

Safety instructions and routines

**Faculty of Odontology
Malmö university**



Welcome to Faculty of Odontology

This compendium contains the general safety instructions for laboratory work at the Faculty of Odontology. For each specific experiment there may be additional rules that are complementary to the general safety instructions, e.g. work with isotopes or patient samples. If so, ask your supervisor for more information.

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1 General information

All workplaces in Sweden need to follow laws and safety regulations within many areas, e.g. work environment. Some of the governmental departments that issues regulations concerning laboratory work are:

- Swedish Work Environment Authority
- The Swedish Chemicals Inspectorate
- The Swedish Rescue Services Agency
- Swedish Environmental Protection Agency

The rules for work in laboratories are there to protect both yourself, your colleagues, the environment and facilities. Beside from your employer, you have to take responsibility for your colleagues and your own safety. Therefore, never doubt to ask your supervisor if you think there are vague safety instructions regarding usage of machines or chemicals.

When you come to a laboratory for the first time, it is very important to find out where fire alarms, emergency exits, evacuation plans, emergency showers, eye showers and fire extinguishers are located. These places are marked.

1.1 Responsibility

All employees, students, visitors and contractors in our workplace have to:

- Know the safety rules that regulate work at your workplace.
- Know the rules regarding the use and storage of flammable goods.
- Report incidents and errors that might pose a risk or cause injury.
- Know where emergency exits are located and the importance of always keeping them free from obstacles.
- Where fire extinguishers are located and how these are handled.
- What kind of alarms there are within the workplace.

2 General safety instructions for laboratory work

Students are obligated to follow their supervisor's directions! If you are insecure of any safety instruction, ask your supervisor.

2.1 Before the experiment

- A risk analysis is important to perform before you start working, where all risks should be identified and assessed. Always read and use the chemical's or product's safety data sheet to assess the risks and for safe handling. Safety data sheets can be found in the KLARA database (<https://www.mah.se/medarbetare/For-medarbetare-pa-Odontologiska-fakulteten/>) or at the product supplier's website.

- In accordance with the product choice or substitution principle such chemicals that can be replaced by those that are less hazardous should be avoided.
- It is strictly forbidden to eat and drink in the lab.
- Lab coat and indoor shoes shall be used during all laboratory work.
- Wipe your bench with disinfectant before the starting the experiment.

2.2 During the experiment

- Use gloves when it is necessary, change often and discard dirty gloves. Remember that you are using gloves both to protect yourself and your samples.
- Work with acids, bases, organic solvents and flammable products in a fume hood.
- Label solutions, samples etc. with contents, date and name. It will be much easier for you to find your samples or solutions and for everyone else to know what it is. Unmarked chemicals, solutions, samples or equipment will be discarded.
- Use laboratory equipment correctly, according to instructions. A lot of the machines are expensive and easily break.
- Report if something breaks down, if machines are out of order or if something runs out. This will make it much easier for everyone to work and it will be much easier for us to have control over what we are using.

2.3 Handling waste

- Sharp and cutting equipment are discarded in a sharps container.
- Broken glass is discarded in waste bins marked glass waste.
- Agar plates are discarded as hazardous waste.
- Solutions and growth media containing microorganisms as well as contaminated disposable equipment are autoclaved and then discarded.
- If microorganisms have been spilled, wipe with 70 % ethanol and discard as hazardous waste. If a chemical has been spilled, see the safety data sheet for that chemical.
- Waste containing toxic chemicals, like polyacrylamide and formaldehyde, has to be discarded in special containers and sent away for destruction. Ask your supervisor.

2.4 Handling chemicals

- Before you use a chemical, inform yourself of the chemical's characteristics, possible flammability, toxicity etc. Read the safety data sheet and the marked warnings.
- Use necessary safety equipment (e.g. safety goggles, gloves and fume cupboard) when weighting or handling the hazardous chemicals.
- Use weighing ships together with spoon or spatula when weighing chemicals.

- Never return unused chemicals to their original container.
- Solid chemicals should be dissolved and poured out in the sink (if it is allowed for that specific chemical) and not discarded in a waste bin.
- Clean the scale carefully and the surrounding area after usage.

