



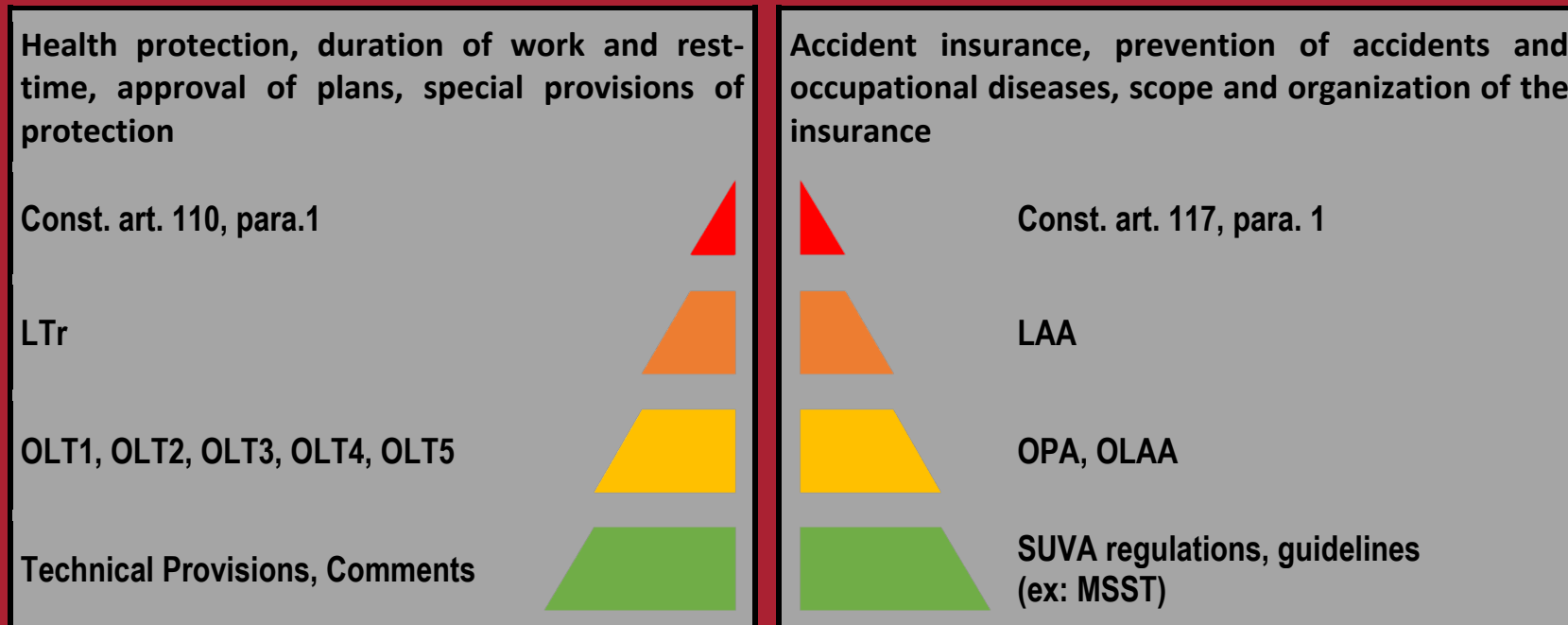
| le savoir vivant |

Health and safety at work and during studies



Legal provisions governing health and safety at work :

Mainly, two laws concern and directly oversees health and safety at work: these are the Labor Law (LTr in French, CC 822.11) and the Accident Insurance Act (LAA in French, CC 832.20). These two texts define the responsibilities in the field of safety (LAA) and health (LTr) at work.



Many texts (Ordinances, guidelines, directives, disposals, etc.) arise from these laws and establish the legal framework of health and safety at work.



Most of the texts establishing the framework of the activities at the University of Lausanne are listed in the [UniSEP information sheet « Legal provisions governing health and safety at work »](#)

Good Laboratory Practice :

RESPONSIBILITIES :

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

Furthermore, any person stepping inside a laboratory has to wear the following mandatory personal protective equipment (PPE) :

- Lab coat
- Safety glasses
(or protective screen)
- Protective gloves



For more information regarding good laboratory practices at UNIL and personal protective equipment, please refer to the [UniSEP information sheets « Good Laboratory Practice » and « Personal protective equipment \(PPE\) »](#).

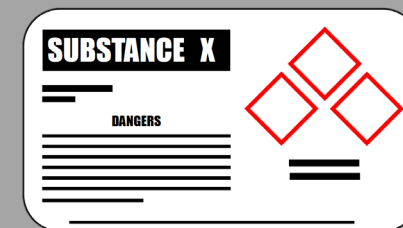
Handling of chemical products :

CHEMICAL RISKS IDENTIFICATION :

Before any handling or use of chemical products in laboratory, staff members has to find out and know the physical, chemical and toxic properties of the products involved in this manipulation. In this context, any new substance must be considered and handled as harmful.

