Karolinska Institutet

Neo Document

Spill of Hazardous Material

Reference number (Dnr):	Version:	Date (prod./rev.):
	1.0 1.5 / Rev 2022.04 (69)	2018-10-26 2022-04-28 11:08

Created by:
Neo Work Environment Group / HO

Approved by:
DRAFT

Neo/Departments of: Biosciences and Nutrition (BioNut); Clinical Science, Intervention and Technology (Clintec); Laboratory Medicine (LabMed); Medicine Huddinge (MedH/HERM, LipidLab); Medicine Solna (MedS); Neurobiology, Care Sciences and Society (NVS)

Spill of Hazardous Material

Spill or incorrect use of chemicals or other material that have serious impact on environment and health must be handled properly.

Every lab should have some basic material to handle spill, absorption pads , Vermiculite and some deactivation agents if needed, e.g., sodium hypochlorite, readily at hands. Smaller spill kits and other spill handling material can be picked up from service group storage, 8618, to be locally stored in your lab. A spill trolley for lager spills is located in the service group chemical storage, 8810. Sodium hypochlorite solutions are stored in 8810.

Never let the cleaning staff remove any spills. They do not have the necessary training for this kind of cleaning.

SEVERE accident with injuries or if it is a high risk for injuries or other damage.

- Press the **spill-warning button** in the lab corridor and warn other people in the area
- Press **the fire/evacuation alarm button** in case of
  - a large spill of a highly hazardous chemical that may be air born, e.g., has high vapor pressure
  - an uncontrollable leak of hazardous gas that is not ventilated out
  - clean up procedure that requires special protection equipment and it is an immediate danger to remain in the building/section
  - suspicion of unknown hazardous substance spreading in the building (strong smell or other indications).
- Evacuate the section or the building and go to the assembly point
- Call 112 for emergency services/räddningstjänsten if
  - You have pressed the fire/evacuation alarm button (to inform them of what has happened).
  - If a person has severe injuries and needs medical treatment.

Spill / local warning button and flashing light

Emergency procedure for (larger) spills of HAZARDOUS[1] material

If hazardous material is spilled, it is important to act quickly so that no one will be harmed:

1. Press the spill-warning button in the lab corridor and warn other people in the area.
2. Seal off the area, use the "Caution" sign in the spill kit[2]
3. Read the risk assessment (written locally) or the Material Safety Data Sheet (SDS) to find out how the spill should be cleaned up safely. If you are uncertain, consult KIs chemical expert or biosafety staff.
4. Clean-up the area ***only*** if you can do it without any major risk.
4. When clean-up help is needed call for local help and/or contracted company.
5. Put on the necessary protective equipment, lab coat, gloves[3] suitable for the hazard in question, goggles, boots, and shovel or similar.
6. Put an **absorbent pad**[4] on the spill. **Vermiculite** may be used, but that will be a bit messy (You may also use paper, if the spill is not too large)

Evacuation / fire alarm button

Warning sign for spill or other temporary hazards

---

1 You may use the local alarm warning even if it is not very hazardous, e.g., a spill of water that people may slip on, or some non-hazardous powder that you do not want people to step into before you have cleaned the area.

2 or download it from https://staff.ki.se/media/125345/download

3 See Neo - gloves, chemical resistance (https://staff.ki.se/media/86335/download) to chose appropriate gloves.

4 Absorbent pads and vermiculite can be found in the spill kit and a kit should preferable be located in the lab. Containers with vermiculite should also be placed in the labs.

Emergency procedure for spills of radioisotope material

7. See the "*Emergency routines for spills of radioisotope material*"[5] document

Emergency procedure for (larger) spills of hazardous BIOLOGICAL material

8. Pour disinfectant, e.g sodium hypochlorite[6] (the risk assessment regulates how to decontaminate), on top of the absorbent and **leave it until the biohazard is deactivated**.
   (By covering the biohazard before pouring deactivating solution on top of it, forming of microdroplets containing biohazards is avoided. Formed microdroplets are airborne, so the hazard may spread over a large area)

Emergency procedure for (larger) spills of hazardous CHEMICALS[7]

9. In some cases a deactivting agent may be needed before cleaning up. The risk assessment regulates how to do a clean up.

Clean-up, labelling and transport

10. Collect the absorbent in a plastic container (Figure 1) with a tight lid. Close the lid properly.
    Or put it in a yellow plastic bag, seal the bag with cable ties and put the bag in a waste box for chemicals (Figure 2) or in a yellow bin (Figure 3) for contigous waste whichever is applicable.
    Contaminated gloves et cetera can be put in the same container.
    Clean the outside of the container so that no person handling it later on get contaminated.
11. Labelling, use appropriate labels, see Containers and labels below
    Chemical spill: Put a label "**Chemical waste**".
    Biohazard spill: Put a label "**Deactivated *<name of the biohazard>***".
12. Fill in all fields on the label with the text: "Spill of xx" (xx is the name of the chemical/biohazard) and possibly also the text "absorbed in yy" (yy is the name of the absorbent). If a biohazard, the deactivating method should be stated.
13. Ensure that the waste will be collected and transported away.
14. The waste should be handled in accordance with KI rules on waste management.[8]
15. Clean the floor properly. Use water and/or ethanol for this, and if needed some detergent.
16. Report the incident, inform your lab manager and PI and use the web based incident report system, https://ki.se/en/staff/reporting-incidents.

