# 0. Table of Contents

[**0. Table of Contents** 1](#_Toc411000913)

[**1. Introduction** 2](#_Toc411000914)

[**Before the spill** 2](#_Toc411000915)

[**Seven-Step Plan to Clean Up the Chemical Storage Area** 2](#_Toc411000916)

[**2. Purpose** 3](#_Toc411000917)

[**3. Application field** 3](#_Toc411000918)

[**Train staff & employees** 3](#_Toc411000919)

[**4. Responsibility page** 3](#_Toc411000920)

[**5. Description of the general spill response procedures** 4](#_Toc411000921)

[**Small Spills, Local Clean-up** 5](#_Toc411000922)

[**Major Chemical Spills** 5](#_Toc411000923)

[**Cleaning Spills of Powdered Hazardous Waste** 7](#_Toc411000924)

[**Cleaning Spills of Liquid Hazardous Drugs** 7](#_Toc411000925)

[***Non-Health Threatening Emergencies (ex. spills requiring cleanup assistance)*** 8](#_Toc411000926)

[**Chemical Spill on Body (obvious contamination of gloves, clothing)** 8](#_Toc411000927)

[**Hazardous Material Splashed in the Eye** 8](#_Toc411000928)

[**6. Chemical Disposal** 9](#_Toc411000929)

[**Chemical Treatment and Disposal Options** 9](#_Toc411000930)

[**Hiring a Professional Chemical Disposal Company** 9](#_Toc411000931)

[**Read carefully for proper waste disposal** 9](#_Toc411000932)

[**7. References** 9](#_Toc411000933)

**1. Introduction**

**Before the spill**

Make a Contingency Plan. It makes good sense to plan ahead. Proper advance planning is the smart, easy way to help reduce the risk of injury to workers and lessen potential damage to the environment.

By following the steps, you will gain the confidence of knowing that your chemical storeroom is safe and organized. the process from taking a chemical inventory to storing chemicals safely and understanding chemical treatment or disposal options.

Remember to work in teams, wear the necessary protective equipment, and be prepared for any chemical spill or emergency.

**Seven-Step Plan to Clean Up the Chemical Storage Area**

**Step One**—Taking a Chemical Inventory on site:

Safely record what chemicals are in the storage area.

Write down the name of each chemical, where it is stored, and how much you have.

**Step Two**—Keep update Material Safety Data Sheets (MSDS) for all Materials at each location and review the Shelf Life.

**Step Three**—The Chemical Move:

Plan routes for best access to each location, allowing for all determining factors, such as the weather.

**Step Four**—Identify “high risk” or “spill prone” area:

**"Carcinogen" or "Hazardous drug"** are chemicals that have severe hazard alerts. Learn how to properly and safely store these chemicals for research use.

**Step Five**—Record the maximum (worste-case) quantities of liquids which could potentially spill at each location:

It depends on the volume of substance stored.

The storage area may require repairs or the installation of extra safety features such as shelf lips.

**Step Six**—Chemical Storage, Storing Chemicals by Compatible Families:

Safely store chemicals according to compatible chemical families so the chemicals do not react with each other on the shelves in your storage area.

**Step Seven**—Short-Term Storage Solutions for Chemicals Requiring Treatment or Disposal.

Select the correct type of kit and clean up accessories, based on the type of chemicals in each area.

See how to safely store these chemicals, taking extra precautions for hazardous chemicals.

**2. Purpose**

1) All workers who work with **"Carcinogen" or "Hazardous drug"** will use appropriate measures to safely clean up spills.

2) Personnel will wear appropriate PPE, as required. This includes nitrile gloves, full face protection, and lab coat.

**Equipment Needed:**

* Carcinogen/hazardous drug spill kit (available in SPP Office)
* Disposable lab coat or coveralls
* Shoe covers (optional)
* Splash goggles
* Two pairs carcinogen tested disposable gloves
* Absorbent Pads
* Scoop with detachable scraper for collecting glass fragments
* Two 20 liters plastic waste disposal bags
* One Ziploc bag for returning contaminated splash goggles to Kitchen
* Hazardous Drug Waste labels

**3. Application field**

To provide for the safe **neutralizer use for** spills from **"Carcinogen" or "Hazardous drug"**.

