

SW 846 METHOD 5035 FIELD SAMPLING GUIDE

EN CORE[®] SAMPLER COLLECTION FOR LOW LEVEL ANALYSES (≥ 1 UG/KG)

When sampling for low level analyses, a high level sample also needs to be collected.

EN CORE[®] SAMPLING

Each sample point requires

- Two 5g samplers.
- One 25g sampler or one 5g sampler for screening and/or high level analysis.
(The sampler size used will be dependent on who is doing the sampling and who is doing the laboratory analysis).
- One dry weight cup.
- One T-handle.
- Paper toweling.

Procedure-Sampling

1. Remove sampler and cap from package and attach T-handle to sampler body.
2. Quickly push the sampler into a freshly exposed surface of soil until the sampler is full.
3. Use paper toweling to quickly wipe the sampler head so that the cap can be tightly attached.
4. Push cap on with a twisting motion to attach cap.
5. Fill out label and attach to sampler.
6. Repeat procedure for the other two samplers.
7. Collect dry weight sample-fill container.
8. Store samplers at 4 degrees Celsius.
9. Ship sample containers with plenty of ice to the laboratory within 40 hours of collection.



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EN CORE[®] SAMPLER COLLECTION FOR HIGH LEVEL ANALYSES (≥ 200 UG/KG)

EN CORE[®] SAMPLING

Each sample point requires

- One 25g sampler or one 5g sampler (The sampler size used will be dependent on who is doing the sampling and who is doing the laboratory analysis).
- One dry weight cup.
- One T-handle.
- Paper toweling.

Procedure-Sampling

1. Remove sampler and cap from package and attach T-handle to sampler body.
2. Quickly push the sampler into a freshly exposed surface of soil until the sampler is full.
3. Use paper toweling to quickly wipe the sampler head so that the cap can be tightly attached.
4. Push cap on with a twisting motion to attach cap.
5. Fill out label and attach to sampler.
6. Collect dry weight sample-fill container.
7. Store samplers at 4 degrees Celsius.
8. Ship sample containers with plenty of ice to the laboratory within 40 hours of collection.



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ACID PRESERVATION SAMPLING FOR LOW LEVEL ANALYSES (≥ 1 ug/kg)

ACID PRESERVATION SAMPLING

Each sample point requires

- One 40mL VOA vial with acid preservative (for field testing of soil pH).
- Two pre-weighed 40mL VOA vials with acid preservative and stir bar (for lab analysis).
- Two pre-weighed 40mL VOA vials with water and stir bar (in case samples effervesces).
- One pre-weighed jar that contains methanol or a pre-weighed empty jar accompanied with a pre-weighed vial that contains methanol (for screening sample and/or high level analysis).
- One dry weight cup.
- One 2oz jar with NaHSO₄ acid preservative (in case additional acid is needed due to high soil pH).
- One scoop capable to deliver about one gram of solid sodium bisulfate.
- pH paper.
- Weighing balance that weighs to 0.01 g (field balances may not reliably weigh to 0.01g). IAETL suggests 0.1g.
- Set of balance weights used in daily balance calibration.
- Gloves for working with pre-weighed sample vials.
- Paper toweling.

Procedure-Field Chemistry For Testing Effervescing Capacity Of Soils

1. Place ~5g of soil into a vial that contains acid preservative and no stir bar.
2. Do not cap this vial as it may EXPLODE upon interaction with the soil.
3. Observe the sample for gas evolution (due to carbonates in the soil).
4. If vigorous or sustained gas evolution occurs: then acid preservation is not acceptable to preserve the sample.
 - In this case the samples need to be collected in the VOA vials with only water and a stir bar.
 - The vials with acid preservative CANNOT be used.
5. If a small amount or no gas evolution occurs: then acid preservation is acceptable to preserve the sample. Keep this testing vial for use in the buffering testing detailed below.
 - In this case the samples need to be collected in the VOA vials with the acid preservative and a stir bar.

Procedure-Field Chemistry For Testing Buffering Capacity Of Soils

1. If acid preservation is acceptable for sampling soils then the sample vial that was used in the effervescing testing can be used here for the buffering testing.
2. Cap the vial that contains ~5g of soil, acid preservative and no stir bar from step 1 in the effervescing testing.
3. Shake the vial gently to attempt to make a homogenous solution.
4. When done, open the vial and check the pH of the acid solution with the pH paper.
 - If the pH paper reads below 2 then the sampling can be done in the two pre-weighed 40mL VOA vials with the acid preservative and stir bar. Since the pH was below 2, it is not necessary to add additional acid to the vials.
 - If the pH paper reads above 2, then additional acid needs to be added to the sample vial.
5. Use the jar with the solid sodium bisulfate acid and add another one gram of acid to the sample.
6. Cap the vial and shake thoroughly again.
7. When done, open the vial and check the pH of the acid solution with a new piece of pH paper.
 - If the pH paper reads below 2 then the sampling can be done in the two pre-weighed 40mL VOA vials with the acid preservative and stir bar and one extra gram of acid.
 - Make a note of the extra gram of acid needed so the same amount of extra acid can be added to the vials the lab will analyze.
 - If the pH paper reads above 2, then add another gram of acid and repeat this procedure one more time.

