STANDARD OPERATING PROCEDURE

Laboratory Chemical Spill Response SOP

Document no.	SOP-LAB-003
Revision	1.0
Owner	Safety Officer
Effective date	September 15, 2026
Review cycle	Every 12 months

1. Purpose

To protect people and property by giving lab staff a clear, consistent response to a chemical spill, from immediate containment through cleanup and incident reporting.

2. Scope

Applies to spills of chemicals used or stored in the laboratory, from small bench-top spills to larger releases requiring evacuation. Biological spills are covered by the biosafety cabinet SOP.

Definitions

Incidental spill	A small spill within the capability of trained lab staff to clean up safely using the spill kit.
Emergency spill	A large spill, or one involving a highly toxic, flammable or reactive chemical, that requires evacuation and outside emergency response.
SDS	Safety Data Sheet describing a chemical's hazards, handling and spill response information.

3. Responsibilities

Lab Technician	Alerts others, evacuates if needed, and cleans up incidental spills using the spill kit.
Safety Officer	Assesses emergency spills, coordinates evacuation and emergency responders, and oversees decontamination.
Laboratory Manager	Reviews the incident report, approves the room's return to service and tracks corrective actions.
Emergency Responder	Handles spills beyond staff training, such as large or highly hazardous releases.

RACI matrix

Activity	Lab Technician	Safety Officer	Laboratory Manager	Emergency Responder
Alert nearby staff and assess the spill	R/A	C	I	-
Decide to evacuate and call for emergency response	R	A	I	C
Clean up an incidental spill	R/A	C	I	-

Activity	Lab Technician	Safety Officer	Laboratory Manager	Emergency Responder
Handle an emergency-level spill	I	A	I	R
Approve room return to service and file report	I	R	A	-

R = Responsible, A = Accountable, C = Consulted, I = Informed

4. Materials and PPE

Materials, tools and systems

- Spill kits matched to chemicals in use (acid, base, solvent, mercury)
- Absorbent pads, pillows and neutralizing agents
- Safety Data Sheets for stored chemicals
- Eyewash station and safety shower
- Incident report form
- Warning signs and barrier tape

Personal protective equipment

- Chemical-resistant gloves
- Safety goggles or face shield
- Chemical-resistant apron
- Respirator, if trained and required for the chemical

5. Procedure

Step	Task	Owner	Done
5.1	**Alert others and stop the source** Call out to alert nearby staff, and if it is safe to do so, stop the source of the spill, such as by righting a container or closing a valve.	Lab Technician	☐
5.2	**Assess the spill size and hazard** Check the SDS for the chemical involved and judge whether the spill is small and incidental or large, toxic or flammable enough to require evacuation. **Checkpoint:** A spill involving an unknown chemical, strong fumes or more than about one liter is treated as an emergency spill.	Lab Technician	☐
5.3	**Evacuate if it is an emergency spill** For an emergency-level spill, evacuate the area, close doors behind you, and pull the fire alarm or call emergency services per the site's emergency plan. **Warning:** Do not attempt to clean up a spill beyond your training or one releasing toxic vapors.	Safety Officer	☐
5.4	**Don PPE before approaching an incidental spill** Put on chemical-resistant gloves, goggles and an apron appropriate to the chemical before approaching the spill to begin cleanup.	Lab Technician	☐
5.5	**Contain the spill** Use absorbent socks or pillows from the spill kit to ring the spill and stop it from spreading toward drains, aisles or other chemicals.	Lab Technician	☐
5.6	**Neutralize or absorb the spill** Apply the appropriate neutralizing agent or absorbent from the spill kit, working from the outer edge of the spill toward the center.	Lab Technician	☐

Step	Task	Owner	Done
5.7	**Ventilate the area** Open windows or turn on local exhaust ventilation where available to clear fumes while cleanup continues.	Lab Technician	☐
5.8	**Collect and dispose of spill waste** Place used absorbent material and any damaged containers into a labeled chemical waste bag or container for disposal through the waste disposal SOP.	Lab Technician	☐
5.9	**Decontaminate the surface** Clean the affected surface with the appropriate disinfectant or detergent and rinse per the SDS instructions, then confirm the area is dry. **Checkpoint:** No residue, odor or discoloration remains on the cleaned surface.	Lab Technician	☐
5.10	**Report the incident** Complete the incident report form with the chemical, quantity, cause and response taken, and submit it to the safety officer before the end of the shift.	Lab Technician	☐
5.11	**Restock the spill kit** Replace any absorbents, neutralizers or PPE used from the spill kit so it is ready for the next incident.	Safety Officer	☐
5.12	**Review and update precautions** Review the incident with the laboratory manager to decide whether storage, handling or training changes are needed to prevent a repeat spill.	Laboratory Manager	☐

6. Quality checks

- Spill kits matching the chemicals in use are stocked and within their expiration dates.
- Every spill, however small, is reported the same day it occurs.
- PPE appropriate to the chemical is worn before cleanup begins.
- Decontaminated surfaces are inspected before the area is returned to use.

7. Records

- Incident report form
- Spill kit restocking log
- Safety Data Sheets
- Corrective action tracker

8. KPIs

- Number of chemical spills per quarter
- Average time from spill to full cleanup
- Percentage of spills reported the same day
- Number of spill kits below stock threshold

9. Common mistakes

- Trying to clean up an emergency-level spill without evacuating.
- Using the wrong neutralizer for the chemical involved.
- Not reporting a small spill because it seemed minor.
- Leaving contaminated PPE or waste in the general trash.

10. Revision history

Revision	Date	Description	Reviewed by
1.0	September 15, 2026	Initial release	Ilia Pirozhenko

Approval

Prepared by	Approved by	Date

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