Health Safety and Environment

Routines at Department of Cancer Immunology

Homepage: https://www.ous-research.no/immunology/

1 Table of Contents

2 OBJECTIVE 3
3 RESPONSIBILITY 3
4 CONTACT INFORMATION 4
5 LOCATION OF PROTECTIVE EQUIPMENT 5
6 PERSONAL PROTECTIVE EQUIPMENT/CLOTHING 6
7 eHÅNDBOK AND ECOonline (ELECTRONIC COMPOUNDS ARCHIVE) 8
7.1 eHåndbok 8
7.2 ECOonline 9
8 CHEMICAL HANDLING 9
8.1 Buying chemicals 10
8.2 Storing chemicals 10
8.3 Safety Data Sheet, HSE signs and labeling 11
8.4 Rules for where to handle chemicals 12
8.5 Working with hazardous chemicals 14
8.6 Use of ventilation cabinets 15
8.7 Chemical spill 16
8.8 Chemical waste 16
8.9 Transport of chemicals 18
9 WASTE HANDLING 19
10 RISK OF INFECTION WHEN WORKING WITH BIOLOGICAL FACTORS 20
11 FIRE SAFETY 22
12 HANDLING OF DEVIATIONS: THE IMPROVEMENT SYSTEM ACHILLES 22
12.1 How to report a HSE deviation 23
12.2 Responsibility in deviation handling 23
13 HARASSMENT 24
14 AKAN 24
15 LEGISLATION 25
16 EXTERNAL LINKS 25

2 OBJECTIVE

- This document provides a brief introduction to the HSE routines and regulations at the Department of Cancer Immunology and is a modification of the Institute's HSE document.
- The document is not designed to provide full insight into all the necessary regulations and procedures. Please consult additional documents in the eHåndbok, Level 1 (Procedures for OUH, in Norwegian only) and Level 2 (Procedures for the Institute for Cancer Research and the Department of Cancer Immunology).

  For more information about the eHåndbok, see section7.1

- Link with useful information: http://ous-research-web.uio.no/foby/doku.php

3 RESPONSIBILITY

- **The Institute Leader** holds overall responsibility and authority for the HSE work at the Institute.

- **The department leader** is responsible for the HSE work in the department and for ensuring that all employees who carry out laboratory work have been sufficiently trained BEFORE starting to work. The department leader must see to that the HSE regulations are complied with.

- **All employees** have a personal responsibility to work in a safe and proper manner. Your work routines and methods affect both you and your colleagues. You have an obligation to know and work in accordance with the HSE regulations. You are obliged to read the SDSs (Safety Data Sheets) of chemicals BEFORE starting to use them.

- **Room Supervisor**. Room Supervisors are appointed for the common rooms. The Room Supervisors duties include the preparation of documentation, training users and inspections of the room.

TRAINING REQUIREMENTS
Necessary training shall be provided by the individual research groups before starting any work in the labs and shall include information about:

- The use of protective equipment
- Fire prevention
- First aid equipment
- Electronic compounds archive (ECOonline)
- Working with chemicals hazardous to health

- Reporting deviations (Achilles)
- Training in the use of equipment
- Regulations and legislations

4 CONTACT INFORMATION

The poster with Emergency Contact Information (Meldeplakaten) gives an overview of who to contact in emergency situations. Some important numbers:

Fire and major accidents	**110**
Police and Rescue Service	**112**
Ambulance	**113**
The Norwegian Poison Information Centre	**22 59 13 00**
OUH Security Central (open 24 hours)	**23 07 46 70**
Emergency admittance for serious or life-threatening situations	**73 333**
Security Service at Radiumhospitalet	**97 60 79 41**
Emergency technical assistance Radiumhospitalet	**22 93 48 78**

Useful phone numbers:

Working Environment department / OUH Department of Occupational Health and Safety	**230 75880**
Institute Safety Representative: Astrid Marie Dalsgaard (K02 119)	**22 78 13 82**
ICT support, Sykehuspartner	**(0) 32 23 53 30**
Company nurse (Building C room 2158)	(2293) **4044**

Department of Cancer Immunology	
Head of Department: Johanna Olweus	(2278) 1325
Safety Representative: Cathrine Knetter	(2278) 1323
Deputy Safety Representative: Martine Schrøder	(2278) 1441
Fire Safety Representative: Merete Thune Wiiger	(2278) 1324
Local Radiation Protection Supervisor: Merete Thune Wiiger	(2278) 1324

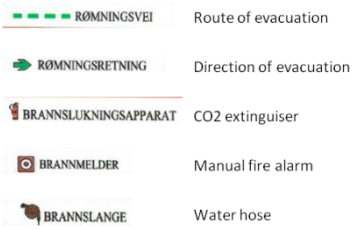
Chemical Contact Person: Merete Thune Wiiger	(2278) 1324

