## 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: **Media preparation and cultivation**

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

| | Chemical/Mixture/Solution | CAS No. | Amount | Indications of danger |
|---|---|---|---|---|
| 1 | diH2O | 7732-18-5 | >5 L | Not hazardous |
| 2 | Tryptone | 91079-40-2 | 1 kg | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| 3 | Yeast extract | 8013-01-02 | 1 kg | Not hazardous |
| 4 | Agar | 9002-18-0 | 1 kg | Not hazardous |
| 5 | Sodium Chloride (NaCl) | 7647-14-5 | 1 kg | Not hazardous |
| 6 | Ampicillin | 7177-48-2 | >5 g | Skin irritation, may cause allergic skin reaction, may cause serious eye irritation. may cause allergy or repiratory irritation if inhaled. |
| 7 | CaCl2 | 10043-52-4 | 500 g | Causes serious eye irritation. |
| 8 | Isopropyl β- d-1-thiogalactopyranoside (IPTG) | 367-93-1 | > 5g | Exposure during weighing |
| 9 | Streptomycin sulfate solution (1 mg/mL in $H_2O$) | 3810-74-0 | > 5g | Toxic in contact with skin; cause allergic skin reaction |

**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 | Handling Tryptone | Exposure to Tryptone can cause allergy or asthma symptoms if inhaled | Serious | Possible | Hazardous | Avoid breathing dust. Wear respiratory protection. Dispose of contents/ container to an approved waste disposal plant. |
| 2 | Handling Ampicillin | Exposure to Ampicillin salt may cause skin, eye or respiratory irritation, and allergy reactionn. | Serious | Possible | Hazardous | Avoid breathing dust/fume/gas/mist/vapours/spray. Wash skin thoroughly after handling. Wear protective gloves, lab coat and glasses. |
| 3 | Handling CaCl2 | Exposure to CaCl2 may cause serious eye irritation. | Mild | Possible | Hazardous | Wash skin thoroughly after handling. Wear glasses. |
| 4 | Weighing in of powder reagents | Exposure to harmful substances may cause skin irritation. | Serious | Possible | Hazardous | Use gloves, safety glasses, and wear a labcoat. Handle with care. |
| 5 | Dissolving powders in water on stirrer | Splashing of the solution | Mild | Not very likely | Hazardous | Use appropriate vessel size and keep the speed moderate. |
| 6 | Autoclaving LB media / agar | Heat/pressue hazards | Very Serious | Possible | Very Hazardous | Follow the autoclave procedure, loosen the cap, use heat resistant gloves. |
| 7 | Pouring LB Agar into Petri Dishes | Accidental spillage | Mild | Possible | Hazardous | Pour steadily, wear protective equipment. |
| 8 | Filter Sterilization | Needle-stick injury | Serious | Possible | Hazardous | Use clean and sterile syringes; apply gentle pressure |
| 9 | Disposal of unused agar/media | Exposure to microbial contamination | Serious | Possible | Hazardous | Wear laboratory protective equipment, wash hands after procedure |
| 10 | Disposal of antibiotic solutions | Chemical waste | Mild | Possible | Hazrdous | Wear laboratory protective equipment |

| | 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** | Not working with CMR reagents |

References:

Chemical Database KLARA

**Date: 17/06/2026**

**Risk assessment made by:**

Name: Hamsini Bharat, Patrik Baršun

**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 2025-05-28