

UNDISTURBED SOIL SAMPLING

A successful laboratory analysis starts in the field. The result of an analysis is as good as the representativeness of the soil sample used.

The sampling procedure is basically determined by the analyses that need to be executed on this sample. Sometimes a fast profile description is important, sometimes an accurate chemical analysis or the volume percentage of humidity in a sample needs to be determined accurately.

04.16 Soil coring kit for chemical soil research

Soil sampling for the determination of the presence of very volatile components such as benzene, toluene, xylene and chlorinated hydrocarbons should be executed with samplers that prevent the sample from being exposed to air. Preferably the sampling must be done without disturbance of the soil aggregates to prevent mixing with air.

These conditions must be maintained during transport to the laboratory.

With the special coring kit, volatilization and oxidation of components in soil samples can be prevented as much as possible. The sample under no condition comes in touch with synthetic material.

The method meets the NEN 5743 norm (soil or sediment sampling with volatile components).

The sample has a volume of 226 ml.

The set therefore also is suitable for the determination of volume percentages of humidity in samples from undisturbed soil.

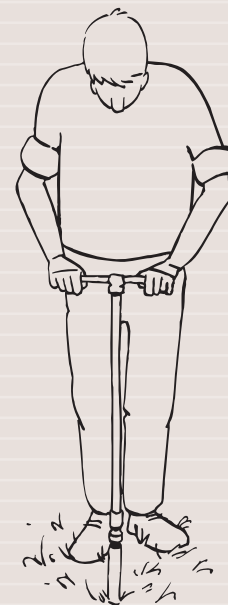
The samples are taken with a small coring apparatus fitted with thin-walled stainless steel sample tubes.

The sampling tubes preferably are pushed into the soil; possibly a steel hammer with nylon heads can be used.



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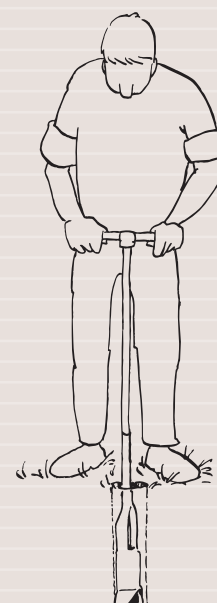
The stainless steel sample tube is pushed into the soil from the ground surface.



Soil coring kit for chemical soil research

If it is not necessary to take surface samples, it is essential to pre-bore the hole to the required depth with the Edelman auger.

Next the Riverside auger can be used to make the bottom of the hole flat.



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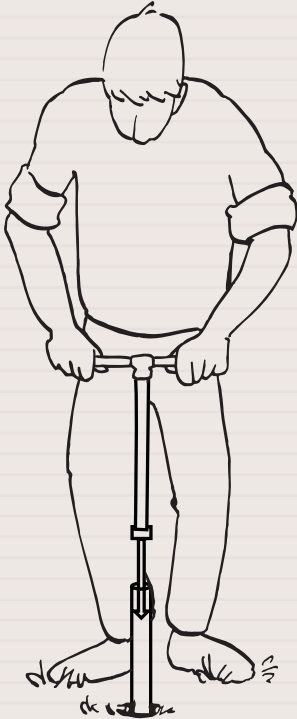


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A deeper sample is taken from the pre-bored hole.



Immediately after removing the coring apparatus from the sample tube with sample, the empty space is filled with a stainless steel filling block.



After taking the sample, the sample tubes can be locked and cooled for transport to the laboratory. Here sub-samples can be taken from the sample tube, applying a small gauge or apple-corer. The samples can also be removed using an extruder. After decontamination the equipment can be used again.

The set contains among other things: an Edelman auger to pre-bore or clean the bore hole, in various types of soil, a stainless steel soil coring apparatus with a number of sample tubes, filling blocks and insulation plates. Further bottom caps, a sample extruder and maintenance material. The complete set is packaged in an aluminum transport case. It is possible with this set to take samples to a depth of more than 5 meters.

Advantages

- ❑ Sampling system that meets the norm for determination of volatile components in soil or sediment.
- ❑ Suitable for the determination of the volume percentage of humidity.
- ❑ No exposure of the sample to air.
- ❑ Transportation of samples in pots is not necessary.
- ❑ Because of the small penetration resistance and the hammer with nylon heads, the set is also suitable for harder soils.
- ❑ The auger fitted with valve ensures through creating a vacuum, that the sample remains in the tube during extraction.
- ❑ For application in very loose soil a sampler tube with core catcher and liner is available.



