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United Nations

# HANDLING AND PREPARATION OF SOIL SAMPLES FOR CHEMICAL AND PHYSICAL ANALYSES

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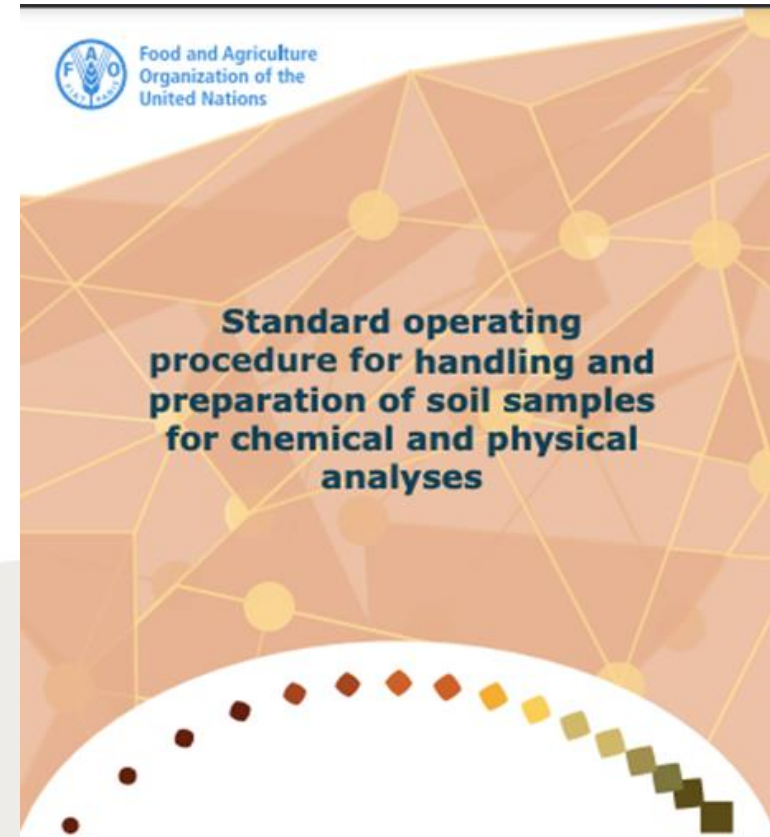
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## I. OBJECTIVE

The overall aim of this SOP is to provide guidance on the handling and preparation of samples prior to chemical and physical analysis while ensuring that samples are prepared in a reproducible and standardized manner.



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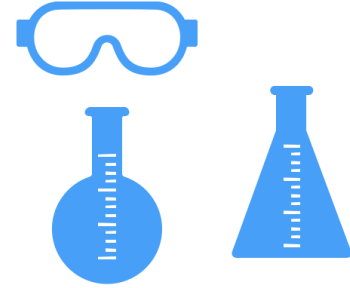
## II. ROLES AND RESPONSABILITIES

### Lab Manager:

- Supervise sample preparation procedures
- Ensure that safe handling and disposal of samples by staff and
- Ensure that import/export restrictions on samples are taken into account.

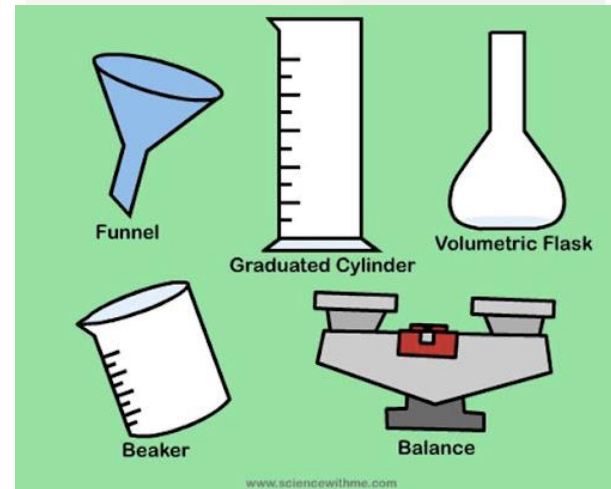
### Lab Member:

Plan and organise all operations in accordance with the procedures.

