

Activity-Based Risk Assessment Form

Name of Activity: Agarose Gel Electrophoresis

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Hazard Identification				Risk Evaluation and Control			
S/N	Description	Hazard	Risks	Severity	Likelihood	Risk Level	Risk Control
1	Spillage Cleanup	Biological – Contact with potentially pathogenic agents Chemical – Contact with hazardous chemicals	Exposure to biological agents or hazardous chemicals	3	1	3	<ul style="list-style-type: none"> • Clean up spillage according to SOP for Biological Spill Procedure and Biological Waste Disposal Procedure. • Ensure biological spill is cleaned up by trained biological spill responders equipped with proper PPE • All bacteria work is to be conducted in a BSL2 biosafety cabinet.
2	Chemical Irritation	Chemical – Contact with hazardous chemicals	Minor irritation	1	1	1	<ul style="list-style-type: none"> • Users are to read the MSDS of chemical before starting experimentation • Proper PPE is to be donned; avoid splashing by using proper pipetting techniques
3	Use of benchtop centrifuge	Mechanical – Unbalanced centrifuge may cause rotor imbalance and damage	Physical injury, equipment damage, release of biological materials	3	1	3	<ul style="list-style-type: none"> • Ensure centrifuge is accurately balanced before operation. • Ensure lid of centrifuge is fastened to prevent flying debris or aerosolization of samples during failure. • Users are to be trained on the use of the equipment before operation
4	Use of DNA staining dyes to visualise DNA	Chemicals – Contact with hazardous chemicals	Certain DNA binding dyes may be carcinogenic or teratogenic	3	1	3	<ul style="list-style-type: none"> • Use SYBR-safe instead of EtBr • Proper PPE is to be donned; avoid splashing by using proper pipetting techniques •
5	Use of the power supply to perform electrophoresis	Electrical – contact with live electrodes or faulty cables	Electrocution	3	1	3	<ul style="list-style-type: none"> • Keep area around the gel tank and power supply free of buffer spillage • Inspect cables and electrodes before use

							<ul style="list-style-type: none"> Do not touch gel nor buffer during electrophoresis; switch off power supply before handling
6	Use of UV transilluminator to visualise DNA gel	Physical – Exposure to UV radiation	UV exposure leading to UV burns	2	1	2	<ul style="list-style-type: none"> Do not touch or open gel documentation machine when in use Users are to be trained on the use of the equipment before operation