Coring apparatus with sample tube



Tubes, filling blocks and insulation plates



Sample extruder

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04.15.SA Liner sampler for sampling in more or less soft soils up to a depth of 7 m

04.15.SB Liner sampler for sampling in hard soils up to a depth of 7 m

With these sets undisturbed soil samples can be taken in a liner applying a stainless steel core sampler with sample tubes and cutting head.

In soft soils the sampler is pressed into the soil, possibly using the push-/pull handle.

In hard soils the sampler tube can be driven into the soil using the hammer with two nylon heads (impact absorbing design).

The sets contain, among other things: a hand auger for pre- and clean boring of the bore hole, the core sampler with the sampler tubes and soil sample containers and maintenance equipment.

The set is packed in an aluminium transport case. In case of an undisturbed sample it is often difficult to remove the sample from the sampler tube.

By using sample liners it is easy to remove the sample from the tube.

The sample, still in the liner, is stored in a container which can be sealed, for transport to the laboratory.

Applications

Samples are suitable for:

- Soil fertility determinations.
- Judgement of soil structure.
- Volume weight determinations.
- Determination of granular composition.
- Soil technical measurements.
- Field education.

Before sampling the liner is shoved into the sample tube.



Liner sampler set (SB)



Sample liner container with sample



Coring apparatus, tube, cutting head

Using the hammer with two nylon heads the liner sampler is driven deeper into the existing (bored clean) bore hole.





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04.17 Split tube sampler

The split tube sampler is an apparatus for rapid undisturbed sampling at the surface. The apparatus is very suitable for research on root systems, fertilizing and soil biology.

The set consists of a split tube sampler with a handle with beating head, hammer with nylon heads (impact absorbing design), sample liners, storage containers and a steel lifting jack with lever and chain.

The split tube sampler consists of two stainless steel tube halves with a working length of 40 cm. Undisturbed sampling often poses a problem when removing the sample from the sampling tube. With this type of auger, both parts can be easily separated.

The sample is located (loose or in the liner) in the detachable tube.

The split tube sampler can easily be opened for immediate research of the sample or transport of the sample to the laboratory.

Depending on the nature of the research, it is recommended (in order to obtain representative samples) to decontaminate the apparatus after every sampling.

Applications

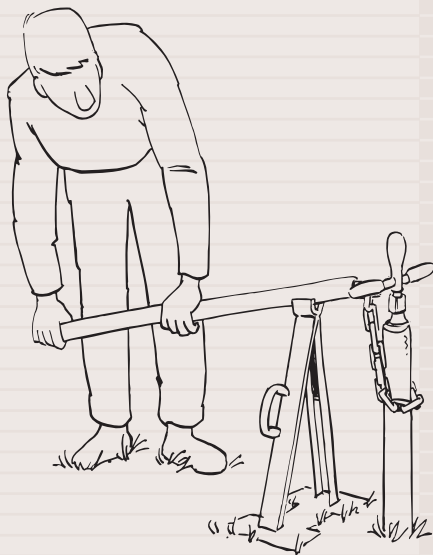
The split tube sampler is applied for e.g.:

- Root system research.
- Accurate surveying (samples for profile description).
- Fertilizing, chemical research and soil biology.

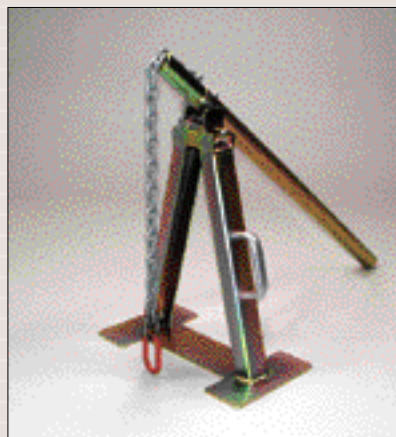
The split tube sampler is driven into the soil from ground surface using the hammer with nylon heads. A sample with an approximate length of 40 cm is taken.



Pulling out the split tube sampler with steel lifting jack and lever with chain.



Split tube sampler set



Lifting jack with lever and chain



Split tube sampler with sample in liner