Two sources of information are available in order to find out and identify the chemical hazards in the workplace :

- **LABELLING :** Hazard pictograms, hazard statements and precautionary statements (CLP regulation). Labelling indicates the most important hazards and the precautionary measures to take for handling and storage of the chemical product.



- **MATERIAL SAFETY DATA SHEETS (MSDS) :** Safety data sheets provide users the required physico-chemical, technical safety, toxic and ecological data and recommendations for handling and use of hazardous substances. These data are necessary to take health protection measures and ensure safety at work and environment protection.



For more information regarding chemical hazards identification, material safety data sheets and, please refer to the [UniSEP information sheet « Safety data sheets \(SDS\) »](#). Further information on the Globally Harmonised System of classification and labelling of chemicals (GHS) are widely available online.

SPECIAL SAFETY MEASURES :

Given the chemical substance handled, and thus its related chemical risks, additional safety measures should be taken :

- Handling under a suction hood may be mandatory

For more information regarding laboratory hoods, please refer to the corresponding UniSEP information sheet.



- Wearing a respiratory PPE may be mandatory



The type of selected filets must be adapted to the chemical product used. Le type de filtre sélectionné doit être adapté au produit chimique manipulé. Filters classification is defined as follows :

Type of filter		Main field of application
Code	Identification color	
A	Brown	Gases and organic vapors (boiling point > 65°C)
AX	Brown	Gases and organic vapors (boiling point < 65°C)
B	Gray	Gas and inorganic vapors (ex: Chlorine, H ₂ S, HCN)
E	Yellow	Acid gas and vapors (ex: H ₂ S, HCl)
K	Green	Ammonia and organic derivatives
CO	Black	Carbon monoxide (CO)
Hg	Red	Mercury (Hg)
NO	Blue	Nitrous gases (ex: NO, NO ₂ , NO _x)
SX	Violet	Specific compounds designated by the manufacturer
Reactor	Orange	Radioiodine (incl. radioactive methane iodide)
P	White	Dust and particles

- It is necessary to check the compatibility and permeability of the protective gloves towards the handled products. The pictogram of EN 374-1 standard allows to identify the protection granted by the protectives gloves, using a 3 or 6 letters marking.



The encoding of EN 374-1 standard is established as follows :

Code	Substance	# CAS	Classe
A	Methanol	67-56-1	Primary alcohol
B	Acetone	67-64-1	Ketone
C	Acetonitrile	75-05-8	Nitrile compound
D	Dichloromethane	75-09-2	Chlorinated hydrocarbon
E	Carbon sulfide	75-15-0	Organic compound containing sulfur
F	Toluene	108-88-3	Aromatic hydrocarbon
G	Diethylamine	109-89-7	Amine
H	Tetrahydroflurane	109-99-9	Etheric heterocyclic compound
I	Ethyl acetate	141-78-6	Ester
J	n-heptane	142-82-5	Saturated hydrocarbon
K	Caustic soda 40%	1310-73-2	Inorganic base
L	Sulfuric acid 96%	7664-93-9	Inorganic oxidant mineral acid
M	Nitric acid 65%	7697-37-2	Inorganic oxidant mineral acid
N	Acetic acid 99%	64-19-7	Organic acid
O	Ammonia 25%	1336-21-6	Organic base
P	Hydrogen peroxide 30%	7722-84-1	Peroxide
S	Hydrofluoric acid 40%	7664-39-3	Inorganic mineral acid
T	Formaldehyde	50-00-0	Aldehyde



For more information regarding personal protective equipment, please refer to the [UniSEP information sheet « Personal protective equipment \(PPE\) »](#).

Storage of chemical substances :

General rules and prohibitions related to storage and warehousing of chemical substances are :

- Minimize the amount of chemicals stored in premises where staff works
- A separate, well-ventilated room, secure, equipped with strong and fixed shelves must be organized around work areas to store chemicals, when space is available
- All storage facilities must be equipped with retention
- All storage areas (premises, safety cabinets, refrigerators, etc.) must be identified and identifiable through the relevant pictograms
- Not needed, not used or expired chemicals must be moved or removed from the laboratories and storage areas






















- Do not store chemicals on benches or under sinks
- Do not store inside suction hoods (for ventilation reasons)
- Do not store large bottles in height
- Do not store corrosive chemicals above eye level
- Do not expose chemicals to heat or to direct sunlight



For more information regarding storage of chemical products,
please refer to the [UniSEP information sheet « Warehousing and storage of solid and liquid chemicals »](#).