Policy f*or Employees Cleaning up Spills of* **"Carcinogen" or "Hazardous drug".**

**Train staff & employees**

Regular training on “Best Use” practices and methods of spill control and clean up CAN minimize potential dangers, “fine tune” response times and boost responder’s confidence.

**4. Responsibility page**

**School Administration Responsibilities:**

Work as a team with other science researchers to approach the administration, spend time with them, and show them the hazardous conditions for researchers as workers.

**Principal Investigators/Laboratory Supervisors:**

The Principal Investigators (PI) are responsible for all personnel/student working in their laboratories, who may be potentially exposed to **"Carcinogen" or "Hazardous drug"** as indicated in Document Risk Assessment (DVR).

**5. Description of the general spill response procedures**

In order to ensure timely response to spills by trained personnel, SPP and the SISSA Physician (MC) have established the following notification procedure:

SISSA employees are instructed in the "Information workers laboratory risk, Emergency Response and Incident Reporting Guide" to dial 911 or 555 from a campus phone in the event of a major chemical spill. Employees are instructed to be prepared to tell the SPP what chemicals are involved, how much was spilled, where the spill is located, the nature of any injuries, what control measures have been taken, their name, and a call back number at which they or someone else in your work area can be reached. Please make sure someone is available to answer the telephone and talk with the Spill Responder from SPP.

***To activate the spill response, the dispatcher calls one of two phone numbers:*** **First Aid and Emergency services in SISSA**

In SISSA is running

- an internal telephone number, and a dedicated e-mail address for in-charge First Aid operators:

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| 040 3787 911  | (#**911**) (this can also be found on **First Aid** boxes)  |
| 911@sissa.it  | (to report small accidents and to notify lacking of materials on First Aid boxes).  |

and

- an internal telephone number and a dedicated e-mail address for in-charge Emergency Evacuation /Fire Protection personnel:

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| 040 3787 555  | (#**555**) (**Emergency Team**)  |
| 555@sissa.it  | (to report issues related to fire starting and situations that you feel abnormal or potentially dangerous).  |

Each group includes about twenty people. A call to the 911 or 555 reaches all the operators. The phone of the operator shows the number of the calling user and the time of the call, so the operator knows who has called, even if the user has cannot terminated its call.

In case of non-response the call is diverted to the SISSA Control Room.

The activation time of 911 and 555 numbers has been set **from 9:00am to 5:00pm, working days**. During other times they are forwarded to the SISSA Control Room.

During the activation time of 911 and 555 you should not call 118 (the National Health Service) or 115 (the Fire Department). Only trained personnel belonging to the First Aid and Emergency groups can carry out an initial assessment or any intervention that could prevent unnecessary calls to 118 or 115.

Remember that throughout the [European Union](http://en.wikipedia.org/wiki/European_Union) the abuse or simple call "as a joke" of these numbers is considered illegal and punishable by law for [false alarm](http://en.wikipedia.org/wiki/False_alarm).

The following is a list of actions to be taken during a chemical spill. If you have any concerns or questions, please contact SPP at #739.

**Small Spills, Local Clean-up**

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| **In the event of a minor spill or release that can be cleaned up by local personnel using readily available equipment (absorbent, available from SPP in Small Spill Kit):**1. Alert nearby personnel in the area and restrict access.
2. Avoid breathing vapors from spill.
3. Turn off ignition and heat sources if spilled material is flammable.
4. Review the MSDS for the spilled material, or use your knowledge of the hazards of the material to determine the appropriate level of protection.
5. Wear appropriate protective equipment, such as safety goggles, suitable gloves, and long sleeved lab coat.
6. Confine spill to small area.
7. Clean up using appropriate kit to neutralize and/or absorb acids and bases.
8. Collect residue, place the contaminated absorbent in a labeled hazardous waste container and dispose as chemical waste (call #739 for waste collection).
9. Clean spill area with water.
10. It is not necessary to report hazardous drug spills to the Health and Safety Service Office (SPP) unless hazardous waste pickup is required. However, employees may call #739 (or #555) to contact SPP for telephone advice or assistance cleaning up the spill. **SPP will respond to large spills that are beyond the capacity of employees in the vicinity of the spill**.
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**Major Chemical Spills**

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| **If spill involves more than 30 ml or covers more than 30x30 cm, or if it will take longer than 15 minutes for you to clean-up, immediately call SPP at #739 (or #555) to report the spill, and notify your supervisor.****Assess the risk**1. Alert people in the area to evacuate
2. Turn off ignition and heat sources if spilled material is flammable.
3. Call **#911 in case of injury.**
4. Attend to injured or contaminated persons and remove them from exposure.
5. Assess the spill, and identify the spilled material, if possible.
6. **Always put safety first!**
7. Have person knowledgeable of the area assist emergency personnel.

