Corrosion and Applied Electrochemistry Lab

General Laboratory Policy

Laboratory work permitted only after:

- reading the safety guidelines and regulations file and signing at the end of it
- successfully passing the test on the Technion's safety site "Safety in Chemical Lab ".

Dress Code

- Lab coat
- Shoes
- Goggles
- Long pants
- Gloves
- Respirator when working with powders.

Working in The Lab

- Planning, reading and understanding the hazards of materials and processes of your research before starting work.
- Carefully read the safety sheet (MSDS) of the substances being used.
- If someone is working in the lab, another person must be in the lab area (student's room is ok).
- **You are not allowed to drink or eat inside the lab!**

Working space

- All experiments must take place inside the lab, including the preparation procedures while using the proper protective equipment!
- Informing the PI or lab manager/engineer of any work modifications if they intend to significantly deviate from previously reviewed procedures (Note: significant change may include, change in the duration, quantity, frequency, temperature or location, and reduction or elimination of engineering controls).
- When you leave the laboratory, make sure you remove your gloves, coat and wash your hands thoroughly!

Process over-night

- Don’t carry out experiments overnight, if possible (especially when involving **heating, the flow of liquids, or dangerous materials**).
- Let the other group member know if a process like that is being performed.
- When carrying a process during the day-time, please **stay in the lab** and make sure that everything is fine.

Emergency procedure

- Notice to nearby employees and students about the accident;
- Evacuate all employees and students from the accident area;
- Handle the accident to prevent it from spreading or completely eliminating it, **if you can do so without personal risk;**
- Should inform about any accident to Prof. Yair Ein-Eli +972-77-887-4588, Responsible for Safety (Ekaterina Grishina 058-531-4545);
- It is important to report about accidents in order to investigate them and allow them to be prevented in the future. Should fill up the form that attached the following link https://safety.net.technion.ac.il/2-טפסים-ודיווחים/ and inform Administrative Assistant (Miri Weiss 077-887-1548), the Head of the Faculty Administration (077-887-4592) and the Safety Unit (077-887-1560).

Safety Infrastructure

- Emergency exits
- Emergency safety switches (electricity)
- Fire extinguishing equipment
- Emergency eyewash stations and showers
- Chemical spill equipment
- First aid kit
- Laboratory waste handling, including containers for sharp objects

Emergency safety electricity switch

- Fuse box:

If the electricity goes off, it's not the perfect time to drink your coffee. You need to wait until it comes back on and turn on all the electrical devices, including hoods, glove-boxes, and AC.

Emergency exits and fire extinguishing equipment

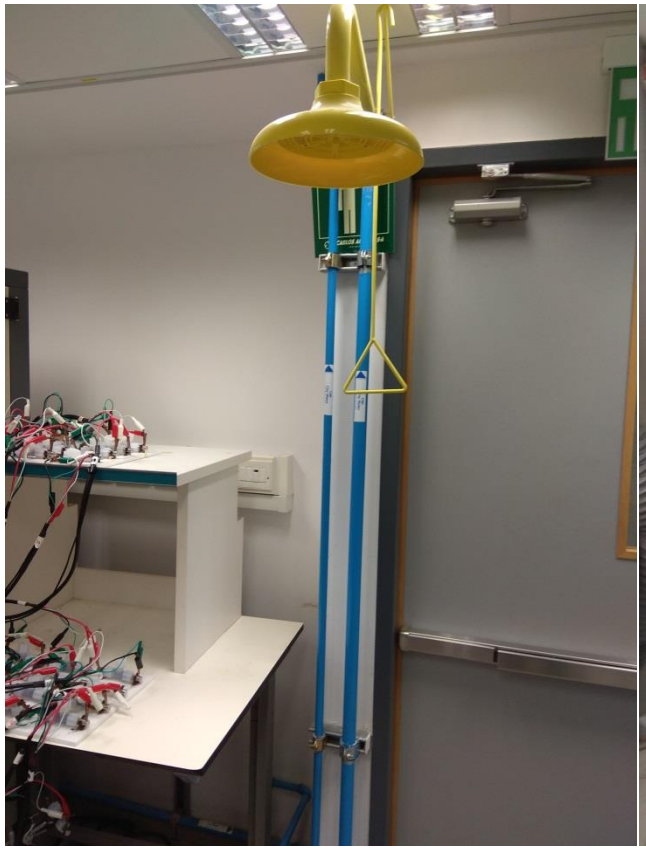
Emergency exits and fire extinguishing equipment

