



# General laboratory regulation

**As of:** 2018

**Scope of application:** Laboratory for inorganic and analytical chemistry and laboratory for applied material science

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This general laboratory regulation is for the faculty of chemistry, in addition to which the following regulations are to be observed:

1. The specific operating instructions where emphasis is laid on the team's or practical's specific hazards.
2. The operating instructions relating to the particular work, substance or group of substances.

### 1. Preliminary note

- When working with gaseous, liquid and solid hazardous substances as well as hazardous substances which exist as dust, there are special rules of conduct and precautionary measures to take.
- Hazardous materials are substances or preparations with the following characteristics.
- Hazard symbols of the present EU classification system and **the new GHS pictograms GHS**:

**GHS/CLP Memocard**  
www.understandthelabel.org.uk




<b>DANGER</b>		Explosive – sensitive to fire, heat, vibration, or friction.	<b>Keep your distance!</b> <b>Handle with care!</b> <b>No ignition sources!</b> <b>Wear protective clothing!</b>
		Flammable – serious fires if exposed to sparks, flames, heat.	
		Causes or intensifies fire. Increases fire hazard.	
<b>WARNING</b>		Container explodes if heated. Very cold liquid burns when touched.	<b>Do not heat!</b> <b>No skin contact!</b>
		Toxic to aquatic organisms. Long term damage to the ecosystem.	<b>Do not pour down drains!</b>

Version: 10/12 **Always read the label or the Safety Data Sheet and follow the instructions**

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<b>DANGER</b>		Life-threatening even in small amounts and brief exposure.	<b>Handle with care!</b> <b>Never swallow or inhale!</b> <b>Avoid skin and eye contact!</b>
		Causes very serious long-term health effects.	
		Causes skin and eye burns.	
<b>WARNING</b>		Destruction of metals.	<b>Handle with care!</b>
		Skin and eye irritation. Adverse health effects.	<b>Don't swallow, touch or inhale!</b>
		Damage to the ozone layer.	<b>Avoid release!</b>

Version: 10/12 **Always read the label or the Safety Data Sheet and follow the instructions**



- Substances or preparations whose use could give rise to the production of dangerous or explosive substances are also to be classified as the hazardous materials. Dangerous biological material from biological and genetic engineering, as well as pathogenic material belongs to the hazardous materials.
- The intake of substances in the human body can occur by inhalation into the lungs, by absorption through the skin, the mucous membrane and the digestive tract.

## 2. Basic rules

- Before working with hazardous substances and before implementing any activity that could give rise to hazardous substances, the risk potential must be investigated. The sources of information are as follows: reference literature, producer's catalogues, trader's catalogues and safety guidelines (data sheets).
- Advice for to special hazards (H-phrases) and safety precautions (P-phrases) are strictly to be observed.
- Substances whose hazardous information could not be found (particularly newly synthesised substances), must be considered as dangerous and should be treated at least according to the P-phrases 260 and 262.
- The content of the following writings should be observed in all laboratories:
  - Working Safely in Laboratories (Basic Principles and Guidelines DGUV Information 213-851)
  - General laboratory regulation
  - Further team related and work related operating instructions, as well as substance or substance groups related operating instructions, and miscellaneous instructions from the superiors.
- Hazardous substances should not be kept or stored in such a way that they could be mistaken for edible items.
- Hazardous substances should be stored or kept in such a way that only well informed persons could have access to them. Suitably trained laboratory personnel are well informed persons.
- Flammable liquids as well as highly flammable and flammable substances should only be stored in fridges or deep freezers whose interiors are protected from explosion.



- All standing vessels must be labelled with names and hazard symbols of the substances contained, big (> 1000 ml) vessels must be fully labelled, that means including the H- and P-phrases.
- Flammable liquids, which are used in small quantities at the place of work, should only be stored in containers with maximum nominal volume of 1 litre. At the place of work in the laboratory, only the use of a maximum of 1 litre breakable standing vessel is allowed.
- Avoid the inhalation of vapours and dusts as well as the contact of hazardous substances with skin and eyes. Work in the hood, when dealing with gas forming, dust forming hazardous substances or hazardous substances with high vapour pressure. In any case it must absolutely be sure, that the colleagues are not endangered.
- Goggles (protection glasses with laps at the sides) must always be worn in the laboratory. Users of medicated glasses must either wear medicated goggles or wear goggles over their own medicated glasses.
- Eating, drinking, smoking and storage of food items in the laboratory is prohibited.
- Materials for body protection (goggles, facial protection and appropriate gloves) which are stipulated in the S- phrases and operating instructions should be used.
- When working with compressed gases, the operating instructions entitled „Druckgasbehälter“ should be observed.
- Inspect electrical appliances before use.
- When working in the laboratory a sufficiently long laboratory coat with long sleeves is to be worn. Laboratory coats made of commercially fibres are permissible, provided no increased hazard in case of fire is to be expected due to their burning or melting properties. Only strong impact protected footwear should be worn.
- The laboratory and place of work must be clean and cleared. (Appliances which are contaminated with hazardous substances must immediately be cleaned). Do not keep objects on the floor.
- A colleague is to be accompanied when carrying out dangerous work.
- Unauthorised persons are prohibited in the laboratory.



