Lab Practice and Safety Guidelines (ALPS – Saarland University)

Instruction Slides	TBA
Official Instructions	TBA (German)
Faculty and Departement	ALPS, **Samuel Gyger** Departement: Physics / Faculty: NT
Rooms	Rooms necessary for work for AG Gyger (especially: **E2 6, 0.10, 1.24.1, 1.24.2, 1.25**)

This is a summary of the "Allgemeine Betriebsanweisung für Mess- und Arbeitsräume" of AG Gyger. The german version (Allgemeine Betriebsanweisung nach § 14 GefStoffV) is legally relevant

Purpose

This document provides guidelines concerning lab safety and good lab practice for those working in experimental facilities (german: Mess- und Arbeitsräume). Safety instruction is required before starting relevant work and repeated regularly/annually.

Scope and Limitations

This document concerns all people that work or study in an experimental environment. Some laboratories or facilities may have their own safety routines. Routines for specific equipment and instruments are described in manuals and supporting documents.

Responsibilities

The head of the working group is responsible for overall safety. All users are responsible for following these guidelines and ensuring safe operation.

Emergency Phone Numbers

- **Emergency (EU):** 112
- **Poison Information Centre:** 06131 192 40 (Giftinformationszentrum Rheinland-Pfalz/Hessen/Saarland, Mainz)
- Additional emergency contacts:
  - **Eye clinic**: Homburg, +49 6841 16-21261, or +49 6841 16-22337 (after 4 pm, or weekends)
  - **UdS medical service**: +49 681 302-3753 in B8 2

Electronic First Aid Logbook

All first aid treatments have to be logged. This includes (almost) every injury suffered at work or on the way to work. The logbook can be found here.

1. all accidents, even without injury, should be reported.
2. responsible supervisor should be informed immediately

General Rules

1. Keep labs and work areas clean and tidy. This reduces the risk of accidents and improves efficiency.
2. Wear appropriate protective equipment for your work.
3. All accidents, near misses, and unsafe conditions must be reported immediately.
4. Safety instruction must be completed before starting hazardous work and repeated regularly.
5. Only authorized persons may work in the lab rooms. Visitors and external persons require premission and instruction before entering/working in the rooms.
6. Before starting work, familiarize yourself with emergency exits, alarm options, first aid kits, fire extinguishers, emergency showers/eyewash stations, spill materials, and emergency shutoffs.
7. Escape routes and access to emergency equipment must never be blocked.
8. Only operate equipment you are familiar with. Each item has a responsible person who can provide guidance.
9. Store chemicals in designated areas. Many are hazardous and require special handling.
10. Return tools and instruments to their proper storage location after use.
11. Always ask permission before borrowing equipment or components. Return them after use.
12. Label broken or malfunctioning equipment and inform the responsible person.
13. Contact workshop staff for mechanical work. Only trained personnel may operate machinery.
14. Respect restricted access areas. Do not enter without permission.
15. Students must not purchase items independently; consult supervisors.
16. Work involving lasers, high voltage, gases, biohazards, radioactive materials, or chemicals is regulated and must follow safety rules.
17. Large systems may only be operated with permission and appropriate training.
18. Before leaving the lab, ensure equipment, cooling water, gas supplies, and compressed air are safe or turned off.
19. Turn off lights and lock doors when leaving.
20. Food and beverages should only be consumed in appropriate areas. Eating, drinking, smoking, and storing food in laboratory rooms are prohibited.
21. Avoid working alone in hazardous conditions. Inform someone if working alone and ensure communication access.
22. Attend regular group meetings to stay informed.

Safety Regulations

Lasers and Light Sources

1. Follow national radiation safety regulations.
2. Turn on warning lights before activating lasers (except low-power <5 mW).
3. Any suspected eye or (dangerous) skin exposure to laser radiation requires immediate cessation of work and medical evaluation.
4. Use low-power beams for alignment whenever possible.
5. Do not insert components into the beam path without understanding reflections.
6. Block unwanted reflections and confine beams to controlled paths below eye level.
7. Label optical components and store them properly.
8. Avoid reflective objects (jewelry, watches) during laser work.
9. Cover reflective surfaces such as glass where possible.
10. Maintain sufficient ambient lighting to reduce eye sensitivity.
11. Wear appropriate laser safety goggles for the correct wavelength.
12. Use protective eyewear when working with UV sources.