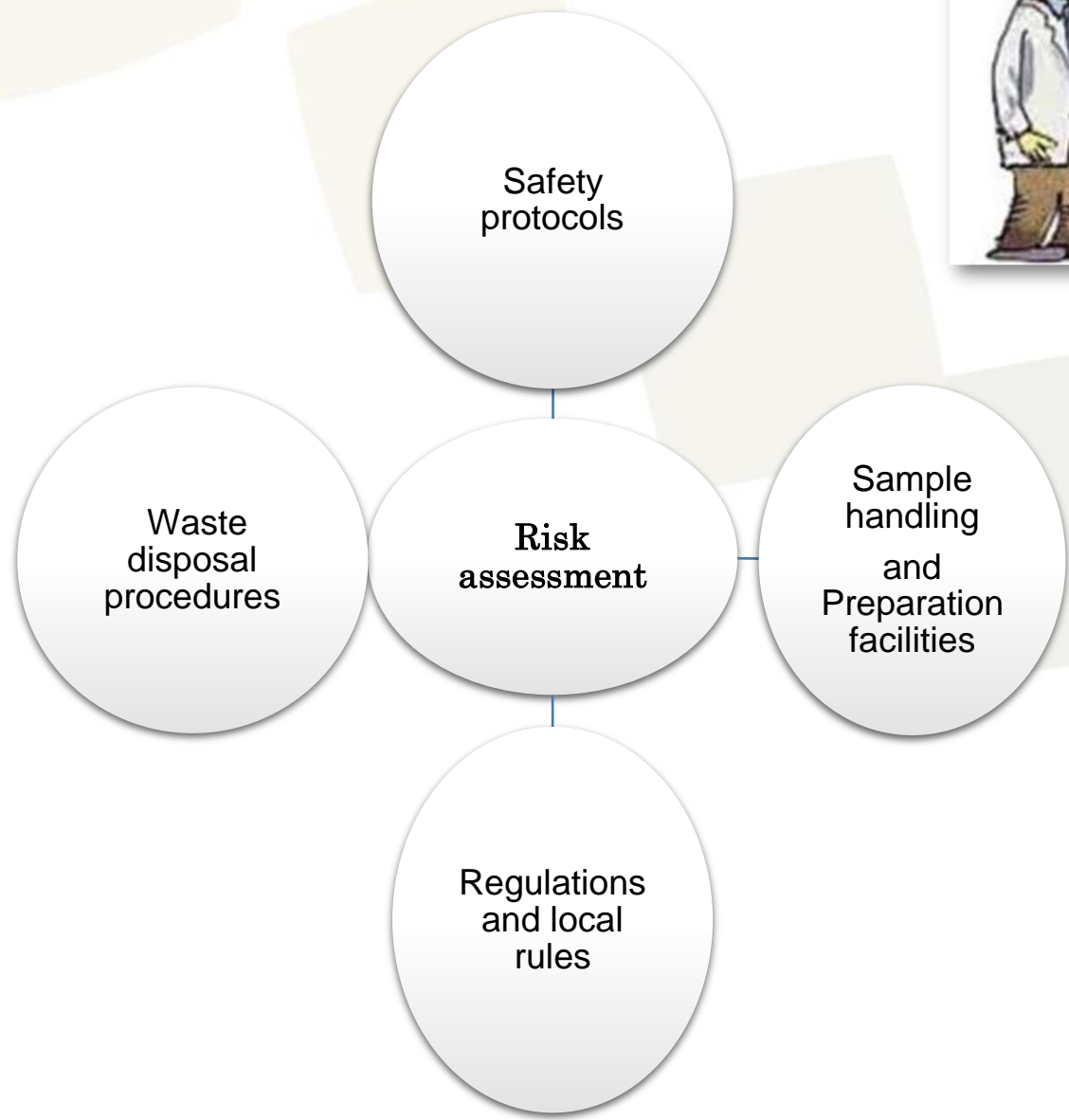


### III. APPARATUS

Equipment used for the preparation of soil samples for analysis should conform to the requirements of the analytical methodologies e.g. **avoid metal contamination** and in conformity with the relevant technical procedures (traceability of samples, records and maintenance, safety).



