

UNDISTURBED SOIL SAMPLING

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P1.30

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).

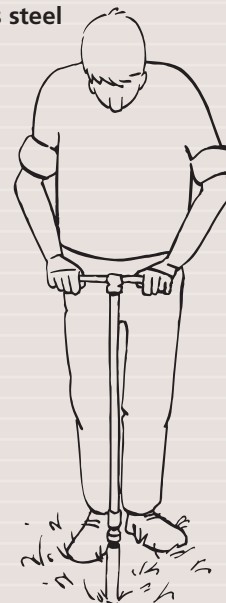
The sample has a volume of 226 ml. The set therefore also is suitable for the determination of volume percentages of humidity in samples from undisturbed soil.

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.

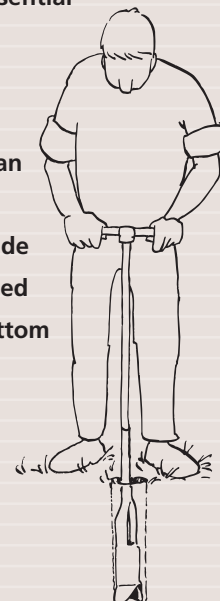


Soil coring kit for chemical soil research

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



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.



BENEFITS

04.16 Soil coring kit for chemical soil research

- Prevents loss of volatiles during sampling
- Prevents loss of volatiles during transport
- No hassle in the field with methanol
- Can be combined with methanol method
- Can be hammered in hard soils
- Tubes can be decontaminated over and over

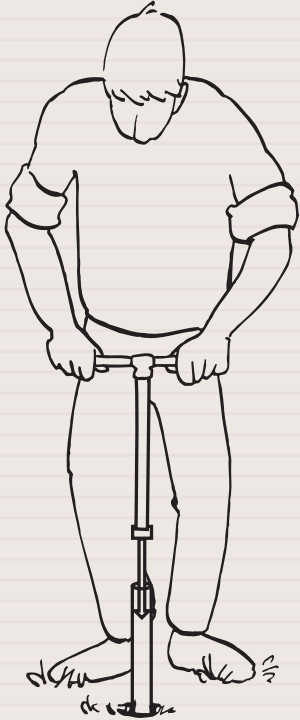


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A deeper sample is taken from the pre-bored hole.



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



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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

UNDISTURBED SOIL SAMPLING

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.



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Before sampling the liner is shoved into the sample tube.



BENEFITS

04.15SA/SB Liner sampler sets

- Liner allows easy removal of sample
- View the sample directly in the field
- View the sample without touching
- Set B more applicable for harder soils
- Stainless steel sampler body



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.

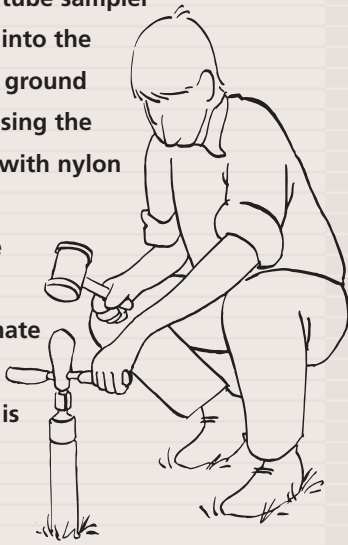


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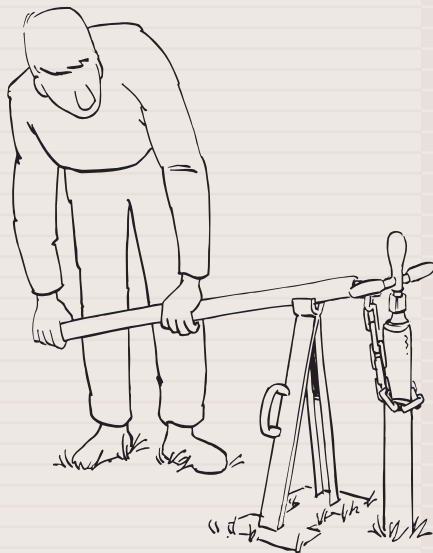


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The split tube sampler is driven into the soil from ground surface using the hammer with nylon heads. A sample with an approximate length of 40 cm is taken.



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



BENEFITS

04.17 Split tube sampler

- Ideal for surface sampling
- Can be hammered
- Easy opening by split tube system
- Stainless steel body

UNDISTURBED SOIL SAMPLING

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.

