Sulfite

DOC316.53.01137

DTNB Method **Method 10308**

0.10 to 5.00 mg/L SO_3^{2-} **HPT 430**

Scope and application: For drinking water, wastewater, boiler water and foodstuffs.

Test preparation

Instrument-specific information

Table 1 shows all of the instruments that have the program for this test. The table also shows sample cell and orientation requirements for specific instruments.

To use the table, select an instrument, then read across to find the applicable information for this test.

Table 1 Instrument-specific information

Instrument	Sample cell orientation	Sample cell
DR6000 DR3800 DR2800 DR2700 DR1900	The fill line is to the right.	2495402 
DR5000 DR3900	The fill line is toward the user.	

Before starting

Analyze the samples immediately. The samples cannot be preserved for later analysis.
The temperature of the samples and reagents must be 15–25 °C (59–77 °F) for accurate results.
The sample pH must be 3–10 for accurate results.
Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.
Dispose of reacted solutions according to local, state and federal regulations. Refer to the Safety Data Sheets for disposal information for unused reagents. Refer to the environmental, health and safety staff for your facility and/or local regulatory agencies for further disposal information.

Items to collect

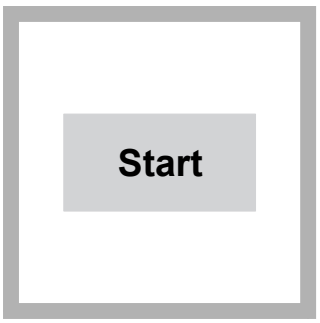
Description	Quantity
Sulfite Reagent A	5 drops
Sulfite Reagent B	2 drops
Pipet, serological, graduated, 10-mL	1
Pipet filler, safety bulb	1
Sample cells (For information about sample cells, adapters or light shields, refer to Instrument-specific information on page 1.)	2

Refer to Consumables and replacement items on page 3 for order information.

Sample collection

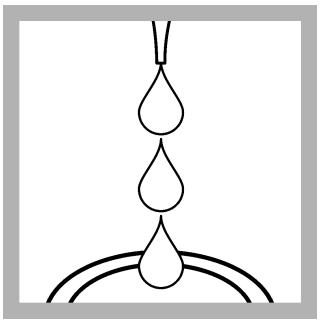
- Analyze the samples immediately. The samples cannot be preserved for later analysis.
- Collect samples in clean glass or plastic bottles.

Test procedure

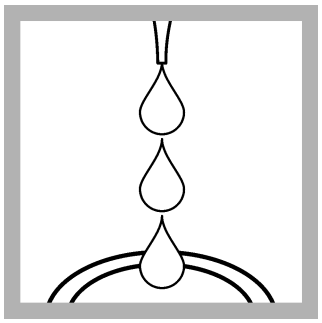


1. Start program **692 Sulfite HPT 430**. For information about sample cells, adapters or light shields, refer to Instrument-specific information on page 1.

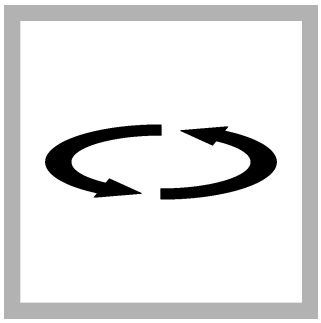
Note: *Although the program name can be different between instruments, the program number does not change.*



2. Prepare the sample: Use a pipet to add 10.0 mL of sample to a sample cell.

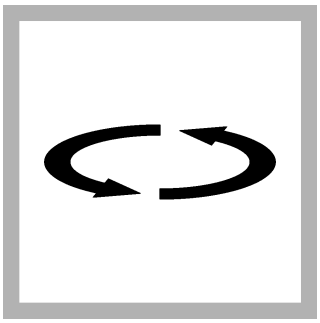


3. Add 5 drops of Sulfite Reagent A (HPT 430 A) to the prepared sample.



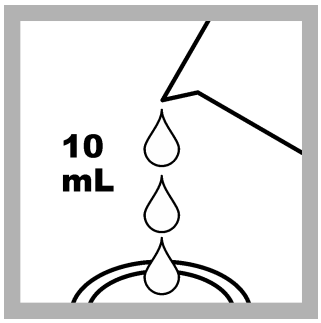
4. Swirl to mix.

