



## Behavioral Rules for Safety and Accident Prevention in the Workplaces of the Department

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## **1. General rules**

### **1.1 - Access to departmental structures and use during working hours.**

On working days, from 8.00 am to 7.30 pm on Monday to Friday, the following categories of users are authorized to access and use the structures of the Department, as follows:

**a)** all institutional staff;

**B)** non-institutional staff, ie undergraduate students, master students, PhD students, specialization school attenders, scholarship holders, *assegno di ricerca* holders, other fixed-term contract holders, or other staff authorized by the Department Board under the responsibility of an institutional Researcher or Professor (Principal Investigator or PI).

Non-institutional staff must clearly show the **recognition mark**, which is issued by the Secretariat. The recipient must return the recognition mark when he / she has no longer the title to attend the Department. A copy of this Regulation will be delivered upon the assignment of the recognition mark. Non-institutional subjects will release a statement of vision;

**C)** Access to the Department's laboratories is permitted to external parties after contacting the staff;

**D)** Students can access the Department's laboratories for educational purposes only, under the direct responsibility of the PI.

**1.2 - Access to the Department outside working hours.** Access to the Department at times other than those indicated above is allowed only to institutional staff with access code for inactivation / activation of the electronic intrusion system, issued by the Director.



## **2. Security Access to the Department and Emergency Exits**

### **2.1 - Laboratory access.**

In the absence of a concierge service, access to the laboratories of the Department is carried out exclusively by means of a personalized electronic card reader. For different service requirements, electronic cards are of two types:

- reserved for institutional staff: open 24/24 hours (daily, including holidays)
- reserved for non-institutional staff: open only from 8 am to 7 pm ,from Monday to Friday

If a card is lost or stolen, the owner must immediately report it to the Director who will disable the code of the electronic opening device.

### **2.2 - Emergency Exits**

Emergency exits are appropriately marked with standardized sign. These exits, which must always remain closed, are equipped with anti-panic handle and must always be free from any hindrance and unlocked for any reason.

## **3. Behaviour in the laboratory**

The institutional and non-institutional staff must always observe the following rules, the respect of which will be verified and checked by **the PI**.

### **3.1 - Information for the new staff**

Before starting the activity, staff must be informed by PIs about the location of safety fundamentals, about their use and efficiency status:



- Safety exits
- Showers and eyewashers
- Fire extinguishers and fire blankets
- First aid kits
- Fire and safety alarm bells
- Personal protective equipment (shirt, gloves and goggles)
- Sign in the department

### **3.2 - General Safety Provisions.**

- All safety fundamentals must be appropriately indicated and easy to access;
- First-aid kits must always be complete according to the regulations in force and be well placed in sight;  
In case of use of the content, the PI must be notified and He/She will promptly report it to the Director
- Dangerous areas must be appropriately indicated
- It is forbidden to carry out any work or even small work on pipes and electrical equipment
- All materials and tools in the laboratories must be purchased after checking compliance with C.E. regulations and maintained in perfect efficiency.  
The malfunction of such equipment must be promptly reported to the PI, who will put them out of service until they have been repaired.
- In the event of absence for a period of more than 3 days, the PI must designate a substitute chosen between the institutional staff and notify it in writing to the Director.  
In addition, if this is not possible, the PI must leave a secure access phone number.
- Users should be informed by the PI on the modes to evacuate the laboratory in case of an emergency.



## 4. Personal and environmental security

Exposure to potentially toxic and/or aggressive chemical products is highly harmful to health. Moreover, there is a danger of explosion and fire when dealing with volatile and flammable substances that form explosive mixtures with air.

To overcome the risks associated with biochemistry research, it is compulsory to follow the rules of behavior codified by the more detailed legislation in force and more specifically detailed as below.

### 4.1 Biological Risk

The Department is authorized to treat biological material at level 2.

It is strictly forbidden to introduce into the Department's premises: cells, physiological fluids or bioptical material which is contaminated by pathogens for human beings.

In case of use of physiological fluids or human bioptical material, the PI must obtain a statement provided by the structure which carried out the withdrawal, that certifies the following:

- that human material has been obtained with the informed consent of the patient;
- that the said material is not contaminated by any virus or other pathogenic agents, or that the withdrawal has been carried out by a person free of infectious disease for humans.

The PI must dispose the preservation of biological materials mentioned above in a single, dedicated and well-identified container, to be stored in an appropriate cryogenic equipment. At the end of the experiment, the responsible person must provide for the disposal of the material according to the regulations in force, informing the Director.

Animal cells and microorganisms for culture and experimentation in general, and other human origin material mentioned above, should be handled as far as possible under a biological protection



capsule following the specific instructions for use.

