GÖTEBORGS UNIVERSITET
Naturvetenskapliga fakulteten
MILJÖHANDBOKEN
Tjärnö Marina Laboratorium

Basic rules for laboratory work at Tjärnö Marine Laboratory
Established by the management: 2002-10-08
Updated by laboratory responsible 2020-02-14
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Basic rules for laboratory work at Tjärnö Marine Laboratory (TML)

1. In order for you to conduct as safe laboratory work as possible, read this instruction before commencing work - for your own sake, for the sake of others and for the environment!

2. It is your own responsibility to ensure that you have received the information/introduction required to utilize our laboratory facilities.

3. If something is unclear, do not hesitate to ask the laboratory responsible or contact the reception.

More information at:
https://mi.gu.se/english/tjarno-marine-laboratory/about-tjarno-laboratory/environmental-work

A good source of information, safety data sheets, remediation etc. is the chemical management system KLARA which can be found at: https://vgrgu.port.se/alphaquest/app_gu/pcmain.cfm

Information for you who will do laboratory work:

General safety
• It is not allowed to eat or drink in any of the laboratories.
• Wash your hands when leaving the lab.
• You need to use shoes in the labs.
• There are special rules for working with radioactive substances and microbiological agents, contact the lab responsible.
• Please note that from November 2018 we cannot provide lab space for work with formaline/formaldehyde.
• For safety reasons, it is forbidden to work alone in the laboratories before 6.30 and after 22.
• You are only allowed to use appliances and equipment that you know how to handle, if you are unsure ask the laboratory responsible.

Emergencies, chemical spillage
• Find out where emergency shower, eye shower, fire extinguisher is located and how they work.
• Learn evacuation paths and collection sites, and how to act if you need to alarm, help or warn others.
• You should know where the decontamination equipment is located, what kind of equipment is available and how it is used.
• In case of chemical spillages, clean immediately so that no one else is accidentally harmed! If needed use equipment from the decontamination tank and alert and warn others if necessary. Cleaning methods can be found in the safety data sheet for each chemical.

The chemical handling tool KLARA, risk assessments

• If you are planning laboratory work where one or several dangerous substances are used or formed, you need to do a risk assessment. There are templates in KLARA, use this link: https://vgrgu.port.se/alphaquest/app_gu/pcmain.cfm (credentials acquired from the lab responsible).
• When planning experiments, consider the waste management rules (see below), so that we safely can get rid of the waste generated. Include the information regarding waste management in the risk assessment.

Personal protective equipment

• Always wear protective clothing- lab coat, proper shoes as well as safety goggles and protective gloves.
• Please note that different glove types are intended for different purposes, see laboratory responsible if you have questions.
• Make sure you do not contaminate door handles, faucets, stairs, phone etc. with contaminated gloves.

Fume hoods

• Fume hoods should always be used when handling flammable, toxic or corrosive substances.
• When you have finished working, close the slot of the fume hood. An opened fume hood uses incredible amounts of energy!
• If you work in a fume hood, do not block air exhaust with experimental setup or other equipment.
•An open window in the laboratory changes the ventilation system's pressure conditions and can cause fume hoods not to work properly, do open any window in conjunction with fume hood use.
•Avoid movements around the fume hood, as turbulence makes the fume hood less effective.

Research vessels

• What is generally applicable to TML is also applicable to lab work on research vessels. However, it is always the commander of the ship who decides whether a substance or activity should be allowed on the ship, communicate to your plans already when the attempt is planned.

Chemical storage at the lab

• All chemicals that are stored or used at TML must be registered in KLARA. If you are unfamiliar with this system, please contact the laboratory responsible.
• All items stored must be marked with your name and the name of the research group/institution where you belong. Things that are badly labeled or unmarked will be discarded when cleaning the lab and storage areas.
• Mark all containers used in lab with your name and date, as well as the name and concentration of the chemical and appropriate pictogram labels (hazard symbols). You can print suitable labels using KLARA's product register.
• Store chemicals in the specially designated areas, *storage in fume hoods is not allowed*. Small amounts of for example chemical waste in appropriate container can temporarily be stored in the fume hood, but ensure that no spillages can go into the drain.

