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: **Autoclaving**

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

	Chemical/Mixture/Solution	CAS No.	Amount	Indications of danger
1	Water	7732-18-5	> 4 L	Not Hazardous

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

	Operation/Activity	Problem	Consequence	Probability	Assessed risk	Risk-reducing measures
1	Checking water level and preparing the autoclave	Possible electirc hazard if water overflows	Mild	Not very likely	Hazardous	Avoid overfilling the bottles, only up to 75%, keep the floor dry, ensure autoclave is powered off while filling.
2	Loading Autoclave (with media bottles, waste, tips, etc.)	Handling waste, glass breakage	Serious	Possible	Hazardous	Wear laboratory protective eqipment, heat resistant gloves and goggles, use designated autoclave baskets, avoid overloading the autoclave, ensure the lids on bottles are loosened.
3	Heating Phase (steam release)	Steam burns from open valve, hot surface	Serious	Possible	Hazardous	Keep hands away from the steam outlet, wear heat resistant gloves.
4	Closing Valve and Pressurization	Pressure build up further risk of explosion	Very Serious	Possible	Very Hazardous	Monitor the pressure rise, never leave the autoclave unattended.
5	Sterilization Phase	Pressure failure, overheating, burns	Very Serious	Possible	Very Hazardous	Verify pressure reaches required level, restart the cycle if pressure isnt achieved, Follow the TBK1-014 guidelines.
6	Depressurization and Opening Autoclave	Steam Release when openong the lid, hot metal surfaces	Very Serious	Possible	Very Hazardous	Wait until pressure reaches 0 bar, then open the lid facing away, wear heat resitant gloves, allow items to cool before handling.
7	Handling Autoclaved items	Hot bottles, risk of dropping	Serious	Possible	Hazardous	Use heat resistant gloves, place items on heat-proof surfaces, tighten the lids only after cooling .

	Yes/No	Comments:
Rules for working alone has been observed	**Yes**	Autoclaving is not permitted alone due to burn and pressure hazards.
The possibility of evacuation and ventilation/water/power failure has been taken into account	**Yes**	In case of failure, the cycle will be stopped, lids tightened, and staff will evacuate (long outage) or wait until systems resume. Autoclave must not be opened under pressure.
Environmental issues have been considered	**Yes**	Antibiotic-containing waste is collected separately; no concentrated substances are poured down the drain. Waste is handled according to rules.
Special risk assessment for pregnant staff has been done	**Yes**	Main hazards are heat and pressure; standard precautions apply.Pregnant staff may avoid handling heavy or hot loads.

References:

TBK 014- Routines for working with Autoclaving

Date: 09/06/2026

Risk assessment made by:

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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 2021-12-20