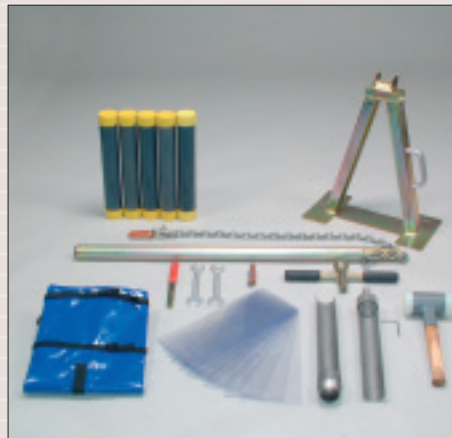
The split tube sampler can easily be opened for immediate research of the sample or transport of the sample to the laboratory.

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.



Split tube sampler set



Lifting jack with lever and chain



Split tube sampler with sample in liner

PARTS LIST



Art.no.	Description	Qty. in set	Art.no.	Description	Qty. in set
P1.30	Undisturbed soil sampling				
	For hand-operated undisturbed soil sampling four standard sets are supplied:				
	- Liner samplers in two different designs for soft and hard soils.				
	- Coring kit for chemical soil research				
	- Split tube sampler for sampling at the surface.				
04.15.SA	Liner sampler, standard set for sampling in more or less soft soils to a depth of 7 m				
**01.10.17.B	Handle, normal, 60 cm, with all synthetic, detachable grip (incl. coupling sleeve), bay.	1	**01.10.12.C	part, c.sc., Ø 7 cm Extension rod, 100 cm, c.sc.	7
**01.02.02.07.B	Edelman auger, bottom part, comb.type, bay., Ø 7 cm	1	**01.10.15	Push-/pull handle, Ø 25.4 mm	1
**01.04.00.07.B	Riverside auger, bottom part, bay., Ø 7 cm	1	**04.05.05	Steel hammer with nylon heads, Ø 70 mm, 2 kg, impact absorbing design	1
**01.10.07.B	Extension rod, 100 cm (incl. coupling sleeve) bay.	7	**04.15.18.C	Hammer, Ø 5 cm, down the hole type, length of stroke 30 cm, total length 50 cm, weight 3.5 kg, with wire eye, c.sc.	1
**01.10.08	Push-/pull handle, Ø 22.2 mm	1	**99.50.22	Spanner 20x22 mm	2
**04.15.01.C	Stainless steel coring apparatus for sample tube Ø 40 x 38 mm (incl. spare parts), conical screw-thread	1	**04.15.11.C	Core sampler for sample 1 tubes Ø 55x50 mm, c.dr. (incl. 1 socket-head screw wrench, hexagonal)	1
**01.10.99.11	Coupling part c.sc. (inside) bay. (pin)	1	**04.15.12	Sample tube with cutting shoe, Ø 55x50 mm, length 35 cm	2
**04.15.02	Sample tube with cutting shoe, Ø 40x38 mm, length 22 cm	2	**04.15.13	Spare cutting shoe, Ø 50 mm	1
**04.15.02.01	Cutting shoe for sample tube, Ø 40 mm	1	**04.15.16	Sample liner tube, thin wall transparant pvc, Ø 50 mm, length 30 cm, with lid and bottom with hole. Set of 10 pcs.	5
**04.15.03	Sample liner, inner Ø 37 mm, length 22 cm, set of 10 pcs.	1	**01.10.21	Steel brush (stainless)	1
**04.15.04	Plastic sample liner container Ø 40 mm	10	**01.11.04	Field data registration set	1
**99.60.07	Screw driver, 6.5 mm bit	1	**01.11.03	Work gloves, pair, oil- and grease resistant, sturdy, with short sleeve	1
**01.10.09.B	Coupling sleeve	2	**01.11.01	Maintenance kit (brush, oilpad, vaseline)	1
**01.11.04	Field data registration set	1	**01.15.01	Utility probe with cone Ø 19 mm, fibre glass, length 105 cm, Ø shaft 12.5 mm. For safely checking the substratum for cables, tubes and pipes	1
**01.11.03	Work gloves, pair, oil- and grease resistant, sturdy, with short sleeve	1	**01.11.02	Aluminium transport case, dim. 108x23x14 cm (outside)	1
**01.11.01	Maintenance kit (brush, oilpad, vaseline)	1	**01.11.02.01	Padlock	1
**01.15.01	Utility probe with cone Ø 19 mm, fibre glass, length 105 cm, Ø shaft 12.5 mm. For safely checking the substratum for cables, tubes and pipes	1			
**01.11.02	Aluminium transport case, dim. 108x23x14 cm (outside)	1	04.16	Soil coring kit for chemical soil research, for soil with volatile components, standard set to a depth of 5 m	
**01.11.02.01	Padlock	1			
04.15.SB	Liner sampler, standard set for sampling in hard soils to a depth of 7 m		**01.10.11.C	Handle, short, 10 cm, with beating head, c.sc.	1
			**01.10.10.C	Handle, normal, 60 cm, with all synthetic, detachable grip, conical screw thread	1
**01.10.11.C	Handle, short, 10 cm, with beating head, c.sc.	1	**04.05.05	Steel hammer with nylon heads, Ø 70 mm, 2 kg, impact absorbing design	1
**01.10.10.C	Handle, normal, 60 cm, with all synthetic, detachable grip, conical screw thread	1	**04.15.18.C	Hammer, Ø 5 cm, down the hole type, length of stroke 30 cm, total length 50 cm, weight 3.5 kg, with wire eye, c.sc. **01020207C Edelman auger, bottom part, comb. type, c.sc., Ø 7 cm	1
**01.02.02.07.C	Edelman auger, bottom part, comb.type, c.sc., Ø 7 cm	1	**01.04.00.07.C	Riverside auger, bottom part, c.sc., Ø 7 cm	1
**01.04.00.07.C	Riverside auger, bottom part, comb.type, c.sc., Ø 7 cm	1	**01.10.12.C	Extension rod, 100 cm, c.sc.	4
			**99.50.22	Spanner 20x22 mm	2
			**04.15.01.C	Stainless steel coring apparatus for sample tube Ø 40 x 38 mm (incl. spare parts), conical screw-thread	1
			**04.16.03	Stainless steel filling block 3 for sample tube, set of 5 pieces. Product is specially cleaned with detergent and water	3



