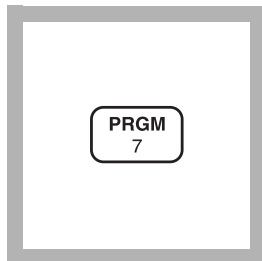


NITRITE, Low Range (0 to 0.350 mg/L NO₂⁻-N) For water, wastewater, seawater

Diazotization Method* (Powder Pillows or AccuVac Ampuls);
USEPA approved for reporting wastewater and drinking water analyses.



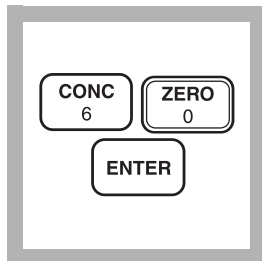
1. Enter the stored program number for nitrite nitrogen (NO₂⁻-N), powder pillows.

Press: **PRGM**

The display will show:

PRGM ?

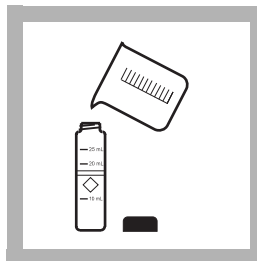
Note: For most accurate results, perform a Reagent Blank Correction using deionized water (see Section 1).



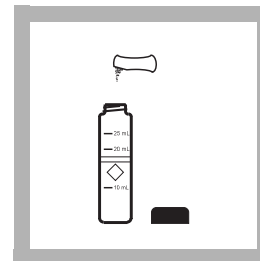
2. Press: **60 ENTER**

The display will show **mg/L, NO₂-N** and the **ZERO** icon.

*Note: For alternate forms (NO₂⁻, NaNO₂), press the **CONC** key.*



3. Fill a sample cell with 10 mL of sample.

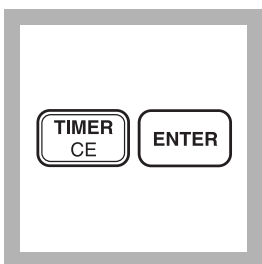


4. Add the contents of one NitriVer 3 Nitrite Reagent Powder Pillow to the sample cell. Cap the cell and shake to dissolve.

Note: Accuracy is not affected by undissolved powder.

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

NITRITE, Low Range, continued



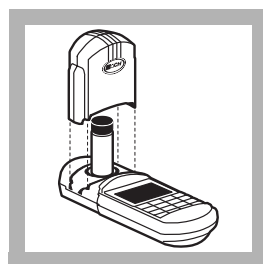
5. Press:
TIMER ENTER

A 15-minute reaction period will begin.

Note: A pink color will develop if nitrite is present.

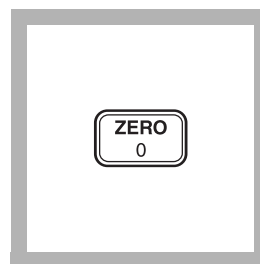


6. When the timer beeps, fill an empty sample cell with 10 mL of sample (the blank).



7. Wipe the outside of the sample cell with a towel. Place the blank into the cell holder. Tightly cover the sample cell with the instrument cap.

Note: Wiping with a damp cloth, followed by a dry pme, removes fingerprints and other marks.

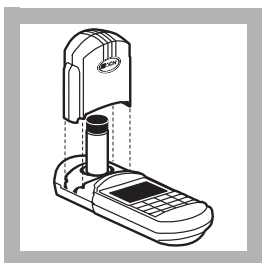


8. Press: ZERO

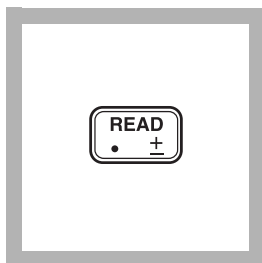
The cursor will move to the right, then the display will show:

0.000 mg/L NO₂-N

Note: If Reagent Blank Correction is on, the display may flash "limit." See Section 1.



9. Place the prepared sample into the cell holder. Tightly cover the sample cell with the instrument cap.

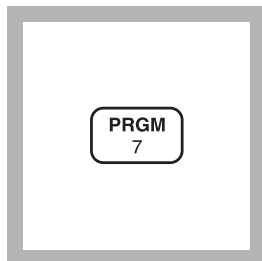


10. Press: READ

The cursor will move to the right, then the result in mg/L nitrite nitrogen (or an alternate form) will be displayed.

NITRITE, Low Range, continued

Using AccuVac Ampuls



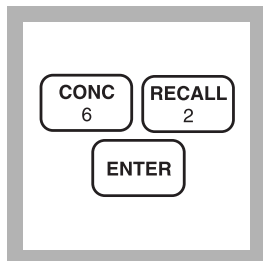
1. Enter the stored program number for nitrite nitrogen (NO_2^- -N), AccuVac Ampuls.

Press: **PRGM**

The display will show:

PRGM ?

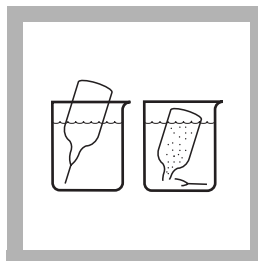
Note: For most accurate results, perform a Reagent Blank Correction using deionized water (see Section 1).



2. Press: **62 ENTER**

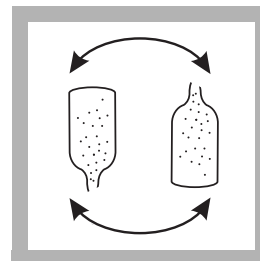
The display will show **mg/L, NO₂-N** and the **ZERO** icon.

