

Visual Colorimetric Analysis

The CHEMets® Method

To perform a test, immerse the CHEMets™ ampoule into the sample and snap off the tip (Step 1)—the correct volume of sample is automatically drawn in, filling the ampoule; a small inert gas bubble remains in the ampoule. To facilitate mixing the sample and reagent, tilt the ampoule back and forth so the bubble travels from end to end (Step 2). In 2 minutes or less, quantify the result by comparing the filled ampoule to the appropriate color standard(s) (Step 3). For higher concentrations, the flat comparator is used. For lower concentrations, the round comparator is used. The ampoule is compared with the standards until a color match is found.

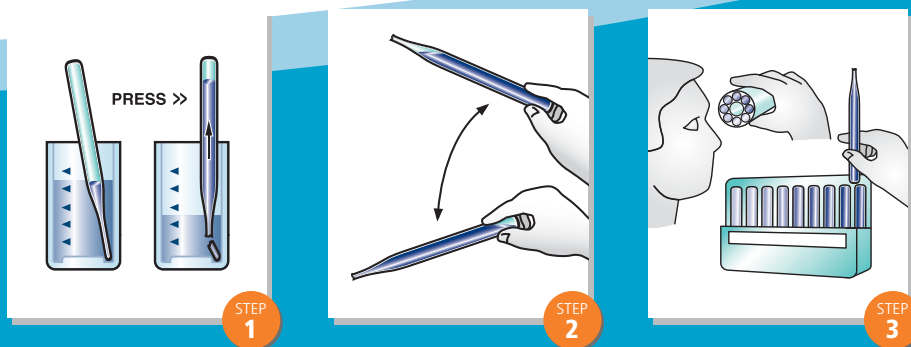


Kits include 30 ampoules, comparator(s), accessory solution(s) (when necessary), a sample cup, and instructions. Refill packs of 30 ampoules and accessory solutions are available separately.

Most comparators have a 2-year shelf-life. Material Safety Data Sheets are provided in test kits.

CHEMets ampoules are designed for maximum simplicity and accuracy. Each glass ampoule is 7 mm in diameter, 100 mm in length, with a tapered, pre-scored tip; reagents are vacuum-sealed inside.

The CHEMets Test Procedure



Instrumental Colorimetric Analysis

The Vacu-vials® Method

The sampling method is the same as the CHEMets method (Steps 1 & 2), but rather than comparing results visually, the user places the filled ampoule in the cell holder of an instrument set to a wavelength for optimal absorbance (Step 3). If you use an instru-

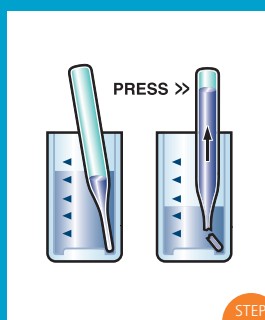


ment that reads absorbance, the absorbance value can be converted to concentration units with the supplied calibration chart. Direct-reading instruments are available (pages 12-13, 15).

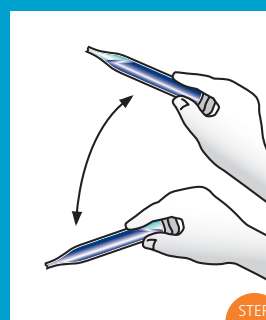
Vacu-vials® Kits include 30 ampoules, a calibration chart, a zero standard, accessory solution(s) (when necessary), a sample cup, and instructions. Material Safety Data Sheets are provided in test kits.

Designed with the same technology as the CHEMets ampoules, the Vacu-vials ampoules are 13 mm in diameter with a tapered, pre-scored tip; color forming reagents are vacuum-sealed inside.

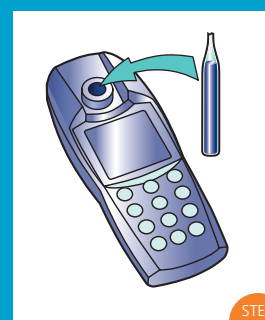
The Vacu-vials Test Procedure



STEP 1



STEP 2



STEP 3

High Range Visual Colorimetric Analysis

The VACUettes® Auto Dilution Method

Hold the ampoule in a horizontal position while the capillary tip contacts the sample (Step 1). After the capillary fills, immerse it in a diluent (usually deionized water); snap the tip off the ampoule (Step 2). The sample and diluent are drawn into the ampoule where they mix with the reagent (Step 3). The resulting color change can then be compared with the flat or round comparator to quantify results (Step 4).