PARTS LIST

Art.no.	Description	Qty. in set	Art.no.	Description	Qty. in set
**04.16.07	Stainless steel insulation plate, set of 5 pieces. Product is specially cleaned with detergent and water	3	**07.00.00	Carrying bag for field equipment with handgrip, Ø 20x77 cm	1
**04.16.01	Stainless steel sample tube, Ø 40x38 mm, op. length 20 cm, set of 5 pieces. Product is specially cleaned with detergent and water	3			
**10.01.52	Cap, natural PE, for pipes 40 mm, set of 25 pcs.	2			
**04.16.10	Sample extruder for sample tube, Ø 40x38 mm, length 20 cm	1			
**04.05.01.20	Bent spatula, breadth 20 mm	1			
**99.60.07	Screw driver, 6.5 mm bit	1			
**01.11.03	Work gloves, pair, oil- and grease resistant, sturdy, with short sleeve	1			
**01.11.04	Field data registration set	1			
**08.09.08	Flat brush, length 35 cm	1			
**01.10.21	Steel brush (stainless)	1			
**20.05.21	Tube cleaner, 40 mm	1			
**01.15.01	Utility probe with cone Ø 19 mm, fibre glass, length 105 cm, Ø shaft 12.5 mm. For safely checking the substratum for cables, tubes and pipes	1			
**01.11.02	Aluminium transport case, dim. 108x23x14 cm (outside)	1			
**01.11.02.01	Padlock	1			
	To be used optionally with 04.16 (sample tube with core catcher)				
04.16.02	Stainless steel sample tube, Ø 40x38 mm, op. length 20 cm (incl. core catcher), set of 5 pieces. Product is specially cleaned with detergent and water.	1			
04.17	Split tube sampler, Ø 53 mm, standard set for sampling to a depth of 40 cm				
**01.10.11.C	Handle, short, 10 cm, with beating head, c.sc.	1			
**04.17.01.C	Split tube sampler, Ø 53 mm, op. length 40 cm, c.sc	1			
**04.05.05	Steel hammer with nylon heads, Ø 70 mm, 2 kg, impact absorbing design	1			
**04.17.12	Sample liner, inside Ø 50 mm, length 40 cm, set of 10 pcs.	1			
**04.17.13	Plastic sample liner container for samples Ø 53 mm	5			
**05.07.03	Steel lifting jack	1			
**05.07.14	Lever with chain, length 100 cm	1			
**99.50.22	Spanner 20x22 mm	2			
**08.15.02	Pocket knife, heavy design, knife length 9 cm	1			
**04.05.01.20	Bent spatula, breadth 20 mm	1			