5. Add 2 drops of Sulfite Reagent B (HPT 430 B) to the prepared sample.

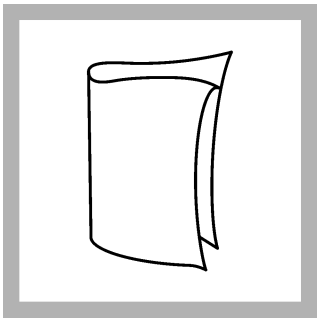


6. Swirl to mix.

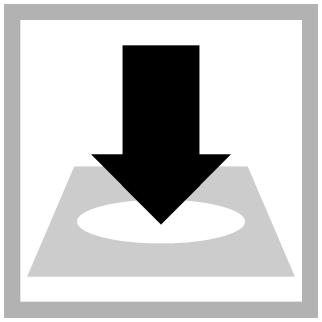
7. Start the instrument timer. A 3-minute reaction time starts.
Do not move the sample cell during the reaction time.



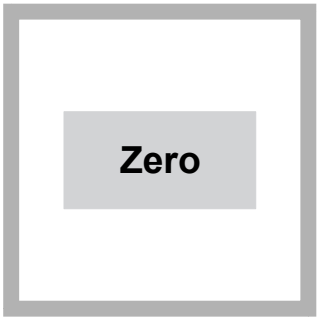
8. Prepare the blank: Fill a second sample cell with 10 mL of sample.



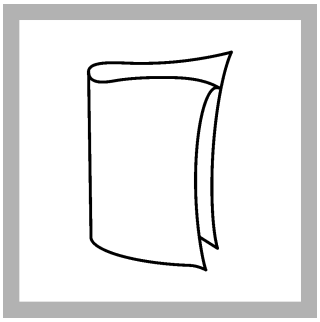
9. Clean the blank sample cell.



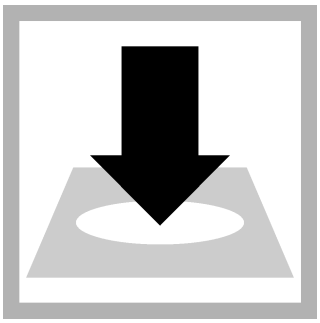
10. Insert the blank into the cell holder.



11. Push **ZERO**. The display shows 0.00 mg/L SO_3^{2-}.



12. Clean the prepared sample cell.



13. When the timer expires, insert the prepared sample into the cell holder.

14. Push **READ**. Results show in mg/L SO_3^{2-}.

Interferences

Interfering substance	Interference level
Sulfide	More than 5 mg/L

Method performance

The method performance data that follows was derived from laboratory tests that were measured on a spectrophotometer during ideal test conditions. Users can get different results under different test conditions.

Program	Standard	Precision (95% confidence interval)	Sensitivity Concentration change per 0.010 Abs change
692	3.00 mg/L SO_3^{2-}	2.51–3.49 mg/L SO_3^{2-}	0.04 mg/L SO_3^{2-}

Summary of Method

5,5'-dithiobis-(2-nitrobenzoic acid) or DTNB reacts with sulfite to form a yellow complex. The measurement wavelength is 435 nm.

Consumables and replacement items

Required reagents

Description	Quantity/Test	Unit	Item no.
Sulfite Colorimetric Reagent Set, includes:	—	100/pkg	HPT430
Sulfite Reagent A	5 drops	16 mL	—
Sulfite Reagent B	2 drops	5.8 mL	—

Required apparatus

Description	Quantity/test	Unit	Item no.
Pipet, serological, graduated, 10-mL	1	each	53238
Pipet filler, safety bulb	1	each	1465100

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