5 LOCATION OF PROTECTIVE EQUIPMENT

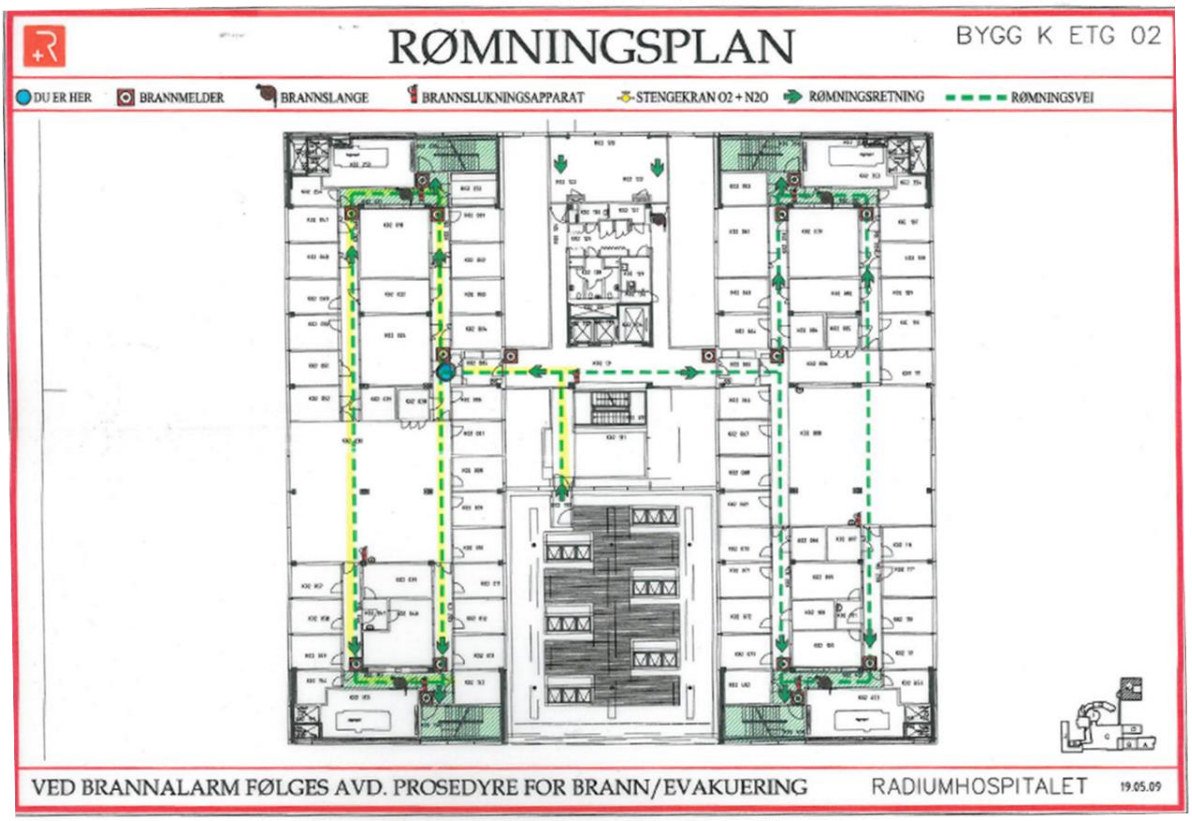
At the entrance of each department you can find a map of the department's area.

All personnel must make themselves familiar with the location of protective equipment in their area.

- First aid equipment
- Defibrillator, on 4th floor by elevator and 1st floor next to the canteen.
- Emergency shower
- Eye wash
- Chemical spill kit
- Fire extinguisher
- Emergency exit



K02 shown as an example



6 PERSONAL PROTECTIVE EQUIPMENT/CLOTHING

- The aim of protective equipment and clothing is to protect employees from being exposed to hazardous chemicals and compounds when this cannot be achieved by other means.
- Personal protective equipment and clothing is defined as all equipment – including accessories for the equipment – that is carried or held by the employee as protection against risks that can threaten safety or health when carrying out work tasks.
- Personal protective equipment and clothing shall be used when satisfactory protection cannot be achieved using technical installations in the workplace or when working methods and/or procedures are changed.

Laboratory coat

Shall be worn when working in a laboratory. The coats shall not be worn outside the laboratory. Lab coats can be found in KU2 (clean coats in KU2.140, used coats can be disposed of in the hallway). Use a dedicated lab coat when working in the cell culture rooms.

Safety glasses

Shall be worn when working with liquid nitrogen and chemicals that may cause eye damage. Safety glasses can be found in the chemical rooms (K02-004 and K03-037).

Full face shield

Shall be used when working with UV light, liquid nitrogen etc.

Thermal gloves;
Shall be used when working with liquid nitrogen and -80 degrees freezers.

Thermal apron;
Shall be used when manually filling liquid nitrogen.

Special ventilation/ Dust masks
Shall be used when working with compounds/materials that represent a health hazard or irritants in powder form. See section 7 for information about chemical handling and ventilation cabinets.

Hearing protection
Shall be used in connection with sonic work or other noise generating work.

Footwear
Use shoes that are appropriate for the work task carried out. Do not wear open toe shoes in the lab.