**Istructions for emergency personnel**1. Obtain carcinogen/hazardous drugs spill kit.
2. **Select personal protective equipment (PPE)**: Put on safety goggles and double gloves, put on disposable lab coat and shoe covers (optional) from kit. Tuck sleeves into the outer gloves. If the material is unknown, assume the worst.
3. **Block, divert, or contain the spill**: stop the source of the spilled material, if possible. This may be as simple as closing a valve or righting a drum.
4. **Assess the incident response**: once under control, reassess the situation and develop an action plan for clean-up.
* If there are broken glass fragments, use the detachable scraper to carefully "sweep" them or other sharps into the scoop. Place these sharps in a needle box.
* Use the absorbent pads to gently cover and wipe up the spilled material. If additional absorbent material is needed, use plastic lined pads or other available materials. Place used absorbent in one of the clear 20 liters bags from the spill kit.
* Clean the area thoroughly with water. Disposable materials used in this step should go into the open bag from the spill kit.
* Technical staff should bag and label any contaminated stuff and send to Kitchen.
* Clean the area three times using a detergent solution, then rinse. (Housekeeping can be called in for this step ONLY.)
1. **Decontaminate**: decontaminate the site, personnel and equipment.
* Remove the shoe covers (if used) and outer pair of gloves. Place these into the open bag from the spill kit.
* Remove the goggles and may be washed and reused.
* Close the open waste bag (by knotting or using twist tie or tape), then place it into the second clear 20 liters bag from the spill kit.
* Remove the Disposable lab coat (or coveralls) and inner gloves. Place these into the second bag from the spill kit. Close the outer bag.
* Wash hands thoroughly.
1. **Complete final report**: complete all notifications, medical exposure reports and all paperwork associated with the spill.
* Call the SPP Office to obtain a replacement carcinogen/hazardous drug spill kit.
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**Cleaning Spills of Powdered Hazardous Waste**

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| **If you have not been trained to use a particulate respirator**, DO NOT attempt to clean up a spill of dry carcinogen or other powdered hazardous drugs yourself. Instead:1. Alert nearby persons about the spill.
2. Clear the area.
3. Call #739 (or #555) to initiate SPP Chemical Spill Response.
4. Place warning signs on the door to the room where the spill occurred.
5. If the spill occurred inside a vertical flow hood/biological safety cabinet, maintenance should not turn off the exhaust fan for the hood.
6. Re-entry to the spill area will not be permitted until the Health and Safety Service spill responders have cleaned the area and verified that it is safe to resume work duties.

**If you have been**1. Trained to use a HEPA-filtered Powered Air Purifying Respirator (PAPR), or
2. Trained and fit-tested to use a tight-fitting auto-respirator

AND have one available to you, you may clean up a powdered hazardous drug spill by following the procedures found below.**In addition to the respirator, you will need all of the equipment listed under the section** "**Equipment Needed**".1. Put on FFP3 respirator, half- or full-face Powered Air Purifying Respirator (PAPR) or a tight-fitting auto-respirator.
2. Put on safety goggles (unless wearing full-face respirator or PAPR), disposable lab coat and shoe covers (or coveralls), and two pairs of gloves.
3. Place warning signs around spill area if needed.
4. Place wet absorbent material over the spill to absorb/dissolve the dry material. Once there is no visible powder, remove the absorbent material and proceed with clean-up as outlined in the clean-up procedure for wet spills. The respirator may be removed once the wearer judges that there is no longer a possibility for aerosolization of wet or dry hazardous drugs. FFP3 respirators should be discarded. Other respirators should be put in a ziploc bag and decontaminated before reuse. The cartridges should not be reused.
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**Cleaning Spills of Liquid Hazardous Drugs**