- Fire Hose:

Inside

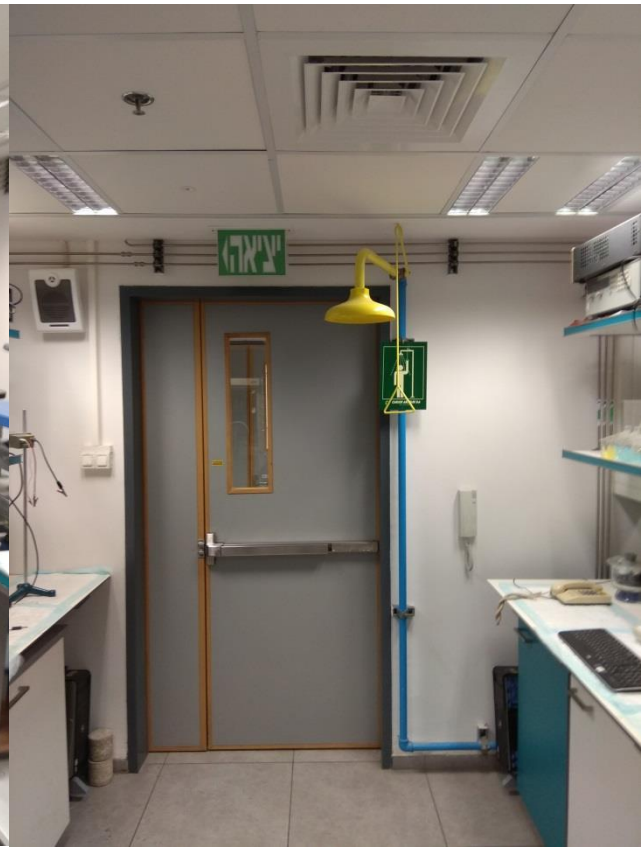
Outside

Showers



Arbin Room

Powder Room



Main Lab

Eyewash stations

Powder Room

Arbin Room

Main Lab

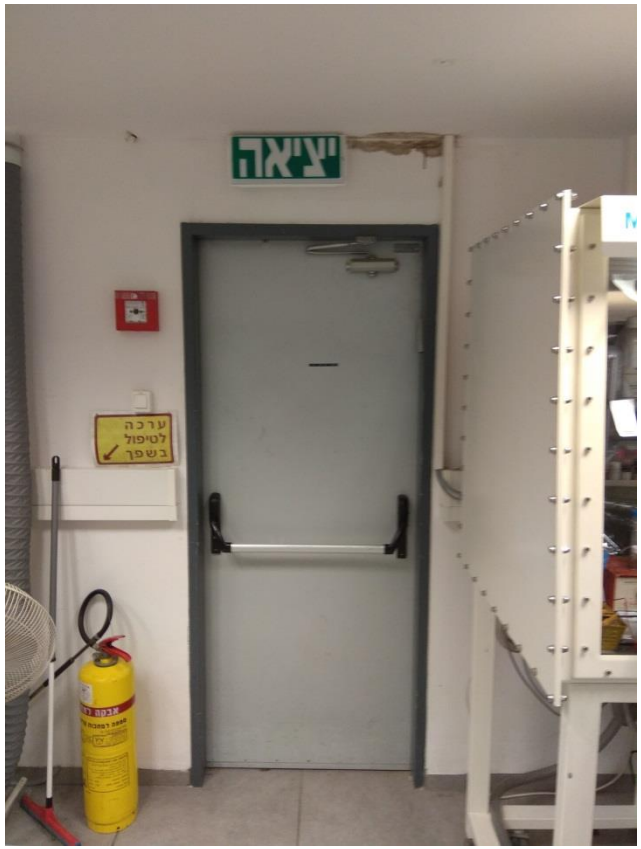
Chemical spill “kit”:

Dustpan and broom, 2 pairs of gloves, absorbent sleeves, 2 pairs of goggles, 2 pairs of shoe cover (plastic), 2 aprons, red and white marking tape, plastic bags for waste collection, half-face masks

