

## Agarose Electrophoresis

No	Description/Details of Steps in Activity	Hazards	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (Mitigation)	Severity	Likelihood (Probability)	Risk Level	Additional Risk Control
1	Heat agarose powder in TAE buffer until dissolved. Cool agarose to 50 degrees and add Sybr Safe DNA stain.	Chemical hazard- Sybr safe is an intercalating dye but unable to diffuse across cell membranes	Spillage of heated agarose	A work bench is specially allocated for DNA gel electrophoresis. Sybr Safe is used as it is not as toxic as Etbr. Wear appropriate PPE (nitrile gloves, lab coat, mask). Heat agarose slowly to avoid boiling and spillage out of the flask. Sybr safe solution is added to the flask in a fume hood after the agarose has cooled to reduce the chance of producing vapors.	2	1	2	
2	Pour the agarose into the casting tray and allow the gel to solidify over 30 minutes.	Chemical hazard- Sybr safe is an intercalating dye but unable to diffuse across cell membranes	Spillage of heated agarose	Wear appropriate PPE (nitrile gloves, lab coat, mask). Casting tray is contained in appropriate trays to contain any accidental spillage. Handle hot flask of agarose with a heatproof glove.	2	1	2	
3	Remove gel tray and fill the electrophoresis apparatus with TAE buffer. Load the DNA sample and resolve through the gel	Chemical hazard- Sybr safe is an intercalating dye but unable to diffuse across cell membranes; electrical hazard	Electric shock may occur if connecting and disconnecting the apparatus without powering off the machine. Accidental physical contact with Sybr Safe containing agarose gel	Wear appropriate PPE (nitrile gloves, lab coat). All procedures are performed with electrophoresis equipment contained within appropriate trays to contain any accidental spillage. Connect and disconnect the apparatus only when it is powered off. Do not touch the apparatus while the gel is running.	2	1	2	
5	Visualize the gel under UV light. Discard gel for incineration at medical waste disposal plant.	Chemical hazard- Sybr safe is an intercalating dye but unable to diffuse across cell membranes; biological hazard- UV light is mutagenic	Electric shock may occur if connecting and disconnecting the apparatus without powering off the machine. Accidental physical contact with Sybr Safe containing agarose gel	Wear appropriate PPE (nitrile gloves, lab coat, UV resistant goggles).	2	1	2	