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| These instructions are provided with hazardous drugs spill kits so that, whenever possible, spills of LIQUID hazardous drugs can be handled by employees in the area of the spill. Hazardous drugs are those marked "Carcinogen" or "Hazardous drug" by the SPP.1. Employees may call #739 (or #555) to contact SPP for telephone advice or assistance cleaning up the spill. Technical Staff will respond to large spills that are beyond the capacity of employees in the vicinity of the spill.
2. Alert nearby persons about the spill.
3. Remove all personnel from immediate area around spill.
4. Open one packet for up to **"Carcinogen" or "Hazardous drug"** of Tissue Neutralizer (or other, as approved). Sprinkle powder over spill.
5. Wait 15 minutes to ensure neutralization is complete.
6. Wipe up with paper towels or other absorbent.
7. Dispose of waste in non-regulated trash or down drain.
8. Ensure a replacement packet of neutralizer is on hand or order replacement packet.
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***Non-Health Threatening Emergencies (ex. spills requiring cleanup assistance)***

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| **In the event of a spill or release, which may or has impacted the environment (storm drain, soil, air outside the building), or spill or release that cannot be cleaned up by local personnel:**1. Notify SPP Responders: #739 (or 681 Presidio Tecnico 24 hours/day, 7 days/week).
2. Provide local notifications to your supervisor.
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**Chemical Spill on Body (obvious contamination of gloves, clothing)**

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| * Flood exposed area with running water from faucet or safety shower for at least 5 minutes.
* Remove all contaminated clothing and shoes (if applicable) to prevent risk of additional skin contact with the spilled drug.
* Wash the affected skin area with soap (not germicidal cleaner) and lukewarm water.
* Obtain medical attention, if necessary.
* Fill out the appropriate incident report form.
* Place any contaminated linens in a laundry bag.
* Place other (personal) contaminated clothing in a sealed plastic bag. If it will be laundered, double bag for transport, then wash twice before combining with other laundry (as well for Prion labs coat). If it will be discarded, place it in the open bag from the spill kit.
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**Hazardous Material Splashed in the Eye**

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| * For eye exposure, immediately rinse the affected eyeball and inner surface of eyelid with water or isotonic eyewash (or normal saline) continuously for at least 15 minutes.
* Forcibly hold eye open to effectively wash behind eyelids.
* **Obtain medical attention** as soon as possible.
* Fill out the appropriate incident report form.
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**Reporting Requirements for ALL Incidents**

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| **Additional Information**1. Any drug spill during experiment should be documented in your local Safety Reporting System and submit as follows:
* Employees who are exposed must fill out a Report of Work-Related Injury/Illness and send to Principal Investigator/Laboratory Supervisor, MC and SPP.
* If employees injury occurs, notify Human Resources (#257) and SPP (#739) immediately.
* if a visitor is exposed, notify SPP Management.
1. For information about the hazards of the spilled drug, ask for or look for a [Material Safety Data Sheet](http://www.safety.duke.edu/OHS/MSDS.htm) (MSDS) by contact the SPP or use the web page (for most SISSA Health System employees, the link is \\nbadsrv2\Public\Chemicals2014).
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**6. Chemical Disposal**

**Chemical Treatment and Disposal Options**

Learn how to understand legal European Waste Code (CER) requirements, identify hazardous waste, treat chemicals in the laboratory, and reduce the overall amount of hazardous waste.

**Hiring a Professional Chemical Disposal Company**

A professional chemical disposal company should be EPA certified and able to provide extensive references.

**Read carefully for proper waste disposal**

Improper disposal can mean large fines: determine a location where the bag can be left for a few days without being moved or thrown in the trash. Contact the Health and Safety Service Office at #739 to arrange for waste pick-up. Be prepared to give the name of the drug, location of the waste bag, and the name and telephone number for a responsible person who will be available during business hours. Label with "Hazardous Drug Waste" and put them on the bag, then put bag in location described to SPP.

Put the knotted bag of spill waste directly into a biohazard container (WITHOUT labels).

**7. References**

Duke University, UCLA University, New Pig BV.