

Good Laboratory Practice

General Rules :

RESPONSIBILITIES :

UNIL staff shall ensure their own safety and that of others. Safety rules in force at UNIL rules must be known and applied. Hierarchical supervisors must ensure the safety of the lab for which they are responsible. They shall make sure that staff know, respect and apply safety rules.

AUTHORIZED PERSONNEL :

As a general rule, visitors, colleagues in other departments are not allowed to work or to conduct operations in laboratories (unless provided with a special authorization, in the case of colleagues).



Only laboratory personnel, trained and familiar with the rules of hygiene, safety and emergency management, is allowed to work in the laboratories



For microbiology and molecular biology laboratories: access to security level 2 premises (BSL2, P2 laboratories) is strictly reserved to authorized persons, trained as to the rules in force in such facilities.

Each visitor shall be provided with safety glasses and lab coat when entering the labs. These equipment (safety goggles and lab coat) must be available (for example, at the entrance of the lab).

WORK ALONE, ISOLATED OR OUTSIDE NORMAL HOURS :

Work alone, isolated or outside normal hours should be avoided as much as possible. However, isolated laboratory work may be authorized under the responsibility of a head of laboratory.

Isolated work is prohibited to apprentices

Outside opening hours, it is strongly recommended to lock the labs and associated facilities

For special cases and depending on necessities, please contact SSTE UniSEP Service Group.

PREGNANT OR BREASTFEEDING WOMEN :

Ordinance 1 relative to the Labor Law (OLT1 in French, CC 822.111), the Ordinance on maternity protection (OProMa in French, CC 822.111.52) as well as Directive 1.38 of UNIL Direction define the rules governing the work in the laboratory of pregnant or breastfeeding women, including:

- the movement of heavy loads (i.e. greater than 5kg or, occasionally, greater than 10kg) is deemed hazardous or strenuous and therefore shall be avoided. In this case, help from a colleague is recommended. The movement of such loads is forbidden from the 7th month of pregnancy.



- Work involving exposure to cold (i.e. temperatures below -5 °C), heat (i.e. temperatures above 28 °C) or high humidity are not allowed for pregnant women.



- Movements and postures leading to early fatigue (i.e. repeated awkward postures, positions without possibility of movement and position involving shocks, shudder or vibrations) are to be avoided.



- Work presenting a risk of exposure to microorganisms (i.e. Group 2 micro-organisms according to OPTM) deemed harmful to the embryo or foetus such as the virus of rubella or toxoplasmosis.

In case of exposure to other Group 2 microorganisms, a risk analysis is necessary in order to ensure that such exposure is not hazardous to the mother or the child.



- Activities exposed to noise (i.e. greater than or equal to 85 dB (A) sound pressure level) are prohibited to pregnant women.



- For activities exposed to harmful radiation, the work of pregnant women is allowed only if the effective dosage received by the unborn child does not exceed 1mSv (from the moment where the pregnancy is known to its end).



Relevant safety measures to be implemented shall be defined in coordination with the pregnant woman, the UniSEP-SSTE Group and the direct supervisors.



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For the purposes of maternity protection, pregnant or breastfeeding women whose work is strenuous or hazardous to their health or that of the baby shall be assigned by their supervisors other equivalent and safe tasks, as well as an adapted workstation.

Pregnant or breastfeeding women may not work with CMR substances (carcinogenic, mutagenic and reprotoxic) presenting the following hazard statements:

H340	<i>May cause genetic defects</i>
H341	<i>Suspected of causing genetic defects</i>
H350	<i>May cause cancer</i>
H350i	<i>May cause cancer by inhalation</i>
H351	<i>Suspected of causing cancer</i>
H360	<i>May damage fertility or the unborn child</i>
H360D	<i>May damage the unborn child</i>
H360Df	<i>May damage the unborn child; Suspected of damaging fertility</i>
H360FD	<i>May damage fertility; May damage the unborn child</i>
H360Fd	<i>May damage fertility; Suspected of damaging the unborn child</i>
H361	<i>Suspected of damaging fertility or the unborn child</i>
H361d	<i>Suspected of damaging the unborn child</i>
H361fd	<i>Suspected of damaging fertility; Suspected of damaging the unborn child</i>
H362	<i>May cause harm to breast-fed children</i>
H370	<i>Causes damage to organs</i>
H371	<i>May cause damage to organs</i>

SMOKING, EATING AND DRINKING BAN IN THE LABORATORIES



For health and safety reasons, it is strictly forbidden to smoke and « vaping » in the UNIL premises, except in the places provided for this purpose



In order to avoid any risk of contamination, it is forbidden to store food, drink and eat as well as to use cosmetic products in labs.

The storage of food in the refrigerator is allowed only if the device is strictly dedicated to this use, and outside the laboratory area.

