

## QAC Titrets® 2000 - 20,000 ppm

### Test Procedure

1. Measure 1 mL of your sample using the syringe. Dilute to the 20 mL mark with distilled water (fig. 1).

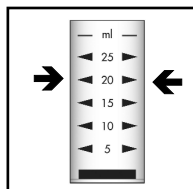


Figure 1

2. Gently snap the tip of the glass ampoule at the black snap ring (fig. 2).

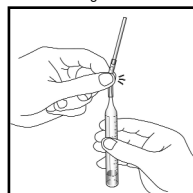


Figure 2

**NOTE:** When the tip is snapped, the flexible tubing will remain in place on the tapered neck of the ampoule.

3. Lift the control bar and insert the Titret assembly into the Titrettor (fig. 3).

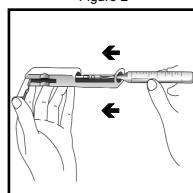


Figure 3

**NOTE:** The rigid sample pipe will extend approximately 1.5 inches beyond the body of the Titrettor.

4. Hold the Titrettor with the sample pipe in the sample and press the control bar firmly, but briefly, to pull in a small amount of sample. The contents will turn a **PINK** color (fig. 4).

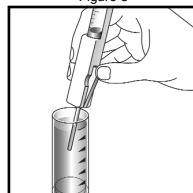


Figure 4

**NOTE:** NEVER press the control bar unless the sample pipe is immersed in the sample.

5. With the sample pipe in the sample, press the control bar again briefly to allow another small amount of sample to be drawn into the ampoule.

6. After each addition, rock the entire assembly to mix the contents of the ampoule. Watch for a color change from **PINK through PURPLE to BLUE**.

7. Repeat steps 5 and 6 until a permanent color change occurs.

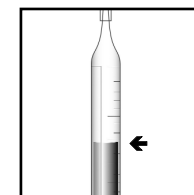


Figure 5

8. When the color of the liquid in the ampoule changes to **BLUE**, remove the ampoule from the Titrettor. Hold the ampoule in a vertical position and read the scale opposite the liquid level (fig. 5). Results are expressed in ppm (mg/Liter) QAC.

$$\text{ppm QAC} = (\text{Scale Units}) \times (\text{M.W.} \div 448.1) \times 20$$

**Scale Units** = The value obtained from the scale in Step #8.

**M.W.** = The molecular weight of the quaternary ammonium compound in the sample being tested.

**NOTE:** If the color of the liquid in the ampoule never turns blue (i.e. no more liquid can be added to the ampoule AND the color of the liquid is still purple), then the sample contains less than 2000 ppm QAC (It is below the detection level of the test.) To get an accurate QAC concentration for this sample, repeat the test procedure using **2 mL of sample** (rather than 1 mL) in Step 1 and **multiply by a factor of 10** (rather than 20) in Step 8.

### Test Method

The QAC Titrets®<sup>1</sup> test method employs a polyvinyl sulfate titrimetric chemistry.<sup>2,3</sup> The endpoint indicator is toluidene blue.

1. Titrets is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 4,332,769
2. Wang, L.K., Shuster, W.W., "Polyelectrolyte Determination at Low Concentration," Ind. Eng. Chem., Prod. Res. Dev., Vol. 14, No. 4, 1975, pp 312-314
3. Parazak, D.P., Burkhart, C.W., McCarthy, K.J., "Determination of Low Levels of Cationic Polyelectrolytes in Water," Analytical Chemistry, Vol. 59, No. 10, May 15, 1987, pp. 1444-1445

### Safety Information

Read MSDS before performing this test procedure. Wear safety glasses.

### Reorder Information

**Cat. No.**

**Test Kit, complete** ..... **K-8820**

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