Safety Instructions

Institute of Microstructure Technology (IMT)
Karlsruhe Institute of Technology (KIT)
Campus Nord

Definitions

- First aider: person with minimal first aid training (Ersthelfer)

http://www.imt.kit.edu/intern/public/Erst_und_Brandschutzhelfer_IMT.pdf

EMERGENCY / ACCIDENT

- What do I do in case of an accident?
- What do I do when I cut myself?
- How do I behave if there is a fire?

When An Accident Happens?

1. Bring the injured person outside of the danger zone.
2. Call 3333 (emergency control center KIT)
   - Location
     - institute/department, building number, building section, room number
   - Type of event
     - fire, explosion, accident, …
   - Your Name
   - Your Phone number
     - under which you can be reached after the report
   - Wait for questions!

When An Accident Happens?

3. Inform a first aider
4. Help the injured person the best you can. (First Aid)
5. Send 1 to 2 employees to receive the ambulance so that they find the emergency.

Additional information:

- Do not go alone to the KIT ambulance (a shock is possible).

And When I Cut Myself?

- Medical kits are on every floor.
- Document what happened and what you took out. (Verbandsbuch/accident log)
- Go to the medical department with a colleague to get checked (even if you think you can go alone).
- Don‘t forget to tell somebody to restock the medical kits afterwards.

Additional information:

- If you don‘t go to the medical department and you have something which cannot be detected at once you will have no insurance cover.
- The documentation in the accident log is also the proof for the insurance. Documentation is not voluntary.

What If There Is Fire?

- Call 3333 or press the fire alarm button
- Get out immediately.

If you are in the cleanroom:

- Leave immediately without changing your clothes. Fire can spread quickly because of the air-conditioning system. Go through the next emergency door.

FIRST AID

- How can I help?
- Do I need to help?

How can I help? Do I need to help?

1. Do not walk away. You are obliged to help by law.
2. Call the emergency number 3333.
3. Help the person according to your abilities.
4. Inform a first aider.

ALARMS AT IMT

- Gas alarm (gas leak) and fire alarm
- Lack of O_2
- Gesamträumung and Teilräumung (full and partial evacuation)

General Alarm Behavior

1. Do not hurry. Keep calm. Prevent further accidents.
2. Obey the responsible persons for evacuation.
3. All activities must be stopped immediately and a safe state of facilities must be ensured.
4. Go to the dedicated meeting point (depending on alarm).

Fire Alarm / Gas Alarm

- Switch off all electric equipment.
- Close the windows and doors.
- Leave the building on the shortest route (no elevator) and go to the meeting point.
- Wait for further instructions.
- Only go back to the building after order from the responsible person (at IMT this is either Lemmer/Koos/Moritz/Mohr/Maas/Guber).

Lack of Oxygen (O_2)

- Sound signal only in the cellar of 301, 307 and 310.
- Optical signal: Blinking yellow/red lamp

- Behaviour:
  - Leave the cellar and breath fresh air.
  - Call 3333.

Gesamträumung mit Soforträumung / Complete Evacuation with Immediate Evacuation

- Leave, and go home!
- If you are at IMT go home through the southern gate.
- If you have a car you are obliged to give lifts to persons without car.
- Persons who are unable to find a lift have to gather in front of the canteen (building no. 211)
- The duration of an evacuation – unless otherwise provided – is in principle limited to one working day. The duration of an evacuation of the KIT-CN in the event of a disaster is variable. You can keep informed through the general communication channels (newspapers, radio).

Teilräumung mit Soforträumung / Partial Evacuation with Immediate Evacuation

- Go to the canteen, building no. 211(meeting point).
- Wait for further instructions.

WALK THROUGH THE INSTITUTE

- Meeting places
- Emergency routes
- Medical kits
- Fire extinguishers

Walk Through the Institute

- If you have a new student or a new colleague, you have to show him/her all the emergency relevant equipment. This includes:
  - Medical kits
  - Fire extinguishers
  - Meeting points
  - Safety devices (emergency showers, escape way, …)

- Find out the shortest route to the building's meeting point from his/her office.

LAB SAFETY INSTRUCTIONS

- Protective Equipment
- Lab Specific Instructions
- Working Alone

Protective Equipment

- Always wear appropriate protective equipment in labs
  - Closed shoes and long trousers (also in summer!)
  - Protective Glasses
  - Protective Gloves (different glove materials are suitable for different chemicals)
  - Lab Coat
  - Dependent on specific hazards additional equipment may apply.

