

SAMPLE PROCESSING 8.5

Sample processing includes compositing and subsampling, sieving, phase separation, and sample preservation. Sample preservation normally consists of keeping the sample chilled to 4°C during shipping and storage, but also can involve processing oxygen-sensitive material under an inert-gas atmosphere or freeze drying the sample.

- ▶ Use nonreactive equipment. Components of processing equipment need to be made of materials that will not contaminate or adsorb target analytes, and that will withstand cleaning solutions.
 - Inorganic analytes. Use utensils, bowls, pans, and containers composed of non-metallic material (polyfluorocarbon or other white or clear plastics).
 - Organic analytes. Use utensils, bowls, pans, and containers composed of polyfluorocarbon, glass, or stainless steel.
- ▶ Decontaminate all processing equipment as instructed in section 8.3.2.

Prepare for sample processing:

1. Park the field vehicle as far away from any nearby road(s) as possible and turn off motor (road dust and vehicle emissions can contaminate samples) in order to isolate the sample-processing area from potential contaminants.
2. Set up field-processing area. Appropriate areas include a bench set up in a van or a building conveniently located near the sampling site.
 - Spread a large, uncolored or white plastic (non-metallic) sheet over the area where inorganic sample processing is taking place.
 - Use heavy-duty aluminum sheeting over the area where organic sample processing is taking place.
 - Keep sample-processing equipment covered (when not processing sample), and keep all sample containers covered or capped.

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3. Field rinse processing equipment to ensure that all cleaning solution residues are removed, and to equilibrate equipment with sampling environment. +
4. Wear powderless, disposable gloves while processing sample. Avoid contact with any potential source(s) of contamination. For example, keep gloved hands off any reactive (metal or plastic) objects when processing samples.

8.5.1 COMPOSITING AND SUBSAMPLING

Depending on study objectives, bottom-material sampling methods generally produce a composite sample. When sampling for chemical constituents, the sample usually is subdivided at the field site into a number of subsamples, each equivalent in constituent concentrations.

Use the following procedures when sample compositing and subsampling (programmatic protocols might supersede some of the following procedures):

1. Transfer sample (or core segments) from each sampling station to an appropriate compositing device, sieve, or sample container. Be sure to remove and transfer all particles (use nonreactive utensils). +

If using a grab sampler—Go to step 2 if sample is anaerobic and should not be aerated:

- a. With a clean, nonreactive spatula, carefully homogenize the composite sample until texture and color appear uniform.
- b. Using a nonreactive spatula, transfer a homogenized subsample to sieve (see 8.5.2) or sample container.

If using a core sampler—Go to step 2 if sample is anaerobic and should not be aerated:

- a. If pore water is not a concern, carefully siphon off water overlying material in the corer or liner without disturbing the bottom-material/water interface. Leave a small amount of water at the bottom-material/water interface.
- b. Use a core extruder to gently and slowly force core material out of the corer or core liner.
 - If a core liner is used, visually inspect before extruding, sectioning, or slitting liner and core. Record features observed in field notes. +