Now that the soil chemistry has been determined the actual sampling can occur. The procedure stated below assumes the correct vials are used based on the guidance discussed.



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ACID PRESERVATION SAMPLING FOR LOW LEVEL ANALYSES (≥ 1 ug/kg)

ACID PRESERVATION SAMPLING (CONT.)

Procedure-Sampling

1. Wear gloves during all handling of pre-weighed vials.
2. Quickly collect a 5g sample using a cut off plastic syringe or other coring device designed to deliver 5g of soil from a freshly exposed surface of soil.
3. Carefully wipe exterior of sample collection device with clean paper toweling.
4. Quickly transfer to the appropriate VOA vial, extruding with caution so that the solution does not splash out of the vial.
5. Add more acid if necessary (this is based on the buffering testing discussed in the previous section).
6. Use the paper toweling and quickly remove any soil off of the vial threads.
7. Cap vial and weigh the jar to the nearest 0.01 g (IAETL suggests nearest 0.1g).
8. Record exact weight on sample label.
9. Repeat sampling procedure for the duplicate VOA vial.
10. Weigh the vial with methanol preservative in it to 0.01g. If the weight of the vial with methanol varies by more than 0.01 g from the original weight recorded on the vial-discard the vial. If the weight is within tolerance it can be used for soil preservation below. (IAETL suggests weighing to the nearest 0.1g)
11. Tare the empty jar or the jar that contains the methanol preservative.
12. Quickly collect a 25g or 5g sample using a cut off plastic syringe or other coring device designed to deliver 25g or 5g of soil from a freshly exposed surface of soil. The 25g or 5g size is dependent on who is doing the sampling and who is doing the laboratory analysis.
13. Carefully wipe the exterior of the collection device with clean paper toweling.
14. Quickly transfer the soil to an empty jar or a jar that contains methanol. If extruding into a jar that contains methanol be careful not to splash the methanol outside of the vial. Again, the type of jar received is dependent on who is doing the laboratory analysis.
15. If the jar used to collect the soil plug was empty before the soil was added, immediately preserve with the methanol provided using only one vial of methanol preservative per sample jar.
16. Use the paper toweling and remove any soil off of the vial threads and cap the jar.
17. Weigh the jar with the soil in it to 0.01g and record the weight on the sample label. (IAETL suggests weighing to the nearest 0.1g).
18. Collect dry weight sample-fill container.
19. Store samples at 4 degrees Celsius.
20. Ship sample containers with plenty of ice and per DOT regulations (CORROSIVE, FLAMMABLE LIQUID, POISON) to the laboratory.



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METHANOL PRESERVATION SAMPLING FOR HIGH LEVEL ANALYSES (≥ 200 ug/kg)

METHANOL PRESERVATION SAMPLING

Each sample point requires

- One pre-weighed jar that contains methanol or a pre-weighed empty jar accompanied with a pre-weighed vial that contains methanol.
- One dry weight cup.
- Weighing balance that accurately weighs to 0.01g (field balances may not reliably weigh to 0.01g). IAETL suggests 0.1g.
- Set of balance weights used in daily balance calibration.
- Gloves for working with pre-weighed sample vials.
- Paper toweling.

Procedure-Sampling

1. Wear gloves during all handling of pre-weighed vials.
2. Weigh the vial with methanol preservative in it to 0.01g. If the weight of the vial with methanol varies by more than 0.01 g from the original weight recorded on the vial-discard the vial. If the weight is within tolerance it can be used for soil preservation/collection below (IAETL suggests weighing to the nearest 0.1g).
3. Tare the empty jar or the jar that contains the methanol preservative.
4. Quickly collect a 25g or 5g sample using a cut off plastic syringe or other coring device designed to deliver 25g or 5g of soil from a freshly exposed surface of soil. The 25g or 5g size used is dependent on who is doing the sampling and who is doing the laboratory analysis.
5. Carefully wipe the exterior of the collection device with clean paper toweling.
6. Quickly transfer the soil to an empty jar or a jar that contains methanol. If extruding into a jar that contains methanol be careful not to splash the methanol outside of the vial. Again, the type of jar used is dependent on who is doing the laboratory analysis.
7. If the jar used to collect the soil plug was empty before the soil was added, immediately preserve with the methanol provided-using only one vial of methanol preservative per sample jar.
8. Using the paper toweling-remove any soil off of the vial threads and cap the jar.
9. Weigh the jar with the soil in it to 0.01g and record the weight on the sample label. (IAETL suggest weighing to the nearest 0.1g).
10. Collect dry weight sample-fill container.
11. Store samples at 4 degrees Celsius
12. Ship sample containers with plenty of ice and per DOT regulations (CORROSIVE, FLAMMABLE LIQUID, POISON) to the laboratory.



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