Some basic rules for chemical storage

• Toxic chemicals are to be kept in a locked storage but NOT together with flammable substances.
• Do not store strong oxidizing agents together with flammable or organic material.
• Acids and bases are to be kept separate.
• Cyanides and sulfides should NOT be stored with acids.
• Samples kept in our storage or laboratory spaces must be clearly marked with name, group, date and content. If you are not sure what you are allowed to store where, ask the laboratory responsible. Unlabeled specimens are at risk being thrown out and can pose a risk for both the cleaning staff and other users of the lab- as well as the environment! In addition, you risk losing important material.
•Gas cylinders must be stored chained on a trolley.
•Warning signs should always be at the door of a room where gas cylinders are stored.

Hazardous waste management rules

• The basic principle of all chemical handling at TML is that nothing different from usual household waste can be supplied with wastewater or household garbage.
• If you are unsure whether a diluted solution or a harmless substance can be poured into the drain to the treatment plant do not hesitate to ask the laboratory responsible. However, in case of uncertainty, it is always better to pour it into a suitable waste container!
• DO NOT mix different chemicals into a single waste container if you are not completely sure that the mixture is harmless or not otherwise inappropriate from a waste management point of view.
•Before commencing your work, prepare suitable containers for the waste produced. Containers, hazardous waste labels and pictogram labels (hazard symbols) can be found in the chemical waste room.
•Notify the laboratory responsible when you want to leave chemical waste.
• Collect **liquid chemical waste/residues** in a suitable waste container. Empty bottles and jars are available from the chemical waste room. Use the hazardous waste label to note substance name, hazard symbol, approximate concentration, your name and date.
• **Contaminated lab waste** e.g. pipette tips, gloves, benchtop covers and empty chemical cans are placed in a hazardous waste cardboard box with a plastic bag inside. Use the hazardous waste label to put down your name, date, information about possible residues and hazard symbols for the substances on the box. New waste boxes with associated bags can be picked up from the chemical waste room, as well as hazardous waste labels. Do not fill more of the box more than 75% with waste. Seal the bag inside of the box with tape when it is full.
• **Hazardous sharps** is placed in a container intended for the use (containers can be picked up from the chemical waste room) and then put in a hazardous waste box with a plastic bag inside. Label the cardboard box with Hazardous waste- sharps, your name and the date.
•**Broken glass contaminated with chemicals** shall be put in bag and then in a box intended for contaminated glass waste. Use the hazardous waste label to note substance name, hazard symbol, your name and date.
• For rules on the management and labeling of biological waste, contagious waste, GMO waste, microorganisms and drugs- contact the laboratory responsible.
• **All chemical packaging** marked with any hazard pictograms should always be handled as chemical waste without prior cleaning and with cap tightly closed on. Containers are sorted as contaminated waste/contaminated glass waste as described above.

To the responsible person for students, courses, guests or the like

1. As a supervisor, you are required to provide the information that is necessary for safe operation of the work!
2. Work must not begin until you have informed of where first aid, emergency shower, fire extinguisher and escape routes are available.
3. Work may not begin before you have reviewed any risk assessment with your student/guest
4. If something is unclear, do not hesitate to ask the laboratory responsible.

Preparations for the supervisor

• Provide clear experimental descriptions and safety precautions.
• Ensure that instructions are available for appliances and other equipment so that they are used properly
• If special permits are required, e.g. medical examination, education or registration make due notifications on time.
• Check if hazardous substances are included in the method, and control that a risk assessment is done before the lab work can start.
• Prepare a decontamination plan, make sure decontamination equipment and absorbents are available.
• Do you know which rules apply or do you need to take part of the regulations of the Swedish Occupational Safety and Health Agency?
• Inform how to use the fume hood correctly (see information in the document)
• Inform about using personal protective equipment (lab coat, gloves, safety goggles- see information in the document).

Receipt
I have read, and commit to follow:
"Basic rules for laboratory work at Tjärnö Marine Laboratory"

_____
Date and Signature

_____
Printed name

The receipt is submitted to the laboratory responsible for archiving.