SOP: Sample Storage and Preservation Requirements

This SOP details the **sample storage and preservation requirements**, covering proper labeling, temperature control, contamination prevention, and duration limits for different sample types. The aim is to maintain sample integrity, prevent degradation, and ensure reliable test results by following standardized procedures for handling, storing, and preserving biological, chemical, or environmental specimens.

1. Purpose

To define procedures and requirements for the proper storage and preservation of samples to maintain integrity and reliability for analysis.

2. Scope

This SOP applies to all staff handling biological, chemical, or environmental samples in the facility.

3. Responsibilities

- Laboratory personnel must follow storage and preservation protocols.
- Supervisors are responsible for ensuring compliance and training staff.
- Quality assurance personnel will perform periodic audits.

4. Definitions

- **Sample:** Any biological, chemical, or environmental specimen collected for analysis.
- **Preservation:** The processes used to prevent sample degradation after collection.

5. Procedure

5.1 Sample Labeling

- Clearly label all containers with:
  - Unique sample identification number
  - Date and time of collection
  - Type of sample and preservation method
  - Name/initials of the collector
- Use waterproof labels and indelible ink.

5.2 Storage Requirements by Sample Type

Sample Type	Storage Temperature	Duration Limit	Preservation Method
Blood	2â€“8Â°C (Refrigerated)	Up to 7 days	EDTA/heparin tubes; avoid freezing whole blood
Urine	2â€“8Â°C (Refrigerated)	Up to 24 hours	Acidify for chemical analysis if needed
Soil	â‰¤4Â°C (Refrigerated)	14 days	Avoid drying; store in airtight containers
Water	2â€“8Â°C (Refrigerated)	48 hours	Add preservative (e.g. sodium thiosulfate for chlorine removal)
Tissue	â€“20Â°C to â€–80Â°C (Frozen)	Up to 6 months	Store in cryovials or suitable freezer containers
Chemical Standards	As per manufacturer	Check expiration date	Store tightly sealed, away from light/moisture

5.3 Temperature Control

- Monitor temperatures daily using calibrated thermometers.

- Record temperatures in a log; report deviations immediately.

5.4 Prevention of Contamination

- Store samples in clean, sealed containers.
- Avoid cross-contamination by using separate storage racks/trays for different sample types.
- Wear appropriate PPE during handling and storage.

5.5 Sample Disposal

- Dispose of samples after the storage duration or upon completion of analysis per facility waste protocols.

6. Documentation and Records

- Maintain sample logbooks documenting:
  - Sample ID, type, preservation, and storage location
  - Date/time of storage and removal
  - Condition on removal
- Retain records for a minimum of 2 years or as per regulatory requirement.

7. References

- Applicable regulatory and industry guidelines (e.g., EPA, CDC, ISO)
- Manufacturer storage recommendations