KARL-FRANZENS-UNIVERSITÄT GRAZ
UNIVERSITY OF GRAZ

General Regulations for Laboratories

for all Laboratories at Heinrichstraße 28

These General Regulations for Laboratories are made available to all the laboratories of the University of Graz where work is carried out in chemistry, physics, microbiology or genetic engineering, and activities using hazardous materials take place. They have to be supplemented according to scope of work or by specific circumstances relating to the field of activity.

These General Regulations for Laboratories will be supplemented by appendixes regarding specific subject areas and regulations which will be made available on the internet by and by.

Safety regulations and rules of conduct apply without exception to all those involved in laboratory activities.

The head of institute or the specifically delegated person responsible for the running of the laboratory shall ensure that the General Regulations for Laboratories shall be brought to the attention of new employees and that the latter confirm this information and their adherence to it with their signatures.

The General Regulations for Laboratories are not exhaustive.
They supplement the relevant legal provisions and regulations.

In addition to the General Regulations for Laboratories, the site rules and fire safety regulations also apply in the valid version.

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I. INFORMATION FOR EMERGENCIE

(See supplementary notes under point VIII)

Behaviour in Case of Fire **Keep Calm**	In Case of Fire, Accident, Emergency
1. Report fire **Emergency Number: 122** **WHERE is the emergency**? **WHAT has happened**? **HOW MANY persons have been injured**? **WHO is calling**? **WAIT** for questions!	**Works Fire Service,** Phone (internal): 2222 Weekdays from 8 am – 4pm **Ambulance**, Tel: **144** **Police**, Tel: **133**
2. Bring to safety Take endangered persons with you (disabled, wheel-chair users, etc.) Close doors and windows. Follow designated escape routes Do not use lift Follow instructions Go to assembly point	**Poisons Information Centre** Vienna: Phone ++43 1 406 43 43
3. Attempt to extinguish fire Use fire extinguisher to fight fire Do not place yourself in danger	**Department of Building and Technology Services,** Mon. – Sun. from 00:00-24:00, Phone (internal): 2220 **EUROPEAN EMERGENCY NUMBER 112**

II. GENERAL REMARKS

II.1. Working Under Extraction Systems

II.1.1 All work involving chemicals in which the release of hazardous materials cannot definitely be excluded is principally to be carried out in the fume cupboards.

II.1.2 Before starting work, check that the **fume cupboard is switched on**. Faulty fume cupboards may not be used. In the case of faults, inform the Department of Building and Technology Services (Tel. 2220) and submit a ticket to CAMPUS SERVICES http://campus-service.uni-graz.at/. If the fume cupboard is not equipped with an automatic air ventilation monitoring function, a simple effective monitoring device (paper strips, threads, etc.) should be put into place where the user can

easily see it. No statement concerning quantity of ventilated air can be made, but the device merely signals whether the fume cupboard is in working order.

II.1.3 The **front sliding window of the fume cupboard** must be kept closed as much as possible. It may be opened only enough to allow setting up and handling apparatus as necessary. During experiments, the front sliding window may only be opened wide enough to ensure protection of face and neck.

II.1.4 Laboratory doors are to be kept closed. Open doors restrict the operation of the fume cupboard and ventilation management.

II.2. Access to the Laboratory

II.2. If laboratory technicians are absent, the laboratories should be closed.

II.2.2 If **unknown persons** are encountered in the laboratories, they should be addressed and asked for the reason of their visit, and then shown out of the laboratory.

II.3. Hazardous Work Activities

These include, for example, poisonous, flammable or highly flammable, explosive or infectious hazardous substances or work activities with high risk potential (e.g. work activities with risk of implosion or making use of pressure, carius tubes, autoclaves, pressurized gas canisters, naked flames or hot-air blowers, hydrogenation and ozonolysis, etc.)

II.3.1 Hazardous work activities should always be carried out using special protective measures (in the fume cupboards, behind safety screens, in special rooms, etc.)

