



Risk Assessment – VI-RA-003- Use of Ethidium bromide

Scope

Ethidium Bromide is an intercalating agent commonly used as a nucleic acid stain in molecular biology for techniques such as agarose gel electrophoresis. It is commonly abbreviated as "EtBr". When exposed to ultraviolet light, it will fluoresce with an orange colour, intensifying almost 20-fold after binding to DNA. Ethidium bromide may be a mutagen, a carcinogen, or a teratogen, although this depends on the organism exposed and the circumstances of exposure.

Carried out by:	Tiphaine Bouriez-Jones	Date carried out:	May 2015	Review Due:	May 2018	
Hazard (Cause and consequence)	Affected Groups	Existing controls			Risk	Further actions
Exposure to Ethidium Bromide	Staff, students and visitors	Safer alternative is being sought and will replace existing stock of EtBr. Chemical stock are available in solution only. Via skin adsorption: User must wear gloves and labcoat at all time. Via instillation (eye): User must wear safety spectacles at all time. See specific COSHH risk assessment.			Medium	None
Exposure to UV light	Staff, students and visitors	Equipment is equipment with a safety interlock, the UV light is automatically cut out if the door is opened.			Medium	None
Exposure via uncorrect disposal of Ethidium Bromide	Staff, students and visitors	Level of hazard are estimated as below: <ul style="list-style-type: none"> - G/F + F/F gels 13.4L @ 0.0001% (0.1mg/100ml) = 0.0001218% in a wheeler of 1100L - Tip waste 1 x 4L @ 0.00013% (10mg/ml, traces left on the tips) = 0.000473% in a wheeler of 1100L - Destain bags 1 x 2.7L @ 0.05% (5mg per bag, estimated 250 bag per jar) = 0.0123% in a wheeler of 1100L 			Low	None



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		Which means in total a maximum of 0.0125% of EthBr would be accumulated in a 1100L wheeler if all waste was combined, which is below the non-hazardous waste threshold of 0.1% for EthBr contaminated material.		
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It is the users responsibility to ensure what controls are needed to ensure that the health of themselves and others around them. It is imperative that you **DO NOT** start any work until you are absolutely sure of the appropriate precautions that need to be employed. If you are unsure seek advice from your line/laboratory manager or your departmental safety officer (DSO).