

Residual Chitosan Acetate Field Test Instructions

Sample Collection



A one liter (1000mL, or ~1qt.) wide mouth container is provided for sample collection. Collect 1L of sample into this clean container.

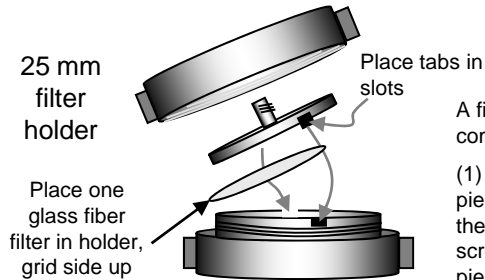
The sample should be fairly clear and of low turbidity, less than 10 Nephthalometric Turbidity Units (NTU.)

Collect the sample from the outflow area of the treatment system. For active CESF treatment, collect the sample in the effluent at the end of the treatment system.

Place 5 drops of color enhancement solution into the sample, then mix by stirring or gently swirling with the lid on.

You do not need to pH adjust the sample. This test can be run at virtually any pH, usually pH 2-10.

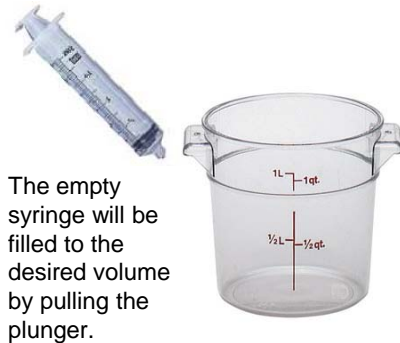
Swinnex Filter Housing Assembly



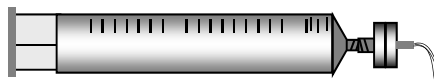
A filter housing known as a Swinnex holder is included. Note that the assembly comes in three pieces:

- (1) The bottom piece, which holds the filter. The filter should be placed onto this piece such that the grid side faces up.
- (2) The middle piece. This piece has tabs at the sides which are aligned with the bottom piece when fitted together. It also has a screw top known as a luer-lok fitting. This will screw onto the syringe.
- (3) The top piece. When all three pieces are fitted together, the assembly can be attached to your syringe containing the necessary volume of sample.

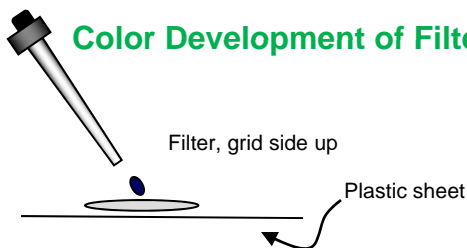
Filtration of the Sample



This is a qualitative test. A positive result indicates the presence of greater than or equal to 10 ppm of 1% ChitoVan chitosan acetate. A total of 200mLs should be filtered. Pull the syringe while the tip of the syringe is submersed in your sample. After filling to the 100mL mark, place the filter housing onto the end of the syringe. Push the plunger to filter the liquid. You do not need to keep the filtered liquid; only the filter itself. Place the filter housing to the side, while filling the syringe with a second volume of 100mL. Replace the filter housing, and push the plunger to filter. A total of 200mLs will have been filtered through one filter.



Color Development of Filter



Remove the filter pad from the housing using the tweezers provided. Place it on a plastic surface with the side up that was facing the syringe. Add 1-2 drops of iodine to the center of the filter. Immediately compare your filter to the color comparison chart. A positive result will appear dark brown or purplish. Very light brown may be seen on the blanks. Use the photographs and the numerical chart on page two to help you interpret the results. A positive result indicates the presence of 1% chitosan acetate at 10 ppm or more. A negative result indicates you are below the level of detection (chitosan acetate is less than 10 ppm.)

Notes: (1) Filter sample slowly – rapid filtration may rupture filter. (2) Always place the filter pad on the plastic sheet included. Placing the filter pad on paper will result in a positive reaction as iodine reacts with the starch in paper products. (3) Put the iodine drop(s) on the side of the filter pad that was facing the syringe (the side that would collect any chitosan present). (4) There is no need to dry the filter prior to the iodine addition.

Quality Control – Quality Assurance

The following QA/QC steps are used to qualify the test procedure and typically need not be performed with every sample.

Blank – Filter the appropriate amount of distilled water (no chitosan added.)

Filter the same amount of water as you did for your sample (200mLs.)

10 ppm Matrix Spike A true matrix spike can be run by putting 1 drops of the chitosan acetate standard solution into 1L of the filtrate (effluent) water. Be sure to mix the sample for about 5 minutes prior to filtration, then process it as directed on page 1.

10 ppm Blank Spike A blank spike can be run by putting 1 drops of the chitosan acetate standard solution into 1L of distilled water. Be sure to mix the sample for about 5 minutes prior to filtration, then process it as directed on page 1. A blank spike confirms that the reagents are working as they should, and gives the user an idea of the color to look for.

Color Comparative Chart

Immediately after addition of iodine

200 mLs
filtered



Blank

(no 1% ChitoVan chitosan acetate)



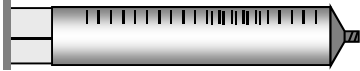
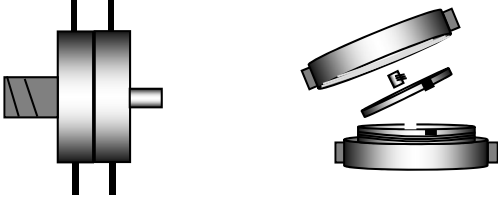



10 ppm

1% ChitoVan chitosan acetate

This is a qualitative test. A positive result indicates the presence of greater than or equal to 10 ppm of chitosan acetate.

Parts List:

Dungeness Environmental provides the Residual Chitosan Field Screening Test Kit to our customers at a discounted price. We can provide you with refill parts and solutions and/or direct you to the manufacturer for direct purchases.

	<p>140 mL plastic syringe Available from Dungeness Environmental 1-425-481-0600</p>
	<p>25 mm filter holder Available from Dungeness Environmental 1-425-481-0600</p>
	<p>25 mm glass fiber filter Available from Dungeness Environmental 1-425-481-0600</p>
	<p>1-liter (1-quart) plastic pitcher Available from Dungeness Environmental 1-425-481-0600</p>
	<p>Large size disposable coffee stirrers Available at local grocery stores.</p>

Bleach Solution

Available from Dungeness Environmental
1-425-481-0600

Chitosan Acetate Standard Solution
200,000 ppm (or 0.2%)

Available from Dungeness Environmental
1-425-481-0600

Iodine Solution

Available from Dungeness Environmental
1-425-481-0600

Tweezers (for handling filter pads)

Available at all drug stores