Chemical Training- Course Program

Basics

Goals:

- Improved safety.
- Ensure that all users of fumehoods and wetbenches have the same minimum knowledge.
- Target group: all users of fumehoods and wetbenches in the cleanroom or Thin Film Lab.

Teaching principles:

The course is based on active preparation and learning-by-doing by the students. We encourage handle their tasks independently, and learn to ask for advice when uncertain.

- Students must complete homework prior to attending the course.
- Teacher demonstrates correct way of working first.
- Homework and practical training in the cleanroom. No lectures.

Other information:

- Training register is kept in LIMS.
- Teachers: Aalto Nanofab's personnel, including Päivikki Repo, Antti Peltonen, Victor Ovchinnikov, Ville Vähänissi and Mika Koskenvuori.
- Required effort: 1-1.5 h for homework. 3 hours for the course.

Applications to attend

1. Book a suitable training time in MyCourses from *Choose your course date*

Homework

- Course material is available in MyCourses, https://mycourses.aalto.fi/ . You can log in with your Aalto username, or create your own username if necessary.
- The material includes: Course Program, 3 sets of slides (Handling Chemicals, Chemical Waste, MSDS Instructions), Working with Chemicals –video, homework (excel file with 12 questions).
- Complete homework excel file with 12 questions).
- Submit your homework in MyCourses (from "Upload Homework – Chemical Training") at least 24hours before the course starts.

Starting session (max 30min)

- To begin we meet in Micronova's lobby ("Lehtisali").
- Introductions.
- Contents of the course.
- Problems indicated by homework; answering questions.

In the Cleanroom - general

- Entering the cleanroom: alarm buttons, emergency showers and eye wash basins
- Personal protective equipment: full protection, light protection; aprons, visors. Personal chemical gloves, storage.

Acid work

- Task: Make a mixture of HCl:H2O (ratio 1:10). Etch your silicon sample for 30s. Rinse, dry and store your stuff.
- Teacher demonstrates acid work for the whole group first.
- Students complete acid / solvent work after the demonstration. (Each student does both.)

Solvent work

1. Task: Use isopropanol to clean your silicon sample for 30s. Dry and store your stuff.

How to handle chemical spills

1. Teacher tells students correct sequence of actions to the whole group at the start.
2. Students clean up a simulated HCl:H2O spill.

Chemical accident

- Task: Done in pairs (student + buddy). Teacher spills DI water on student's apron and booties and asks her to simulate the correct actions. Second pair: simulated chemical splash into the eyes.

Thin Film Laboratory

– Protective equipment; use of shoes and trousers; using acids and solvents (in the same fumehood), storage of chemicals. Waste chemicals, waste chemical collection point.

Wrapping up

- End exam.
- Questions and answers.
- Course feedback.