Gloves
Shall be worn when carrying out work with hazardous compounds, biological materials and when you need to protect your samples (e.g. RNA). In addition, gloves shall be worn when using equipment labeled with "Use gloves". The type of gloves to be worn shall be selected according to use, to provide the best possible protection of the user. See section 8 in the SDS of the compounds to be worked with. It is important to remember that if gloves come in contact with chemicals, this can change the quality of the gloves and thus permeability to other types of chemicals. This also applies if one sprays the gloves with a disinfectant such as antibac. It is therefore recommended not to use antibac *on the glove itself* when working in e.g. the cell lab, especially if one performs an experiment with harmful chemicals.

REMEMBER that no gloves provide 100% protection and that concentration and mixture of chemicals may affect penetration time. When working with hazardous chemicals, change gloves BEFORE penetration time is reached, and immediately if you suspect spillage. Then wash your hands before putting on new gloves. If needed, use two pairs of gloves to increase safety.

You may contact e.g. VWR for guidance for which gloves to use.

Change gloves often. In case of any spill or contamination, change gloves immediately. Do not touch door handles, cabinet doors, chairs, telephones, light switches, keyboards etc while wearing gloves. When in a corridor, one hand shall ALWAYS be glove-free.

7 eHÅNDBOK AND ECOonline (ELECTRONIC COMPOUNDS ARCHIVE)

7.1 eHåndbok

The eHåndbok is an electronic handbook that embraces all electronic documentation at Oslo University Hospital (OUH; OUS in Norwegian). All governing documents shall be written, approved, updated on a regular basis and made available here. For Department of Cancer Immunology this applies to specific working methods with safety assessments to improve the health and safety of the employees. The eHåndbok contains documents for Oslo University Hospital and are split in two levels:

- Level 1 (Nivå 1): Common governing documents.
- Level 2 (Nivå 2): Within "Kreftklinikken" - "Institutt for Kreftforskning" you find information about the work carried out at the Institute, and in the folder "Seksjon for Kreftimmunologi" you find documents concerning our department.
- For those working in the animal facility (Department of Comparative Medicine), you find guidelines and procedures within the folder "Oslo Sykehusservice" - "Forskningsstøtte" - "Komparativ medisin".

How to access eHåndboken?

All documents at our Department are published online, they can be found on internet:
https://ehandboken.ous-hf.no/ (eHåndboken OUH)
https://ehandboken.ous-hf.no/folder/87 (All documents for Institute for Cancer Research)
https://ehandboken.ous-hf.no/folder/354 (Documents for Department of Cancer Immunology)

These documents may also be found by using an app for cell phones. The app can be downloaded here: Android or iPhone/iPad. The app may also be used offline.

eHåndboken can also be found on the intranet page of Oslo University Hospital to the right, within the folder ”Tjenester”:
http://intranett.ous-hf.no/ikbViewer/page/ous/mittskrivebord/forside

Unfortunately, this page does not work from Forskernet and you need to use a hospital network (sykehusnett) computer. To get access to the hospital network, call IT-service: (0) 32 23 53 30 and ask for a password to the hospital network (Username is the same as for forskernet).

Hospital network computers are located here:
- 2nd floor: K02-049
- 3rd floor: K03-001/008/009/028, K04-061, K06-063/116.

Remember! Documents in the eHåndbok are governing for ALL employees and shall be followed.

Contact the safety representative if you have questions.

7.2 ECOonline

All departments are obliged to register hazardous chemicals in the electronic compounds archive ECOonline used by OUH. It is recommended to register non-hazardous compounds as well.

- Hazardous chemicals are defined as chemical materials or compounds that may represent a danger to health, the environment; fire or explosion. A safety datasheet (SDS) issued by the manufacturer/retailer shall be available for such materials and compounds and shall be filed in the electronic compounds archive.

- All employees shall have access to the SDS and know how to use ECOonline.

This work is mainly carried by our chemical contact person in collaboration with the Working Environment Department. Inform the chemical contact person when receiving compounds that are not already registered in ECOnline.
The purpose of chemical registration in ECOonline is to ensure updated documentation of hazardous compounds, local and global risk assessment, substitution assessment to less hazardous compounds, waste number (see section 8.8 Chemical waste for more information) and location of the chemical. ECOonline is also an exposure register giving the employer an overview of all employees that may have been exposed to a certain compound. This information is stored for 60 years, making it possible to retrieve even after ended work.

Access to ECOonline:

Log in to http://www.ecoonline.no with Company Code (Firmakode): 4; User Name (Brukernavn): kreftfor; Password (Passord): kreftfor

ECOonline has recently been updated, and when logging in you'll find several videos with information on how to use the archive.

Note! Most SDSs in ECOonline are in Norwegian. An internet search with the chemical CAS number will provide SDS in English. Norway follows the EU legislation for classification and labelling of chemicals.

Please contact the chemical contact person or safety representative if you have questions.

8 CHEMICAL HANDLING

You shall ALWAYS read the SDS of the chemicals to be used BEFORE you start working with them!

8.1 Buying chemicals

- All chemicals shall be registered. When you obtain an un-registered chemical or kit: Send an email with details to the chemical contact person.
- Absolute ethanol must be ordered through approved purchasers: Cathrine Knetter and Merete Thune Wiiger.
- Remember to ALWAYS label all chemicals with date and if necessary, name of group.
- Everyone is obliged to do a substitution assessment of hazardous chemicals. If no substitution is possible, always buy the chemical in smallest possible amount and only if necessary, in dry powder form.

