

**Ruhr-Universität Bochum**

Lehrstuhl für Verfahrens- und Umwelttechnik

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# **General Laboratory Guidelines**

**Affects:**

**Technikumlaboratorium IDN 02 / 733; 743**

**Technikumshalle IBN 02 / 40**

**Fachlabor IBN 01 / 51**

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## **Behavior in the laboratory**

### **1.1 Basics**

Only authorized personnel are permitted to be present and work in the laboratories. In the entire laboratory area and in the corridors immediately adjoining laboratories, drinking, eating and the application of cosmetics are not permitted. The kitchen (IB5/106) and the office are available to leave your food in. In all buildings of the Ruhr-University smoking is not permitted. Workplaces are to be kept clean and orderly. In the event of malfunction or failure of the ventilation system, work with hazardous materials must cease immediately and report it to the laboratory supervisor. During projects in laboratories involving hazardous materials, an additional person, trained in the subject matter, must always be present.

- Before starting any new work it is your responsibility to inform the laboratory supervisor of any risks you have determined and what preventative measures you have put in place
- The operator may only leave the work area during an experiment (including preparation work before and after the experiment) if constant supervision of the experiment is not required (e.g. with fully automated plant) or a professionally qualified person continues to supervise
- When you are working in the laboratory at least one further professionally qualified person must be informed. However, it is better if they are present in the laboratory (If the operator is a student the presence of a second person is compulsory. The student's advisor is responsible for organizing the presence of a second person)
- When dealing with dangerous materials, making extensive alteration or operate plant's the presence of another person is Mandatory.
- To work outside the usual working hours (8-16 o'clock) authorization from the chair of the department is required. You are responsible for arranging the presence of a second person.
- You must check and prove that all safety facilities (automatic valves etc.) work
- Obvious safety hazards should be removed if possible or reported to the laboratory supervisor

### **1.2 Chemicals**

Always check the Material Safety Data Sheet (MSDS) of all required chemicals before purchasing:

- Choose a substitute for dangerous chemicals if possible
- What protection measure is required?

Keep only a limited amount of the chemicals at your work place, Store...

- the chemicals only in room IDN02/733
- chemicals in the office is prohibited
- combustible liquids in the special cabinet all containers (glasses, flasks, bottles) must be labeled
- Chemical waste must be disposed in the special container in the room IDN02/733

### 1.3 Gases

Gas cylinders...

- secure the gas cylinders from falling
- always put the users name on the gas cylinders
- gas bottles containing poisonous, corrosive, or cancer-causing gases must be used in an constantly ventilated area (under the extraction hood or in the gas bottle cupboard)
- use only the gases you need in the area you are working in
- close the valve after using the gas bottle and when the bottle is empty
- check gas bottles are fitted with suitable pressure control valves
- in case of emergency breathing masks with suitable filters are available

*For transportation*

- cap protection must be tight on the gas cylinder before transportation
- on a bottle trolley, secured by safety chains
- two persons are required for the transport with the elevator, no other people can travel in the elevator at the same time

#### **Note!**

Dispose of broken glass and needles only into the appropriate container in room ICFW02/300g

### 1.4 Electrical equipment

Electrical equipment...

...all equipment must be tested and determined to be in functioning and safe condition before use (applying the available instructions for use when appropriate). Obviously defective equipment must not be used.

...Movable electrical equipment may only be used if it is provided with a valid inspection badge. Coworkers are required to check the inspection badge before using the equipment.

### 1.5 House-Alarm

House-Alarm is an acoustic continuous signal (bells)

- All persons must leave the building immediately
- All work has to be stopped at once
- Gas, water and air-flow must be switched off
- If possible, switch off plants and equipment
- Close windows and doors, but do not lock them
- Use the designated escape routes
- Do not use the lifts
- Go to the meeting point: N-Southstreet compared with the NC Building
- The gathering may only be abandoned, if you have unsubscribed from a superior officer.
- The building may only be entered again with the permission of the officers in charge. (The continuous signal is switched off!)



## 1.6 Fire extinguishers...

- must always be accessible and the access must not be blocked.
- Fire-protection doors must be kept closed
- Storage of packaging in laboratories is not allowed
- Fire extinguishers are available in large amounts, please inform yourself about their locations. Fire extinguish exercises are held regularly by the department of safety protection at the workplace. The appointments will be announced

## 1.7 Emergency showers and eye wash

- Emergency showers and eye wash must always be accessible and the access must not be blocked

- Locations of the

- emergency showers: IDN02/743

IDN02/733

- eye wash: IDN02/743 2x

IDN02/733 1x



Emergency exits, escape routes, passages, fire extinguishers and stairs must always be accessible and the access must not be blocked.