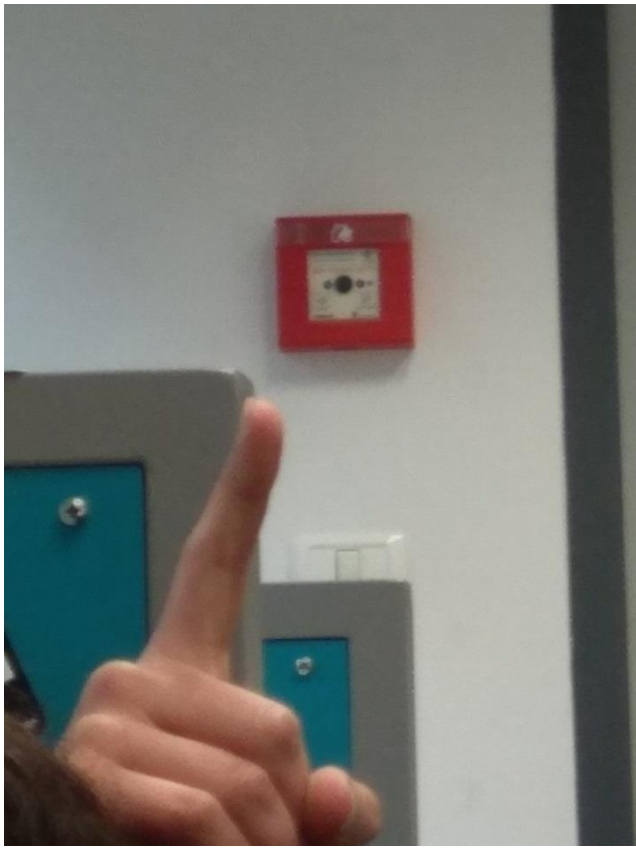
First Aid Kit

Emergency button

Entrance



Back door exit

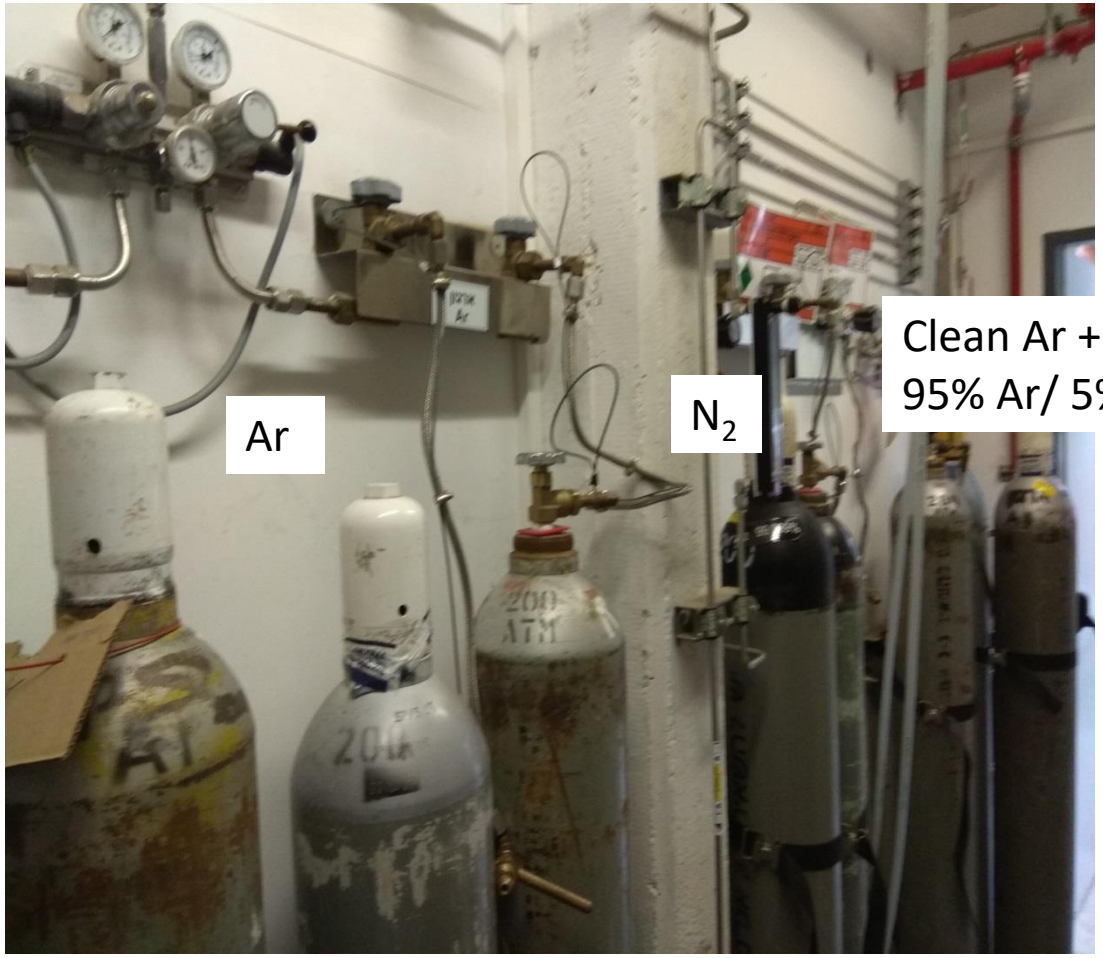


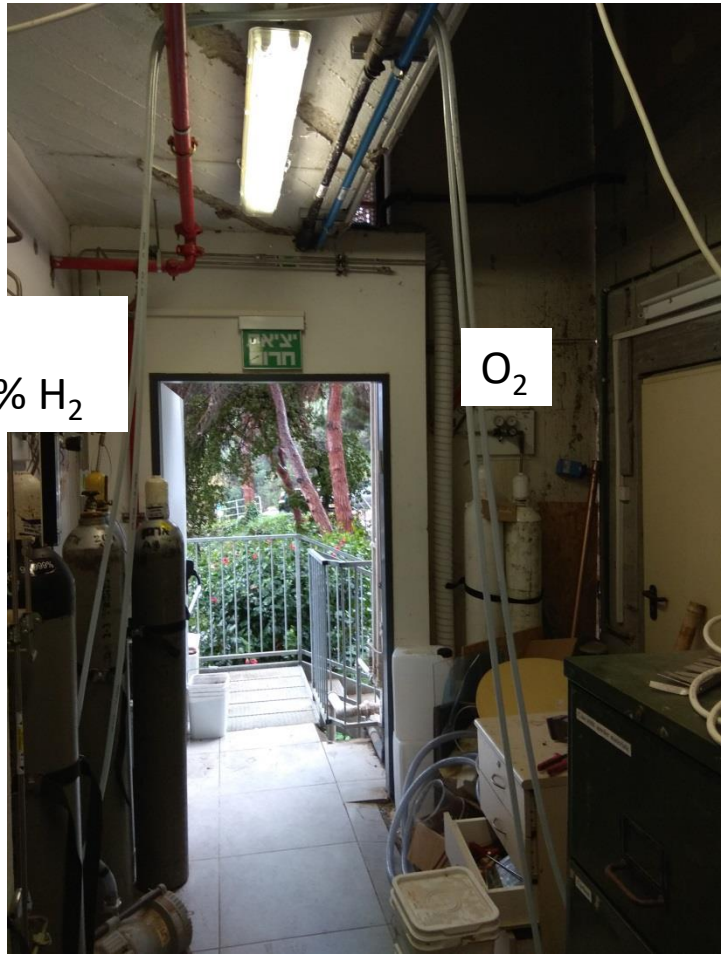
Student room

Gas Cylinders

- Working with gas cylinders is permitted for those who have completed the relevant technical safety training.
- The gas cylinders must only be stored in a perpendicular position, when attached to a wall in a suitable chain or strip.
- As long as the cylinder is disconnected from the system, it must be held with a protective cap over the tap.
- At the end of use of the cylinder, make sure the valve is closed.
- An empty gas cylinder should be marked with “empty” sign.

Gas Cylinders





Powder Room

- Before starting to work with powder, carefully read its MSDS.

- Work should be done in a confined space (such as a non-operated fume hood) and avoid any action that could cause the powder to disperse.
- The working station should be cleaned after working with powders (weighing scales, work surfaces, diapers).

Equipment

- Work permitted after passing an instruction
- Don’t use it if you don’t know how to operate it!
- There are manuals for most of the equipment in the lab.