- Escape routes and rescue ways should be kept clear. Chemicals and substances which promote fire (e.g. paper, wood, polystyrene) should not be kept in corridors; wheelbarrows should not be kept in the corridors.

### **3. Common protection and safety equipment**

- The front slide of the hood should always be closed. The efficiency of the hood should be checked before starting work (e.g. through the shaking of fine wool). Faulty hoods should not be used.
- Smoke trapping doors must always remain closed.
- Keep yourself informed about the warning signals for the evacuation of the building.
- Keep yourself informed about the location and method of operation of emergency shut off devices for gas, power and water supplies. The central office (Leitwarte, Tel. 5972) should immediately be informed after tampering with gas, power or water supplies. Interference with the supply systems are limited to emergency cases.
- Fire extinguishers, firefighting sand containers and containers for absorption materials must be refilled after use. Used fire extinguishers, even the ones with faulty seals should be reported to the central office (Leitwarte, Tel. 5972). The content of the first aid boxes should be regularly checked and restocked if need be (University first aid service, Tel. 6352)
- The efficiency of the emergency shower (body and eye shower) is to be checked monthly.
- Floor water-inlet and washbasin-siphons are regularly to be filled with water. Water outlets which are located under the water taps, with the yellow ring in the front, flow into the internal cooling circuit. Only cooling water should be allowed into these outlets.



## **4. Conduct in dangerous situations**

- Human protection is more important than material protection. When dangerous situations occur e.g. fire, release of gaseous harmful substances, leakage of dangerous liquids and solvents, measures which are intended to stop or minimize the danger must be carried out immediately and the following rules of conduct must be observed:
- Alarm plan (located next to the lifts)
- Conduct in the event of fire (s. point 6 of this operating instruction)
- Conduct in the event of alarm (s. point 7 of this operating instruction)
- Keep calm!
- Warn any endangered persons. If necessary request them to leave the rooms and arrange the evacuation of all the adjacent laboratories. Resumption of work should only take place after the elimination of the hazard.
- Stop all experiments. Turn off gas, power and possibly water. Cooling water must continue to run.
- Assistants and heads of the teams or practical as well as the service office should be informed (Tel. internal 112)
- If a danger of explosion or another hazard like the discharge of toxic gases arises, the nearest fire alarm box in the staircase should be activated so that that part of the building can be alerted and evacuated.
- On suspicion of health damage, indisposition or allergic skin reaction, which could occur as a result of contact with the chemicals, consult a physician; the head of the team should be informed.
- A report of the accident is to be prepared immediately for the office of the dean of the faculty of chemistry. The forms for the report are available there.
- Every work with hazardous substances should be stopped in the incident of failure of ventilation system. Leave the laboratory after turning off the devices and inform the head of the team.



## 5. Principles of the first aid service

- The following listed principles indicate first aid measures typical for the laboratory that every member of the faculty is obliged to follow.
- Further tips specific to accidents in chemistry are contained in chapter 11 of the brochure „Sicheres Arbeiten in chemischen Laboratorien“ („Working securely in chemical laboratories“). Furthermore, attention should be drawn to the recurring free first aid course available at the University of Bielefeld. The university first aid service at C01-227 is reachable during the (Dienstzeit) opening hours.
- Personal security should be considered in all first aid services. Make the internal emergency call (112) as quickly as possible.
- Rescue the endangered persons and take them to the fresh air.
- Put out fire, especially fire on clothes.
- Rinse contaminated skin with plenty of water.
- Use of the emergency shower: First remove all clothes which are stained with chemicals, in emergency cases remove everything; clean with water and soap.
- For eye injuries, use the ocular (eye) shower to wash both eyes for at least 10 min. Keep the eyes wide open and wash from outside in the direction of the nose bridge.
- Do not leave the injured persons until the arrival of the emergency service.
- Guarantee information to the physician by collecting the vomit and chemicals.