Cells, during their expansion, should be kept in incubators dedicated to the purpose, and stored for a medium (months) or a long period (years) in special freezers (- 80 ° C) or liquid nitrogen. It is compulsory for staff to clearly identify their presence in appropriate cryogenic containers and dedicated equipment (type of material, date, human or non-human origin, etc). It is mandatory for the staff to disinfect any spill of biological material and to promptly notify the incident to the laboratory responsible.

#### **4.2 - Ventilation of workplaces.**

To avoid the formation of dangerous concentrations of flammable or toxic gases during experiments, each room must be well ventilated with air extracted from the outside.

For this purpose, in the chemical laboratories, it is compulsory to keep the aspiration hoods in operation during the experimental periods with volatile and / or toxic products ensuring the correct inflow of air from the outside.

#### **4.3 - Laboratory Behaviour Rules**

Given that the PIs must, in all circumstances, identify the risks associated with the chemical or biological experience to undertake and inform the staff about them, the following rules apply:

- Comply scrupulously with the instrumentation and experimentation POS (Standard Operating Procedures) and with the quantities of reagents indicated by those who are responsible for the activities.

**- Always wear cotton or non-flammable protective shirt**

It is forbidden to use synthetic textiles, especially those made of acrylic material, which, by condensing electrostatic electricity, generate sparks that can ignite fire and adhere to the person as a result of fire.

- Always wear protective goggles with unbreakable lenses.

**It is strictly forbidden to use contact lenses without wearing**



### **safety goggles.**

- Collect the hair behind your nape, if long.
- Do not keep in the labs if not necessary to carry out the experience.

Do not store excess quantities of reagents and packaging materials in the laboratory, especially if they are flammable (i.e. cardboard, polystyrene, expanded polyurethane).

Never work alone during all the activities that, in the opinion of those who are responsible, have a minimum of danger.

- Keep workbench, hoods, instruments, scales and glassware clean and in order.

### **Do not leave equipment and various instruments in operation, if not strictly necessary.**

- **Check that the gas and water supply tapes are closed** before leaving the laboratories
- **Do not smoke**
- **Do not consume food or drink.**
- Do not use laboratory containers as food containers. Do not use refrigerators, freezers and cold storage rooms for food.
- Moving neatly and with caution.
- Use sinks only for water discharge
- Do not spray solvents from bottles if they do not have the proper equipment.
- Suction of pipette or capillary liquids must be performed with the Special suction cups and never with the mouth.
- Take the reagents with the utmost caution (under aspirating hood in operation) when using particularly volatile, toxic or odorous substances.
- Never heat flammable solvents on the free flame.
- Make sure that all the rubber or plastic tubes used for the circulation of water, of other liquids and of various gases, are suitable, integral and properly secured with clamps hose.



- Warn your colleagues before doing any risky operation.
- Do not leave personal belongings in the labs like backpacks, bags, clothes
- Always wear protective gloves when handling toxic and / or dangerous substances.
- Use specific goggles and gloves for handling of dry ice, nitrogen liquid or material stored in a freezer at  $-80^{\circ}\text{C}$  or in liquid nitrogen.
- Always monitor the experiments in progress unless the appliances which are used are not specifically qualified to operate safely in the absence of the operator.
- Check the flow of water in refrigerants. In case of suspension of the water supply, every processing must be stopped in the correct way.
- Pay special attention to the equipment which works under vacuum or under pressure

#### **4.4 - Identification of those responsible**

PIs are responsible for compliance with the above rules of performance of research, which is conducted in the Department. PIs are designated by the institutional staff with a special decision of the Department Board.

For all other activities and for use, conservation and good functioning of the security equipment, responsibility lies with the Director of the Department, who informs, with this regulation, PIs and the rest of the staff, institutional and non-institutional, about the rights and the duties relating to security and provides for the activation of the procedures to be used to continuously improve the environmental situation, compatibly with the building structures and technical equipment of the Department.

#### **5. Attributes of the PI**

It is an indispensable task of the PI:

- to inform employees about the obligation of complying with this





regulation.

- to evaluate the risks associated with the planned operations and establish the measures of prevention to be adopted.
  - to verify the efficiency of safety fundamentals and laboratory equipment and report in writing any deficiency or shortcoming to the Director, who will provide for the necessary interventions.
  - Adopt emergency measures, including interruption of work and make sure that the equipment is safely secured, in the event of a serious or imminent risk.
  - Ensure the correct implementation of the procedural rules, regulations, service orders and operational methods, which are relevant to their business competence.
  - Take care of working conditions of the staff, relating to the receptive capacity and laboratory equipment.
  - Promptly and formally report to the Director of the Department the risks that can not be removed or minimized at acceptable levels
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- In the absence of the Director and the Deputy Director, ensure compliance with the law in the event of an accident occurred by staff, in accordance with the rules in force.



