


DTU Nanolab		Controlled document				Level: SI-I	
		Emergency plan				Approved by: flje	
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Safety Rules

In every building on each floor you will be able to find an emergency board with instructions telling you what to do in case of an emergency situation. Furthermore you will find emergency plans showing you where to find emergency exits and fire fighting equipment.

The work in and around the cleanroom requires special procedures. This is because the activities that take place inside the labs combined with the strong airflows represent a number of added dangers which, if an accident were to occur, will demand immediate attention. As a result of this the Building 346 is fitted with an additional alarm system.

The alarm system in Building 346 has 3 basic levels.

- **Evacuation Alarm** (Two tone sound signal with no pause and flashing yellow light and Messageboard showing EVACUATE) On hearing or seeing this alarm the cleanroom and Building 346 should be immediately vacated via the closest exit and you should meet at the general assembly point close to building 358. **The alarm is relayed directly to the fire brigade (FALCK) who will always respond immediately.** Possible causes for the alarm include fire, a gas leak or the evacuation button is being pressed.

Personnel from the emergency alarm team will assist the fire brigade (FALCK) with locating and identifying the cause of the alarm, along with meeting and counting the evacuated people at the assembly point. The fire brigade has the responsibility of both going into building 346 to ensure that it is totally evacuated and also locating and dealing with the cause of the alarm.

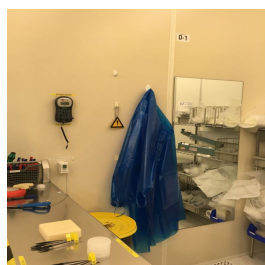
After the problem has been solved a member of the emergency alarm team will call off the alarm and ensure that an email is sent out notifying everyone that the danger has subsided.

- **Mild Evacuation Alarm** (3 seconds interval sound signal with pause and flashing yellow light and messageboard showing LEAVE THROUGH GOWNING) Only the cleanroom is evacuated, by leaving calmly through the gowning area (the changing room). A minor evacuation alarm can be activated automatically when the chemical extraction fails (ventilation alarm) by UPS failor (more than 5 min) or when the mild emergency button in the gowning is activated manually*.

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Mild emergency button in the gowning, can be used if you want people to leave the cleanroom fast but without calling the firebrigade. It can e.g. be used if there is a minor spill or leakage of chemicals or unknown liquid from group 4 or 5 (see app 5)

Members of the emergency alarm team will ensure that everyone has been vacated in addition to informing of the cause by the person who has pressed the button. Should there be any spillages then the emergency alarm team will once again assist in clearing up the spill and inform everyone via email of the current status.



Flashing yellow light (and messageboard showing BUILDING 346 CLOSED) : The building is closed.

Personal Accidents

Chemicals in the eyes:

- Rinse as fast as possible (DI hand shower / eye rinse bottles) and continue until medicals take over.

Chemicals on the body:

- First remove any contaminated clothes, then as soon as possible rinse with the nearest DI hand shower / emergency shower.
- For extended rinsing you should use the shower in the toilet until the ambulance workers are able to take over.

In case of an accident involving **hydrofluoric acid**:

- Remove all clothes and rinse skin thoroughly with water and continue with that.
- Get in contact with the poison control center (Giftlinjen) on telephone number 82121212 for further instructions.
- They will advise you in what to do and when you can stop rinsing and use the Calciumglyconate or if you have to go to the hospital.
- In all cases continue flushing with water until medics take over (also in the ambulance).

Calcium gel used for massage into the skin is stored on the shelf in the alarm cabinet. But only use it if the poison control center tells you to!

Rules for all types of accidents

- To call for an ambulance call 112
- A person shall accompany the accident victim to the hospital along with if necessary papers describing any chemicals or poisons that were involved.
- The victims' relatives are informed.

Gasses

Many dangerous gasses are used inside the cleanroom (app 6) The gas bottles are stored in a separate room outside of building 346. The gas is transported through pipelines to the equipment, and we have sensors monitoring if there should be any gas leak. In case of a gas leak, the supplies of gas will be shut down immediately and the emergency alarm will go on.

Chemicals

Some of the chemicals that are used in the cleanroom are dangerous to inhale, to come into physical contact with and also present an added fire hazard. It is therefore very important that you are extremely cautious.

Spillage of flammable and problematic* chemicals:

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In case of small chemical spillages (< 10x10 cm²): The spillage is dried up wearing required safety gear (safety glasses, barrier gloves and apron)

In case of larger spill: Contact a Nanolab employee immediately. If this is not possible then activate the emergency button.

Leakage (unknown liquid on the floor) or an unusual smell

Anyone observing fluid on the floor or smelling anything peculiar should get in contact with a Nanolab employee immediately. If this is not possible e.g. outside normal working hours:

They should evacuate the cleanroom by pressing the evacuation button (fire brigade will arrive)

Or

Press the mild evacuation button in the gowning (the fire brigade will NOT arrive) and then get in contact with the duty guard by calling the internal telephone number 53355.

Important! stay in the vicinity (out of danger) so that information can be passed on.

Alert team

Consists of several people who all know how to respond in case of evacuation. In addition, they received thorough training in how to assist the fire brigade and are trained in the use of fresh air supply, so that they can dry up small chemical spills.

Rules for working in the cleanroom

Before you are permitted to enter the cleanroom you must undergo the DTU Nanolab introduction course for the cleanroom.

The only exceptions to this rule are guests, installation workers and service people (after DTU Nanolab's approval) who must be accompanied at all time by an authorised person. It is really important that they are instructed in how the alarm system operates.

Outside normal working hours (8-16 weekdays) you are not allowed to work with wet chemistry or be in the service area when you are working alone in the cleanroom. To be able to work with wet chemistry outside normal working hours there should be at least two people present that are working in close proximity.

All **handling** of HF/BHF (Hydrofluoric acid/Buffered Hydrofluoric acid) outside normal working hour is not allowed (work in dedicated baths in wetbenches is allowed as long as there are two persons in close proximity)

Finally, please note: not adhering to these rules may result in being banishment from the cleanroom for up to several weeks.

3. Sikkerhed

[SI3.02.02 Appendix 1 - Beredskabsoversigter](#)

[SI3.02.03 Appendix 2 - Alarmsystemet](#)

[SI3.02.04 Appendix 3 - Ansvarlige/Responsible](#)

[SI3.02.05 Appendix 4 - Beredskabsprocedure](#)

[SI3.02.06 Appendix 5 - Kemikaliespild](#)

[SI3.02.07 Appendix 6 - Gasflaskeplacering](#)

[SI3.02.08 Appendix 7 - Brandfarlige væsker](#)

[SI3.02.09 Appendix 8 - Hård rømning-Lokal ressourceperson](#)

[SI3.02.10 Appendix 9 - Hård rømning-Evakueringsperson](#)

[SI3.02.12 Appendix 10 - Hård rømning-samlingsplads](#)

[SI3.02.13 Appendix 11 - Mild rømning - udreder og opsamler](#)

[SI3.02.14 Appendix 12 - Procedure in case of personel accident](#)