- Nina Giraud supplies protective equipment at IMT
  (building 307, room 122; opening hours 10:00 - 12:00)

- Ask Markus Guttmann when questions on protective equipment.

Lab Specific Instructions

- Before entering ANY lab, a lab specific instruction is required!
  (“Arbeitsplatzbezogene Sicherheitsunterweisung”)
- The instruction is given by the person responsible for the lab.
  (name of responsible person is usually stated on the door sign)
- A record of instruction has to be filled out.
  (“Schulungsnachweis FB 804”,
  J:\iso9001\QW\QM-DOK_Formblaetter (FB)\800)
- The instruction has to be repeated every year.

Lab Specific Instructions

- Lab Specific Instructions should comprise
  - Emergency exits
  - First aid kit
  - Fire extinguisher
  - Emergency shower
  - Eye wash station
  - Handling of chemicals/instruments/machinery in the lab
  - Lab specific hazards




- One may only use the specific chemicals/instruments/machinery in the lab, for which the instruction was given.

- Each chemical has a safety data sheet. It is available at the Chem-A (https://chema.scc.kit.edu/) or from the manufacturer.

Working Alone

- Workplaces at IMT are divided into 3 categories
  - 1: Low hazard (“geringe Gefährdung”)
    - Offices
    - You may work alone here.
  - 2: High hazard (“erhöhte Gefährdung”)
    - Rooms: Bldg. 301: 107.x, 140, 141, 202, 203, 210, 211, 212a-c, 302, 305
      Bldg. 307: 027a, 132x, in the cleanroom tents in 133
      Bldg. 310: 152, 153, 155, 156, 157
      Bldg. 318: 101, 102, 103, 104
      Bldg. 321: 105, 107, 107a, 108, 109, 120, 202, 218, 306, 308
    - You may work alone here but someone has to check on you every hour.
  - 3: Exceptional hazard (“besondere Gefährdung”)
    - Rooms: Bldg. 301: 109, 206, 304, 306
      Bldg. 310: 151
      Bldg. 321: 112, 118, 202b, 206, 207, 208, 212, 213, 305, 310, 314
    - You may never work alone here.

- The classification of the labs is stated here (German document):

http://www.imt.kit.edu/intern/public/Betriebsanweisung_Alleinarbeit.pdf

LAB WASTE MANAGEMENT

- General Regulations
- Waste Treatment for Sharp Objects
- Case Study: Cleanroom

General Regulations

- Separate your waste.
- Label accurately and completely.
- Store waste in suitable areas and containers.
- Transport waste properly (use a transport cart when heavy).
- Minimize waste where possible.
- Avoid waste mixing where possible, as unexpected reactions may occur.
- Keep the exterior of the container clean (no spillage).
- Wear protective equipment (i.e. gloves, glasses, etc.) when handling chemical waste (please refer to Material Safety Data Sheet)
- Untrained staff and students must not handle hazardous wastes and must not be given responsibility for them.
- Advice & waste collection schedule can be obtained from Mr. Gramlich (building 301, room 212.4, opening hours 9 - 10 am)

Waste Treatment for Sharp Objects

- Sharp objects or devices are objects that can cut or penetrate the skin e.g. needles, glass, scalpel blades, chip edges and wafer edges.
- Sharps may also be contaminated with toxic, infectious or radioactive materials which substantially increase the risk potential.
- Sharp materials and objects must be placed in a rigid, impact resistant, puncture proof and sealable container of appropriate size which protects handlers from being injured during collection and transport.
- Never attempt to clip, bend needles or syringes.

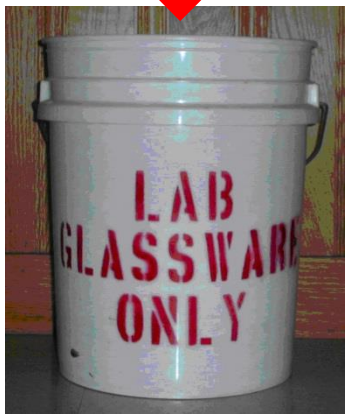
Case Study: Cleanroom

Isopropanol

Aceton

Different types of resist

Lab glassware



Metal

Silicon Wafer

Paper with chemicals

Paper

Short Visualization

- Watch the video under the following link,
  http://www.youtube.com/watch?v=ny9suF3DvcE