Equipment

- Arbin
- Potentiostats
- Glove boxes
- Ovens
- Sonicator
- Raman
- FTIR

Ovens

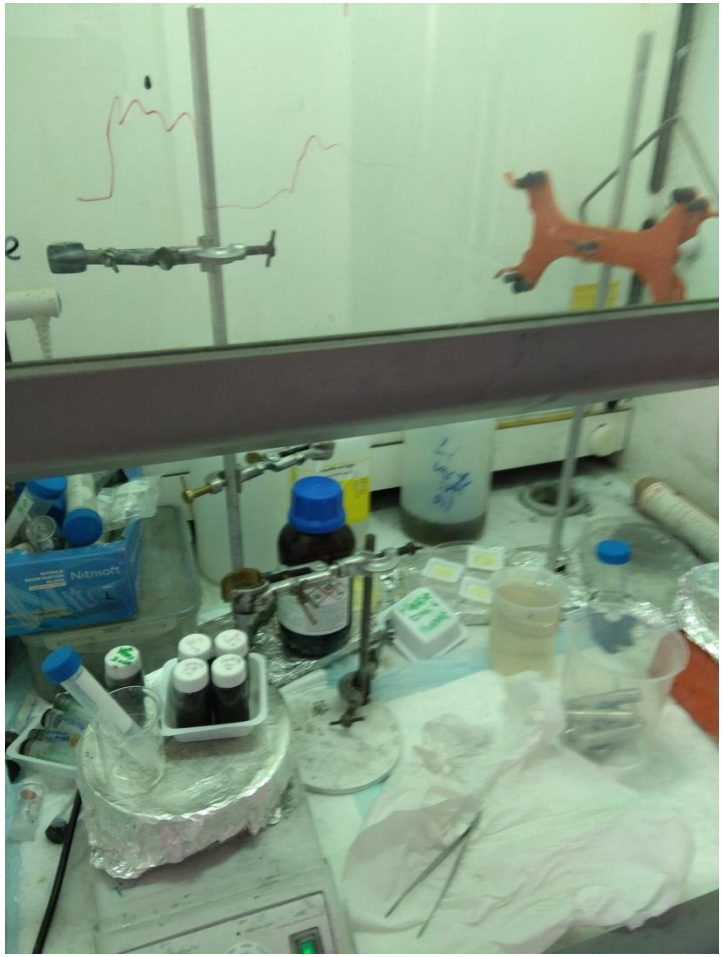
- Using the ovens is permitted only after being instructed
- When working with high temperature ovens, heat resistant gloves should be used.

Fume Hoods

- Three hoods in the lab
- Contain:
  - Waste for disposal (metallic lithium, ionic liquids, etc.).
  - Hot plates (please clean spillage immediately and pay attention that the cable is not located near the hot plate).
  - Beakers with different materials: strong acids, electrodeposition solutions, etc.
  - Two openings for Organic and Inorganic waste.

Hoods

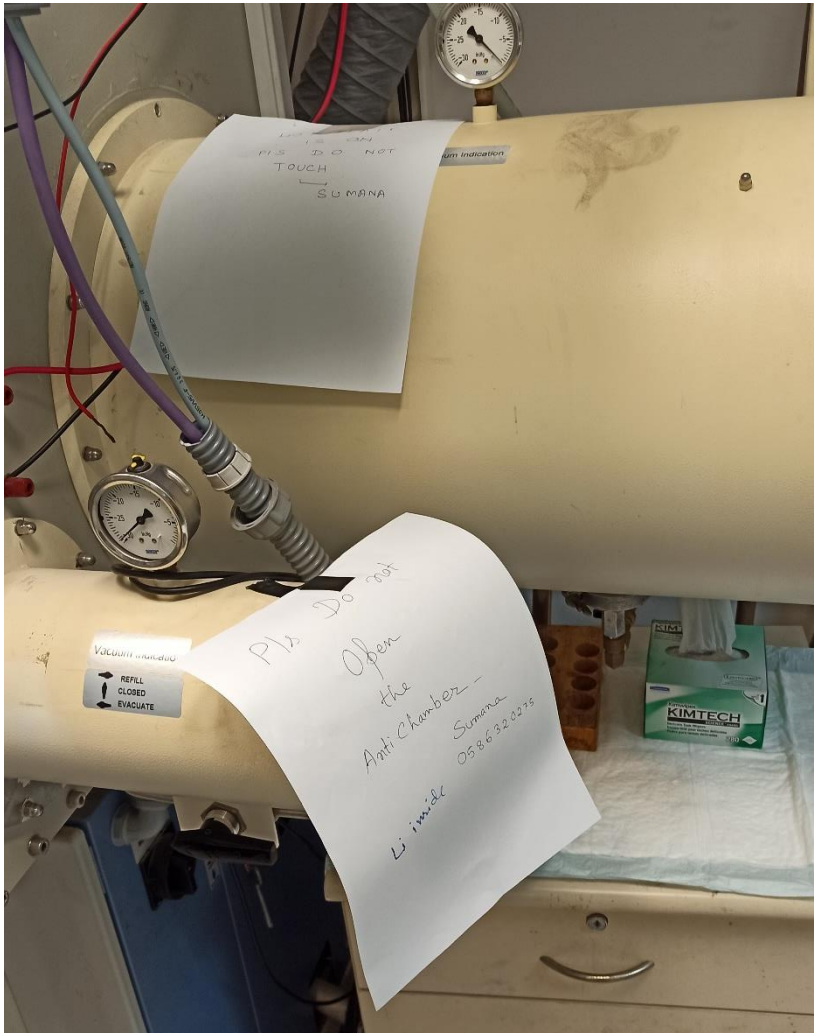
Closing the window: Lab members don't know what you are evaporating