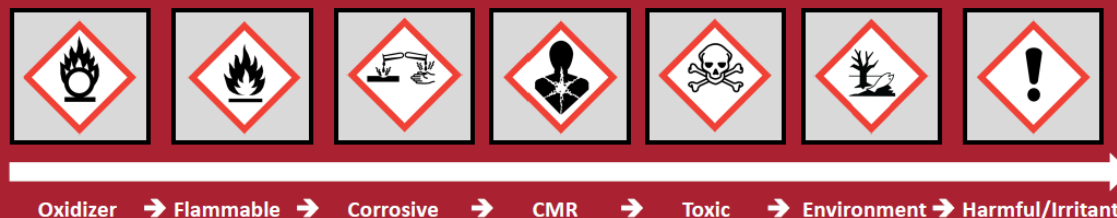
COMPATIBILITY RULE :

			 Acid	 Base				
	+	-	○	○	○	○	○	-
	-	+	-	-	○	○	+	-
 Acid	○	-	+	-	-	-	-	-
 Base	○	-	-	+	○	○	-	-
	○	○	-	○	+	+	+	-
	○	○	-	○	+	+	+	-
	○	+	-	-	+	+	+	-
	-	-	-	-	-	-	-	+

	Must not be stored together
	May be stored together if specific measures are taken
	May be stored together

PRIORITY RULE :

If the labelling of a chemical product features several pictograms, secure storage will be defined according to the following priority rule :



For more information regarding compressed gas cylinders, please refer to the [UniSEP information sheet « Warehousing, storage and handling of compressed gas cylinders »](#).

These incompatibility rules must be respected also in fridges and safety cabinets !

Chemical waste management :



Once used, chemical products must be transported and handled as waste. Very often, these wastes are particular and must be treated as hazardous wastes.

Special procedures therefore apply. Material safety data sheets (MSDS) may sometimes be helpful regarding chemical waste management.



For more information regarding the management of chemical wastes, please [contact the UniSEP-SSTE Group.](#)

Cryogenic products :

Handling and storage of cryogenic products (liquid nitrogen, liquid air, dry ice, etc.) requires particular protection and prevention measures in order to avoid accidents and incidents.

Among the main risks related to the handling and storage of cryogenic products, the following should be remembered :

- **FREEZER BURN** : Wearing of protective gloves against cold (besides others PPE) is mandatory
- **ASPHYXIA** : Storage must be done outside buildings or in a ventilated storage facility equipped with a probe measuring the rate of oxygen (oximetric detector)
- **EXPLOSION** : Generation of liquid oxygen can cause an explosion !



For more information regarding cryogenic products,
please refer to the [UniSEP information sheet « Cryogenic products : storage and handling »](#).

Ionizing radiation :



Activities involving ionizing radiation (α , β , γ particles and X rays) must have restricted access and special safety measures, in particular wearing a **dosimeter**.



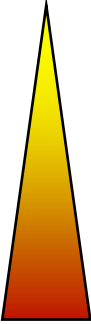
Management of radioactive waste requires special measures as well.



For more information regarding ionizing radiation,
please refer to the [UniSEP information sheet « Guidelines for the use of ionizing radiation »](#).

Biosafety :

A contamination by a biological agent, whose presence at the workplace is possible or voluntary, may happen through mouth, nose, skin or connective tissue. To avoid risks due to biological agents, the Ordinance on the protection of workers against the risk associated with microorganisms (OPTM in French, CC 832.321) and the Ordinance on handling organisms in contained systems (ContainO, CC 814.912) define the activity classes and organisms groups according to the risks involved. Organisms are classified in 4 groups according to various criteria and pathogenicity :

Risk	Biological agent	Disease	Propagation	Treatment	Presence at UNIL
	Group 1	✗	✗	✓	Unil
	Group 2	✓	✗	✓	Unil
	Group 3	✓	~	~	Unil
	Group 4	✓	✓	✗	

According to the biological agents present, safety guidelines and measures are different.



For more information regarding biosafety, please [contact the UniSEP-SSTE 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. UniSEP Service is at your disposal for any query or request for a visit related to maternity protection at work.



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UniSEP – Safety, Environment and Prevention
Maternity protection
Annexe de la Mouline
CH-1015 Lausanne

[UniSEP website](#)

E-mail : proma@unil.ch

First aid :

In case of event, recommendations described in the material safety data sheets (MSDS) can be helpful. Emergency phone numbers to contact are the following :



Internal emergency number at UNIL

021 / 692.20.00 from an external phone

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