

## Important new detail procedures to use with the colorimeter equipment

### Hot Training Tip PASEC

Based on the extensive testing of Ken Johnson, new procedures below are needed to ensure the accuracy of our tests. The changes are of two types:

1. When the supply of sample cells allows it, label each of the eight sample cells with a single letter.
2. The second change that is necessary has to do with the improved procedures we must use in cleaning the sample cells in between each testing cycle.

The details of each of these changes are discussed in detail below.

### Labeling the sample cells and placing them in the colorimeter

Find the diamond shaped figure just above the 10 ml line on the sample cell. The diamond shape is painted on the exterior surface of the cell. Use an indelible black ink marker pen with a sharp point and do the following:

1. Write the letter **B** on two of the bottles to indicate the sample cells that will only be used for the blank or untreated stream water.
2. Write the letter **N** on two of the bottles to indicate the sample cells that will only be used for the Nitrate test.
3. Write the letter **S** on two of the bottles to indicate the sample cells that will only be used for the Sulfate tests.
4. Write the letter **P** on the remaining two sample cells to indicate the cells that will only be used for the Phosphate test.

The goal of this procedure is to ensure that the sample cells are used for the same test from month to month. This way we can virtually eliminate any source of contamination coming from a cell that has been used for a different test.

When placing any of the sample cells into the colorimeter, **always** have the diamond shape facing the keyboard of the colorimeter. This applies to the blank or untreated cells as well as the cells containing treated stream water.

## **Cleaning the sample cells between each testing cycle**

At the present time we simply rinse the sample cells with distilled water before and after a testing session. This procedure has proven inadequate especially in the case where a nitrate test follows a phosphate test with the same sample cell even if a distilled water rinse is used.

There are *two cleaning procedures*, one at the start of a testing session and another at the conclusion of a testing session. *The first procedure* consists of simply rinsing each sample cell with the appropriate stream sample as a preliminary step before filling the cell with 10 ml of stream water. This may seem redundant but is an important step in the entire procedure.

*The second cleaning procedure* must take place after a testing session in a location where there is a supply of hot water at a bathroom, workroom or kitchen sink. The first step in this procedure is to prepare a small amount of hot tap water in a plastic container near a quart in size. Take a bottle of Dawn dish detergent and pour enough of the liquid into the cap so that the inside surface is just barely covered. It is important to not over do the detergent because that will unnecessarily extend the time required for this procedure. Pour the small amount of detergent into the hot tap water in the plastic container. For each of the sample cells remove the caps and place them into the hot water. For each sample cell, immerse it in the hot water and then use a brush to thoroughly clean the inside of the cell. When complete, rinse in hot tap water until no detergent suds can be seen. Rinse the cap to the cell in the same way. Put the cell and its lid upside down to drain and dry. Repeat this procedure with each of the sample cells. After all the cells and their caps have dried, replace the caps on the cells, pack the cells into the "rack tray" and replace the whole assembly into the colorimeter kit. The sample cells are now ready for use in a testing session.

The beaker and the tool that helps get the oxygen test started by breaking the tip of the ampule will need to be cleaned in hot water and Dove after each testing session. To start each session rinse the beaker and associated tool in stream water before filling the beaker. Distilled water rinse is not needed in this revised procedure.