

**Additional document to the risk assessment in the Institute ISOF dated 31/03/1999 prot. 990350
(ex art.4 D.to Decree no. 626/94 and subsequent amendments)**

C.N.R. - Institute for Organic Synthesis and Photoreactivity '

It is requested the attention of all staff, students, fellows and graduates who work at the Institute, concerning the following safety conditions:

1. The laboratories are only accessible to those whose presence is regulated by special regulations CNR:

- a) employees,
- b) Italian and foreign scholars,
- c) research fellows,
- d) graduates goes and students (undergraduates and not),
- e) cleaners and maintenance of prior authorization of the contact person of the Company at the Institute.

The suppliers, the external technical and visitors can access the labs on call and authorization of employees and / or Director.

The access is forbidden to any other person.

2. The "non-expert personnel" is assigned to a "tutor" that will handle the training, information, and assess the degree of preparation so that they can operate independently in the laboratories (see p. 2. Document valuation risks, prot. 990,350, under D.to Decree. 626/94).

3. The entrance and exit from the building of the staff in any way connected with the Institute must be registered by using the special terminal and attendance place incoming and outgoing from the Research Area.

4. The opening hours of the Research Area of CNR is from 7.00 am to 10.00 pm from Monday to Friday.

5. It is forbidden to personnel belonging to categories a) and b) to carry out experiments on their own on public holidays and after hours of service (7:50 to 19:00 from Monday to Friday: see circular CNR prot. 1454391 of 26 October 1995).

Any stay at the Institute over the opening hours of the Research Area of CNR and on public holidays, must be authorized by the Director of the Institute.

To the staff belonging to categories c), d) is forbidden to carry out experiments on their own during the time of service.

6. As a rule, students can not remain on the premises alone on holidays and over time to study or to use a PC.

Any exceptions must be requested in writing to the Director of the Institute of their Tutor, who assumes the responsibility.

7. In the laboratories, and wherever indicated, is FORBIDDEN TO SMOKE.

8. During the course of experimental activities, the access to the Laboratories is limited to the personnel involved in the same. Everybody involved in the experimental activities must wear the personal protective equipment: goggles, gowns, suitable footwear (not use clogs, sandals, shoes and similar), etc., according to the provisions posted on the front door or in writing by the responsible of the research activity.

9. At the end of the work, especially in rooms that are not reused during the day, turn off lights, the engine suction hoods, close the gas, water and leave those premises clean and tidy.

10. It is forbidden the use of compressed gas cylinders inside the Institute except explicit authorization of the Director of the Institute; the compressed gas cylinders must always be secured with appropriate metal chains to the trolleys or to a stable support (wall or equivalent) and must be put in a suitable place as soon as possible.

11. The emergency exits and escape routes, both in laboratories and in the corridors, must be kept free from any obstacle including mobile ones.

For all the other rules of correct behavior please refer to the "general information" listed below.

GENERAL INFORMATION

Safety in the laboratory.

The use of chemicals requires special devices for safety. The chemicals that are normally used in the laboratory may be explosive, flammable, toxic or irritating. You have to have extreme caution when using carcinogens (classified R45 or R49 on the label) or suspected carcinogens (classified R40).

The chemical must be prepared to work with any kind of chemical substance in a secure manner, ie using the appropriate security measures, at least as it is predictable, so as not to harm to itself and / or anyone who is near.

Working in a laboratory requires an understanding of how chemicals should be handled responsibly. To this end it is mandatory prior consultation of the safety data sheets of each chemical, prepared by the supplier companies and kept in the same cabinets that contain the product.

The following general rules must always be followed:

- The laboratories are NO SMOKING AREAS. Signs are categorical about.
- In the laboratories do not have to be stored food and it is not allowed to eat.
- The use of smelly substances, corrosive, toxic, explosive and harmful to the environment, should be kept to a minimum, replacing them with less harmful products (risk minimization).
- You can not wear contact lenses when working with: NA-metal, ammonia, and other products with hygroscopic characteristics and dehydrating that could seriously damage the eyes.
- Knowing the characteristics and behavior of chemicals. Each substance in the appropriate supplier catalogs, as well as on the packaging label, is accompanied by symbols such as: R (designation of special hazards) and S (safety standards for dangerous products) as well as phrases F (information on the properties and the 'use), that let you know the danger, toxicity and the measures to be taken for the use, treatment and disposal. These information are presented in summary form on the safety data sheets that came with each chemical.
- Each time a person works in a laboratory where there are ongoing chemical processes or other operations that involve risks, must wear personal protective equipment (shirts, preferably cotton, goggles, appropriate footwear, etc.).
- should be avoided as much as possible the contact of chemicals with skin. If necessary, always wear gloves appropriate to the type of chemicals being handled. The liquid should never be pipetted by mouth.

