

## Methods

Nitrite, an intermediate in the nitrogen cycle, is formed during the decomposition of organic matter but readily oxidizes to form nitrate. These processes occur in wastewater treatment plants, water distribution systems, and natural waters. Nitrites are useful as corrosion inhibitors, preservatives, pigments, and in manufacturing many organic preservative chemicals. A Maximum Contaminant Level of 1 mg/L has been established by the USEPA for nitrite-nitrogen in drinking water.

### Azo Dye Formation Method

References: APHA Standard Methods, 21<sup>st</sup>. ed., Method 4500-NO<sub>2</sub><sup>-</sup> B (2005). USEPA Methods for Chemical Analysis of Water and Wastes, Method 354.1 (1983).

Nitrite diazotizes with a primary aromatic amine in an acidic solution to produce a highly colored azo dye. The intensity of the color is directly proportional to the concentration of nitrite in the sample. Nitrate will not interfere. Results are expressed as ppm (mg/L) NO<sub>2</sub>-N.

### The Ceric Sulfate Titrimetric Method

Reference: Developed by CHEMetrics, Inc.

Ceric sulfate is the titrant and ferroin is the end point indicator. The method is free from glycol interference in samples that contain up to 75% glycol, making it particularly applicable to systems that contain nitrite corrosion inhibitors. Results are expressed as ppm (mg/L) NaNO<sub>2</sub>.



## Visual Kits

**Range: 0-2.2 ppm as N**  
MDL: 0.25 ppm / Method: Azo Dye Formation

|   | Cat#          |
|---|---------------|
| <b>CHEMets Kit</b>  | <b>K-7004</b> |
| CHEMets Refill, 30 ampoules, Shelf-life 12 months                                   | R-7002        |
| Comparator, Shelf-life 12 months<br>0, 0.25, 0.5, 0.75, 1.0, 1.3, 1.6, 1.8, 2.2 ppm | C-7004        |

Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Comparator, 25 mL sample cup, instructions, and MSDS.

**Range: 0-70 ppm as N**  
MDL: 5 ppm / Method: Azo Dye Formation

|  | Cat#           |
|--|----------------|
| <b>VACUettes Kit</b>   | <b>K-7004D</b> |
| VACUettes Refill, 30 ampoules, Shelf-life 12 months                      | R-7002D        |
| Comparator, Shelf-life 12 months<br>0, 5, 10, 20, 30, 40, 50, 60, 70 ppm | C-7004D        |

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Comparator, dilutor snapper cup, micro test tube, instructions, and MSDS.

**Range: 0-150 ppm as N**  
MDL: 12.5 ppm / Method: Azo Dye Formation

|  | Cat#           |
|--|----------------|
| <b>VACUettes Kit</b>   | <b>K-7004A</b> |
| VACUettes Refill, 30 ampoules, Shelf-life 12 months                            | R-7002A        |
| Comparator, Shelf-life 12 months<br>0, 12.5, 25, 40, 70, 90, 110, 130, 150 ppm | C-7004A        |

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Comparator, dilutor snapper cup, micro test tube, instructions, and MSDS.

**Range: 0-260 ppm as N**  
MDL: 25 ppm / Method: Azo Dye Formation

|  | Cat#           |
|--|----------------|
| <b>VACUettes Kit</b>   | <b>K-7004B</b> |
| VACUettes Refill, 30 ampoules, Shelf-life 12 months                            | R-7002B        |
| Comparator, Shelf-life 12 months<br>0, 25, 50, 90, 110, 150, 180, 220, 260 ppm | C-7004B        |

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Comparator, dilutor snapper cup, micro test tube, instructions, and MSDS.

 Instrumental Kits

**Range: 0-2600 ppm as N**  
**MDL: 250 ppm / Method: Azo Dye Formation**

|  |                        |
|--|------------------------|
| <b>VACUettes Kit</b>   | <b>Cat#</b><br>K-7004C |
| VACUettes Refill, 30 ampoules, Shelf-life 12 months                                    | R-7002C                |
| Comparator, Shelf-life 12 months<br>0, 250, 500, 900, 1300, 1700, 1900, 2200, 2600 ppm | C-7004C                |

Kit comes in a plastic case and contains everything needed to perform 30 tests (except distilled water): Refill, Comparator, dilutor snapper cup, micro test tube, instructions, and MSDS.

**Range: 250-2500 ppm as NaNO<sub>2</sub>**  
**MDL: 250 ppm / Method: Ceric Sulfate Titrant with Ferroin Indicator**

|                    |                       |
|--------------------|-----------------------|
| <b>Titrets Kit</b> | <b>Cat#</b><br>K-7025 |
|--------------------|-----------------------|

Increments:  
250, 275, 300, 325, 350, 375, 400, 450, 500, 625, 750, 875, 1000, 1250, 1750, 2500 ppm

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules with valve assemblies, titrettor, 25 mL sample cup, instructions, and MSDS.

**Range: 500-5000 ppm as NaNO<sub>2</sub>**  
**MDL: 500 ppm / Method: Ceric Sulfate Titrant with Ferroin Indicator**

|                    |                       |
|--------------------|-----------------------|
| <b>Titrets Kit</b> | <b>Cat#</b><br>K-7050 |
|--------------------|-----------------------|

Increments:  
500, 550, 600, 650, 700, 750, 800, 900, 1000, 1250, 1500, 1750, 2000, 2500, 3500, 5000 ppm

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules with valve assemblies, titrettor, 25 mL sample cup, instructions, and MSDS.

**V-2000 Multi-Analyte Photometer**  
*(See page 14 for instrumental features)*

**Range: 0.080-0.800 ppm as N**  
**Method: Azo Dye Formation**

|  |                       |
|--|-----------------------|
| <b>Vacu-vials Kit</b> , Shelf-life 12 months | <b>Cat#</b><br>K-7003 |
|--|-----------------------|

Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules, 25 mL sample cup, ampoule blank, instructions, and MSDS.

*Vacu-vials Kits require the use of the V-2000 Photometer or a spectrophotometer capable of accepting a 13 mm diameter round cell. Instrument sold separately.*

| Kit Components common to Nitrite |        |
|----------------------------------|--------|
| Description                      | Cat#   |
| Sample Cup Pack, 25 mL (6 ea)    | A-0013 |
| Micro Test Tube Pack (10 ea)     | A-0015 |
| Dilutor Snapper Cup Pack (6 ea)  | A-0018 |
| Ampoule Blank Pack (5 ea)        | A-0023 |
| Titrettor Pack (1 ea)            | A-0053 |

*Instructions and MSDS(s) are posted on our website.  
 If no shelf-life is listed for a product, then the shelf-life is at least 2 years.*