## **6. Materials**

### ***6.1 Purchase of high risk products***

Before purchasing **highly toxic products** (toxic), it is necessary to:

- (A) notify the PI for the authorization;
- (B) be documented in advance about their dangers and standards relating to their storage, handling and disposal.



5	TOSSICI	■ che per inalazione, ingestione o penetrazione cutanea possono comportare rischi gravi, acuti o cronici e anche la morte	
6	NOCTIVI	■ che per inalazione, ingestione o penetrazione cutanea possono comportare rischi di gravità limitata	

## 6.2 - Chemical Safety Data Cards

All those who use chemicals are required to apply for the Safety Data Card to the firm Provider when issuing the order.

It will be under the responsibility of the person assigned by the Director of the Department, the conservation and the archiving of the Safety Cards, both in paper and electronic form, in a place which is accessible to all staff.

All users will have to read the information in the safety cards in order to prevent possible harm to themselves and other visitors of the laboratory.

## 6.3 - Carcinogenic agents

All processing with products bearing the term "**R45: it can cause cancer**" or "**R49: it may cause cancer by inhalation**" must be avoided by replacing those products with other less harmful to health. If this is not possible, these operations must be carried out by using all precautions dictated by the specific case, included the means of individual protection (masks, glasses, gloves, etc.). In laboratories where, in the opinion of the PI, there are no infrastructures available to comply with the current regulations in the field of Job security (Law 626/94 and subsequent amendments) is made absolute prohibition of using these products.



## 7. Load handling

**7.1 Loads in general.** Should loads which exceed the weight allowed by law (20 Kg women, 30 Kg men) be carried out, it is necessary to use a cart.

**7.2 Chemical products.** The handling of chemical products is only allowed for small quantities and with respect to safety by using a special transport basket.

**7.3 Gas Tanks.** During transport, compressed gas tanks must be provided with the protective cap and transported on **trolleys with fastening chain**. You must remember that in the same room there must be not tanks containing incompatible gases, such as oxygen / hydrogen, oxygen / ammonia, chlorine / hydrogen, chlorine / ammonia.

## 8. Collection and disposal of waste

### 8.1 - Collection

Within the Department are to be considered:

**Urban waste:** glasses and small containers of various material, paper and all that is attributable to domestic refusal.

**Special waste:** ink cartridges and toner for printers, photographic films, fixing and developing liquids, glass bottles (reclaimed), tanks containing organic solvents (reclaimed) and all that is not recallable to domestic refusal.

**Toxic or harmful waste:** glass containers or other unrefined materials, chromatographic resins, used solvents, acids and bases, processing residues.

Exhausted oils of vacuum pumps polluted by organic substances, oils (silicone and not) used in heating baths, hydraulic fluids and similars must be collected and classified separately.

Based on this, each Laboratory shall be equipped with a plastic container for the collection of unrefined glasses. Other material (also plastic) which is not reclaimed must be collected in a special container.



Exhausted oils (of pumps, heating baths, etc.) will be collected in a separate container.

Liquid waste and / or suspensions of solids in liquids containing toxic or noxious/harmful products must not be accumulated and stored in the laboratory, but stored in tanks which are contained in the special department's locker (wardrobe).

## 8.2 Disposal

The various types of waste mentioned above must be collected and disposed separately, **avoiding mixing**.

For each type of waste, an appropriate container is provided in each laboratory.

It will be under the responsibility of the PI to educate the employees about how to collect and store the waste.

## 9. Various provisions

### 9.1 - Radioactive substances; behavioural rules in experimentation with radioisotopes.

The use of radioactive substances is regulated by D.P.R. n. 185/64, art. n. 92, regional Law n. 48 of 14/04/90 and later D.L. 230/92.

Any type of experimentation and / or manipulation (included experimentation on cellular cultures) that involves the use of radioactive isotopes must be conducted exclusively in the laboratories which are dedicated for this purpose (surveillance zone), always wearing shirts intended solely for that purpose, to be kept in special lockers inside the isotope laboratory.

After the experimentation and / or manipulation, the operators must:

- put disposal of residual radioactive substances in the appropriate storage containers;

- leave job places in order, cleaning up. They also have to check with appropriate counters the eventual radioactive contamination.

In case of confirmed contamination, they must provide to the decontamination of the concerned area;



- dispose radioactive waste in the appropriate containers for storage, in accordance with the instructions related to liquid or solid waste, as well as the various types of isotopes.

As far as not provided above, each operator is required to follow all the provisions dictated by the PI of the isotope laboratory. Users will have to comply scrupulously with such provisions.

### **9.2 - Ultraviolet light (UV) lamps**

Prolonged exposure to a UV source can cause severe conjunctivitis. It is necessary, then, to wear specific protective goggles, and, in any case, avoid to look directly to an UV lamp. Locations where UV light sources are present must be suitably ventilated to minimize the presence of ozone.

