

# Boron 2

Range(s): 0-2.00 ppm B, 0-11.0 ppm H<sub>3</sub>BO<sub>3</sub>



## Procedure

Note: When testing multiple samples simultaneously, a separate sample cell with an unreacted sample of the water tested must be used to zero the colorimeter. Please note that varying the test procedure from the original can affect the precision of the test.

Note: Timing and temperature are critical for this test. Sample temperature should be within 72°F-75°F (22°C-24°C).

1. Turn on the Colorimeter.
2. Select a test menu (ALL TESTS, RECENT TESTS, or FAVORITES) containing Boron 2 using ◀▶.
3. Select Boron 2 using ▲▼; then press ENTER ⊙.

4. Select a chemical form (B or H<sub>3</sub>BO<sub>3</sub>) for expression of test results using ▲▼.
5. Rinse and fill 25 mm sample cell to 10 mL mark with sample; then cap.
6. Insert sample cell into sample cell compartment. Align marks per User's Manual.
7. Select ZERO using ◀▶; then press ENTER ⊙. Zero will be displayed.
8. Remove sample cell from sample cell compartment; then remove cap.
9. Add 2 mL Boron 2 - Reagent A; then cap and invert to mix thoroughly.

10. Select TIMER using ◀▶; then press ENTER ⊙.
11. Using the 0.5 g dipper spoon, add 1 compressed, level dipper Boron 2 - Reagent B; then cap. Immediately proceed to steps 12 and 13.
12. Select START using ◀▶; then press ENTER ⊙. (A 20-minute [20:00] countdown will begin.)
13. Immediately mix the sample for 30 seconds.
14. Insert sample cell into sample cell compartment. Align marks.
15. Select AUTO using ◀▶; then press ENTER ⊙.
16. When the timer beeps, the instrument will read the sample and the result will be displayed.

## Interferences

Nitrite, all levels – negative interference

Treat a 25 mL sample with 0.1 g Sulfamic Acid Powder (R-0837). Swirl the sample to dissolve the Sulfamic Acid Powder and evolve nitrogen. Wait 5 minutes. Add Sodium Hydroxide Reagent (R-0740) to adjust to pH 4-8. Take a 10 mL portion and follow test procedure above.

Sulfite < 120 ppm – negative interference

Treat a 25 mL sample with 5 drops Hydrogen Peroxide Solution 3% (R-0649). Take a 10 mL portion and follow test procedure above.

Sulfite > 120 ppm – negative interference

Treat a 25 mL sample with 5 drops of Hydrogen Peroxide Solution 3% (R-0649) for every 100 ppm sulfite. Take a 10 mL portion and follow test procedure above.

The following analytes were tested to the levels listed and found not to cause any interference up to the specified value:

Alkalinity (CaCO<sub>3</sub>) – 500 ppm  
Azole (BT) – 5 ppm  
Azole (TT) – 5 ppm

Bromine – 10 ppm  
Chloride – 1000 ppm  
Chlorine – 10 ppm  
Copper – 5 ppm  
Fluoride – 10 ppm  
Hardness, Calcium (CaCO<sub>3</sub>) – 1000 ppm  
Iron, Ferric – 5 ppm  
Iron, Ferrous – 10 ppm  
Manganese – 4 ppm

## ***Instruction #5178***

### **Interferences (continued)**

Nitrate – 2000 ppm  
Phosphate – 40 ppm  
Phosphonate – 20 ppm

Polymer – 100 ppm  
Polyphosphate – 5 ppm  
Silica – 150 ppm

Sulfate – 1000 ppm  
Zinc – 5 ppm

### **Test Method**

Azomethine H

Azomethine H reacts with boron to produce a yellow-colored complex that is proportional to the concentration of boron in a sample.

### **Estimated Detection Limit**

0.08 ppm B

### **Precision**

Using two lots of reagent and a standard solution of 1.0 ppm B, an individual analyst obtained a standard deviation with the instrument of  $\pm 0.06$  ppm B.

### **Application**

Industrial Water and Wastewater

### **Ordering Info**

#### **Reagent Pack**

K-8018    Boron 2

Formulated for exclusive use with Taylor's TTI® Colorimeter.

#### **Reagent Pack Components**

R-8018A    Boron 2 - Reagent A

R-8018B    Boron 2 - Reagent B

#### **Optional Reagents & Accessories**

R-0649    Hydrogen Peroxide Solution 3%

R-0740    Sodium Hydroxide Reagent

R-0837    Sulfamic Acid Powder



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