

Basic rules for Laboratory Work at Section for Microbiology and Geomicrobiology, Department of Bioscience, Aarhus University

For the protection of yourself, your colleagues and the environment:

Read these instructions carefully before you start to work in the lab!

It is **YOUR** responsibility to ensure that you have received and read the following information/introduction

If you have any doubts do not hesitate to ask...

You will get a short introduction by the safety representative to the overall safety in the labs and this paper will help you memorize and provide some extra details.

If you are a guest, project student or a bachelor student i.e. people that are not employed by the AU, they are not covered by the Aarhus University insurance. They must have a private insurance that covers accidents involving laboratory work.

Laboratory Work

- Make sure that you know where **emergency showers, eye showers** and **fire extinguishers** are located and how they work
- Read the **evacuations instructions** (they are on each floor in all buildings) memorize the **evacuations exits** and how to act **in case of emergency**
- **Heartstart Defibrillator** is placed at the main entrance in Building 1540
- Always use protective clothing (**lab coat**) and if needed use **gloves**, where the general recommendation is:
For protecting your samples - use purple gloves (sempercare nitril)
For protecting yourself when working with classified (hazardous) chemicals - use green nitrile gloves (from Touch N Tuff)
Use eye protection, when needed
Any doubts... ask
- **Eating and drinking is not allowed in the labs!**
- Before you start your lab work check the chemicals you are going to use in the **KIROS database**
Link to KIROS: <http://www.kiros.dk/W/>
Choose "Navigator (Group edition)". Login: mikro1, and Password: mikro1
Here you can search for the chemicals you are going to use; see their **risk/safety phrases** and in which room/lab the chemicals are located.
Use it... it is very helpful. And remember it is your responsibility to handle the chemicals correctly - **not only for your own safety!**
- **For weighing out dangerous chemicals:** Larger amounts - move the 2 decimal scale to the fume hood in room 116 and for smaller amounts - use the 5 decimal scale in room 119 (switch is on the upper left side). Remember to clean the scales after use and dispose waste properly
- **Label all containers/bottles** with your name, date, substance name, concentration and hazard symbol. Suitable symbol labels are in the cabinet in room 119. New GHS symbols you can print from the KIROS database.

- **Before working you, need a special introduction to:**
 - ✓ Isotope lab
 - ✓ Cloning lab
 - ✓ Microscopes
 - ✓ Gel-Doc and running gels
 - ✓ QPCR
 - ✓ Centrifuges
- **A fume hood** should always be used when handling **flammable, toxic or corrosive substances**. When finished working clean the fume hood and make sure to close it so the flow will run at a minimum (an open fume hood consumes enormous amounts of energy)
 - ✓ When working in a fume hood make sure not to obstruct the air flow by blocking the entryway with instruments, utensils and waste. An open window changes the ventilation pressure balance and this can make fume hoods work improperly
 - ✓ All waste containers are now in the ventilated cabinet beside the fume hood (and not inside the fume hood)
- In case you spill chemicals clean up immediately to avoid that others are harmed. If necessary use sanitation equipment (vermiculite granulate, it is in room K09 and 120) and alert others to avoid injuries... maybe even close the lab until it is safe again. Suitable sanitation methods are found in the material safety data sheet (**MSDS**) for each chemical which you can find in the lab. technicians office (1540 – 115) and on the suppliers homepage
- You are only allowed to use equipment and instruments that you are familiar with (i.e. have been instructed). If any doubts ask the person in charge of the instrument/equipment (or a lab. technician)
- For safety reasons working by yourself in the laboratory or performing potentially dangerous work is not allowed (or at least not recommended) after office hours

