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: **PCR clean up and gel extraction**

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

	Chemical/Mixture/Solution	CAS No.	Amount	Indications of danger
1	Binding Buffer NTI (Contains guanidinium thiocyanate)	593-84-0	250 mL	Harmful if swallowed, in contact with skin or if inhaled. Causes severe skin burns and eye damage. Causes serious eye damage. Harmful to aquatic life with long lasting effects.
2	Wash Buffer NT3 (Concentrate)	N/A	50 mL	No Hazard Class
3	Elution Buffer NE: 5 mM Tris/HCl, pH 8.5	N/A	50 mL	No Hazard Class
4	96–100 % ethanol	A405-20	500 mL	Highly flammable liquid and vapour. Causes serious eye irritation.

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	incubation of the sample at 70 C	high temperatures	Mild	Possible	Hazardous	Be careful when incubating the samples and always use heat protective gloves
2	Handling binding buffer NTI	Exposure to guanidinium thiocyanate	Serious	Possible	Hazardous	Do not breathe vapours. Avoid release to the environment. Wear gloves, lab coat and glasses. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
3	Dilution with ethanol	spillage and inhaling vapors	Serious	Possible	Hazardous	Be aware where the eye wash stations and the fire extinguishers are in the lab. Keep away from heat. Keep container tightly closed. IF IN EYES Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

		Yes/No	Comments:
1	**Rules for working alone has been observed**	yes	Supervisor needs to be present at all time, no individual work allowed
2	**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
3	**Environmental issues have been considered**	yes	Follow waste management rules, no concentrated substance will be poured down the drain
4	**Special risk assessment for pregnant staff has been done**	yes	Pregnant woman should be aware of the exposure to ethanol and GMO and biological waste

References:

Tris-HCl Buffer 10mM, pH 8.5 , NT3 Concentrate , Macherey-Nagel™ Binding Buffer NTI , 96-100 % Ethanol

KLARA

Date: 2026-06-17

Risk assessment made by:

Name: **Emma Esping (2025) , Hamsini Bharat (2026)**

Risk assessment checked by:

Name:

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 2025-06-08