Nitrite

✔Method 8507

Diazotization Method

Powder Pillows or AccuVac® Ampuls

LR (0.002 to 0.300 mg/L NO_2^-–N)

Scope and Application: For water, wastewater, and seawater; USEPA approved for wastewater analysis*

* Federal Register, 44(85), 25505 (May 1, 1979)

Tips and Techniques

- For more accurate results, determine a reagent blank value for each new lot of reagent. Follow the procedure using deionized water in place of the sample. Subtract the reagent blank value from the final results or perform a reagent blank adjust. See the instrument manual for more information on *Running a Reagent Blank*.
- Wipe the outside of sample cells before each insertion into the instrument cell holder. Use a damp towel followed by a dry one to remove fingerprints or other marks.

Powder Pillows Method 8507

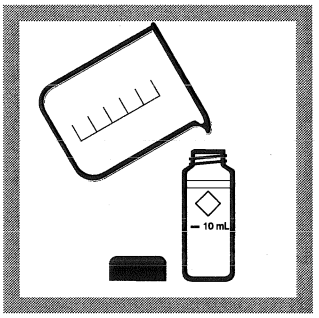
1. Touch

Hach Programs.

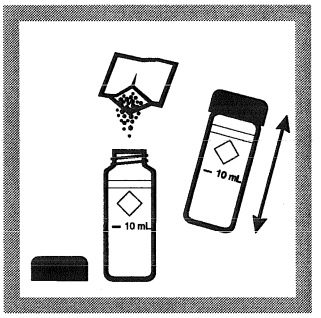
Select program

371 N, Nitrite LR.

Touch **Start.**

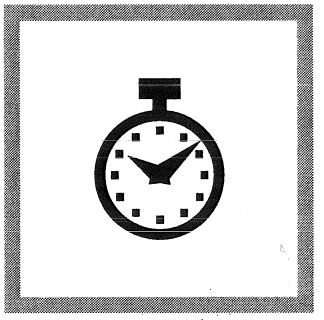


2. Fill a round sample cell with 10 mL of sample.



3. Add the contents of one NitriVer 3 Nitrite Reagent Powder Pillow (the prepared sample).

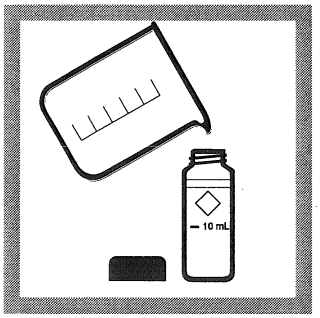
Cap and shake to dissolve. A pink color will develop if nitrite is present.



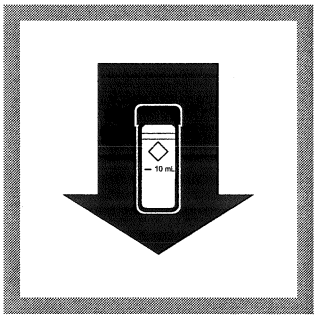
4. Touch the timer icon.

Touch **OK.**

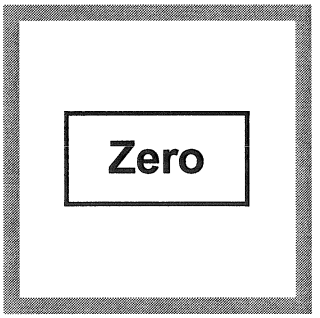
A 20-minute reaction period will begin.



5. When the timer beeps, fill a second sample cell with 10 mL of sample (this is the blank).



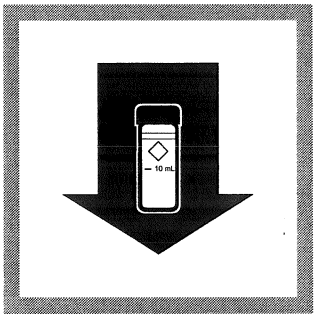
6. Wipe the blank and place it into the cell holder.



7. Touch **Zero.**

The display will show:

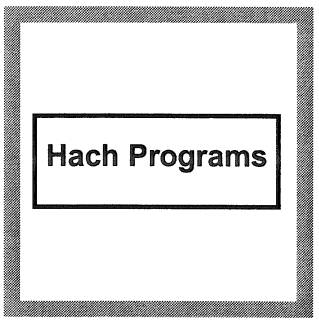
0.000 mg/L NO_2^-–N



8. Wipe the prepared sample and place it into the cell holder.

Results will appear in mg/L NO_2^-–N.

AccuVac® Ampul — Method 8507



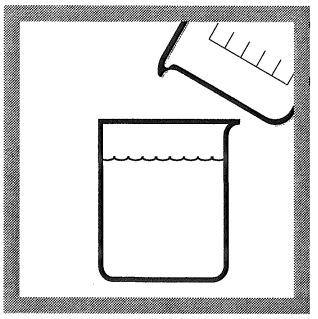
1. Touch

Hach Programs.

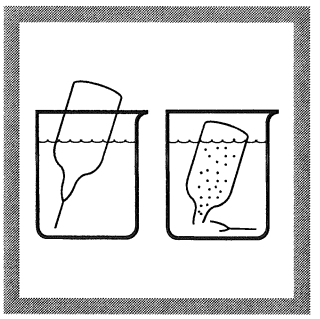
Select program

375 N, Nitrite LR AV.

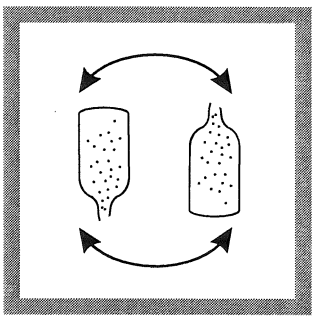
Touch **Start**.