Kits include 30 ampoules, comparator(s), accessory solution(s) (when necessary), a sample cup, and instructions. Refill packs of 30 ampoules and accessory solutions are available separately.

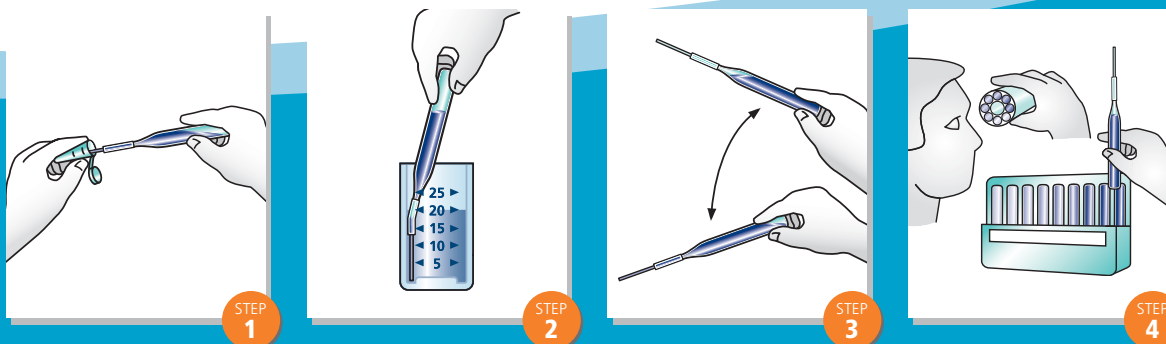
Most comparators have a 2-year shelf-life. Material Safety Data Sheets are provided in test kits.



VACUettes ampoules are designed for highly concentrated samples. They employ a patented auto-dilution feature that eliminates the need for a time-consuming and error-prone preliminary dilution. As a result, the entire test typically takes

only 2 to 3 minutes, with a rate of accuracy comparable to a volumetric procedure. The basic design of these 7 mm ampoules is the same as CHEMetrics ampoules, however, a capillary tip is attached to the tip of each ampoule.

The VACUettes Test Procedure



Titrimetric Analysis

The Titrets® Method

Titrets ampoules use *reverse titration* to quantify concentrations. After snapping the ampoule tip, the sample is drawn into the ampoule in small doses (with the Titrettor™ device included in each kit that precisely controls the sample) (Step 1), until a color change signals that

the equivalence point has been reached (Step 2). The titration is stopped at the end point and the ampoule is held upright. The liquid level will correspond to a printed scale on the ampoule's outer surface (Step 3).

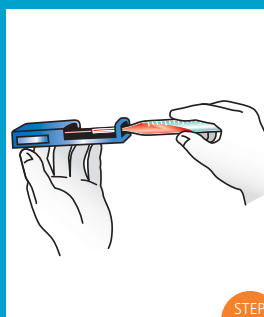
Kits include 30 ampoules with valve assemblies, a titrettor, accessory solution(s) (when necessary), a sample cup, and instructions.

Material Safety Data Sheets are provided in test kits.

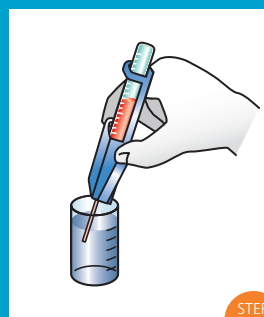


Each Titret™ ampoule is 13 mm in diameter and is designed for titrimetric analysis. The ampoule contains vacuum-sealed liquid titrant and has a flexible valve assembly attached.

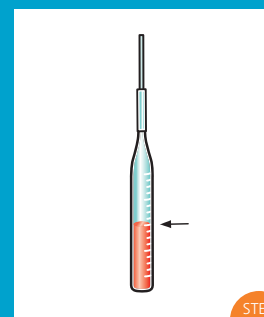
The Titrets Test Procedure



STEP 1



STEP 2



STEP 3