*Note: For alternate forms (NO_2^- , NaNO_2), press the **CONC** key.*



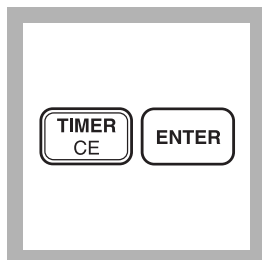
3. Collect at least 40 mL of sample in a 50-mL beaker. Fill a NitriVer 3 Nitrite AccuVac Ampul with the sample.

Note: Keep the tip immersed while the ampul fills completely.



4. Quickly invert the ampul several times to mix. Wipe off any liquid or fingerprints.

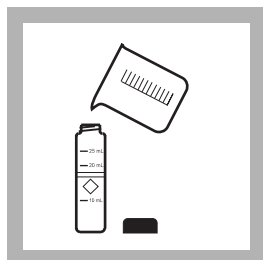
Note: Accuracy is not affected by undissolved powder.



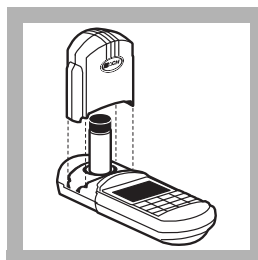
5. Press: **TIMER ENTER**

A 15-minute reaction period will begin.

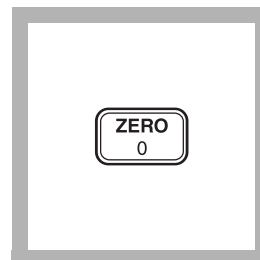
Note: A pink color will develop if nitrite is present.



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



7. Place the blank into the cell holder. Tightly cover the sample cell with the instrument cap.



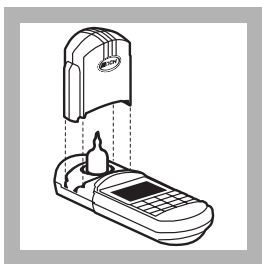
8. Press: **ZERO**

The cursor will move to the right, then the display will show:

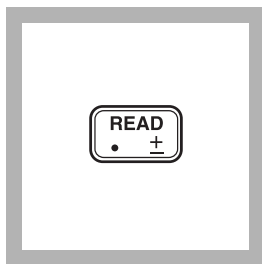
0.000 mg/L NO₂-N

Note: If Reagent Blank Correction is on, the display may flash "limit." See Section 1.

NITRITE, Low Range, continued



9. Place the AccuVac Ampul into the cell holder. Tightly cover the ampul with the instrument cap.



10. Press: **READ**

The cursor will move to the right, then the result in mg/L nitrite nitrogen will be displayed.

Sampling and Storage

Collect samples in clean plastic or glass bottles.

Store at 4 °C (39 °F) or lower and analyze within 48 hours. Warm to room temperature before running the test.

Do not use acid preservatives.

Remove the suspended solids by filtration.

Accuracy Check

Standard Solution Method

Pipet 5.00 mL of a fresh 250 mg/L NO_2^- -N standard into a 250.0 mL volumetric flask. Dilute to the mark with deionized water. This makes a 5.00-mg/L intermediate standard. To prepare a 0.100-mg/L NO_2^- -N standard solution, dilute 10.00 mL of the 5.00-mg/L intermediate standard to 500 mL in a volumetric flask. Prepare this solution immediately before use.

Run the test using the 0.100 mg/L NO_2^- -N standard in place of the sample. Results should be between 0.090 and 0.110 mg/L NO_2^- -N.

Method Performance

Precision

In a single laboratory, using a standard solution of 0.250 mg/L nitrite nitrogen and two representative lots of reagent with the instrument, a single operator obtained a standard deviation of ± 0.001 mg/L NO_2^- -N for the powder pillow method and ± 0.003 mg/L NO_2^- -N for the AccuVac method.

NITRITE, Low Range, continued

Estimated Detection Limit

The estimated detection limit for programs 60 and 62 is 0.005 mg/L NO₂⁻-N. For more information on derivation and use of Hach's estimated detection limit, see *Section 1*.

Interferences

Interfering Substance	Interference Levels
Antimonous 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

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.

NITRITE, Low Range, continued

REQUIRED REAGENTS

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

REQUIRED APPARATUS

Beaker, 50 mL (for AccuVac procedure).....	1.....	each.....	500-41
or			
Sample Cells, 10-20-25 mL (powder pillow procedure).....	2.....	6/pkg.....	24019-06

OPTIONAL REAGENTS

Nitrite Standard Solution, 250 mg/L as NO ₂ ⁻ -N.....	500 mL.....	23402-49
Water, deionized.....	4 L.....	272-56

OPTIONAL APPARATUS

Description	Unit	Cat. No.
AccuVac Snapper Kit.....	each.....	24052-00
Flask, volumetric, 250 mL.....	each.....	14574-46
Flask, volumetric, 500 mL.....	each.....	14574-49
Pipet, serological, 10 mL.....	each.....	532-38
Pipet, TenSette, 1 to 10 mL.....	each.....	19700-01
Pipet Tips for 19700-01 TenSette Pipet.....	50/pkg.....	21856-96
Pipet, volumetric, Class A, 5.00 mL.....	each.....	14515-37
Pipet, volumetric, Class A, 10.00 mL.....	each.....	14515-38
Pipet Filler, safety bulb.....	each.....	14651-00
Thermometer, -10 to 110 °C.....	each.....	1877-01

For Technical Assistance, Price and Ordering

In the U.S.A. call 800-227-4224

Outside the U.S.A.—Contact the Hach office or distributor serving you.