II.3.2 It must be ensured that all persons in the vicinity are to be informed about dangers and required protective measures.

II.3.3 Hazardous work activities should not be **performed alone**. During these activities, at least one other person should be within calling distance.
Special attention must be paid to this rule in the case of activities outside opening times (normal working hours). Specially included in this are all forms of preparative/synthesis laboratory work and all working steps associated with a risk of implosion, pressure, gases, sources of ignition, liquid nitrogen or poisons. *Note: By "working alone in the laboratory area" is meant working in the presence of a second person who is in calling distance. The second person must be familiar with the site rules and must be in a position to provide help in the case of accident.*

II.4. Long-Term Experiments / Experiments Over Night

II.4.1 If experiments requiring **constant supervision** are carried out , then laboratory personnel may only leave the laboratory when another instructed person takes over the supervision.

II.4.2 Long-term experiments without supervision are to be labelled and carried out with due care and expert consideration in such a way that any risks even outside **opening times** (normal working hours) are ruled out. The person responsible must be available by phone. Experiments involving cooling may only be carried out using circulation chillers.

II.4.3 Chemical reactions which, for special reasons, have to be carried out over night may only be carried out in as far as possible in the specially designated night rooms which have been made safe accordingly.

II.4.4 **FUME CUPBOARDS**
Fume cupboards are to be used when working with hazardous materials.

II.5. Danger to Third Parties (e.g. cleaning personnel, workshop personnel)

II.5.1 **Maintenance and cleaning work**

To enable external personnel or in-house maintenance works to carry out necessary maintenance and cleaning work, laboratory personnel must ensure that the relevant parts of the laboratory have been cleared of chemicals and appliances so that the cleaning personnel and maintenance workers can carry out their activities without danger.

II.5.2 **Contaminated apparatus**

Before **vacuum pumps, centrifuges, magnetic mixers and other electrical and laboratory appliances** are sent to the scientific workshops for maintenance or repair, it must be ensured that they are not contaminated with chemicals.
A "contamination declaration" must be signed in particular for vacuum pumps before dispatch. This states which harmful substances the pump oil is contaminated with, or that the pump is free of harmful substances.

II.6. **Faults regarding technical facilities of building** (ventilation, heating, electricity, water and sewage) are to be reported to the Department of Building and Technology Services without delay (Tel. 2220), and a ticket submitted to CAMPUS SERVICES http://campus-service.uni-graz.at/

II.7. **Traffic routes, passages, doors and windows** must always be kept clear. Cables and hoses which cross over must always be laid in cable bridges or in cable ducts.

III. ACTIVITIES USING HAZARDOUS MATERIALS

Hazardous materials include gaseous, fluid or solid substances, powdered solids or preparations assigned to hazard classifications or classified as "flammable", "carcinogenic", toxic to reproduction, "teratogenic", "mutagenic", "sensitizing", "infectious" or otherwise chronically harmful. Dangerous substances released during work activities also count as hazardous materials.

Some substances which are not characterized as hazardous or which do not have the above-mentioned hazardous characteristics are nevertheless also assigned to classes of hazardous materials; these include, for instance:

- gases with narcotic effects
- gases with suffocating effects, such as nitrogen, carbon dioxide and extinguishing gases
- cryptogenic liquefied gases and dry ice
- hot materials, such as liquefied metals and steam
- sensitizing materials, such as water during wet work activities or degreasing solvents.

Activities with hazardous materials also include production and use (application, consumption, storage, keeping, handling, processing, filling, decanting, mixing, removing, destruction and in-house transport).