8.2 Storing chemicals

Chemicals must be stored in a way that prevent or minimise potential injury or damage. Correct storage, methods and procedures are described in the SDS for the individual chemicals (see section 7 in the SDS).

Chemical reactions that result in dangerous situations may occur when chemicals are mixed together due to:

- Accidents that results in breakage
- Fire
- Failure in packaging
- The mixing of gasses and vapors from containers that are incorrectly closed or sealed

Possible reactions are:

- The development of heat or flame
- Pressure in the container; evaporation of the material
- The development of noxious or flammable gasses

Procedures for storing chemicals:

- Store chemicals in the chemical rooms (K02-004 and K03-037).
- Label all chemicals with date of opening.
- Limit the storage of chemicals to a minimum.
- Store chemicals in accordance with their characteristics. Ask the chemical contact person if necessary!
- Primary packaging shall be undamaged and suited to the purpose of storing the chemical for long periods of time.
- All containers shall be correctly labeled with the name of the chemical, volume and hazard classification (see section 8.3 SDS, HSE signs and labeling).
- Note that ALL chemicals with poisonous, cancerous, reproductive and mutagen hazards (see table with corresponding H sentences in section 8.4) **SHALL** be stored in the SN-4 lab K06.081 if in dry powder form. Chemicals that degrade over time shall be labeled with the date on which they were received.
- Hazardous chemicals shall not be stored above head-height.

- Avoid storing large volumes of flammable chemicals.

Storage of flammable goods:

- The volume of flammable goods shall be kept to a minimum.
- Store flammable goods in dedicated cupboards in K02-004 / K03-037
- Minimum volumes of flammable chemicals/goods shall be kept in laboratories, i.e. required for the purpose to hand, and these shall be returned to the storage facility immediately after use.
- Avoid storing flammable chemicals in standard refrigerators. Use EX-approved refrigerators that do not have combustion sources such as switches, lights and so forth.
- Shelves/cabinets used for storage shall be constructed from fire-retardant materials. Do not store other hazardous goods (poisons, carcinogens, acids/bases etc.) together with flammable goods.
- Adjacent to storage facilities with flammable goods there shall be equipment for gathering up chemical spill, eyebaths, fire extinguishing equipment and personal protective equipment together with waste containers that are emptied regularly.
- All rooms and shelves/cabinets used for the storage of flammable goods shall be correctly labeled.

Overview of chemical storage rooms at Department of Cancer Immunology:

2nd floor: K02-004
3rd floor: K03-037

8.3 Safety Data Sheet, HSE signs and labeling

The objective of signs and labeling is to improve safety by indicating the potential hazards/risks. All chemicals and stocks shall be labeled with hazard symbols and the information shall be easy to understand and clearly visible. All employees have an obligation to make themselves familiar with the hazard symbols and what these mean.

You can find labels with hazard symbols in the weighing rooms K02-004/K03-037, or you can print out symbols in ECOonline.

All chemicals have a safety data sheet (SDS) which gives information about its hazards and how to protect yourself and the environment. In section 2 you find information about the compound's traits:

H (hazard) sentences (previously called R sentences) indicate the dangers of a substance or mixture. Chemicals are also assigned a hazard symbol that informs about the damage that can occur during handling.

P (precautionary) sentences informs about what precautions one must take when handling and storing the chemical, in addition to first aid measures.

In the SDS you also find information about the compound's composition (section 3), first aid measures (section 4), handling and storage (section 7), exposure control and personal protective equipment (section 8) etc.

You can find the SDS in ECOonline, at the homepage of the suppliers, or use the CAS number in an internet search.

8.4 Rules for where to handle chemicals

The objective is to ensure the safety and health of employees working with hazardous chemicals. The regulations include dry powder, concentrates, diluted solutions and waste from experiments.

The laboratories at the Institute are split into 3 safety levels (in Norwegian: "sikkerhetsnivå", shortened to "SN") as well as unclassified areas based on the degree of safety required for working with compounds that are hazardous to health. SN-2 has the lowest level of safety installations, while SN-4 is the laboratory with the most advanced installations. Beneath the room number of each room/laboratory you find its classification. Safety cabinets and hoods are also labeled with the correct classification for use (see section 8.6 for explanation of the different ventilation units).

Overview of our laboratories and ventilation units:

SN-2	Laboratory	Main labs: K02-030, K03-028. K02-051, K02-052, K03-056, K03-057, K03-040. K04-080.
	Fume hood	The hoods in the main labs. These are **not** connected to special ventilation and therefore **no** hazardous chemicals shall be handled here.
SN-3	Special lab	K02-048, K02-047, K02-039, K02-040. K03-039, K03-043, K04-078.
	Fume hood and safety cabinet	Hoods and safety cabinets are connected to special ventilation and protect the operator.
SN-4	Special lab	K06.081. Storage and handling of chemicals which represents poisonous, cancerous, mutagen and reproductive hazards (see table on page 13). This room has limited access and training is mandatory. Contact person responsible for the room for training.