## 6. General emergency call

### 6.1 Fire / accident: 112

The central service office answers the call, 24 hours a day.

Make points in any emergency calls in the following order:

- **Where** did the accident occur? / Information about the location.
- **What** happened? / Fire, burns, fall, slump etc.
- **Which** injuries? / Type and location on the body.
- **How** many injured persons? / number.

Wait until the central office terminates the call, there could be important questions to be answered.



## **6.2 Emergency numbers in cases of poisoning**

In cases of poisoning contact the places listed below for relevant information about the current situation:

Beratungsstelle für Vergiftungserscheinungen und Embryonaltoxikologie

Spandauer Damm 130, 14050 Berlin

Tel. 0-(0 30)-1 92 40

Zentrum für Kinderheilkunde d. Rhein.

Friedrich-Wilhelm Universität Bonn,

Adenauer Allee 119, 53113 Bonn

Tel. 0-(02 28) 1 92 40

Further Information and telephone numbers are available in the library on the special shelf (GIFT- LISTE "Sicherheit im Labor" Q141).

On the Internet at [www.giftnotrufde/d-zentr.htm](http://www.giftnotrufde/d-zentr.htm)

## **7. Conduct in the event of fire**

- Keep calm and avoid panic. If the fire is just beginning, put it out with appropriate means. (Inform the head of the team or practical). When putting out fire consider retreat possibilities (possible escape routes). Smoke blocks the way very quickly.

### **Emerging (small) fire**

- A Fire which has not started to attack equipment is referred to as emerging fire e.g. burning oil, burning solvent in the apparatus etc.
- Putting out fire
- Use the appropriate fire extinguisher e.g. no water for metals or burning oil. Consider special hazards like poisonous gases, vapours etc. Remove flammable substances, and compressed gas containers from the vicinity of the fire.



### **Advanced fire**

- A Fire which has already started to attack equipment is referred to as advanced fire. Activate the fire alarm in the staircase; remove injured persons from the vicinity of the fire. Inform the service office (emergency call 112) about the fires location, extent, injured persons and possibly number of persons trapped in the fire, special hazards: compressed gas bottles, poisonous gases, large quantities of solvents etc.
- Leave the building from the nearest escape route.
- Do not use the lifts.
- Assemble at the parking lot north west of block F (Alarm meeting point C). Check if everybody is present. Think who might have been trapped in the fire.
- Direct the fire brigade. This should be done by someone who is well informed about the area (a local expert).
- Keep the entrance for the fire brigade free. Vehicles should be parked at the parking lots. Nobody resumes work until the dean or his representative gives the all clear.

## **8. Conduct in the event of alarm**

- When the alarm begins to sound at the corridors (steady interrupted tone) or at request, everybody has to leave the building through the emergency exits and should assemble at the parking lot north west of block F (alarm meeting point C).
- Running experiments should be stopped and secured (removal of the heating baths, continued operation of the cooling systems etc.).
- One should make sure that his colleagues depart the room with him. Disabled persons and visitors should be helped.
- When departing the rooms keep all doors closed.
- The escape routes of block E and F are the staircases. Do not use the lifts. Emergency exits are located in each case at the underground level (02) or as connecting corridors to the next part of the building in each floor.
- After gathering at the meeting point, it is necessary that the students and the official personnel cross-check themselves allowing a fast assessment of the whereabouts of everybody. The leader or the safety personnel should be informed about everybodys location in the building.



- The instructions of the safety personnel must be carried out.
- Motor vehicles must be parked at the parking lots in order to create a free entrance for the emergency vehicles (fire brigade, ambulance, police etc.).
- Nobody resumes work until the dean or his representative gives the all clear/go ahead.

## **9. Adequate disposal of waste**

- Reduce the amount of hazardous waste to a minimum by using only the needed amounts of substances in reactions. Reuse or recycling, e.g. of solvents, has preference over disposal.
- Each hazardous waste should be collected separately. In this respect, follow the instructions of the special waste disposal department (Tel. 2085, 2109).
- The disposal of hazardous wastes should be planned in such an interval that storage, transport and destruction of the substance do not lead to any danger.

## **10. Further Specific rules**

- Arbeiten mit Röntgenstrahlung sind erst nach Unterweisung durch entsprechend geschultes Personal (Dr. David Enseling) durchzuführen. Die Unterweisung ist einmal jährlich aufzufrischen.
- Working with Xray is only allowed after getting an safety introduction by Dr. David Enseling. This introduction must be refreshed once a year.