III.1. **Sources of Information**

Before beginning activities with hazardous materials, risks relating to the use or release of hazardous materials have to be calculated.
The following can serve as sources of information:

- Marking on the label of the bottle (hazard symbol, R/S statements)
- Search in hazardous materials registration programmes
- Reference books. Loose-leaf collections (e.g. Kühn/Birett "Gefährliche Arbeitsstoffe"; Roth/Weller "Gefährliche chemische Reaktionen")
- Safety data sheets (available for staff in the internet / from suppliers)
- Operating instructions (available for staff in the internet / from suppliers)

III.2. **Operating Instructions**

There have to be operating instructions for special appliances (e.g. autoclaves, centrifuges, etc.)

III.3. **Labelling**

III.3.1 Containers have to be labelled according to their contents. The common name of the material should be written out in full; and if necessary, constituents, hazard pictograms (GHS).

	E	Explosionsgefährlich		GHS 01 Explosionsgefährlich
	F+	Hochentzündlich		GHS 02 Entzündlich
	F	Leichtentzündlich		GHS 02 Entzündlich
	O	Brandfördernd		GHS 03 Brandfördernd
Kein Symbol				GHS 04 Unter Druck stehende Gase
	C	Ätzend		GHS 05 Ätzend
	T+	Sehr Giftig		GHS 06 Giftig
	T	Giftig		GHS 06 Giftig
	Xi	Reizend		GHS 07 Reizend
	Xn	Gesundheitsschädlich		GHS 08 Gesundheitsschädlich
	N	Umweltschädlich		GHS 09 Umweltschädlich

III.4. **Keeping, Storage**

III.4.1 Hazardous materials may only be kept in the laboratories in the amounts necessary for the progress of working activities.
Storage of hazardous materials is only authorized in designated safety cabinets and in the chemical store room.

III.4.2 Fume cupboards in which experiments are being carried out may only house the appliances and chemicals necessary for the immediate continuation of working activities.

III.4.3 Chemicals and biogenic materials may not be kept or stored in receptacles which can be confused with foodstuffs (drink bottles, jam jars, etc.) Foodstuffs may not be stored together with hazardous materials.

III.4.4 Materials which may react together dangerously in the case of leakage or release may not be kept in the immediate vicinity of each other. Contact between them can be prevented by e.g. placing them in separate catch basins.

III.4.5 Chemicals which can give rise to gases which are flammable, dangerous to health or damaging to the environment are to be kept in suitable tightly sealed vessels.

III.4.6 **Extremely toxic and toxic materials** are to be kept under lock and key (e.g. in a locked poison cabinet) and may only be accessed by competent persons. A poisons book is to be kept.

III.4.7 The quantities of **flammable liquids** in the laboratory is to be limited to daily requirements and may be stored in containers no bigger than 1 litre for ordinary use. In the case of higher daily requirements, glass containers up to a volume of 2.5 litres, metal containers up to a volume of 10 litres and plastic containers up to a volume of max. 5 litres may be used.
After use, solvents are to be stored either in safety cabinets or in the storage room provided for this purpose. They may not be stored in the fume cupboards.

III.4.8 Combustible liquids and highly or slightly flammable hazardous materials may only be stored in **refrigerators or freezer cabinets** as long as there are no sources of ignition present. (The following are sources of ignition: lights, light switches, temperature controllers and automatic defrosting systems).

III.4.9 The stock of **gas cartridges and aerosol cans** using highly flammable propane / butane gas as propellants are to be limited to daily requirements. Larger amounts are to be stored in the pressurized gas cylinder store or in safety cabinets for pressurized gas cylinders; aerosol cans are also to be stored in store rooms or safety cabinets for flammable liquids.

III.4.10 When using liquid gas (propane, butane) as fuel gas, a maximum of one liquid gas cylinder with a maximum net weight of five kilograms may be connected on the ground floor; replacement cylinders may not be kept in the laboratory. The cylinder must be kept in a protected area (e.g. gas cylinder cabinet). Attention must be paid to protected areas around the site of installation, in which sources of ignition are prohibited.

III.5. Hygiene Measures

III.5.1 Working environments and fume cupboards are always to be kept clean.

