Lab policy of the nano.lab
attachment 1 — hazardous materials

October 4, 2023

Handling of hazardous materials is covered by the general lab policy of the nano.lab to a minor extent. This attachment to the lab policy of the nano.lab regulates any work with hazardous materials beyond the limited range of procedures regulated by the lab policy itself. Users who operate within this scope are compelled to work according to the following guidelines additionally to those stated in the general lab policy. Noncompliance will result in lab suspension.

1 Access

Users who would like to access the cabinets for hazardous materials and to work with its contents are compelled to attend a designated safety briefing in person. Renewal of this briefing every 12 months is mandatory. It is the responsibility of every user to ensure his/her safety briefing has not expired.

Lab supervisors will give this briefing on a regular basis as group briefings. Dates will be announced on the nano.lab's webpage. Individual briefings on demand are not provided.

Pregnant or breast feeding women are forbidden to enter the wetlab P831 and to access any hazardous material.

2 Introduction of personal hazardous materials into the nano.lab

2.1 General

Users are not entitled to introduce a hazardous material into the nano.lab that has not been approved by the safety supervisory personnel before. Approval is not given as a matter of course, but will be considered individually depending on the danger posed by the hazardous material.

If approved, the user will be handed a specific label which he/she must attach to the container. Additionally, the user has to label the container with his/her full name (first name and last name) and the group he/she belongs to. Noncompliance will result in lab suspension.

Due to the limited amount of storage space, the maximum container volume is typically 1 L.

2.2 Prior to introduction

Prior to any acquisition of a hazardous material, users are strongly advised to check or ask if the desired substance is already in stock. The nano.lab does not provide storage facilities for

redundant purchases or groups who do not hold cabinets for hazardous materials themselves.

If a hazardous material is introduced into the nano.lab for the first time, the requesting user has to provide the associated safety data sheet (SDS).

Before utilizing a newly introduced hazardous material, it has to be listed properly in the nano.lab's registry for hazardous materials (DaMaRIS) and working procedures and waste disposal have to be defined. Contact the safety supervisory personnel to require listing and all subsequent working procedures.

Non-compliance will inevitably result in lab suspension.

2.3 Decanting into smaller flasks

Since DaMaRIS accounts for the number of bottles, listing in DaMaRIS is also mandatory when decanting small amounts into newly introduced personal flasks, even if the desired substance is already listed itself. Therefor, users are compelled to announce every decanting into a new flask to the safety supervisory personnel.

Non-compliance will inevitably result in lab suspension.

Users should not report refilling of an existing flask which has already been listed.

2.4 Removal

If a user desires to remove a container (no matter what size) permanently from the nano.lab, this has to be announced to the safety supervisory personnel. The container has to be de-listed from the registry. Temporarily empty bottles/containers/flasks which will be refilled later, may remain in the cabinet.

3 Registry for hazardous materials

Every user has reading access to the nano.lab's registry of hazardous materials, i. e., the nano.lab's DaMaRIS account. Login credentials are posted in the wetlab P831.

Users are urged to check whether the entries of their hazardous materials are correct. Individual belongings are recorded in the free text entry box of the registry's display.

A designated safety data sheet and operating instruction is linked to every DaMaRIS entry.

4 Stockpiling and storage

Storage of hazardous materials is permitted only in designated containers with firmly lockable lids in pre-defined cabinets in the group specific drawer. Storage in any kind of food or medical container such as syringes is strictly prohibited. HDPE-containers have to be checked for expiration date on a regular basis. Expired containers (five years from expiration stamp) have to be replaced.

Users are required to label containers with the manufacturer's designation of the hazardous substance, their full name (first and last name), and their workgroup.

Every container has to be kept as clean as to be touched without endangerment.

Flowboxes are not intended for storage. Only lab internal wash bottles filled with ethanol, isopropanol and acetone with a content of 0.5 L for daily use are allowed to remain permanently under the flowboxes. These wash bottles have to be removed during an experiment with intense heat dissipation.

Toxic hazardous materials have to be securely locked in the designated cabinet. Access via key is only granted to specifically instructed users.

Users are urged to refill the wash bottles with the proper content after emptying them.