## 1.8 Emergency switch-off

Emergency switch-off for the electricity in the laboratory switches off the current in the laboratory (all sockets in the height of the laboratory desks)

Emergency switch-off: besides the emergency exits

## 1.9 Procedures in Case of Accidents

If necessary, give first aid

First-aid kits are at: IDN 02/751

IBN 01/51

IBN 02/40

Emergency call/first-aid attendants by the "Leitwarte" Tel. 3333 or 23333 with giving details about:

- Where has it happened
- What has happened
- How many people are injured
- Which injuries
- Wait for a reply by the "Leitwarte"

First-aid attendant at the Institute are:

Frau Krause (IDN 02/751 Tel.: 27307)

Herr Dr. Ewert (IB5/51 Tel.: 26400)

First-aid attendants' training is held regularly and should be visited by as many employees as possible. Accidents must be reported, including those which have happened on business trips or on the way to work

## 2.0 Procedures in Case of Fire

Watch out for personal safety whenever giving aid. Report fires immediately by using the fire alarms (smash glass window, press button firmly) and/or by calling the central emergency service (Tel. 3333) and reporting.

- where the fire is
- what is on fire
- if people are in serious danger

**Note:** Fire brigade will come to the north or south ends of the buildings. Warn other people and bring endangered persons to safety. Use the designated escape routes. Do not use the lifts  
Turn off electricity and gas wherever possible (use emergency switch off for laboratory current and gas). Notice the general directive for gas-handling (ZGV). Give directions to the fire brigade and the emergency services. When the building alarm sounds, vacate the building and as far as possible remove personal possessions. If possible, turn off apparatuses. Human safety comes first, protection of material property second.

## 2.1 Operating Instructions

### *General*

Careful reading is absolutely necessary

Operating instructions for laboratories:

- Who may work in the laboratory
- Operation of laboratory plants supervised/unsupervised
- Handling of dangerous substances
- Where and how are chemicals stored/disposed
- Handling of electrical equipment, pumps

### *Operating instructions for laboratory set ups:*

For each set up and device an individual operating instruction needs to be prepared, or the operating instruction delivered by the manufacturer needs to be available. The operating mode of each set up has to be explained comprehensible. Each potential risk (associated with the operation) has to be mentioned. (Evaluation of potential risks)

### *Operating instructions for chemicals:*

An operating instruction for (nearly) any chemicals (hazardous substances) has to be prepared. The relevant information is available in the safety data sheets for chemicals.

### *Operating instructions for the use of pressurized gases in secure cabinets*

- Which gases in which cabinets
- How are gas cylinders connected / changed
- How are gas cylinders transported

### *Operating instructions secure cabinets for solvents:*

- What may / may not be stored
- What are the maximum amounts
- What to do, if solvents have been spilled in the cabinet

## **2.2 Health Protection**

### *Personal protective equipment*

- Wear a sufficiently long sized lab coat with long sleeves for handling of chemicals
- Lab coats and normal clothing have to be stored in different cabinets
- It is prohibited to wear lab coats in the cafeteria
- Goggles must have a side protection
- Sufficient protective gloves have to be chosen regarding to the actual application
- Written work does not require a stay in the lab should instead be done in the one of the written-work areas provided (e.g. the office or computer room) outside the laboratory area
- Wear a breathing protection while handling dusty or isolation materials, e.g. a light gas mask with filter (carcinogenic substances) or a fine dust protection

### *Workstations*

- The office chair needs to have five similar bases or limited rollers. Also the height should be adjustable
- Persons who can't reach a solid stand with both legs on the floor while sitting, should use a footrest
- The workbench should have a height of 72 cm. The desk top must be non-reflecting and the minimum size is 160 cm x 80 cm
- The position of the flicker-free monitor has to be chosen allowing a seating in parallel to the window

### *Occupational preventive medical check up*

Preventive medical checkup is necessary if the MAC (TLV) or "TRK" (threshold value) limits are exceeded. Compare:

#### *"Unfallverhütungsvorschrift Arbeitsmedizinische Vorsorge"*

- Technical or organisational arrangements are always preferential:
- Use extractor hoods for preparations
- The amounts of hazardous materials should be kept as low as possible
- Closed set ups are preferably used
- Use personal protective equipment (gloves, breathing protection...)
- Keep your work place proper and clean

*Department of occupational safety*

<http://www.uv.rub.de/hsi/>

On this Site you can find...

- Data bases of dangerous substances
- Information (regulations, directives, bulletins)
- Links concerning occupational safety
- Questions to specialists of occupational safety
- Information occupational medicine and health protection  
(Centre of occupational medicine precaution)