III.5.2 Hazardous materials may never be pipetted by mouth.

III.5.3 Receptacles for chemicals are to be kept externally clean such that they can be held without danger.

III.5.4 Dirty appliances or working surfaces are to be cleaned without delay. Working surfaces are to be designed in such a way that cleaning is possible at any time.

III.5.5 The removal of hazardous materials e.g. from the floor surfaces must be carried out by the laboratory technician himself or herself and may not be left to the cleaning staff.

III.5.6 Eating, drinking and smoking in the laboratory is prohibited.

III.5.7 The use of mobile phones in the laboratory is prohibited. This ban is meant to prevent the accidental absorption of hazardous materials through the use of a possibly contaminated mobile phone.

III.6. Transport

III.6.1 For the transport of receptacles containing hazardous materials which are not break proof, buckets or other transport aids are to be used which can take up the whole contents in the event of a break. **Gas cylinders** may not be carried by the neck.

III.6.2 **Pressurized gas cylinders** may only be transported on gas cylinder transport trolleys and only with the gas cylinder protective gaps screwed on. When not in use, gas cylinders should be stored in a pressurized gas cylinder cupboard without exception.

III.6.3 **Deep-frozen liquefied gases** (e.g. liquid nitrogen and helium) may be transported in lifts. However, it must be ensured that no person rides with or gets into the lift.

Directions for the transport of hazardous materials in the lifts in Heinrichstraße 28:

It should be basically assumed that only trained personnel carry out the transport of hazardous materials. The lift is reserved by means of a master key in the lift cab, and from this time on the lift will only react to commands given in the lift cab. Commands from the various floors will not be served. The specific procedure is as follows: PERSON A calls the lift to the desired stop, enters the empty car, initiates a special trip by actuating the priority key in the car, leaves the car, loads the cab with the open doors, enters the desired destination stop and leaves the car. PERSON B takes advantage of the loading time and goes to the destination stop. The load arrives at the des-

tination stop, where it is met by PERSON B. PERSON B enters the car and unloads the loaded material. After the car is emptied, the key is removed from the key switch, and the lift resumes normal operation, responding to commands from inside and outside the cab.

IV. PERSONAL PROTECTIVE EQUIPMENT

When working with hazards, the required protective equipment must be worn.

IV.1. Protective Clothing

IV.1.1 A protective laboratory coat should be worn in the laboratory (sufficiently long with long sleeves) and its fabric should not have an unduly high risk of burning and melting in the event of fire. Suitable fabrics are cotton or mixed textiles (cotton and polyester) with a cotton content ≥ 35 %.

IV.1.2 Laboratory coats which have been contaminated with chemicals must be taken off immediately. A sufficient number of replacement laboratory coats must be kept in the stores.
Laboratory coats should only be worn in the laboratory. They should be taken off before entering social, seminar or office rooms or the library.

IV.1.3 Only sturdy, closed and slip-proof footwear should be worn.

IV.2. Safety Goggles

IV.1.2 In the case of danger to the eyes, all persons in the laboratory should wear safety goggles with side guards. There is a danger to the eyes when dealing with hazardous materials (also when other persons are working with them in the laboratory) e.g. when work is carried out under vacuum or pressure and when there is a risk of breakage or flying parts.

IV.2.2 Persons wearing glasses either have to wear safety goggles which can be worn over their glasses or have a pair of safety goggles with optical lenses made.

IV.3. Safety Gloves

IV.1.3 Due to their thinness, the most common safety gloves for use in the laboratory (latex or disposable nitrile gloves) mostly protect only against splashing. In the case of contact with chemicals, penetration time is often within minutes. For this reason, gloves should be changed frequently.