	Fume hood	Hood is connected to special ventilation which is separate from the rest of the building and protects the operator.

A chemical's H sentence (which indicate the hazards of a compound or mixture) and P sentence (precautions to be taken) provide information on how to handle it etc. and you should always read the safety data sheet BEFORE starting work. In general, hazardous chemicals should be handled in SN-3 lab and in safety benches / fume hoods labeled SN-3. Only limited amounts and low concentrations can in some cases be used in SN-2 depending on the properties of the chemical.

Chemicals that require special handling are those with toxic, carcinogenic, reproductive and mutagen hazards, as well as substances that are highly reactive and flammable (see table below). Handling of dry powder of such chemicals shall only take place in the fume hood of SN-4 lab, K06.081. Subsequently, solutions shall be handled in the safety bench or fume hood labeled SN-3.

Overview of H sentences (to be found on the safety data sheet for the chemical) that require special handling:

Health	Reactivity	Fire
H350-H351: May cause cancer, suspected of causing cancer. **H350i**: May cause cancer by inhalation.	**EUH001**: Explosive when dry.	**H224**: Extremely flammable liquid and vapor.
H340-H341: May cause genetic defects, suspected of causing genetic defects.	**H240-H241**: Heating may cause an explosion. Heating may cause a fire or explosion.	**H242**: Heating may cause a fire.
H360-H361: May damage fertility or the unborn child, Suspected of damaging fertility or the unborn child.	**H260-H261**: In contact with water releases flammable gases which may ignite spontaneously, in contact with water releases flammable gas.	**H250**: Catches fire spontaneously if exposed to air.
H330-H331: Fatal if inhaled, Toxic if inhaled. **H310-H311**: Fatal in contact with skin, Toxic in contact with skin. **H300-H301**: Fatal if swallowed, Toxic		**H270**: May cause or intensify fire; oxidizer.

if swallowed.		
H370-H371: Causes damage to organs, may cause damage to organs.		

If in doubt: **ALWAYS** ask for advice (safety representative or chemical contact person) **BEFORE** you start your work!

8.5 Working with hazardous chemicals

- All personnel who will work with hazardous chemicals shall receive training in handling these chemicals BEFORE starting experiments. See SOP in eHåndboken at Institute level: 08.2 Chemical Handling and 08.4 Chemical spills.
- The group leader is responsible for ensuring that sufficient training is provided.
- Remember to **ALWAYS** check the SDS before handling the compound to know which precautions should be taken (personal protective equipment etc.).
- Always follow the procedure for the methods you are working with. If no procedure exists, contact your leader or the safety representative.
- All chemicals that are hazardous to health or volatile shall be handled in a safety cabinet or fume hood labeled SN-3.
- It is important to take precautions against dust from dry powder and drops/aerosol/mist. Aerosols may occur by pipetting, vortexing and centrifugation. Therefore, it is important to work in a SN-3 safety cabinet / fume hood if the chemical may represent a hazard to your health.
- Lab coat and gloves shall be used and be changed immediately if contaminated.
- Avoid underestimation of risk. You should assume that any mix of chemicals will become more hazardous than the chemicals alone, and that all compounds with unknown hazard may be highly toxic.
- A spill kit is accessible in chemical room K02-004 and K03-037.
- Chemicals that represents toxic, carcinogenic, reproductive and mutagen hazards shall never be handled in SN-2 labs. Exceptions may only be allowed in some cases:

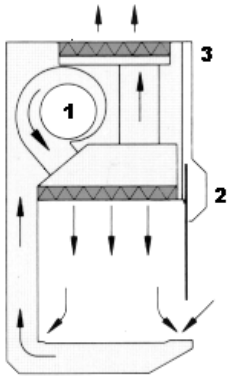
An application showing detailed procedures shall be send to head of department and only after approval has been obtained it may be allowed to work in SN-2 laboratories.

8.6 Use of ventilation cabinets

Knowledge about function of the various ventilation cabinets is important to make sure they are used correctly. The objective is to achieve optimal protection of person and product.

In general:

- The correct air flow is 0.5m / sec or more.
- Do not have a higher opening than the one indicated on the cabinet (approx. 30 cm).
- To ensure proper airflow - use calm movements and avoid having more equipment inside the cabinet than necessary.
- Safety cabinets and fume hoods labeled SN-3 can be used for handling of hazardous solutions. These shall be clearly labeled and limited to a minimum in order to avoid unnecessary risk of employee exposure. When working with hazardous chemicals, lids should be kept on as much as possible and it is important to avoid spillage! See table in section 8.4 for hazardous properties that require special handling.



LAF bench (class II) connected to special ventilation provide protection of person and product. This cabinet works by leading air beneath the work surface and up to the fan (1) which presses the air through a HEPA filter (marked in gray), excluding particles of > 0.3 µm. About 70% of the air is recycled (2) and is led down to the work surface, while about 30% is led out of the top of the bench (3) via special ventilation. Work calm to avoid turbulence in the air flow. It is also important to avoid high activity right outside the cabinet, as this creates air currents and protection of operator may cease.

- **Location:** K02-039/K02-040/K02-047/K02-048.
  K03-039/K03-043.

