



Definition and identification of the risk

Chemical substances and compositions are classified by **category of danger** according to their physicochemical properties, their acute and chronic effects on animals and humans and their effects on the environment.

The danger categories are represented by **hazard pictograms** which will be replaced progressively with new pictograms in the regulation for **classification, labelling and packaging (CLP)** of substances and mixtures.



Premises for handling chemicals

- Suitable ventilation for handling dangerous chemicals ;
- Separate, marked-off premises that are strictly reserved for handling CMR substances and specific risk station.

Identification of CMR (Carcinogenic, Mutagenic, Reprotoxic) substances

Directives 67/548/EEC	CLP Regulations
Carcinogens cat. 1 and 2 (R45, R49)	Carcinogenicity cat. 1A and 1B (H350)
Mutagens cat. 1 and 2 (R46)	Germ cell mutagens cat. 1A and 1B (H340)
Reproductive Toxins cat. 1 and 2 (R60, R61)	Reproductive Toxins cat. 1A and 1B (H360)
Carcinogen cat. 3 (R40)	Carcinogenicity cat. 2 (H351)
Mutagens cat. 3 (R68)	Germ cell mutagens cat. 2 (H341)
Reproductive Toxins cat. 3 (R62, R63)	Reproductive Toxins cat. 2 (H361)

The **label** is the most concise source of information on the hazardous nature of a product.

For more complete information, consult the product's **safety data sheet (SDS)** which in particular covers how to handle, store, eliminate the product and what to do in the event of an accident, etc.

The **list of substances used, including CMRs, that are stored in the laboratory must be established according to regulations, kept up to date, and made available.**

Premises and equipment

Layout of the premises where chemicals are handled or stored and definition of the protective equipment for the chemical risk according to the nature and quantities of the chemicals.

Storage premises (brand new substances and/or chemical waste) :

- **Substances currently being used** : on the benches and shelves. No product volume exceeding 1 to 2 working days. **A ducted fume hood is not meant for storing chemicals ;**
- **Short and medium-term storage** (small-quantity storage) : secure cabinets, secure refrigerators for flammable and volatile substances ;
- **Medium and long-term storage** (large-quantity storage) : premises for substantial risk (central warehouse) or secure storage outside the building (bunker) ;
- **Substances stored** : labeled, classified, arranged in order to prevent incompatible mixtures and prevent any dispersion (retention tanks).





Weighing room

- Specific premises in the event commercial substances in solution cannot be used ;
- Marked-off premises, in a calm area. For CMRs, premises exclusively reserved for this purpose, with the same restrictions as above.

Room containing CO2 and/or cryogenic gases (liquid helium, liquid nitrogen) – Suitable premises having :

- high and low mechanical ventilation that keep CO₂ content < 0.5% and oxygen content > 18 % ;
- a system for detecting a drop in the oxygen level with internal and external alarm.

Personal protective equipment



 <p>Lab coat/smock (long sleeves) Must be worn and closed</p>	 <p>Gloves</p>
 <p>Safety glasses, goggles, or face shield Protective eye wear for protection against chemical projections</p>	 <p>Mask (FFP3 type) Can supplement protection against inhaling powders or toxic vapors (weighing operations). Under no circumstances do these replace the group protective equipment to be favored.</p>

- The work area in the ducted fume hood must be kept clear of any unnecessary items ;
- Personnel must be familiar with the instructions for use, conduct to adopt in the event of an accident or incident ;
- Be informed about incompatible substances in order to prevent dangerous mixtures (to avoid any risk of explosion).

Medical follow-up

- Any person handling chemicals must inform the prevention doctor in order to benefit from suitable medical follow-up ;
- It is important that the prevention doctor be informed of any pregnancy as soon as the latter is known ;
- The prevention doctor receives a copy of the individual chemical risk exposure sheet.

Group protective equipment

	<p>Name : ducted Fume hood (in compliance with NF EN 14-175 standards)</p> <p>Application : Handling all forms of chemical pollutants</p>
	
<p>Name : ETRAF (Enclosure for toxic substances with recirculating air filtration system)*</p>	<p>Name : ductless chemical Fume hood with filter and recirculating air (in compliance with NF 15-211 standards)*</p>

*Application : allows the handling of chemicals that have a professional exposure limit. Prohibited equipment for handling CMR substances.

Waste

Chemical waste must be sorted at the workstation according to the type and chemical characteristics of the substances to be eliminated (cf. sorting rules). They must be removed in containers that are approved for transporting hazardous materials and eliminated by a specialized company.

In case of an accident

- Refer to the safety data sheets and follow the recommendations ;
- See a doctor or the emergency rescue services (SAMU). Contact the poison control center if necessary ;
- Declare the work accident in the event of a medically established injury ;
- Inform the prevention assistant or the team leader and log the event in the health and safety log ;
- See the prevention doctor and inform him or her of any symptom occurring in the following days.

Gestures and training

- Whenever possible, replace any dangerous chemical with a product that is less or not dangerous ;
- Maintain regulatory conditions for labelling and packaging when making solutions and dilutions ;
- The quantities stored must be kept down to weekly needs ;
- Avoid weighing dangerous substances by using substances in solution or aliquoting. Otherwise, always use double weighing ;