IV.3.2 If skin contact cannot be ruled out, suitable protective gloves should be worn when undertaking activities using hazardous materials which have caustic, skin-irritating, sensitizing, skin-degreasing (solvents) characteristics. The gloves have to be sufficiently resistant against chemicals (resistance specifications can be compared in catalogues of relevant manufacturers) and have to comply with European safety standards ("CE" symbol, pictogram, performance indexes and package information leaflet on package).

IV.3.3 Due to their very short penetration times, disposable gloves have to be changed immediately after contact with chemicals.

IV.3.4 Safety gloves with limited chemical resistance are to be discarded in good time. Sweaty gloves are to be thoroughly dried after use.

IV.3.5 Objects which may not come into contact with chemicals as laid down in regulations are not allowed to be handled or touched using gloves. (E.g. door handles, books, laboratory notebooks.)

IV.4. Respiratory Protection

IV.4.1 When dealing with toxic gases (e.g. chlorine, carbon monoxide), it is necessary to carry emergency gas masks or to have them ready at a safe place near the work area (e.g. hallway cupboard).

V. APPLIANCES AND ELECTRICAL EQUIPMENT

Appliances may only be used in accordance with regulations.
Everybody carrying out activities in the laboratory is obliged to familiarize themselves with appliances before using them (e.g. schooling, information and operating instructions).

V.1. **Faulty Equipment and Defective Electrical Appliances**

Defective appliances (e.g. appliances with defective charred cables, plugs with corroded contact areas, mushroom heaters with damaged mesh) must be immediately withdrawn from service and their repair arranged.

V.2. **Deployment of Pumps**
Gases extracted by pumps must be conducted into the exhaust duct by means of the fume cupboards. Oil pumps have to be equipped with oil mist filters.

V.3. Operating **autoclaves, rotary evaporators, pressure and vacuum equipment, and centrifuges** etc. demands special attention and may only be carried out after thorough instruction. Attention must be paid to the operating instructions of the appliances.
Together with the operating manual, these are to be kept at a place easily accessible for each member of staff.

V.4. **Repairs of Electrical Laboratory Appliances**
May only be carried out by qualified persons.

V.5. **Prohibited Use**

Coffee machines, electric kettles, etc, may not be used in the laboratory.

V.6. **Heat Generation from Appliances**
Appliances whose heat has to be dissipated through ventilation grilles or slots (e.g. visual displays), are to be set up in such a way that the ventilation openings are free and the air circulation is not obstructed. Paper, in particular, should not be placed on ventilation slots.

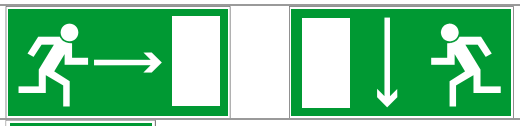
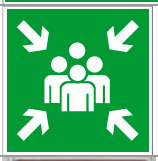
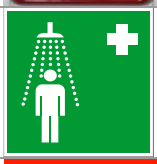
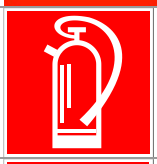
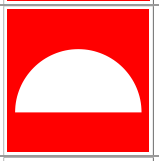
V.7. Laboratory appliances are to be **turned off after completion of work**.

V.8. **Heating Appliances** (e.g. compartment driers, magnetic stirrers, heating baths) may only be operated without supervision when they are equipped with an emergency cut-out in cases of temperature regulation failure or when the nominal temperature cannot be exceeded due to too little heat output.

V.9. **Machinery and Appliances** of any type may not be started up without corresponding previous instruction by the supervising head of institute or the specially delegated qualified person.

VI. SAFETY AND PROTECTION EQUIPMENT

VI.1. Everybody carrying out activities in the laboratory must be instructed about the locations and functions of the following safety equipment closest to the working place.