Larger unintentional releases of environmental and health hazardous chemicals to sewers

See "If Something Happens - In Case of an Emergency"[9] and "Instructions for emergencies such as major spills and emissions of hazardous chemicals"[10]

---

5 Emergency procedure for spills of radioisotope material, https://staff.ki.se/media/146625/download

6 or other disinfectant you know is suitable for deactivating the organism in the spill

7 See "Instructions for emergencies such as major spills and emissions of hazardous chemicals", https://staff.ki.se/media/117265/download

8 KI rules for laboratory waste management (https://staff.ki.se/media/27195/download)

9 Neo - in case of an emergency, https://staff.ki.se/media/559/download (in https://staff.ki.se/safety-in-neo)

10 Ch. "Major accidental discharge of hazardous chemicals to drains" in "Instructions for emergencies such as major spills and emissions of hazardous chemicals ", https://staff.ki.se/media/117265/download

Containers and labels

- Use suitable containers/bags for the spillage and label it properly.
- Use a suitable pre-printed Chemical Waste label (can be found in room 8618, see the Neo Document "Waste Handling"[11]) or a generic label (Figure 4).
- Fill in as much information as possible, see above.

Figure 1. 10 litre container for chemical waste

Figure 2. Chemical Waste Container

Figure 3. Yellow bin

Figure 4. Generic Chemical Waste Label

Report

Chemical spill accidents shall be reported as incidents (Sw: "*tillbud*") and to the nearest manager, https://ki.se/en/staff/reporting-incidents.

Advising/Contacts

- Neo Work Environment and Lab Safety
  - Coordinator, Håkan Ottosson hakan.ottosson@ki.se
  - Office: Neo floor 8, 8820
  - Phone: 070 262 7034
  - Phone: 08 524 81035
- KI Chemical Safety https://staff.ki.se/chemical-safety
  - Spills https://staff.ki.se/chemical-safety#heading-18
  - Coordinator, Heike Siegmund heike.siegmund@ki.se
- KIs contracted chemical expert
  - Thomas Fritze for advice, Stena Recycling AB
  - Phone: 010–445 64 81 (office hours
  - Phone: 070-560 7517 (outside office hours)
- When decontamination help is needed
  - Mikael Lönnström, FA/V, Ragn-Sells
  - Phone: 070 837 92 72 (office hours)
  - Phone: 070 927 27 57 (outside office hours)
- KI Biosafety https://staff.ki.se/biosafety)
  - Function mailbox Biosakerhet@ki.se
  - Spills https://staff.ki.se/biosafety#heading-3
  - Coordinator, Carina Bengtsson carina.bengtsson@ki.se
  - Phone: 08 524 862 89
- Department Biosafety Delegates (2022-01-11) https://staff.ki.se/media/470/download
  - BioNut: Per Antonson Per.Antonson@ki.se
  - Clintec: Lisa-Mari Mörk lisa-mari.mork@ki.se
  - LABMED: Marjan Amiri Marjan.Amiri@ki.se
  - MedH: Julian Walfridsson Julian.walfridsson@ki.se
  - MedS: Afsar Rahbar Afsar.Rahbar@ki.se
  - NVS: Johanna Wanngren johanna.wanngren@ki.se
- KI Radiation Safety https://staff.ki.se/radiation-safety
  - Radiation protection expert Sofia Skyttner sofia.skyttner@ki.se
  - Phone: 0737 12 15 79

[11] https://staff.ki.se/safety-in-neo

Related Documents and information web pages

KI Waste Management: https://staff.ki.se/waste-management

KI Chemical Safety: https://staff.ki.se/chemical-safety

Spill of chemicals: https://staff.ki.se/chemical-safety#heading-18

KI Biosafety: https://staff.ki.se/biosafety

Spills Biosafety: https://staff.ki.se/biosafety#heading-3

KI work environment: https://staff.ki.se/organisation-roles-and-responsibility-relating-to-the-work-environment (and Neo/department work environment if logged in)

Neo safety documents: https://staff.ki.se/safety-in-neo

- General safety information, https://staff.ki.se/media/558/download
- General lab rules, https://staff.ki.se/media/86325/download
- Decontamination using sodium hypochlorite, https://staff.ki.se/media/125335/download
- Neo - In Case of an Emergency, https://staff.ki.se/media/559/download
- Neo - Waste handling, https://staff.ki.se/media/557/download
- Neo - gloves, chemical resistance (https://staff.ki.se/media/86335/download)
- and more …

Revisions

Version 1.5 (2022.04)

- Added picture of spill and evacuation buttons.
- Added a footnote about spillage of non-hazardous material

Version 1.4 (2022.03)

- Updated “SEVERE accident with injuries or if it is a high risk for injuries or other damage” after comments by KI safety coordinators
- Added more direct links to Neo safety documents.

Version 1.3 (2022.02)

- Updated Biosafety Delegates
- Add reference to “Emergency routines for spills of radioisotope material”
- Added criteria/examples when to press evacuation alarm

Version 1.2 (2021.09)

- Updated links
- Updated “KIs contracted chemical expert”
- Updated “Department Biosafety Delegates”
- Added some text to the introduction: “Every lab should …”

Version 1.1 (2020.11)

- Renamed document from “Chemical Spill” to “Spill of Hazardous material”
- Added sections: Biohazard spill, “Revisions” (this section), “Related Documents and information web pages”
- Added some figures
- Added biosafety contacts, radiation safety contacts. Updated other contacts
- Head of page 1 updated with more departments
- Updated links
- Formatting

To Do in next version

- Add “A spill-kit can be found next to the fire evacuation station in the lab corridor.” to the intro text when we have them.
- Add some pictures of other labels that may be used (or not, they can be found in the waste document)
- Create a Neo page for spill?
- **Check links (must be done at every revision)**
- …