- All chemical processing must be conducted under the hood. The draft of the hood must be checked periodically with a special request from anemometer USP. If you use a very toxic substance, the hood should be covered with a coverage or sheet that can be removed at the end of the reaction in the event of contamination. Malodorous substances must be treated so as to control the unpleasant effects. If the reaction is due to the use of secondary products or when it is not necessary their preservation, they must be destroyed by oxidation or appropriate derivatization.
- In some cases it is advisable to work in a closed system (eg. Use of carcinogens). In exceptional cases is necessary to work with systems that have to go under vacuum or under pressure. The latter must be equipped with a suitable safety valve. The potentially explosive compounds must be treated so that the operator is protected by a safety shield. The reagents in excess, the reagents no longer be used and by-products of the reactions must be immediately destroyed, carefully following the procedures specified in safety data sheets of products.
- Every person working in a laboratory must know the standards described in the emergency plan (drawn up by the Security and Prevention and delivered to all staff), and the operation of the antifire equipment whose lab has.
- You must avoid the presence of open flames in the lab for the high risk of starting a fire: only in some laboratories it is allowed their use in the spaces marked with yellow and black stripes where it is forbidden to introduce inflammable substances and materials.
- In the Laboratories can be stored solvents and flammable chemicals only in the quantities of daily use.
- It should be followed the rule that a person does not work alone in the laboratory. The presence of a colleague might be providential in case of accident.
- The solvents recovered and that are no longer usable, with solute concentrations of less than 10⁻³ M, must be collected in suitable containers for waste solvents, present in any laboratory. These containers should be filled only three-quarters of their capacity and will be taken, upon recommendation to the dedicated personnel, by the person in charge of their collection that will send them for disposal to a specialist company.
- The solid products that are no longer usable must be collected in containers sealed (screw cap with gasket), properly and clearly labeled and kept in reagentario.
- There shall be any operation of dilution and discharge into the sewage system.

EARLY INTERVENTION

θ Eyes accident .

If a chemical gets in your eyes, you must immediately rinse them for about fifteen minutes with a weak flow of water lifting eyelids. Alternatively you can use a special washing bottle containing sterile water for the eyes. Contact lenses should be removed during washing in order to continue the washing process and can also remove traces of substances that may penetrate between the wall and the ocular lens. The person who has suffered damage should be immediately conducted by an ophthalmologist or at the eye clinic (at the Hospital S. Orsola is continuously operating an emergency department of Ophthalmology).

θ Burns.

If there is a burn, the area should be washed immediately for 5-10 minutes with cold tap water, put ice on, assess the extent of the burn and possibly go immediately to the nearest hospital emergency department.

θ Haemorrhages.

Minor cuts should be left to bleed for a while and, after removing any debris, proceed to disinfection and bandaging. In case of more serious wounds that have a substantial bleeding, the flow must be interrupted by applying an adequate pressure with the fingers on the corresponding artery or by

applying a tourniquet placed correctly. A garter stitch, if you use it, must always be under control and in any case can not be used for more than two hours. It should immediately be called an ambulance equipped with an emergency team. As tendons and nerves may have been damaged by even from minor injuries, you should always consult a doctor after the incident, without waiting too.

θ Chemical burns.

The burned areas must be immediately washed with water. Burns of alkaline origin should be washed with neutralizing solutions of 1% acetic acid, while for the burns of acid origin should be used sodium bicarbonate to 1%, in addition of course to water (both solutions are available in the appropriate First Aid cabinet). Overalls and clothing contaminated by chemicals must be eliminated.

θ Poisoning.

Immediate intervention of assistance is extremely important in case of poisoning. If the substance is swallowed up, it must be immediately alerted the Poison Control Center (Tel. 118), being as much precise as possible about the substance responsible for the poisoning.

If the poisoning is produced by inhalation, the person will be immediately transported to fresh air and kept relaxed and warm then it will be asked the immediate intervention of the Poison Control Center (Tel. 118), signaling as much precisely as possible the product responsible for the poisoning.

A person who has been the victim of an accident should not be allowed to go to the emergency room or the doctor alone, since any shock can also intervene to incidents apparently negligible.

Any accident involving personal injuries should be made known to the Director of Institute and to the Secretariat for appropriate practices.