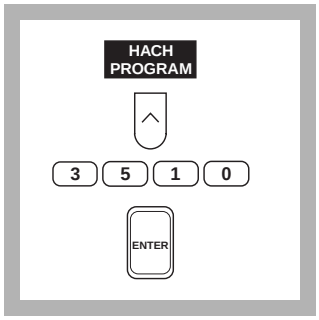
SULFITE

Colorimetric Method*

(0 to 5.00 mg/L)

Scope and Application: *For boiler water, foodstuffs*

* Reagent sets for this method are only available in Europe.



1. Press the soft key under ***HACH PROGRAM*.**

Select the stored program for Sulfite (HPT 430) by pressing **3510** with the numeric keys.

Press: **ENTER**

Note: *If samples cannot be analyzed immediately, see Sample Collection, Storage and Preservation following these steps.*

Note: *The Flow Cell and Sipper Cell Modules cannot be used with this procedure.*

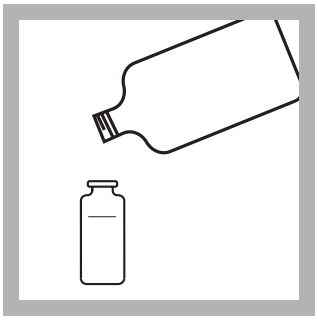
2. The display will show:

HACH PROGRAM: 3510
Sulfite HPT 430

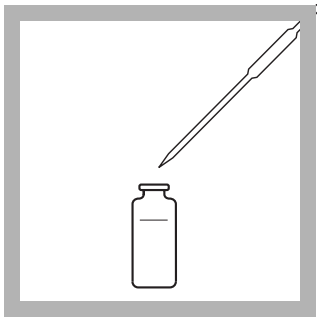
The wavelength (λ), **435 nm**, is automatically selected.

Note: *For best results, perform a new calibration for each lot of reagent. See Accuracy Check following these steps.*

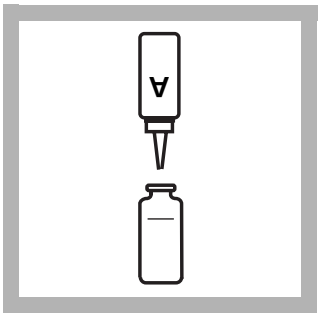
3. Place the DR/4000 1-inch Cell Adapter into the sample cell module by sliding it under the thumb screw and into the alignment grooves. Fasten with the thumb screw.



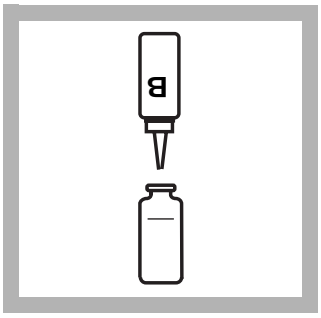
4. Fill a clean sample cell with 10 mL of deionized water. Cap the cell. This is the blank.



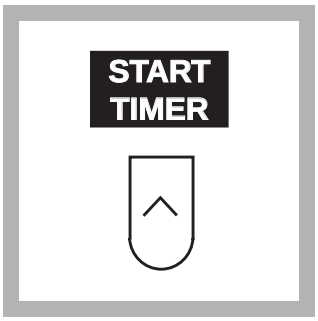
5. Pipet 10 mL of sample into a second sample cell.



6. Add 5 drops of Sulfite Reagent A (HPT 430 A). Swirl to mix.



7. Add 2 drops of Sulfite Reagent B (HPT 430 B). Swirl to mix.

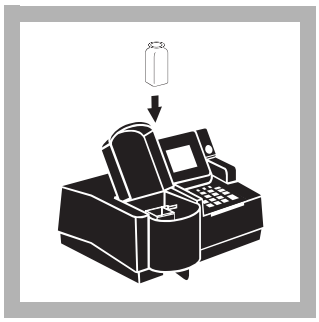


8. Press the soft key under ***START TIMER***.

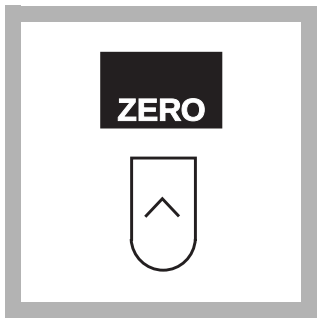
A 3-minute reaction period will begin.