PERSONAL PROTECTIVE EQUIPMENT (PPE) :



As a general rule, the following protective equipment shall be worn in the laboratory :

- **Lab coat** : closed, 100% cotton, long to the knee, long sleeves and cleaned regularly
- **Safety glasses (or goggles)** : with lateral protection, with or without optical correction
- **Protective gloves** : adapted to the substances used

For more information about the features, the choice and maintenance of personal protective equipment, please see the corresponding UniSEP document.

RÈGLES D'HYGIÈNE PERSONNELLE :



Hands should be washed carefully :

- After handling any chemical or biological substance
- After removing gloves
- Before leaving the lab
- As soon as contamination is suspected

The use of disinfectant is recommended

In order to avoid contamination, it is necessary to remove one's gloves outside the laboratory, for example before handling a telephone handset, a computer keyboard, a book, etc. When moving around, it may be helpful to wear only a single glove in order not to contaminate the door handles.

It is also recommended to have one's hair tied back, if necessary. Women wearing veils must ensure that these are not synthetic.

Laboratory Equipment :

WASH BOTTLES :



These containers may be considered as always "open" since they breathe under atmospheric pressure. They must be stored away from heat and sun.

It is recommended to place them in containment containers (risk of spreading).

The nature of the solvent must be clearly indicated on the wash bottle and filling must be done under the suction hood using a funnel

PIPETTES :



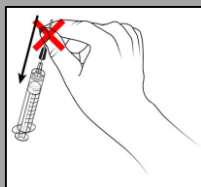
All pipetting operations must be carried out by mechanical or automatic means

Rubber bulbs in which chemicals have entered shall be discarded immediately



Although today obsolete, mouth pipetting is strictly forbidden !

NEEDLES AND SCALPELS :



The recapping of needles is strictly forbidden !



It is recommended to use, as much as possible, disposable needles and scalpels. After use, needles and scalpels (as well as other sharp or stinging objects) must be collected in the appropriate safety boxes ("sharps" box) and closed.

GLASSWARE :

- It is preferable to use plastic containers (polyethylene, polypropylene); plastic thermometers are preferable, rather than glass thermometers. However, make sure to check the compatibility of the plastic with the chemical product used and the operation to be performed.
- In case of use of glassware, Pyrex® glasses are recommended, due to their resistance to thermal shock. There is glassware covered with silicone film, which enables to avoid its outbreak.
- Ensure to follow the good practices for heating and cooling glassware to avoid breakages and risk of injury from broken glass.
- Glassware should be inspected periodically to remove and replace instruments, containers and equipment chipped, cracked or featuring apparent defects.
- Glassware to be eliminated shall be placed in containers for sharp/cutting objects.
- Glassware shall be cleaned after emptying and decontamination (in particular for CMR substances).

WORK WITH NAKED FLAMES :



Make sure to take precautionary measures during work using naked flames, for example :

- Suppression of the flame
- Removal of any flammable chemicals from the work area
- Sufficient ventilation in order to prevent the risk of explosion

In addition, make sure to respect the date of expiry of the gas pipe. Indeed, an expired gas pipe will tend to crumble and cause losses of gas.

When heating a chemical, always prefer systems providing a temperature lower than that of self-ignition to avoid the risk of fire or injury.

AUTOCLAVE :



Autoclaves must comply with the standards of pressure equipment (FCOS Directive 6516) and be installed according to the supplier's requirements. Autoclaves require periodic control.

Only people trained and informed about the procedures for the use of the autoclave shall be allowed to operate with this type of device.

SONICATOR OR ULTRASONIC BATH :



Sonicators and ultrasonic baths are generators of high frequency sound (> 20000Hz, ultrasonic) used to break up cells, fragmenting nucleic acid or solubilize chemicals.

- Hearing protection is required when using such devices
- The door of the room where sonication is carried out must be closed
- Avoid as much as possible the use of glass containers which may break
- Special attention must be paid in relation to the generation of aerosols.
- As a precaution, it is not recommended for pregnant women to be exposed to ultrasound
- In the case of sonicators with probe, this must be cleaned after each use with water and then with a 70% ethanol solution

Processes or activities producing aerosols of infectious substances, such as sonication of living microorganisms, shall always take place within a certified biological safety cabinet (EN standard 12469)

CRYOGENIC LIQUIDS :



During handling of cryogenic (liquid nitrogen, dry ice) associated with hazard of severe burns, cold protection gloves shall be worn.

In case of accidental contamination of gloves by any hazardous substance, these must be immediately cleaned or replaced

Laboratory operations :

STANDARD OPERATIONAL PROCEDURES (SOP) :

For regular lab operations, it may be necessary to establish handling standard procedures to avoid and prevent accidents.

Before any new operation, the standard procedure or the modus operandi shall be carefully read with a critical approach in order to identify any possible error. Handling operations shall take place once the procedure is understood.

The standard procedure must contain all necessary information related to the physical, chemical and toxicological properties of the products involved in the operation. Indeed, the operator must be informed of the risk involved in the performance of the operation.



When handling a new substance, this must be considered and handled as a hazardous substance until proof to the contrary.

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