Risk Assessment of Laboratory Work with Chemicals (AFS 2011:19)1 (LBE)2 (MSBFS 2020:1)3

Department/Division: **Pure and Applied Biochemistry**

Operation/Activity: **Agarose gel electrophoresis**

The operation includes handling of the following chemicals, mixtures and solutions

	Chemical/Mixture/Solution	CAS No.	Amount	Indications of danger
1	Agarose	9012-36-6	1 g	Not hazardous.
2	TAE buffer	-	200 mL	H314 May causes severe skin burns and eye damage.
3	Tris	77-86-1	1 kg	Not hazardous.
4	Acetic acid	64-19-7	200 mL	H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage.
6	EDTA (dihydrate disodium salt)	6381-92-6	250 g	H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage. H332 Harmful if inhaled. H373 May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).
5	EDTA (free acid)	60-00-4	250 g	H314 Causes severe skin burns and eye damage. H318 Causes serious eye irritation.
6	NaOH	1310-73-2	50 mL	H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage.
7	Gel red	-	1.5 mL	Not hazardous.
8	DNA marker	-	5 mL	Not hazardous.
9	6x loading dye	-	1 mL	Not hazardous.

Identification of separate operations/activities that may involve the risk of accident or risk to health

	Operation/Activity	Risk/Problem	Consequence	Probability	Assessed risk	Risk-reducing measures
1	Running the electrophoresis	Electric shock after touching electric circuit with high voltage	Serious	Possible	Hazardous	Ensure the power supply is off and unplugged when assembling and un-assembling the gel apparatus. Do not leave equipment unattended.
2	Handling hot agarose solution	Burning from high temperatures	Mild	Possible	Hazardous	Use heat-protective gloves
3	Visualising the gel	Eye and skin damage from UV radiation	Serious	Unlikely	Moderately Hazardous	Wear UV-blocking safety glasses

	Yes/No	Comments:
Rules for working alone has been observed	**yes**	Supervisor needs to be present at all time, no individual work allowed
The possibility of evacuation and ventilation/water/power failure has been taken into account	**yes**	Work will be stopped, flasks closed, staff will evacuate (long power outage) or wait until the power/water/ventilation will be turned on
Environmental issues have been considered	**yes**	Follow waste management rules, no concentrated substance will be poured down the drain
Special risk assessment for pregnant staff has been done	**yes**	

References:

KLARA

Date: 6/17/2026

Risk assessment made by: Name: **Michelle Kusnadi**

Risk assessment checked by: Name: **Rytis Jurgaitis iGEM Lund 2026**

1) AFS 2011:19 Chemical Hazard in the Working Environment, provisions (amanded and reprinted in 2014:5; 2014:43; 2017:4; 2018:2; 2019:9)

2) Lag (2010:1011) om brandfarliga och explosiva varor (LBE)

3) MSBFS 2020:1 föreskrifter om hantering av brandfarlig gas och brandfarliga aerosoler

Last updated 2026-06-17