# IV. HEALTH AND SAFETY



		Oxidizing	Flammable	Corrosive: ACID	Corrosive: BASE	Health hazard / toxic
Oxidizing						
Flammable						
Corrosive: ACID						
Corrosive: BASE						
Health hazard / toxic						

LEGEND

Not Compatible	Store according to SDS Section 7 and 10	Compatible
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Explosive chemicals and compressed gases can not be stored with any other chemicals

Separate liquids and solids

Chemicals that ONLY have these pictograms can be stored outside of the ventilated storage area.

In case of multiple hazard pictograms the following order should be considered

Note that two chemicals can have the same pictogram and still be incompatible!

Example: Acetic acid and triethylamine are both flammable, but cannot be stored together because they are an acid and a base.

Physical Hazards				
Explosives	Flammable Liquids	Oxidizing Liquids	Compressed Gases	Corrosive to Metals
Health Hazards				Env. Hazards
Acute Toxicity	Skin Corrosion	Skin Irritation	CMR <sup>1</sup> , STOT <sup>2</sup> , Aspiration Hazard	Hazardous to the Aquatic Environment

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# V. PROCEDURES

## 1. Soil Registration

Sample receipt should be carried out by the primary laboratory contact who keeps records, using an appropriate sample registration form (SRF) in paper or electronic format.

### Informations to include:

- ➔ Customer sample identification,
- ➔ Preparation and analytical processes required,
- ➔ Number and type of sub-samples needed.

FORM AD1 (revised August 2003)

**SOIL SAMPLE INFORMATION**

Complete information sheet and return with sample(s).

GROWER INFORMATION — Please Print

LAST NAME	FIRST NAME	PHONE	NAME OF OTHER RECIPIENT	PHONE
ADDRESS			ADDRESS	
CITY	STATE	ZIP CODE	CITY	STATE ZIP CODE
COUNTY (where samples were taken)	TOTAL NO. SAMPLES	FARM ID#	E-MAIL ADDRESS	

# V. PROCEDURES

## 2. Sample description

→ **Sample description:** Soils registered for analysis are described on an **'as received' basis**, prior to any sample preparation, including drying.

→ **Unique sample identifiers** should follow with each sub-sample created to ensure traceability.

Name \_\_\_\_\_

### Sampling Soils

Use the table below to record details and observations about your soil sample.

	Soil 1	Soil 2
Where is your soil sample from?		
Describe the <b>texture</b>		
Describe the <b>smell</b>		
Use your finger to smear a <b>colour</b> sample of your soil		



# V. PROCEDURES

## 3. Preparation of material

### Initial Drying



Air drying in a ventilated area or drying Oven at slightly above ambient temperature is preferable ( $35 \pm 5 \text{ }^\circ\text{C}$ )

### Disaggregation and sieving at 2 mm



Clods are crushed gently and grounded with the help of wooden pestle and mortar and then sieved at 2 mm

### Homogenization with a barrel roller



Homogenization of the whole material should be done in one time



# V. PROCEDURES

## 4. Subsampling of material

Sub dividing bulk material using a Riffle splitting, cone quartering or random sub-sampling



Division into individual parts must be carried out in a way that is representative by reducing the variation between sub-samples

Packaging and Labelling



Samples should be placed in bags to protect them from moisture, pests, spillage or contamination

Storage and disposal



Prepared materials should be kept in inert, leak-proof containers and stored in a designated, well-ventilated storage facility



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**THANK YOU FOR YOUR  
ATTENTION**



REGIONAL SOIL LABORATORY NETWORK FOR AFRICA

AFRILAB