

GENERAL CONSIDERATIONS ON SAFETY AND RISK



Why are we talking about safety?

- The scientific laboratories, both research or teaching, represent a special case as they are characterized by the simultaneous presence of all types of risks, by the heterogeneity of the substances and equipment used and often by the unpredictability of the experimentation.
- The greatest threat for new employees (or students) is the lack of knowledge about the dangers that leads to not assess the presence of a risk.
- The greatest threat for experienced employees (or students) is the confidence with the danger that leads to an underestimation of the risk.



Why are we talking about safety?

- The Safety can not be bought, nor there is a technology that can guarantee it. It is first of all a mental attitude given by the good sense that can help to prevent or avoid the danger.
- Operating procedures and security technologies are only the tip of a pyramid which basis is always the single employee (or student). Without awareness by the individual to every single gesture, technology alone will never be sufficient to ensure a reasonable level of safety.
- The safety in the laboratory depends on a set of factors, among these, the specific training of the personnel plays a fundamental role .



Risk factors

In the laboratory accidents, injuries and occupational diseases can result from the simultaneous combination of several risk factors:

- **technological factors:**

inadequacy, malfunction or improper use of the equipment,

- **environment factors:**

light, temperature, noise, dust, gases, fumes, vapors

- **individual factors:**

physical and mental stress, fatigue, distraction, incompetence, imprudence



What we have to do and not to do

- The use of equipment, systems, experimental apparatus, biological or chemical substances that involve only one of the risks listed, requires the permission of the head of the laboratory and the training necessary that the head of the laboratory or the personnel must provide.
- Acquire the necessary information for a proper and conscientious use of protective equipment, both collective and individual



What we have to do and not to do

- Do not hide damage to equipment or incidents in the laboratory, inform always the responsible
- In an emergency case, run away from the lab and call for help, do not try to solve it
- It is strongly recommended not to work alone in the laboratory





ELECTRIC RISK



CHEMICAL RISK



COMPRESSED GAS



CRIOGENIC LIQUID





NON-IONIZING RADIATION



IONIZING RADIATION



BIOLOGICAL RISK



And others...

- FIRE
- MANUAL HANDLING OF LOADS
- NOISE
- MACHINERY AND EQUIPMENT FOR WORK
- MAGNETIC FIELDS