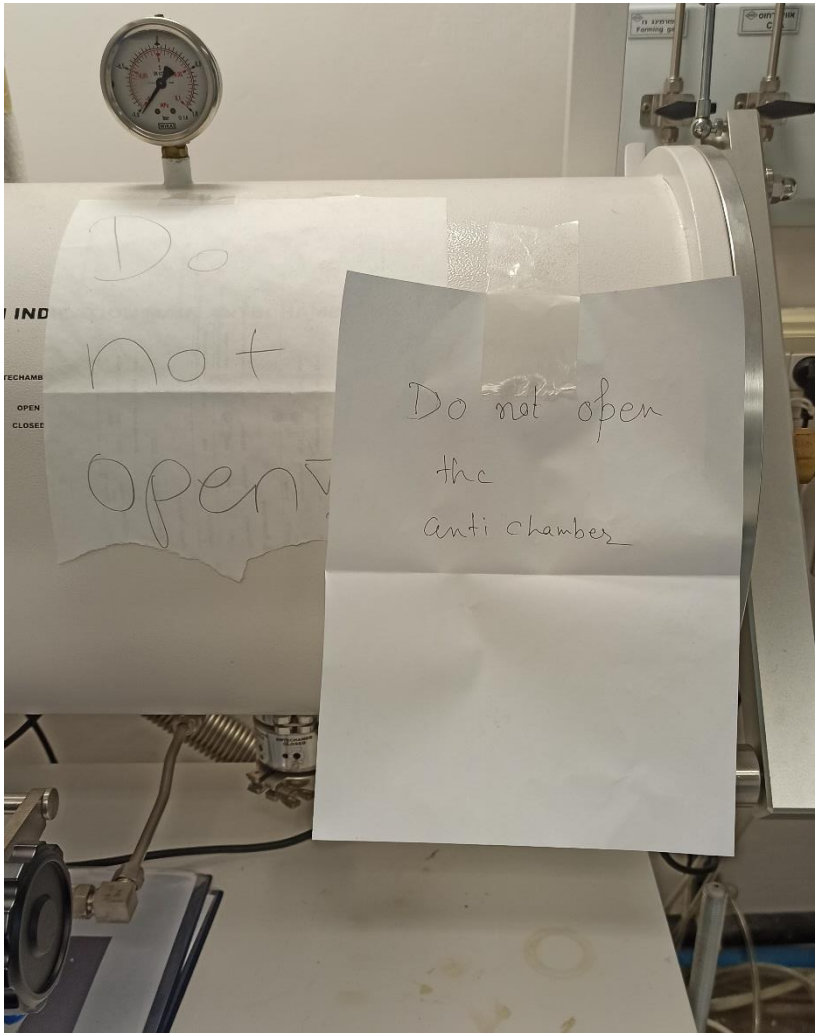


Glove Box

- Proper instruction is mandatory before working with the glove box.
- **Hydrated chemicals** that were not closed under Argon/Nitrogen are not allowed inside the glove box.