2.5 Handling flammable and explosive goods

- Work with flammable goods is not allowed when the ventilation is off or not functioning properly.
- Work, when possible, in a fume hood. When open handling is necessary, follow the instructions in the risk assessment and the plan showing where there is a risk of an explosive environment.
- In areas of risk of an explosion, no ignition sources are allowed. This means no electric machines or mobile phones etc.
- Flammable solutions should always be kept in tightly closed containers.
- When using natural gas burners, make sure that you light the burner directly after turning on the gas. Turn off both valves when leaving the lab.
- Hydrogen gas mixtures are only allowed to be handled by authorized personnel.
- Immediately take care of any spilled flammable fluid and place in a tightly sealed container.
- Store all flammable fluids and chemicals in designated ventilated cabinets, max 50 L per fire cell/compartment.

2.6 After the experiment

- At the end of the experiment make sure that all machines are shut down and clean.
- If gas has been used make sure that all valves are properly closed and that the main valve is closed.
- Used gloves are discarded.
- Leave your workbench clean and in good order before leaving the laboratory.
- Wash your hands with soap and water. Dry with a paper towel. Thereafter wash your hands with disinfectant and let them air dry.

3 Risk labeling

3.1 Chemical hazard symbols

Chemicals are marked with hazard symbols (pictograms) that show which risks the chemical possess. The pictograms used are presented below.

Acute toxicity



Very toxic or toxic product. May cause lasting or fatal damages in case of inhalation or consumption.

Example: methanol

Serious health hazard/Health hazard



A toxic, harmful or irritant product that may cause long-term serious damage or asthma/allergies in case of inhalation, skin contact or consumption.

Example: xylene

Corrosive



The product is corrosive. May cause corrosive burns on skin and lasting damages in esophagus and in eyes.

Example: sodium hydroxide

Oxidising



The product may at erroneous handling or in contact with other chemicals start or intensify a fire.

Example: hydrogen peroxide

Flammable



An extremely flammable or highly flammable product. May explode upon ignition.

Example: gasoline, ethanol

Explosive



The product is explosive and may explode when exposed to heat, vibration or friction.

Example: nitrocellulose

Hazardous for the environment



The product may in the short or long run cause damage to the environment. It has to be stored and used so that the product and its waste will not damage the environment.

Example: ammonia

Gas under pressure



Contains gas under pressure. May explode when heated.

Example: Nitrogen

3.2 Hazard- and precautionary statements

Chemicals are also marked with hazard and precautionary statements that are used to explain the chemical's characteristics in more detail. Hazard statements are used to explain what risks are involved in using the chemical and the precautionary statements are used to describe what kind of safety measures you should take, e.g. special routines for waste handling. These markings can consist of single or a combination of statements, depending on the chemical's characteristics (see the example below). A list of these statements can be found in the lab.

Example:

Hazard statement:	H302	Harmful if swallowed.
Precautionary statement:	P233	Keep container tightly closed.
Combination of statements:	P410+P403	Protect from sunlight. Store in a well ventilated place.

3.3 Warning symbols

Warning symbols are used to warn for risk or danger at your workplace and can exist in forms with and without text.



Flammable
substances



Gas
containers
Bring to safety
in case of fire



Radioactive
substances



Biohazard

4 In case of an accident

4.1 Chemicals

If you accidentally get chemicals on you:

- On hands or skin – rinse abundantly with water
- Chemicals in the eyes:
 - Acid – rinse with water for a minimum of 15 min
 - Strong base – minimum 25 min
 - Ask someone to help you since it is very hard to keep the eye open during rinsing
 - Contact the hospital for a control
- The accident is reported as an incident. Contact your supervisor and ask them how to fill out an incident report. All incidents that may cause injury, fire, damage equipment or the environment is to be reported.

4.2 Fire

In case of fire you are to follow this procedure:

- WARN** others that a fire or some other acute incident has occurred.
- RESCUE** persons that are in immediate danger and evacuate the room.
- ALARM** the fire department, ambulance and police by calling SOS at number **112**.
- EXTINGUISH** the fire if you can do it without taking any unnecessary risks. If you cannot, close the door to the fire to shut it in.

In case of fire or fire alarm, everyone shall evacuate. Follow the emergency exit signs but never pass through smoke. The assembly point is located by the flagpole at Carl Gustafs väg, outside the faculty building.



4.3 Important telephone numbers

Ambulance, fire department, police **112**

Swedish Poisons Information Center **112** or **010-456 6700**

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