### **9.3 - Cold room**

It is forbidden to use cold room during the absence of other staff on the floor where it is located.

It will be under the responsibility of the cold room PI to lay down provisions on the modes of use and maintenance. Users will have to pay attention to these provisions.

### **9.4- Dark Room**

It will be under the responsibility of the dark room PI to lay down provisions on the modes of use and maintenance. Users will have to pay attention to these provisions

### **9.5 - Video Terminals**

Since there is not a device in the Department that can be classified as video-terminal, all staff is required not to work at a video terminal for more than four consecutive hours. If, in exceptional cases, it is necessary, for service reasons, to operate



for more than four hours, operators are considered as invited to self-determine one or more pauses of not less than fifteen minutes.

### **9.6-Liquid nitrogen and freezer use at -80 ° C**

The use of freezers at - 80 ° C, as well as the withdrawal and transfer of liquid nitrogen, must be carried out in compliance with the appropriate protection and safety rules (use of mask or glasses, suitable gloves, jackets, etc.) as specified by **appropriate arrangements and / or billboards**.

### **9.7- Preparatory centrifugal laboratory**

It will be under the responsibility of the PI to establish provisions on how to use and on the maintenance of the equipment which is present (preparative centrifuges and ultracentrifuges). Users will have to pay scrupulous attention to these provisions.

### **9.8 Autoclaves**

It will be under the responsibility of the PI to establish appropriate provisions for the collaborators on how to use and maintain autoclaves in the premises of the Department. Users will have to pay scrupulous attention to these Provisions.

### **10. Behaviour in case of accidents to persons**

- In the event of an accident, immediately issue first aid and, if necessary, seek for medical attention.
- Do not touch wounds or harmful materials without protective gloves.
- Do not ever give drinks to senseless people. In case of spray of any substance into the eyes, always wash abundantly with running water or with special eyewash principals.
- In case of minor burns or accidental contact of a part of the body



with chemical reagents, wash abundantly with cold water.

- In case of accidental ingestion of chemical products, identify the product and seek for medical advice immediately.

In the event of an accident at work, the PI must inform the Director (or, in his absence, the Deputy Director) with any detail, who will activate all the procedures provided by the rules and regulations in force.

- In case of pregnancy, please, comply with the applicable laws (Legislative Decree of march 26, 2001, no. 151).

## 11. Emergency measures

### 11.1 - Request for external intervention.

#### EMERGENCY NUMBERS

Police	113
2 <sup>nd</sup> police body ( <i>Carabinieri</i> )	112
Firemen	115
Sanitary emergency	118

#### OTHER USEFUL NUMBERS

Careggi Hospital Company	055-7947235
Anti-Poison Center - Careggi	0557947819
Coronary Mobile Unit	055214444
Municipal Police	05532831 0553283333
Civil Protection	800.015161

-In case of spreading of dangerous liquids: immediately intervene



with the adsorbent available material and notify it to PI.

- In case of flammable gas escape, immediately intervene:
- interrupting the supply of electricity;
- aerating the room;
- interrupting the flow of gas by acting on the emission rolling shutter.

## **11.2 - Behaviour in the event of fire**

**In case of fire, immediately use the fire extinguishers provided.**

If you are not able to turn off the fire quickly, behave as follows without panic:

- activate the alarm bells on each floor in the Department;
- get out of the lab or office closing the door behind you, **but not with the key;**
- call the Firemen service
- immediately alert your PI, the Director of Department and the present technical staff

## **12. Personal protective equipment**

### **12.1 - Anti-gas masks and operating modes**

The anti-gas mask must be suitable to be adapted to face without causing friction and molesting pressures, while ensuring a perfect condition. To check the condition, the operator must close the inhalation valve with the palm of the hand and then inspire: a properly worn mask should NOT allow air passage.

The filter, suitable for use, should be properly connected to the mask and open only at the time of use.

The pattern for proper and appropriate use of filters is attached to the original package and must be kept together with the spare





parts.

### **12.2 – Supplied material always available and ready to use in each laboratory**

Each laboratory must be equipped with fire extinguishers, glasses and / or protection visors, gloves, and adsorbent material.

### **13. Updates of Safety Regulations**

This Regulation, as well as the individual articles which compose it, are amended with motivated reasons by the Board of the Department.

The approved changes are effective from the day that follows the resolution of the Board.

This Regulation of this Department of the University of Florence has been approved by the Department Board of .....,and comes into force from .....

The undersigned.....

As.....

Declares the following:

- 1) I have read and seen the following regulation,
- 2) I have been given a copy of this Regulation by the Director of Department

Florence (Date)

Readable signature