5 Hydrofluoric acid (German: Flusssäure, HF) and toxic materials

HF must be considered extremely dangerous even in case of exposure to small amounts. Working procedures including HF and other toxic materials demand an additional safety briefing. For handling HF the possession of an HF identity card is mandatory.

The fume hood dedicated to HF is exclusively reserved for works including HF. Users who are not entitled to work with HF are forbidden to access the HF fume hood by all means.

6 Gases

Even within the scope of this policy, users are not allowed to introduce gas bottles into the nano.lab. It holds that any modification of the existing gas lines or gas hookups by the user is strictly prohibited. The gas installation must not be altered or manipulated in any way.

7 Safety gloves

7.1 Full contact with liquid hazardous materials

Full contact with any liquid hazardous material is prohibited.

7.2 Splash contact with liquid hazardous materials

For protection in case of splash contact, it is mandatory to wear proper gloves according to the material's safety data sheet and its operating instruction. Nitrile gloves and several more resistant gloves are provided by the nano.lab in several sizes to cover most applications. They are reusable. Users must not dispose of them after use. More specific gloves have to be brought along by the user.

Users are urged to wear disposable nitrile gloves or cotton gloves below reusable gloves to avoid contamination. It is explicitly stated that disposable nitrile gloves with a thickness of merely 0.11 mm do not provide adequate protection against most liquid hazardous materials. Users havet to change gloves on a regular basis as deemed necessary and avoid unnecessary exposure.

Touching door handles with gloves on is prohibited. Gloves may be contaminated and therefor also contaminate the door handle.

8 Prolonged procedures

Prolonged cleaning procedures or comparable activities consuming a lot of time may be left unattended when labeled unmistakably with possible hazards and the users full name and a mobile phone number for contact in case of emergency.

9 (Excessive) spillage of hazardous materials

Spilled hazardous materials have to be cleaned up with a proper binding agent and disposed of immediately. Wipes used for clean up of liquid spillage have to be dried under a flowbox. Wet wipes must not be thrown into a waste container. Further information is given in the operating instruction of every hazaradous material.

If a user does not feel capable of cleaning up an excessive spillage him/herself, he/she has to secure the contaminated area and call the lab manager or safety supervisory personnel. Users are also compelled to call the lab manager or safety supervisory personnel if they discover spillage of unknown kind.

10 Resignation

Users who quit working with hazardous materials, e. g., when leaving the University, need to report to the lab manager and the safety supervisory personnel prior to leaving. Any belongings of this user, including any of his/her hazardous materials, need to be signed off the registry, checked out and be disposed of by the user on his/her own responsibility according to legal regulations.

11 Waste disposal

11.1 Hazardous materials

Disposal of a hazardous material is regulated in its operating instruction. Mixtures are disposed of by main component. Disposal via operating instruction is valid only for small amounts (a few ten milliliters). Disposal of large amounts such as entire bottles with expired content has to be handled with the department of hazardous waste.

Solid contents have to filtered of liquids and disposed of separately. Samples must not be disposed of in any waste container the nano.lab, but need to be disposed of properly by the user in the group he/she belongs to.

11.2 Gloves and plastic waste

Gloves and plastic waste which are not contaminated with hazardous materials, have to be disposed of in the residual waste container and NOT in the waste container for polluted/contaminated plastics. Residual waste includes gloves which were merely in touch with acetone, isopropanol or ethanol.

Contaminated gloves and small contaminated plastic containers may be disposed of in the waste bin for contaminated plastics inside the nano.lab. Containers have to be emptied completely, flushed several times and dried before disposal. Large containers with more than 500 mL have to be disposed of on the users own responsibility outside the nano.lab, i. e., in the group.

Users have to pay attention to discern properly between contaminated and non-contaminated plastic waste and gloves.

11.3 Wipes

Wipes which were merely in contact with acetone, isopropanol or ethanol have to be disposed of in the residual waste container. If contaminated with other hazardous materials (especially resists and developers), wipes are disposed of in the waste container labelled with "contaminated wipes". Wipes have to be dried completely under a flow box before disposal. Dessication has to be overseen throughout. Users must not leave wet wipes under a flow box unattended.

12 Devices

Devices such as spincoater, heat plates or ovens after usage have to be switched off and cleaned. Faulty equipment has to be reported to the lab manager.