Biomakespace COSHH Assessment – Gel Electrophoresis

Important: Please complete this after reading the BMS15 Chemical Safety Policy and any other relevant safety policies.

Chemical *Or biological agent*	**Chemical risk and hazard categories (R-phrases)** **Hazard and Work Place Exposure Limits (WEL)**
Ethidium bromide SYBR-based DNA dyes inc SYBR Safe	H341 - Suspected of causing genetic defects H331 Toxic if inhaled H302 - Harmful if swallowed --> Absorption
Agarose dry	R36/37/38: Irritating to eyes, respiratory system, and skin --> Inhalation
Agarose molten	Causes burns --> Skin

Control Measures [*Fume Cupboard, glove box, safety cabinet, local exhaust ventilation*]
Use of lab coat and gloves at all times when handling ethidium bromide.
Good ventilation should be ensured when pouring gels.
Gels should be poured in the gel area to limit potential contamination of other areas of the lab.

Flammables and explosives

Is there a substance used or formed that might give rise to a fire or explosion? **No**

If yes, list control measures.
A more detailed risk assessment will be required if the lower explosive limit is reached during leak or spillage.

Personal Protective Equipment [*Lab coat/overalls, gloves, eye/hearing/respiratory protection*]
Lab coat, nitrile gloves should be worn at all times.
Eye protection should be worn while handling hot liquids.
Heat resistant gloves should used while handling molten agarose in bottles.

Monitoring [*Chemical, gas, oxygen depletion etc.*]
Not required.

Health surveillance required [*E.g. Carcinogen, mutagen, toxic to reproduction, sensitizer*]
EtBr is suspected of causing genetic defects so work should be carried out with extra care to avoid any skin contact or inhalation but no health surveillance is required.
As per Biomakespace Chemical Safety Policy BMS15, anyone who is pregnant is encouraged to report to the Biomakespace Safety Officer so a personal risk assessment can be performed.

Storage
Room temperature in a well-ventilated area.
Small aliquots of working solution should be stored to avoid frequent handling of concentrated stock solution.
SYBR-based dyes should be kept in the freezer if advised by manufacturer.

Waste disposal [*Contractor, chlorinated, non-chlorinated, non-hazardous aqueous, general waste*]
Gels must be wrapped in a double plastic bag and can be disposed in the normal general waste.
Running buffer containing traces of EtBr must be decontaminated using activated charcoal as per waste policy and can then be disposed of down the sink.
SYBR-containing running buffer will be disposed off as chemical waste.

Emergency Procedure

Follow emergency procedures as per BMS08 - Accident at Work Emergency Plan.
In the event of a fire, supply emergency services wuth chemicals register as necessary.
For small spillages, clean up with tissues and general surface cleaner, dispose of the tissues as contaminated waste. For larger spillages use spill kit and dispose of pads as contaminated waste.
Check for remaining contamination with a UV torch.

First Aid
Inhalation: remove to fresh air. Seek medical advice. If not breathing, give CPR. Do not use mouth-to-mouth method if victim ingested or inhaled the substance
Skin: wash thoroughly. If irritation occurs seek medical advice
Eyes. flush with plenty of water, and seek medical advice.
Ingestion: seek medical attention immediately. Ingestion is not considered likely

Out of hours/lone working (any specific risks)

No significant risks – gel electrophoresis is allowable out of hours and lone working for individuals approved by the Safety Officer.

Assessment Summary

Ethidium bromide and SYBR-based dyes require handling with extra care and gels should be disposed of properly in a double bag.