LAF bench (class II) not connected to special ventilation, SN2: protects product, but not person. The air is pumped through a HEPA filter back into the room and therefore NO hazardous chemicals shall be handled in this type of bench.

- **SN2 Location:** K02-039/K02-040/K02-047/K02-048/K02-051/.
  K03-039/K03-043/K03-056.
  K04-080

Fume hoods protect the person and not the product. In fume hoods air from the room outside the bench will flow over what is inside the bench and is then led out via special ventilation. Work calm to avoid turbulence in the air flow. We have both SN2 and SN3. SN2 is connected to the general ventilation. SN3 is connected to special ventilation separate form general ventilation. Make sure to know which chemicals you can work with in these fume hoods.

- **SN3 Location:** K02-004, K03-037 (chemical rooms) and K04-078.
- **SN2 Location:** K02-030, K03-028.

Alarm in fume hoods connected to ventilation:
• Orange light / beeper: Loss of air flow supply. **Stop working**.
• Red light / beeper: Lost special ventilation. **Stop working**.

To avoid unnecessary exposure the hatch must be closed. If this doesn't happen automatically, this must be done manually before leaving the room.

8.7 Chemical spill

For larger chemical spills - contact Security switchboard: 2307 4670

Evaluate the situation and do the following in the appropriate order:

- **Alert** those around you.
- If it is safe - remove spills immediately and in accordance with information found in the safety data sheet of the chemical. Remember to use the correct **protective equipment** (e.g. goggles, gloves, lab coat and face mask)! There are spill kits in the chemical rooms.
- If the chemical produces very toxic gas, activate the **fire alarm**!
- **Avoid unnecessary exposure** - close door, and fume hood / safety bench if spilling inside.
- Remember to notify the Head of Department and safety representative about the spillage. This will be registered in the Achilles improvement system (see section 12).

If spilling volatile chemicals (formaldehyde, methanol, etc.): Leave gloves / paper exposed to the chemical overnight in SN-3 fume hood before throwing it into the RISK waste box. Remember to label with name of person and chemical, date and time so others around you don't have to be uncertain about what this is.

Note! You shall ALWAYS know how to handle spills from the chemical you are using. You can find information about this by reading the Safety Data Sheet BEFORE you start working with a chemical!

8.8 Chemical waste

For questions - contact chemical contact person or safety representative!

Chemical waste is defined as chemical residues, remainders of chemicals and medium contaminated with hazardous chemicals. Such waste shall be collected in an appropriate container labeled with the right waste number.

How to handle chemical waste:

- **Waste number** can be found in ECOonline (see section 7.2) beneath "General internal product information". The waste number is given by the Working Environment Department. Contact chemical contact person if you have questions.

  When defined as "Non hazardous waste": Dispose in RISK waste box together with other non-hazardous laboratory waste.

  For a given waste number (Waste number 7 *** = Hazardous waste):
  - Residues of hazardous chemicals in powder form or in smaller quantities of solutions shall be securely closed in smaller containers / original packaging. Label with name of chemical, waste number, approximate amount, chemical group (e.g. discarded laboratory chemicals, cleaning agents) and name of department. Store in the red plastic box under the hood in the chemical rooms.
  - Larger amounts of hazardous chemicals in solution should be stored in containers (e.g. 10 liter containers) that must be properly closed to avoid leakage. Label with the department's name, waste number and percentage of content (e.g. 10% methanol). Do not overfill the containers.

Note! Only compounds with the same waste number and condition form can be packed in the same box / containers.

If you have a mixture of compounds with different waste numbers, please contact chemical responsible for advice.

Contact the chemical contact person for disposal of hazardous waste that has been collected. Hazardous waste is picked up on the first Thursday of every month at 09.20-09.50 AM at the container in the backyard (KU2) by the Working Environment Department.

- For dilutions of hazardous compounds, there are concentration limits given in the Waste Regulations that will determine whether the compound is to be treated as hazardous waste. Contact the chemical contact person for information about this.
  - ➢ It is not allowed to dilute solutions if the intention is to get below the concentration limits!

- If necessary, contact the Working Environment Department at Nicolai Bach by telephone (2307) 5885 or nicbac@ous-hf.no for questions.

8.9 Transport of chemicals

- Chemicals shall be handled and transported with care and in accordance with the instructions shown on the safety data sheets.
- Extreme caution must be exercised during the transport of materials that are unstable, explosive, extremely toxic or acutely toxic.
- The compound's primary container shall be clearly labeled with the chemical name and hazard symbol.
- Use an outer container that has the capacity to contain all the contents if spillage occurs. Never transport chemicals that may react to each another in the same container.
- Use dedicated lift for transportation between floors. The stairs shall only be used if the lift is unavailable.
- Remember to let the chemical contact person know if chemicals are relocated to keep ECOonline updated.
- Liquid nitrogen must not transport in the elevator when people are present. If the elevator is used to transport liquid nitrogen the tank must be clearly labeled with a sign stating that the elevator must not be used.

