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SCIENCE AND TECHNOLOGY

Standard Operation Procedure – safe handling of soil samples from non-European countries regarding analyses in the labs at the Department of AGROECOLOGY, Aarhus Universitet.

1. Background – to be described every time

2. Instruction and registration

We create a register/logbook for every project where we record received samples, relocation of samples (samples being analysed), and completed samples so we can track and trace during the entire process.

For each project, we always appoint a contact person who will be responsible for all the activities. We record the name of the person responsible in the logbook.

All involved employees must be properly instructed in how to handle the soil samples and must be made aware of present protocol and safety procedures in all the work processes. It is important to involve the Department's waste responsible/work environment representative in the procedures. When we handle soil samples from receipt to disposal and through the different experiments, we register quantitatively, so we can fully account for the samples' movements within the Department. We document all work with the samples by leaving a personal signature in the logbook, which as a rule must follow the samples, or else to be found in building PV24, office 2109.

Employees in contact with the soil samples must always wear laboratory coats and gloves.

3. Transport, receipt, and storage of samples

Immediately on arrival, the samples are relocated to a locker room in the basement in building PV24, room 1011. The locker has been labelled with "*Soil from non-European countries. Restricted access*".

After a pre-treatment (air-drying), the samples are transferred to plastic storage boxes with secured lids. The storage boxes are placed in numbered, fracture-proofed storage containers.

Storage boxes, which are not being analysed, must remain in these storage containers until they are to be analysed. Storage boxes, which are not being analysed, must be stored in storage containers and be locked in building L39.

Access to building L39 can only be granted to employees, who have received adequate instruction. Only specially trained employees are allowed to carry out the sample analyses.

Samples from non-European countries must be kept separate from other samples during the entire process. Samples and storage boxes must be labelled with country of origin, sample type, date, and need for special waste handling because of quarantine status.

Internal transport within the Department must be made in fracture-proof storage containers.
In the lab, we can store smaller sample portions in locked cabinets and only specially trained employees have access to these cabinets. The cabinet has been placed in building PV26 by the entrance to the laboratories 2204/2205.

When the experimental work has been completed, the remaining sample material must be moved to fracture-proof storage boxes and placed in the closed-up building L39.

When a project expires, we are obligated to destroy all surplus soil as described in section 5 in the import license.

4. Spillage
If we generate spillage when we handle the samples, we must collect the spillage with a specifically designated "dustpan", or simply with a paper napkin. Spillage and napkins must be stored in an internally approved waste container together with other solid spillage from the analyses.

Surfaces, which have been in contact with soil spillage, must be disinfected subsequently with >80% alcohol.

Before disposal of spillage, it must be autoclaved.

5. Disinfection and disposal of waste internally
Lab equipment, which has been in contact with soil samples, must be carefully cleaned and subsequently disinfected with >80% alcohol.

All washing- and cleaning liquids as well as all other kinds of liquids from the lab stations are stored in 5 L glass containers with the intent of destruction by autoclaving at 120°C for two hours.

All waste flasks must be labelled with type of waste and special waste handling procedures due to the quarantine status.

We may dispose of autoclaved liquids as regular liquid waste if there is no risk of danger.

Soil waste can be heat-treated in two ways depending on the wording on the import license.
1: Humidify the soil and autoclave at 120°C for two hours.
2: Dry soil can be heat-treated at 150°C for 48 hours.
On completed heat-treatment, we may dispose of the soil waste as normal soil waste if we can do this without any other risks of danger.

All, solid waste from analyses including gloves, paper napkins, pipette tips, filter paper, plastic flasks, etc. is collected in an internally approved waste container labelled with the type of waste and need for special waste handling due to the quarantine status. As soon as possible and before being further handled, all solid waste must be autoclaved at 120°C for two hours. After being autoclaved, we dispose the waste together with ordinary household waste such as refuse collection.

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6. Disposal of waste externally
Aarhus Universitet has entered into an agreement with FORTUM in Nyborg. FORTUM specialises in safe and responsible handling/destruction of hazardous waste. And this comprises both solid and liquid waste.

Destruction is preferably performed by incineration at temperatures >1100°C.

Liquid waste from analysis work with soil from non-European countries may in case of capacity problems be collected in 25 L waste cans with screw caps. All waste cans must be labelled with type of waste and need for special waste handling due to the quarantine status and a special declaration number, so we can track and trace them through the process for destruction. The waste cans are stored in a locked waste room until it is ready to be transported to FORTUM. Before being transported to FORTUM, all cans are labelled with "*Biological waste for destruction*".

The waste responsible employee at the Department is responsible for teaching/instructing others on how we properly handle our waste. It is also the waste responsible employee at the Department of Agroecology who contacts and ships all hazardous waste to FORTUM.

7. **Scope of the experiment –** *to be described every time*

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EXAMPLE

Soil Samples from non-EU countries

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EXAMPLE

Waste from non-EU countries

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