- **The glove box's anti-chamber is not a storage/drying place for your materials!**





Chemicals

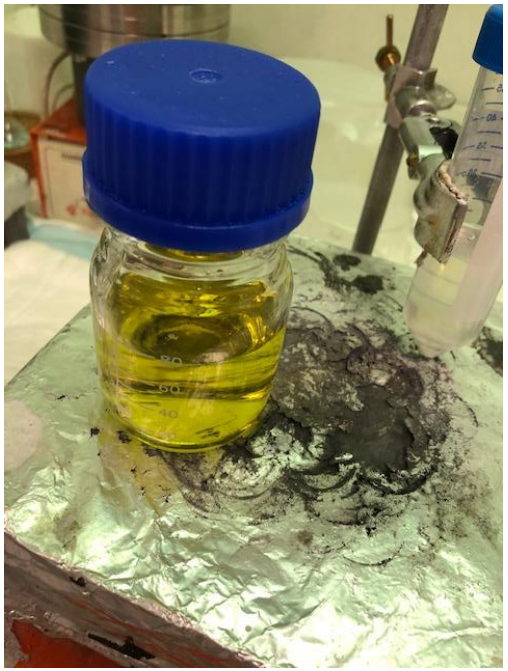
- Metallic Li/Na for batteries.
- Various solvents for batteries/electrodeposition.
- Organo-metals salts.
- Strong acids and bases.

Chemical Cabinets

Place all the chemicals that you've used back in their place.

There are unknown solutions all over the lab.
Name, full content (including concentration/pH), and date are required on every vial/ beaker/ bottle that we use!

Solution _____
Concentration _____
Procedure _____
Preparation Date _____
Expiration Date _____
Prepared By _____
Storage Room ☐ Refrig. ☐



SINK

- Be sure to have full personal protective equipment (gloves/lab coat/goggles).
- **Do not pour chemicals into the sink!**
- Make sure the wash bottles are full and marked with the name of the solvent.
- After washing/using, make sure it is left clean and organized.

Waste disposal

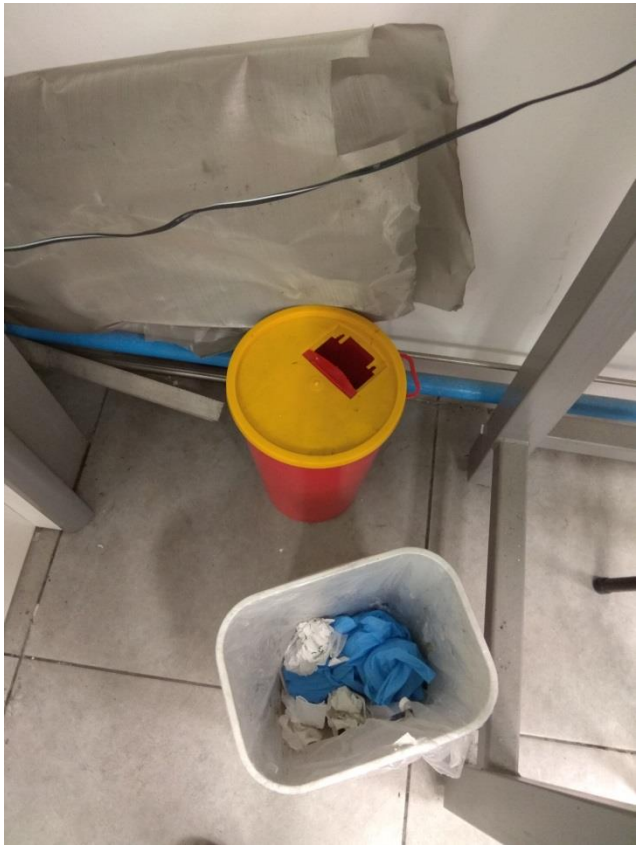
- Everyone in the lab must be familiar with the chemical waste disposal procedure.
- The full instructions are written in the lab's safety folder.
- No one needs to take care of your waste (except you)!

Waste containers

Needles

Return the needle home

Throw it in the glass container



Most accidents and/or near-misses occur because of the following main reasons:

- **Not following standard safety procedures** (taking short-cuts)
- **Underestimating the dangers associated with chemical reactions** (over confident)
- **Distractions** (conversations, tiredness, multitasking)

Working in a chemical laboratory requires caution and attention in performance. Most accidents are preventable if safety rules are followed, therefore, act in accordance with the safety instructions.

Thank you for attention!