9 WASTE HANDLING

K building:

Fractions	Location
RISK waste boxes	From dedicated cabinet by the toilettes.
Glass	From dedicated cabinet by the toilettes.
Paper, cardboard and Styrofoam	From dedicated waste room by the toilettes.
Toners	To be placed in room for glass waste.
Batteries	To be placed in room for glass waste.
Normal waste	Bags collected.
Plastic	To be placed in same room as paper, cardboard and styrofoam.
Chemicals	Delivery once a month at the container in back yard. This is done by the chemical contact person.
ICT equipment	Notify IT department.
Scrap etc	Register in "Plania" (OUH intranet).

General waste

- Into black garbage bags
- Should be most of your waste.
- Wastes NOT CONTAMINATED with biological material or chemicals.
- Gloves, hard plastic, paper tissues etc.

Biohazard waste

- Anything contaminated with biological material.
- Small yellow containers with sharps.
- Yellow cylinder with serological pipettes.

Pipette tips and serological pipettes

- Small yellow containers with a plastic bag shall be used for pipette tips. When the plastic bag is full, place it in RISK waste. Reuse the yellow container with a new plastic bag.

- Serological pipettes should be disposed of in yellow cylinders. When cylinder is full, place it in Biohazard box.

Sharp objects

- Sharp objects, such as needles, must be disposed of in small yellow boxes with lid. When the containers are full, they shall be placed in the RISK waste container.

Liquid waste

- Check Eco Online for correct disposal of chemical waste.
- Dispose of in container with virkon → let sit for 30min. -> Pour liquid in sink.
- Liquid containing antibiotics -> dispose of in a closed container (i.e. old media bottle) -> when full, place bottle in biohazard box. We are not allowed to pour liquid containing antibiotics in the sink.

Plastic

- Only clean, dry and soft plastic can be recycled. We cannot recycle hard plastic at OUS.
- Collected in designated bag in general lab.

General information:

- RISK waste boxes shall always be labeled with a yellow sticker completed and signed by the user.
- In case of leakage, missing label and similar a red label shall be affixed by waste collection employee who identified the problem. The waste must then be re-packed before collection.

Moving: Oslo University Hospital HF has a framework agreement with an external company. Register case in "Plania".

- The company will contact the department and execution of the task agreed.
- The invoice is charged to the department's cost centre.

10 RISK OF INFECTION WHEN WORKING WITH BIOLOGICAL FACTORS

- The goal is to ensure that all employees that work with contagious biological factors are fully aware of how to protect themselves and the environment. Contagious biological factors include virus, bacteria, fungus, cells, gene-modified organisms (GMOs) and blood / cells from patients.

  If you are going to work with blood / cells from patients or buffy coats it is recommended to have a hepatitis B vaccine. Contact company nurse at phone number (2293) 4044, located in building C room 2158.

- All biological factors shall be classified according to risk of infection. Several biological factors have been classified giving information about hazard group (1-4), handling, storage, isolation, waste, filtration of air and similar.

  As an example, cells in culture are classified as biological factors in hazard group 1, meaning biological agents that are unlikely to cause human disease to employees.

Working with GMOs and bacteria, requires stringent assessment regarding potentially increased risk of infection to employees and risk of spreading to the community. All enclosed use of genetically modified organisms is subject to mandatory reporting to the Ministry of Health.

The Institute is already approved for work with several GMOs, e.g. work with *E. coli* and the introduction of plasmids. Contact the institute's GMO responsible (Tor Erik Rusten, Dept. of Molecular Cell Biology, phone: 22 78 19 20) for information regarding work already approved and for registration of GMOs before starting to work.

- Safety measures can be introduced on completion of the risk assessment, hereunder the use of protective equipment and clothing, vaccination, signs showing the hazard and enclosure measures. The guidelines to the regulations include a description of how risk assessments of biological factors should be planned and implemented.
- A plan must be prepared to deal with accidents involving biological factors. Any such accident shall be reported to employees, the management and in Achilles.
- Training shall be provided for all new employees and all other persons involved when routines are amended, and new biological factors are introduced. The same regulations apply to both students and employees. The group leader is responsible.
- The Institute has two virus labs in K06 east. Contact person: Kay Oliver Schink (Dept. of

  Molecular Cell Biology, phone 22 78 18 21.)

Further information:

Further information on working with biological factors and gene modified organisms can be found on the following web pages:

The Norwegian Directorate of Health (Helsedirektoratet): https://helsedirektoratet.no/

The Norwegian Labour Inspection Authority (Arbeidstilsynet): https://www.arbeidstilsynet.no/

11 FIRE SAFETY

It is the institute's goal to ensure that all employees, students or other users (e.g. external workers) are prepared in case of a fire situation. Everyone should possess good basic fire expertise with a focus on preventive routines and knowledge about how to act in case of an emergency.

All new employees and students at the department shall receive **training** and get sufficient information about how to act in a fire situation before they start working in the lab. The fire contact person shall provide this introduction.

- Fire contact: Merete Thune Wiiger

Fire protection training shall provide a basic introduction to:

- Escape routes, meeting places and fire protection measures present in the building.
- Introduction to responsibilities and duties.
- Basic training in the use of extinguishing agents, evacuation of persons and immediate measures to prevent spread of smoke and fire.
- Local fire instructions and emergency plans.