2. Pour at least 40 mL of sample into a 50-mL beaker.

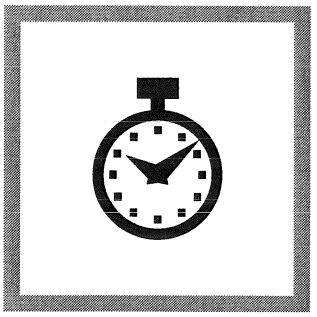


3. Fill a NitriVer 3 Nitrite AccuVac® Ampul with sample. Keep the tip immersed while the ampule fills.



4. Invert the ampule several times to mix.

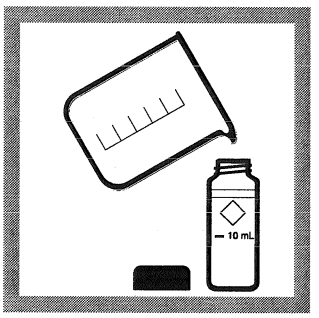
A pink color will develop if nitrite is present.



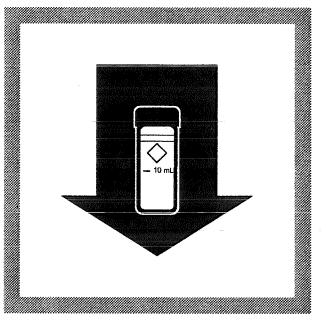
5. Touch the timer icon.

Touch **OK**.

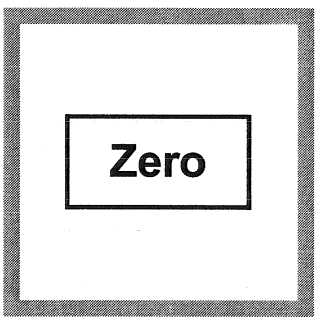
A 20-minute reaction period will begin.



6. When the timer beeps, fill a sample cell with at least 10 mL of sample (this is the blank).



7. Wipe the blank and place it into the cell holder.



8. Touch **Zero**.

The display will show:

0.000 mg/L NO_2^-–N

9. Wipe the AccuVac Ampul and place it into the cell holder. Read the results.

Results will appear in mg/L NO_2^-–N.

Interferences

Interfering Substance	Interference Levels and Treatments
Antiminous ions	Interfere by causing precipitation
Auric ions	Interfere by causing precipitation
Bismuth ions	Interfere by causing precipitation
Chloroplatinate ions	Interfere by causing precipitation
Cupric ions	Cause low results
Ferric ions	Interfere by causing precipitation
Ferrous ions	Cause low results
Lead ions	Interfere by causing precipitation
Mercurous ions	Interfere by causing precipitation
Metavanadate ions	Interfere by causing precipitation
Nitrate	Very high levels of nitrate (>100 mg/L nitrate as N) appear to undergo a slight amount of reduction to nitrite, either spontaneously or during the course of the test. A small amount of nitrite will be found at these levels.
Silver ions	Interfere by causing precipitation
Strong oxidizing and reducing substances	Interfere at all levels

Sample Collection, Storage, and Preservation

Collect samples in clean plastic or glass bottles. Store at 4 °C (30 °F) or lower if the sample is to be analyzed within 24 to 48 hours. Warm to room temperature before running the test. Do not use acid preservatives.

Accuracy Check

Standard Solution Method

Preparing nitrite standards is difficult. A standard should be prepared by a trained chemist. Hach recommends using the standard preparation instructions in *Standard Methods for the Examination of Water and Wastewater,* Method 4500—NO_2-B (p. 4–86 of 18th edition). Prepare a 0.150-mg/L standard.

Method Performance

Precision

Standard: 0.150 mg/L NO_2^-–N

Program	95% Confidence Limits of Distribution
371	0.146–0.154 mg/L NO_2^-–N
375	0.140–0.160 mg/L NO_2^-–N

See *Section 3.4.3 Precision* on page *53* for more information, or if the standard concentration did not fall within the specified range.

Sensitivity

Program	Portion of Curve	ΔAbs	ΔConcentration
371	Entire range	0.010	0.002 mg/L NO_2^-–N
375	Entire range	0.010	0.002 mg/L NO_2^-–N

See *Section 3.4.5 Sensitivity* on page *54* for more information.

Summary of Method

Nitrite in the sample reacts with sulfanilic acid to form an intermediate diazonium salt. This couples with chromotropic acid to produce a pink colored complex directly proportional to the amount of nitrite present. Test results are measured at 507 nm.

Required Reagents

Description	Quantity Required Per Test	Unit	Cat. No.
NitriVer® 3 Nitrite Reagent Powder Pillows	1 pillow	100/pkg	21071-69
or			
NitriVer® 3 Nitrite Reagent AccuVac® Ampul	1 ampul	25/pkg	25120-25

Required Apparatus

Beaker, 50-mL	1	each	500-41H
Sample Cells, 10-mL, w/cap	2	6/pkg	24276-06

Required Standards

Sodium Nitrite, ACS	454 g	2452-01
Water, deionized	4 liters	272-56

FOR TECHNICAL ASSISTANCE, PRICE INFORMATION AND ORDERING:
In the U.S.A. – **Call toll-free 800-227-4224**
Outside the U.S.A. – **Contact the HACH office or distributor serving you.**
On the Worldwide Web – **www.hach.com**; E-mail – **techhelp@hach.com**

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WORLD HEADQUARTERS
Telephone: (970) 669-3050
FAX: (970) 669-2932