



WI DNR Field Procedures Manual

Intranet Edition

Part B: Collection Procedures

1004 CHLOROPHYLL SAMPLE FILTRATION

A. Scope:

This procedure is for the *field filtering* of surface waters to determine the chlorophyll content.

B. Safety:

NA

C. Equipment:

1. Membrane filtration apparatus.
2. Millipore SM 5.0 μm membrane filters (SMWP04700 47 mm diameter, 100/pack).
Millipore, Bedford, MA 01730, 800-646-5476.
3. Vacuum source (hand or electric pump).
4. 1000 ml filtration flask.
5. 500 ml graduated cylinder.
6. Tubing.
7. Wash bottle.
8. Distilled water.
9. Tweezers.
10. 15 ml plastic centrifuge tube.
11. [Form 4800-inorganic \(Inorganic Test Request Form - State Laboratory of Hygiene\)](#)

D. Collection Procedures:

Collect the samples with the procedures given in the surface water sampling section. Be sure to store collected sample out of direct sunlight.

E. Sample Handling and Filtration:

This procedure should be conducted in the shade, out of direct sunlight.

1. Place all the equipment on your work area.
2. Insert the bottom part of the filtering cup (membrane filtration apparatus) into the 1000 ml filtration flask. You may wish to wet the stopper first to get a good seal.
3. Attach the plastic tubing of the vacuum pump to the spout of the filtration flask.
4. Pick up one small membrane filter with the tweezers and place it on the center of the filter base (the black screen). Note that filters are white, divider sheets are blue -- be careful to use a filter! Squirt a small amount of distilled water on the filter to keep it in place. Do not touch the filter with your fingers while removing it from the bag or when placing it on the screen.
5. Carefully place the cup on top of the filter base. It is magnetic. Be sure that the filter does not move!
6. To Determine the volume of water to filter for the chlorophyll analysis, refer to table 1004-1. Match the Secchi depth you got today against the volume of water that should be filtered.

Table 1004-1

Secchi Depth	Volume to Filter
< 1ft	50 mls
1-1.5 ft	100 mls
>1.5 ft	200 mls

7. *Gently* mix the sample by turning it upside down several times (be sure to use a sealed amber container to store samples for filtration). Fill the graduated cylinder to the appropriate level. Since the graduated cylinder holds only 500 mls, you may need to fill it more than once. Keep track of the total volume of water filtered.
8. To begin filtering, pour some of the measured water from the graduated cylinder into the filter apparatus.
9. Squeeze the hand pump or turn on the vacuum pump to move the water through the filter.
10. When you are finished filtering, separate the top cup from the filter base.
11. Using the tweezers, place the filter paper in the 15 ml plastic centrifuge tube. **Do not touch the algae with your fingers!**
12. Using a pencil, complete the information on a chlorophyll sticker. Attach the sticker directly to the 15 ml plastic centrifuge tube. **BE SURE TO INCLUDE THE VOLUME FILTERED!**

F. Documentation

Complete the [Inorganic Test Request Form](#) with the information on the sampling site, depth, and volume of sample filtered. Also see # 12 above.

G. References:

1. Wisconsin Department of Natural Resources, "Wisconsin Citizen Lake Monitoring Training Manual", page 7-10, 2007.

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