X-ray Radiation

1. Follow all regulations for ionizing radiation.
2. Use personal dosimeters where exposure is possible.
3. Measure and document radiation levels after modifying setups.

High Voltages

1. Only qualified personnel may modify electrical systems.
2. Never work on mains voltage (230/400 V).
3. Work involving high voltage must ensure immediate access to assistance.
4. Remove metallic objects (watches, jewelry) before working.
5. Only trained personnel may work with high voltage systems.
6. Avoid exposed high-voltage contacts.
7. Label and disconnect voltage before leaving the lab.
8. Always disconnect power and discharge capacitors before working on equipment.

Gases and Gas Cylinders

1. Secure all gas cylinders to prevent falling.
2. Use appropriate regulators and fittings.
3. Ensure adequate ventilation to prevent asphyxiation.
4. Install oxygen alarms if necessary.
5. Handle explosive gases (e.g., hydrogen, acetylene) with care.
6. Store toxic gases in fume hoods.
7. Gas cylinders must be transported with protection cap and cart.
8. Elevator transport: no other persons should ride along.

Vacuum Equipment

1. Exhaust gases from vacuum pumps must be properly vented.
2. Avoid oil mist contamination; use dry pumps when possible.
3. Keep vacuum components clean and properly stored.

4. Use gloves when handling sensitive components.
5. Ensure safe electrical setup when heating vacuum systems.
6. Inspect heating elements before use.

Chemicals

1. Wear appropriate PPE (goggles, gloves, lab coat, etc.).
2. Use the least hazardous chemical whenever possible.
3. Store only minimal working quantities in the lab.
4. Store flammables/toxics in designated approved storage.
5. Treat all chemicals as potentially hazardous.
6. Avoid contamination by changing gloves after handling chemicals.
7. Do not touch surfaces (e.g., door handles) with contaminated gloves.
8. Keep workspaces clean and organized.
9. Label all containers clearly.
10. Perform risk assessments before introducing new chemicals.
11. Ensure all chemicals have Material Safety Data Sheets (MSDS).
12. Read and understand chemical properties before use.
13. Follow all safety recommendations in documentation.
14. Identify and manage CMR substances (carcinogenic, mutagenic, reprotoxic).
15. Dispose of chemical waste properly in labeled containers.
16. Do not allow waste to accumulate; dispose of it regularly.
17. Work that may release hazardous vapors/aerosols must be done in a fume hood.
    1. Hood function should be checked.

Cryogenic Liquids

1. Wear full protective equipment (face shield, gloves, protective clothing).
2. Avoid direct contact to prevent frostbite.
3. Ensure proper ventilation to prevent oxygen displacement.
4. Use containers that allow pressure release.
5. Do not transport cryogenic liquids in elevators with people.
6. Follow regulations for transporting hazardous materials.

Radioactive Substances

1. Follow all legal requirements and safety procedures.
2. Obtain required permits before use.
3. Complete mandatory safety training.

Biohazardous Substances

1. Follow appropriate biosafety procedures.
2. Obtain proper training before handling biological materials.

Computer Safety

1. Follow laws regarding software and data usage.
2. Be cautious with outdated laboratory systems.
3. Protect systems from malware and unauthorized access.
4. Backup important data regularly.

In Case of Fire

1. Identify the nearest emergency exits.
2. Do not panic during power outages; allow eyes to adjust and proceed carefully.
3. Fire doors must remain closed to prevent smoke spread.
4. Evacuate immediately when a fire alarm sounds.
5. Proceed to designated assembly points.

From:
http://wiki.alps.ml/ - **ALPS**

Permanent link:
http://wiki.alps.ml/lab:safety:practice

Last update: **2026/05/19 11:38**