



LOW PPM LEVEL QUAT TESTING - PART A

Accurate for measuring 0.5-8.0 ppm level

REAGENTS:

QA3485-A QAC Spike Reagent, 30 mL
CO3300-A Complexing Reagent, 30 mL
PH1605-A Phenolphthalein Indicator, 30 mL

SA1590-A Sulfuric Acid 0.5N, 30 mL
TB3800-A Toluidine Blue O Indicator, 30 mL
QA3480-B QAC DT, 60 mL

1. For accuracy the pH of **MAKE-UP WATER (CONTROL-A)** and **TREATED WATER (TEST SAMPLE-B)** must be between 5.0 -6.0 after the addition of Sulfuric Acid in Step 6.
2. Nitrogen/nitrates may affect stability of end point color. Read color and record drops within 5 -10 minutes of reaching the end point.
3. Using the QAC SPIKE Reagent in the **CONTROL-A** testing will provide kit calibration for each test.
4. If ppm level is 8 or above follow the *Part B - High PPM Level* directions.

CONTROL-A=MAKE -UP WATER

TEST SAMPLE-B=TREATED WATER

STEP 1: Label vials as **A** and **B**. Rinse the **CONTROL- A** vial 3 times with **MAKE-UP WATER**, then fill **CONTROL-A** vial with 25 ml of **MAKE-UP WATER** (untreated water).

STEP 2: Rinse **TEST SAMPLE-B** vial 3 times with **TREATED WATER**, then fill **TEST SAMPLE-B** vial with 25 ml of **TREATED WATER**.

STEP 3: Add 5 drops QAC SPIKE Reagent to each vial and swirl to mix.

STEP 4: Add 2 drops of COMPLEXING Reagent to each vial and swirl to mix.

STEP 5: Add 3 drops of PHENOLPHTHALEIN INDICATOR to each vial. Sample may turn pink or remain colorless depending on pH of **MAKE-UP WATER** and **TREATED WATER** sample.

STEP 6: Add 3 drops of SULFURIC ACID to both vials and swirl. Samples should be colorless.

STEP 7: Add 2 drops TOLUIDINE BLUE O INDICATOR to both samples and swirl to mix. The samples will turn blue.

STEP 8: Add QAC DT one drop at a time to **CONTROL-A** vial while swirling. Count the number of drops until the color changes from blue to purple-pink. Once color end-point is reached record number of drops as A drops.

STEP 9: Add QAC DT one drop at a time to **TEST SAMPLE-B** vial while swirling. Count the number of drops until the color changes from blue to purple-pink and matches the purple-pink color of the **CONTROL-A** vial. Once color end-point is reached record number of drops as B drops. (Note color of both vials may quickly change to blue within 5-10 minutes of reaching end-point)

STEP 10: Calculate **QUAT** ppm level in **TREATED WATER**.

Drops TEST SAMPLE-B - # Drops CONTROL SAMPLE-A = C-Drops. C-Drops/2 = ppm QUAT in TREATED WATER.

**HIGH PPM LEVEL QUAT TESTING - PART B**

Accurate for measuring 8.0-10.0 ppm level

REAGENTS:

QA3485-A QAC Spike Reagent, 30 mL
CO3300-A Complexing Reagent, 30 mL
PH1605-A Phenolphthalein Indicator, 30 mL

SA1590-A Sulfuric Acid 0.5N, 30 mL
TB3800-A Toluidine Blue O Indicator, 30 mL
QA3480-B QAC DT, 60 mL

1. For accuracy the pH of **MAKE-UP WATER (CONTROL-A)** and **TREATED WATER (TEST SAMPLE-B)** must be between 5.0 -6.0 *after* the addition of Sulfuric Acid in Step 5.
2. Nitrogen/nitrates may affect stability of end point color. Read color and record drops within 5 -10 minutes of reaching the end point.
3. If ppm level is 8 *or below* follow the *Part A - Low PPM Level* directions. Check ppm level of 10 or above with QAC Dual Range Test Strips.

CONTROL-A=MAKE -UP WATER**TEST SAMPLE-B=TREATED WATER**

STEP 1: Label vials as **A** and **B**. Rinse **CONTROL-A** vial 3 times with **Make-Up Water**, then fill **CONTROL-A** vial with 25 ml of **MAKE-UP WATER** (untreated water).

STEP 2: Rinse **TEST SAMPLE-B** vial 3 times with **TREATED WATER**, then fill **TEST SAMPLE-B** vial with 25 ml of **TREATED WATER**.

STEP 3: Add 2 drops of COMPLEXING REAGENT to each vial and swirl to mix.

STEP 4: Add 3 drops of PHENOLPHTHALEIN INDICATOR to each vial. Sample may turn pink or remain colorless depending on pH of **MAKE-UP WATER** and **TREATED WATER** sample.

STEP 5: Add 3 drop at a time of SULFURIC ACID to both samples and swirl. Samples should be colorless.

STEP 6: Add 2 drops TOLUIDINE BLUE O INDICATOR to both samples and swirl to mix. The samples will turn blue.

STEP 7: Add QAC DT one drop at a time to **CONTROL-A** vial while swirling. Count the number of drops until the color changes from blue to purple-pink. Once color end-point is reached record number of drops as **A drops**.

STEP 8: Add QAC DT one drop at a time to **TEST SAMPLE-B** vial while swirling. Count the number of drops until the color changes from blue to purple-pink and matches the purple-pink color of **CONTROL-A** vial. Once color end-point is reached record number of drops as **B drops**. (Note color of both vials may quickly change to back to blue within 5-10 minutes of reaching end-point).

STEP 9: Calculate **QUAT** ppm level in **TREATED WATER**

Drops TEST SAMPLE-B - # Drops CONTROL SAMPLE-A = C-Drops. C-Drops/2 = ppm QUAT in TREATED WATER.