

## **Water Filtration Protocols**

### **Syringe filtering**

Use when samples can be filtered in the field, when sample volume is very limited (<20 mL), or when preparing samples for ion chromatography (IC).

Equipment:

- Two or more 10 or 50 mL plastic syringes
- Acrodisc syringe filters (~1/sample) (Pall 4583T)
- Receiving bottles/vials (e.g. Dionex # 26374/26395)

Procedure:

1. With filter off, rinse syringe with ~3mL deionized water
2. With filter off, prime syringe with ~0.5mL sample
3. With filter on, expel prime water to waste container
4. With lid on, shake the unfiltered sample
5. With filter off, fill syringe with 2 or 50 mL sample
6. With filter on, expel sample into labeled 2mL IC vials or 60 mL bottles
7. Rinsed & primed filter can be used on multiple samples until it clogs

### **Large-volume filtering**

Use this method when filtering large volumes of water for isotope diffusion analysis.

Equipment:

- Filter funnel assembly
- 1-L filter flask
- Pall A/E Filters (~1/sample) (Pall 66258) ashed at 500C for 2 hrs
- 15 mL plastic centrifuge tubes
- Round-tipped forceps

Procedure:

1. Rinse filter funnel and flask with deionized water
2. Place a fresh filter on the funnel assembly bottom
3. Place the funnel top on the filter
4. Clamp the assembly together making sure the contact surfaces are flush
5. Without disturbing any settled particles in the sample bottle, prime the filter and flask with 3 to 5 mL of sample and discard this rinse water
6. Filter the rest of the sample; for very dirty samples, leave the last 2 or 3 mL of dirty water in the bottle and discard it
7. Pour 2 to 3 mL of the filtered sample back into the sample bottle
8. Prime the sample bottle with this filtered sample and discard
9. Pour the rest of the filtered sample into the sample bottle

### Chlorophyll filtering

Use this method when using filters for chlorophyll analysis.

#### Equipment:

- Filter funnel assembly
- 1-L filter flask
- Pall A/E Filters (~1/sample) (Pall 66258) ashed at 500C for 2 hrs
- 15 mL plastic centrifuge tubes
- Round-tipped forceps
- 100 or 250 mL graduated cylinder

#### Procedure:

1. Rinse filter funnel and flask with deionized water
2. Place a fresh filter on the funnel assembly bottom
3. Place the funnel top on the filter
4. Clamp the assembly together making sure the contact surfaces are flush
5. Shake the sample
6. Measure and record 10 to 200 mL of sample in a graduated cylinder. The volume depends on how much algae/phytoplankton the sample contains.
7. Pour ~90% of the measured sample through the filter. If some of the particulates have settled, swirl the remaining sample and pour it through the filter.
8. Unclamp the assembly and remove the top of the funnel
9. Using the forceps, fold the filter in half and half again and transfer to a clean labeled centrifuge tube
10. Keep tubes in a cool dark place until done with all samples

11. Store tubes in a freezer over night or longer until ready to extract.
12. Refer to the protocol for determination of chlorophyll by fluorometry