STANDARD OPERATING PROCEDURE

Laboratory Chemical Storage SOP

Document no.	SOP-LAB-007
Revision	1.0
Owner	Safety Officer
Effective date	September 15, 2026
Review cycle	Every 12 months

1. Purpose

To store laboratory chemicals so that incompatible substances are segregated, containers stay labeled and intact, and stock levels are tracked and rotated before expiration.

2. Scope

Applies to the storage of chemicals on shelves, in cabinets and in dedicated storage rooms. Spill response and disposal of unwanted chemicals are covered by separate SOPs.

Definitions

Segregation class	A grouping of chemicals, such as flammables, oxidizers, acids or bases, that must be stored apart from incompatible classes.
Secondary containment	A tray or bin placed under containers to catch leaks before they spread.
SDS	Safety Data Sheet describing a chemical's hazards, storage and handling requirements.

3. Responsibilities

Lab Technician	Puts chemicals away correctly, checks labels and containers, and reports damage or expiring stock.
Safety Officer	Maintains the segregation chart, inspects storage areas and approves exceptions.
Laboratory Manager	Approves purchases, resolves capacity issues and reviews inspection findings.
Inventory Coordinator	Maintains the chemical inventory list and tracks expiration dates.

RACI matrix

Activity	Lab Technician	Safety Officer	Laboratory Manager	Inventory Coordinator
Check compatibility before storing a chemical	R/A	C	-	I
Maintain the segregation chart	I	R/A	C	I
Update the chemical inventory list	C	I	-	R/A
Inspect storage areas periodically	C	R/A	I	C

Activity	Lab Technician	Safety Officer	Laboratory Manager	Inventory Coordinator
Approve exception for a damaged container	R	A	I	I

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

4. Materials and PPE

Materials, tools and systems

- Chemical segregation compatibility chart
- Flammable storage cabinet
- Secondary containment trays and bins
- Chemical inventory list or software
- Safety Data Sheets, physical or electronic
- Storage area inspection checklist

Personal protective equipment

- Disposable nitrile gloves
- Safety glasses
- Closed-toe shoes

5. Procedure

Step	Task	Owner	Done
5.1	**Check compatibility before storing** Before putting a chemical away, check its SDS and the segregation chart to identify its class, such as flammable, oxidizer, acid, base or water-reactive.	Lab Technician	☐
5.2	**Verify the container label** Confirm the container has an intact label showing the chemical name, hazard information and receipt date before placing it in storage. **Warning:** Never store an unlabeled or illegibly labeled container; relabel it immediately using the SDS.	Lab Technician	☐
5.3	**Store by segregation class** Place the chemical in the storage location assigned to its segregation class, keeping incompatible classes on separate shelves or in separate cabinets. **Checkpoint:** No incompatible chemical classes share the same shelf or secondary containment tray.	Lab Technician	☐
5.4	**Use secondary containment** Place containers of corrosive or hazardous liquids into a secondary containment tray sized to hold the contents of the largest container if it leaks.	Lab Technician	☐
5.5	**Store flammables in the rated cabinet** Place flammable and combustible liquids in the approved flammable storage cabinet, keeping the door closed except when adding or removing containers.	Lab Technician	☐
5.6	**Follow shelf placement rules** Store heavier containers on lower shelves, keep corrosives below eye level, and never store chemicals above eye level or on the top shelf without a lip.	Lab Technician	☐

Step	Task	Owner	Done
5.7	**Update the inventory list** Record the chemical name, quantity, lot number, receipt date and storage location in the chemical inventory list or software.	Inventory Coordinator	☐
5.8	**Check expiration and shelf-life dates** Review the inventory list monthly for chemicals nearing their expiration or recommended shelf-life date and flag them for use or disposal.	Inventory Coordinator	☐
5.9	**Rotate stock** Place newly received containers behind existing stock of the same chemical so older containers are used first.	Lab Technician	☐
5.10	**Inspect storage areas** Walk through storage areas on the scheduled frequency using the inspection checklist, checking for leaks, damaged containers, blocked exits and missing labels.	Safety Officer	☐
5.11	**Respond to damaged containers** Move a damaged or leaking container to a compatible secondary container or the spill kit area, and report it for disposal or repackaging.	Lab Technician	☐
5.12	**Keep SDS access current** Confirm the SDS library, physical or electronic, is complete and accessible for every chemical currently in storage.	Safety Officer	☐

6. Quality checks

- No incompatible chemical classes are stored together.
- Every container in storage has a legible, intact label.
- Flammable liquids are stored only in the rated cabinet.
- The chemical inventory list matches a physical spot check of storage areas.

7. Records

- Chemical inventory list
- Storage area inspection checklist
- Segregation compatibility chart
- SDS library

8. KPIs

- Percentage of storage inspections with zero findings
- Number of expired chemicals found per inventory review
- Number of mislabeled or unlabeled containers found
- Time to resolve a reported storage hazard

9. Common mistakes

- Storing acids and bases, or oxidizers and flammables, on the same shelf.
- Leaving a flammable cabinet door propped open during a shift.
- Storing a heavy container above eye level.
- Letting the inventory list fall out of date with actual stock.

10. Revision history

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

Approval

Prepared by	Approved by	Date

This is a template. Adapt it to your organization, equipment and local regulations before use.