Storage

- **Chemicals:** All classified substances are to be registered in the KIRO database upon arrival if not already registered. If you buy chemicals yourself give all information to the safety representative. Store classified chemicals in designated areas (ventilated cabinets or refrigerator). No storage in fume hoods.
All use of toxic chemicals is now registered on the list in the Toxic room (K09), you NEED to register how much you use of your toxic chemical, on the list in the toxic room.
All carcinogenic chemicals is also in the cupboard in K09, every time you start working with a new carcinogenic chemicals, your supervisor must sign that you need to work with a carcinogenic chemicals.
- **Samples:** Stored samples should be clearly labeled with owner, date and content (unlabeled samples will be thrown out and you may lose valuable material). Your supervisor or a lab. technician will show you where you can store samples at 4°C and -20°C. For the -80°C freezers you need to get registered in the SASO database before you store samples – contact a lab. technician for doing this
- **Gas bottles:** Should always be chained – at the workplace and at storage. Never move gas bottles with the pressure reducing valve attached.

Waste handling routines

- When planning experiments it is important to have the **waste handling routines** (Fig. 1) in mind. This way we can avoid having several containers with exactly the same content and producing waste that we cannot get rid of
 - The general approach when handling chemical waste is that waste that is not different from normal household waste can and should be disposed of in the sewage or garbage
 - **Harmless dry waste** is put into the plastic bags on the laboratory table (Figure 1, 1). When filled close the bag with tape and put into the normal waste bin
 - **Harmless liquid waste** you can pour into the sink
 - **If you have any doubts** about whether a diluted solution or a relatively harmless substance can be poured into the sink do not hesitate to **ask...** it is always better to be safe than sorry
 - **Hazardous chemical waste** is collected in special UN approved containers (Figure 1, 2). For smaller amounts of waste use the 1 liter bottles, which you can find outside the Toxic room in the basement (K09). For larger amounts use the 5 liter jars, which you can find beside the “walk-in freezer” in the basement, building 1535. These containers are only to be filled up to 90% of total volume. Label the bottle/jar with classified (hazardous) chemical symbols, the approximate concentration (of each chemical) and your name and date! When a container is (90%) full, move it to the cabinet for chemical waste in the Toxic room (K09)
 - **Do not mix different chemicals in one container** unless you are absolutely sure it is safe and appropriate from a waste-handling point of view (chemicals are divided into special groups and cannot always be mixed, even though it might seem harmless)
 - **Hazardous waste:**
 - ✓ **Chemicals:** Check the chemicals in the KIRO database and act accordingly
 - ✓ **Sharp items:** Needles, scalpels etc. are placed in special yellow containers (Figure 1, 3). When full put into the yellow hazardous waste box (containing a thick plastic-bag) below the sink in the Toxic room (K09) called “Risiko-affald”. New containers are in the storage room in the basement, building 1540 (K24)
 - ✓ **Contaminated dry lab waste (used in the fume hoods):** Like pipette tips, micro tubes etc. are disposed in the plastic bag in a holder **in the fume hood**. When the plastic bag is full, leave it open in the fume hood to evaporate for maximum 2 days. Close properly (tape) and put into the yellow hazardous waste box (Risiko-affald) below the fume hood or in the same box as for sharp items in K09. Here you can also dispose dry slides (in boxes) from FISH, cell counting and so on... but only dry waste!
- Biological waste** (disposal in the basement):
- (NOT for cloning waste)**
- ✓ **Agar plates** are put into an autoclave-bag and autoclaved in a **steel bucket**
 - ✓ **Long pipettes and plastic inoculations loops** are put into a yellow box (Figure 1, 4) containing **1% Deconex 53 Plus**. When full pour the Deconex into the sink and the contents into the green waste bin for glassware in the corridor marked “glasaffald”.
 - ✓ **Pipette tips and cuvettes** are put into a container with lid containing **1% Deconex 53 Plus**. When full empty the Deconex into the sink and put the whole container with content into the green waste bin in the corridor marked ‘glasaffald’.
 - ✓ New waste containers are in room K24
 - ✓ New 1% Deconex in the cupboard in K20



Figure 1: Waste containers

- **When you are leaving Microbiology/Center for Geomicrobiology. Remember to clean up at your office and what you're having in the labs, fridge and freezer.**

Keep it safe...

and have fun

in the labs 😊