Note: *Allow cell to stand undisturbed.*

9. When the timer beeps, wipe the cells with a damp towel, followed by a dry one, to remove fingerprints and other marks.



10. Place the blank cell into the cell holder. Close the light shield.



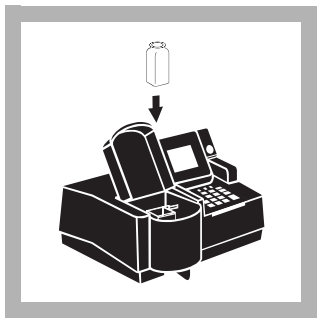
11. Press the soft key under ***ZERO***.

The display will show:

0.00 mg/L SO_3^{2-}

Note: *If you are using a reagent blank correction, the display will show the correction.*

Note: *For alternate concentration units, press the soft key under* ***OPTIONS****. Then press the soft key under* ***UNITS*** *to scroll through the available options. Press* **ENTER** *to return to the read screen.*



12. Place the prepared sample into the cell holder. Close the light shield. Results in mg/L Sulfite (or chosen units) will be displayed.

Note: *Clean the sample cells with soap and a brush.*

Interferences

A sulfide concentration greater than 5.0 mg/L in the sample gives results with a high bias.

Sample Collection, Storage and Preservation

Collect samples in clean plastic or glass bottles. Samples must be analyzed immediately. Warm to 15–25 °C (59–77°F) before analysis.

Accuracy Check

Standard Additions Method

a. Leave the unspiked sample in the sample compartment. Verify that the units displayed are in mg/L. Select standard additions mode by pressing the soft keys under ***OPTIONS, (MORE)*** and then ***STD ADD***.

b. Press **ENTER** to accept the default sample volume (mL), 25.

c. Press **ENTER** to accept the default standard concentration (mg/L), 15.

d. Press the soft key under ***ENTRY DONE***.

e. Use a pipet to add 1.0 mL, 2.0 mL and 3.0 mL of standard, respectively, into three 25-mL samples and mix each thoroughly.

f. Analyze each standard addition sample as described above. Accept the standard additions reading by pressing the soft key under ***READ*** each time. Each addition should reflect approximately 100% recovery.

g. After completing the sequence, the display will show the extrapolated concentration value and the "best-fit" line through the standard additions data points, accounting for matrix interferences.

h. See Section *1.4.1 Standard Additions* for more information.

Standard Curve Adjustment

Using Class A glassware, prepare a 3.0-mg/L sulfite standard solution by pipetting 20 mL of 15-mg/L Sulfite Standard Solution into a 100-mL volumetric flask. Dilute to the mark with deionized water. Prepare this solution daily. Perform the Colorimetric Sulfite procedure as described above.

To adjust the calibration curve using the reading obtained with the 3.0-mg/L standard solution, press the soft keys under ***OPTIONS, (MORE)*** then ***STD: OFF***. Press **ENTER** to accept the displayed concentration, the value of which depends on the selected units. If an alternate concentration is used, enter the actual concentration and press **ENTER** to return to the read screen. See Section *1.5.5 Adjusting the Standard Curve* for more information.

Summary of Method

The reagents react with sulfites to form a yellow complex.

Safety

Good safety habits and laboratory techniques should be used throughout the procedure. Consult the *Material Safety Data Sheet* for information specific to the reagents used. For additional information, refer to *Section 1*.

REQUIRED REAGENTS AND STANDARDS

Description	Unit	Cat. No.
Sulfite Colorimetric Reagent Set*	100/pkg	HPT 430
Includes:		
Sulfite Reagent A	28 mL	HPT 430 A
Sulfite Reagent B	8.7 mL	HPT 430 B

REQUIRED EQUIPMENT AND SUPPLIES

DR/4000 1-inch Cell Adapter	each	48190-00
Sample Cells, 1-inch, matched pair	2/pkg	26126-02

OPTIONAL REAGENTS AND STANDARDS

Sulfite Standard Solution, 15 mg/L	500 mL	24084-49
Water, deionized	4 liters	272-56

OPTIONAL EQUIPMENT AND SUPPLIES

DR/4000 Carousel Module	each	48070-02
Flask, volumetric, 100-mL, Class A	each	14574-42
Pipet, TenSette, 0.1 to 1.0 mL	each	19700-01
Pipet Tips, for 19700-01 TenSette Pipet	50/pkg	21856-96

* Available in Europe only

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