Safety Equipment	**Label**
Escape routes and emergency exists	
Assembly point	
Main switch (i.e. emergency stop) of the electrical power supply	
Emergency showers (body shower and eye-wash station)	 
Fire alarm (push button alarm)	
Fire extinguisher	
Fire blankets and fire bucket	
First aid materials (first-aid kit)	
Chemical binder (absorbent granulate, mercury binding agent)	

VI.2. All safety and protection equipment is to be maintained in working order and must always be visible with clear access. (No objects may be hung or otherwise fastened on to this equipment)

VI.3. A clearly visible sticker bearing the emergency numbers (see page two) must be affixed to each phone or in the immediate vicinity.

VI.4. **Container for chemical binders** and fire bucket are to be refilled after use.

VI.5. **Used fire extinguishers** and fire extinguishers with broken lead seals are to be reported to the Central Fire Protection Office at the Department of Building and Technology Services.

VI.6. **Traffic, escape and emergency routes** must be kept clear at all times. They are not interim working or storage areas. No clothing or bags, etc, may be left in the corridors in front of the laboratories. They should be placed in lockers. Furthermore, it must be ensured that the windows marked as “emergency exits” are not obstructed. Chairs may only be placed in front of the desks by the windows.

VI.7. **Excessive fire loads** in the laboratories and hallways are to be removed. Polystyrene packaging material presents a special danger in the case of fire because it leads to copious production of smoke.

VI.8. Noticeable shortcomings of technical safety equipment are to be reported to your superior without delay.

VII. WASTE DISPOSAL

VII.1. Hazardous materials must principally **not be disposed of in waste water**.

VII.2. **Reactive waste materials / old chemicals** e.g. alkali metals, peroxides, hydrides, Raney-nickel catalysts are to be converted into less dangerous materials in a proper way.

VII.3. **Solvent Wastes**

VII.3.1 Solvent wastes are to be separated according to whether they are **halogen free** or **halogen containing** and collected in the available waste containers in the hazardous waste store.

VII.3.2 Solids in solvent wastes are to be filtered out before disposal.

VII.3.3 Two-phase solvent wastes are to be separated before disposal in separating funnels.

VII.3.4 No containers made of aluminium or steel are to be used (danger of leakage through corrosion when acids are contained in the solvents).

VII.4. **Labelling**
Waste containers are to be marked according to the hazardous substances ordinance with the name of the material, ingredients and the hazard symbol according to the material or characteristics of the mixture.

VII.5. **Keeping / Storage**
Inside the laboratory, hazardous wastes are to be stored as far as possible under the same safety conditions (e.g. solvent wastes in the safety cabinet) as all other hazardous materials.
Keeping waste canisters in basins and in the fume cupboard is prohibited.

VII.6. **Broken glass and other sharp objects** are to be collected in sharps containers.

VII.7. **Spilled mercury** is to be soaked up with a suitable absorbent granulate (e.g. Mercurisorb) and handed over to the waste disposal officer in a sealed container or placed in a chemical waste store.

VII.8. **Glass Waste**
Empty chemical bottles and glass appliances must be returned in a clean state. They should contain no residual chemicals.

VII.9. **Plastic Waste**
Vessels and objects contaminated with plastic waste may not be placed in the household rubbish. They should be handed over to the waste disposal officer or placed in the chemical waste store.

VII.10. **Appliances**

Contaminated appliances or appliances containing contaminants (e.g. asbestos, mercury, etc.), are to be disposed of after consulting the waste disposal officer.

VII.11. **Cleaning and Wiping Cloths, Disposable Gloves**

VII.11.1 Contaminated cleaning and wiping cloths and disposable gloves are to be collected and placed in a suitable container.

VII.11.2 If they are contaminated with spontaneously inflammable or flammable materials (e.g. combustible solvent), they have to be collected in a special disposal container (to prevent fire). No containers made of plastic may be used.

VII.12. **Solid Operating Material**

Filters and absorbent materials are to be collected in a suitable container and handed in.

