle and replace in the cold room. After addition of EtBr, the agarose should be kept in a 60 C water bath until ready to pour gel; it may not be remelted in the microwave due to the danger of aerosol formation. Extra agarose with EtBr must be poured into the waste container **before it solidifies**.

The stock solution is added to a tray of buffer on spill paper under the hood at 100 microl/L to enhance the visualization of bands. Gels are soaked in this staining solution under the hood for 10 minutes, then destained in water. This solution may be carefully decanted into a bottle using a funnel and stored in the dark at 4 C to be reused for up to a week.

Avoid all physical contact with anything contacting EtBr. Wash gel trays after use.

DISPOSAL: Pour liquid into a break-resistant screw-cap waste container labeled "Ethidium bromide waste" under the hood; put gels and tips into a wide-mouth break-resistant screw- cap waste container labeled "Ethidium bromide gel waste" under the hood; when full, they shall be removed by the Safety Office. Liquid waste may not go down the drain. Nonliquid waste may not go in the trash.

SPILL CLEANUP: If under the hood, the spill paper should be tightly wrapped up, placed in a break-resistant screw cap container, tagged and removed by the Safety Office. If outside the hood, evacuate the area, contact the Safety Office to procure a self - contained breathing apparatus, wear rubber gloves and boots. Absorb the material with paper towels or spill paper and dispose as described for spills under the hood. Clean all surfaces contacted thoroughly with soap and water.

## Notes

Author: Gwen Crevensten, Real World Ethics 2.95j, May 1995.

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**Resource Type**

Case Study / Scenario

**Topics**

Safety

Lab and Workplace Safety

Collaboration

**Discipline(s)**

Chemistry

Life and Environmental Sciences

Research Ethics