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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: **SDS-PAGE**

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

	Chemical/Mixture/Solution	CAS No.	Amount	Indications of danger
1	TRIS-HCl	1185-53-1	1 L	Not hazardous
2	SDS	151-21-3	1 kg	Flammable solid, harmful if swallowed or if inhaled ,skin irritation, serious eye damage , may cause respiratory irritation, harmful to aquatic life with long lasting effects.
3	Bromophenol blue	115-39-9	25 g	Not hazardous
4	Glycerol	56-81-5	1 kg	Not hazardous
5	β-mercaptoethanol	60-24-2	5 ml	Toxic if swallowed or if inhaled , fatal in contact with skin , causes skin irritation ,may cause an allergic skin reaction , causes serious eye damage , suspected of damaging the unborn child , may cause damage to organs (Liver, Heart) through prolonged or repeated exposure if swallowed , very toxic to aquatic life with long lasting effects.
6	ddH2O	7732-18-5	2 L	Not hazardous
7	Tris Base	77-86-1	100 mL	Not hazardous
8	Glycine	56-40-6	300 g	Not hazardous
9	Methanol	67-56-1	1 L	Highly flammable liquid and vapor ,toxic if swallowed, in contact with skin or if inhaled causes damage to organs (Eyes, Central nervous system).
10	Acetic acid	64-19-7	1 L	Flammable liquid and vapour, causes severe skin burns and eye damage, causes serious eye damage.
11	Coomassie Brilliant blue	6104-59-2	2g	Flammable liquid and vapour can be corrosive to metals , toxic if swallowed, toxic in contact with skin , causes severe skin burns and eye damage, harmful if inhaled , causes damage to organs
13	Trichloroacetic acid	76-03-9	200 ml	Causes severe skin burns and eye damage , may cause respiratory irritation , very toxic to aquatic life with long lasting effects.
14	Acetone	67-64-1	500 mL	Highly flammable liquid and vapour , causes serious eye irritation and possibly may cause drowsiness or dizziness.

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	Electrophoresis	Exposure to electricity	Serious	Possible	Hazardous	Use gloves, goggles, wear lab coat. Connect equipment to grounded outlets. Use power supply that detect issues with circuit. Always have lid on when connecting cords, and during use. Do not leave equipment unattended. Do not overfill vessel. Keep clear of unintended grounding points and conductors. Dry hands and turn off power before conncting cables. Switch off power and unplug cables before lifting lid.
2	Gel Staining/Destaining: Preparation and handling of staining/destaining solutions containing acetic acid and methanol	Exposure to chemicals	Serious	Probable	Very Hazardous	Work in fume hood. Use protective clothing, gloves and goggles.
3	Heating samples at 100°C	Exposure to hot surfaces.	Serious	Possible	Hazardous	Use appropriate gloves, goggles, wear lab coat.
4	Preparation and handling of SDS buffer	Exposure to chemicals	Serious	Possible	Hazardous	Work in fume hood. Use protective clothing, goggles and safety glasses.
5	Waste disposal of SDS, β-mercaptoethanol and trichloroacetic acid.	Wrong disposal of toxic waste	Serious	Unlikely	Moderately Hazardous	Use appropriate container for chemicals. Don't pure chemicals down the drains.
5	Handling of chemicals in case of pregnancy.	Exposure to the chemical	Serious	Unlikely	Moderately Hazardous	Do not handle and stay away from thazardous chemicals if you are pregnant.

	Yes/No	Comments:
Rules for working alone has been observed	**Yes**	A supervisor must be present. No individual work is 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**	Waste management rules will be followed accordingly.
Special risk assessment for pregnant staff has been done	**Yes**	Pregnant individuals should be aware of irritating or harmful reagent buffers, ethanol exposure, and handling of biological/GMO materials.

References:

Chemical Database KLARA

General safety regulations

Date: 2026-06-17

Risk assessment made by:

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Risk assessment checked by:

Name: Hamsini Bharat (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 2025-05-29