

Chlorine ezSample™(EZ-2339A)

0.50 – 6.00 ppm

Instrument Set-up

The PASPort Water Quality Colorimeter is specifically designed to support PASCO's ezSample chemical test kits. Set up the PASPort Water Quality Colorimeter according to the equipment instructions. Choose the Chlorine test routine from the PASPort Water Quality Colorimeter menu. The calibration procedure is listed on the equipment instruction card.

This kit requires the use of the following software versions;
SPARKvue 2.2.1 or later
PASCO Capstone 1.3.1 or later

For use with the SPARK Science Learning System or Xplorer GLX please visit the Chlorine ezSample product page to download a configuration file with the correct calibration curves for the Chlorine (EZ-2339A) and Nitrate (EZ-2333B) test kits.

Safety Information

Read the Material Safety Data Sheet (MSDS) before performing this test procedure. Wear safety glasses and protective gloves.

Free Chlorine Test Procedure

1. Fill the sample cup to the 25 mL mark with the sample (fig 1).

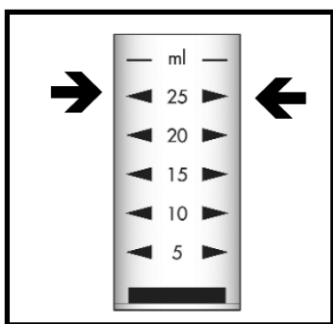


Figure 1.

2. Immediately snap the tip by pressing the ampoule against the side of the cup. The ampoule will fill leaving a small bubble to facilitate mixing (fig 2).

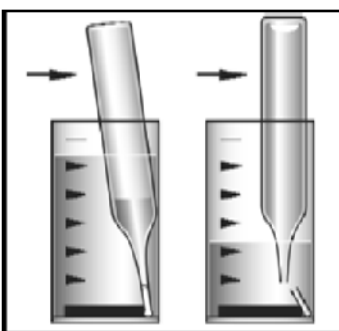


Figure 2.

3. Mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end each time. Tap the bottom of the ampoule on a hard surface to cause any tiny bubbles that have collected on the ampoule wall to rise to the top of the liquid in the ampoule. Wipe all liquid from the exterior of the ampoule.
4. Wait **1 minute** for color development.
5. Read the concentration value of the ezSample ampoule in the PASPORT Water Quality Colorimeter.

Total Chlorine Procedure

1. Add 5 drops of A-2500 Activator Solution to the empty sample cup.
2. Fill the sample cup to the 25 mL mark with the sample to be tested.
3. Immediately perform the **Free Chlorine Procedure** starting with Step 2.

Test Method Description

The ezSample test method employs the DPD chemistry.¹ Free chlorine oxidizes DPD (N,N-diethyl-p-phenylenediamine) to form a pink colored species in direct proportion to the chlorine concentration. Total chlorine, the sum of free and combined chlorine, is determined by adding an excess of potassium iodide to the sample. Chloramines (combined chlorine) oxidize the iodide to iodine. The iodine then oxidizes DPD to the pink colored species. Results are expressed in ppm (mg/Liter) Cl₂. Halogens, ozone and halogenating agents will produce high test results. Chlorine, at >500 ppm may prevent color development.

Accuracy and practical detection limit (PDL)

The lower limit of the stated test range is the “Practical Detection Limit (PDL).” Accuracy may be compromised if test results are outside of the test range. Test results obtained at or below the PDL should be further confirmed for best accuracy.

References

1. APHA Standard Methods, 20th ed., p. 4-63, method 4500-Cl G (2005)
2. EPA Methods for Chemical Analysis of Water and Wastes, method 330.5 (1983)