VIII. BEHAVIOUR IN HAZARDOUS SITUATIONS

If hazardous situations occur (e.g. release of gases and vapours, spillages of dangerous liquids, fire), the following measures apply:

- **KEEP CALM**
- **ENSURE YOUR OWN SAFETY BEFORE GIVING HELP TO OTHERS**
- **AS FAST AS POSSIBLE MAKE AN EMERGENCY PHONE CALL** to the

Works Fire Service**,** Phone (internal): 2222 (weekdays from 08:00 to 16:00 hours) or Fire Service 122

VIII. 1. **Measures to be Taken When Hazardous Materials are Released:**

The following precautions are to be carried out depending on the degree of danger:

- Stop work and make running experiments safe
- Pay attention to protecting yourself
- Limit contamination (e.g. by closing windows and doors)
- Clear the working area concerned
- Inform superior(s), the safety representative and safety experts
- Announcement and installation of keep out notices
- Entry to hazardous areas by expressly authorized persons only
- Arrange maintenance or cleaning by qualified and specially instructed personnel
- Carry out all work in the hazardous areas only when wearing suitable and sufficient personal protective equipment
- Check cleaning and maintenance before recommissioning the work rooms and working areas
- Spilled chemicals are to be disposed of in the hazardous waste store

An **uncontrolled release of combustible gas** is extremely dangerous, so take the following measures:

- Shut off gas supply (if safe to do so)
- Ventilate room or area, use respiratory protection
- Keep away sources of ignition, avoid sparks
- Shut off electrical power outside the hazardous area
- Inform superior(s), the safety representative and safety experts
- Prevent entry to hazardous area by unauthorized persons

VIII. 2. **Measures During a Fire**

- Keep calm, and avoid hasty unconsidered actions!

- If you yourself are in danger (smoke, fire can no longer be extinguished), leave the building without delay. Activate push button fire alarm located on the same floor and request laboratory staff to evacuate the building.
- Initial fires are to be fought with fire extinguishers immediately.
- The simultaneous use of several fire extinguishers is more effective than their serial use.
- Attention must be paid to the fact that some chemicals (e.g. metals such as sodium, potassium, magnesium) require special extinguishing agents.
- Due to danger of re-ignition, extinguished sources of fire are to be constantly supervised until they have cooled down.
- Shut down endangered experiments and turn off gas, electricity and possibly also water. In the case of danger of explosion, the power supply outside the hazardous area must also be shut off.
- Warn endangered persons or request them to leave the rooms.
- Secure the accident site.
- All doors are to be closed. (But not locked!) Windows are to be kept closed.
- Take dangerous materials (e.g. pressurized gas cylinders) out of the danger zone – as far as possible without putting yourself in danger.

VIII.3. All accidents and damaging events are to be reported to the responsible manager. In the case of accidents where person(s) are injured, an accident report must be filed.

VIII.4. **Alerting Others**

VIII.4.1 **Evacuation of Building**

On hearing the alarm (building siren), leave the building. All persons are to follow the escape routes and gather at the assembly point.

VIII.4.2 In the case of an evacuation alarm, all staff are to leave the building.
The doors are to be closed but not locked.

VIII.5. **First Aid Measures in the Case of Injury (e.g. contact with hazardous materials)**

The following measures should be carried out until the first-responders arrive. Attention is to be paid to the details of first aid in the safety data sheets.

<u>Eyes:</u>
Rinse out eyes with eyelids opened wide with large amounts of water while protecting uninjured eye at the next eye-wash station or by using an eye douche.

<u>Respiratory organs:</u>
Remove injured person from danger area and provide fresh air, loosen tight clothing.

<u>Skin:</u>
Remove contaminated clothing. Rinse injured areas of skin with large amounts of water (e.g. with the emergency shower).

<u>Swallowing:</u>
Rinse out mouth and pharynx vigorously. Other first aid measures can be found in the safety data sheet.

<u>Burns and scalds:</u>
Remove clothing that is contaminated or saturated with hot material immediately. Immerse affected body areas in cold water immediately or hold under running water until pain subsides.