All employees at OUH shall annually conduct 2 out of the 3 following:

- Fire prevention English classroom course
- "Brannvern ved OUS" in Læringsportalen (available in norwegian only.)
- Fire safty drill

12 HANDLING OF DEVIATIONS: THE IMPROVEMENT SYSTEM ACHILLES

Registration and handling of deviations is a tool for continuous improvement of the working environment.

All HSE deviations must be reported to the Working Environment Department, and that is done in the electronic deviation/improvement system Achilles. The obligation to report includes near-incidents and/or risk of injury/damage when the consequences could have been serious.

Incidents that **SHALL** be registered:

- Unwanted events that have caused major or minor damage to employee or material / building.
- Unwanted events, near-accident and persistent risk factors that could have resulted in injury to employee or material / building.
- Unwanted events / conditions that affect the working environment and / or health of employees.

- Unwanted incidents when using equipment / equipment failure / complaints on equipment (disposable equipment, medical technical equipment or other equipment) that can pose a risk.
- Unnatural deaths.
- Break of law, regulations or deviations from governing documents / routines.
- Events that are reported to the public authority / supervisory authority by the duty of notification (see poster with Emergency Contact Information. In Norwegian "Meldeplakaten") must always be registered internally as well.

The following events and circumstances **may** be registered according to employee's own assessment:

- Improvement suggestions.
- Incidents or near-accidents with no significance for health that can and should be prevented for other losses, e.g. substantial waste of time or use of resources in general.

Notification of unacceptable, unlawful or unethical aspects at the department shall be reported to the nearest leader or to the leader higher up the line. Safety representatives and union representatives can also be notified.

12.1 How to report a HSE deviation

Deviations are reported in the improvement system Achilles.

Electronic notification of deviations can only be done from the OUH intranet. Computers with OUH intranet:

- K02-049, K03-001/008/009/028, K04-061, K06-063/116.

The registration shall be done by the person who identified the deviation with assistance from the safety representative, if necessary. The deviation will be reported to the department leader and safety representative through the deviation system.

12.2 Responsibility in deviation handling

The person who identifies the HSE deviation shall report the HSE deviation to the responsible leader and safety representative to secure him/her and others against injury.

The department leader is responsible for reporting all HSE deviations that result in injury, damage or major loss in connection with health, the environment and safety, including near-incidents when the consequences could have been serious in Achilles. The department leader is responsible for following up the deviation with preventive measures and closing the deviation. If the deviation cannot be closed by the department leader he/she is responsible for sending them to the right person (to be done in Achilles).

The Working Environment Department receives, registers, and prepares analyses of the deviation reports, but is not responsible for follow-up.

For more detailed information see: The Procedure for Deviation Handling in the eHåndbok.

13 HARASSMENT

There is zero tolerance for any kind of harassment, including bullying and sexual harassment, at OUH.

Leaders at all levels at OUH are obliged to provide a safe work environment for all employees.

If you experience or witness harassment you have the right and duty to report this to your closest leader, safety representative (verneombud) or union representative (tillitsvalgt).

If you do not want to report to you closest leader, you may go to the leader above, i.e Head of Department or Head of Institute.

In cases where it's not possible to report to your closest leader or the leader above, you may report to the Hospital legal director, (Sykehusets varslingsombud ved juridisk direktør: Randi Borgen), HR or The Norwegian Labour Inspection Authority (Arbeidstilsynet).

Please see procedure in eHåndboken level 1(in Norwegian only); Trakassering-håndtering av mobbing og seksuell trakassering.

14 AKAN

AKAN is a competence center for drug and addiction issues. AKAN's purpose is to prevent drug and addiction problems, which includes giving advice, guidance and training on how to handle issues with work-related drug use and gambling.

Oslo University Hospital works according to the AKAN model, where the aim is to prevent and help employees with an addictive problem so that they can keep their jobs.

To get advice on what you should do - call AKAN's guidance phone (+47 22 40 28 00) or contact AKAN head office (union representative who assists the employees in individual cases), HR in the clinic, the Working Environment Department (assists the employer and employee in individual cases), or nearest leader at the earliest possible time.

All involved in the AKAN work have an obligation of confidentiality!

Website: www.AKAN.no

15 LEGISLATION

HSE is regulated by a number of laws and regulations, such as the Working Environment Act. They can be found here:

https://lovdata.no/

16 EXTERNAL LINKS

- Arbeidstilsynet www.arbeidstilsynet.no
- Direktoratet for samfunnssikkerhet og beredskap www.dsb.no
- Statens forurensningstilsyn www.sft.no
- Næringslivets sikkerhetsorganisasjon www.nso.no
- Lovdata www.lovdata.no

English names:

- The Norwegian Labour Inspection Authority in www.arbeidstilsynet.no
- The Norwegian Directorate for Civil Protection www.dsb.no
- The Climate and Pollution Agency (the former SFT) www.sft.no
- Næringslivets sikkerhetsorganisasjon www.nso.no (No English name)
- Lovdata www.lovdata.no Some English language translations available at http://www.ub.uio.no/ujur/ulov/