

# Water Nitrate Test Kit Instructions

Low Range (0.1 ppm – 2.0 ppm Nitrate-N)

## Introduction

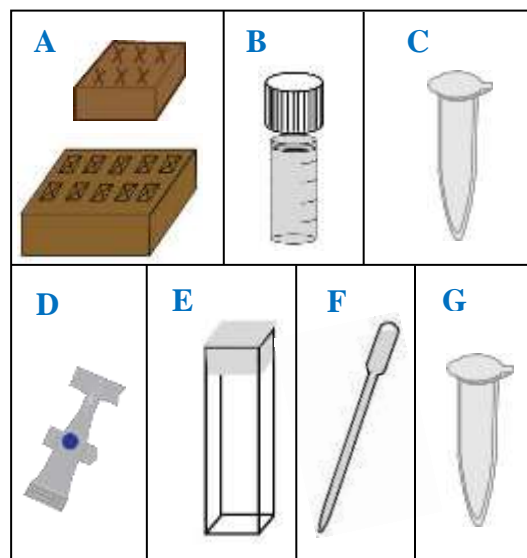
This kit contains everything needed to test water samples for nitrate content. Provided in this kit is a **1 ppm Nitrate-N standard (D)**, to use as a reference tool for analyzing samples and to ensure that the kit is working properly. Download the free “Nitrate Color Slider” application, available on Google Play and iTunes App, for easy analysis of your samples on mobile devices. A color chart is also provided on the back of this instruction sheet for sample analysis. These kits are based on validated laboratory methods, and will provide nitrate results after 15-20 minutes. Although results are not as precise as a water testing lab, *you will get accurate nitrate content results* for making immediate decisions about use and further testing of your water.

### Kit Contents (per 5 samples):

- A.** 2 cardboard tube/cuvette holders
- B.** 5 clear sample collection tubes with white screw caps
- C.** 5 clear *snap-cap aliquots* (contains liquid buffer)
- D.** 1 large squeeze bulb with blue dot (contains *nitrate standard*)
- E.** 6 square reaction cuvettes in sealed foil pouch (contains enzyme)
- F.** 5 plastic pipettes (for transferring each sample to reaction cuvettes)
- G.** 6 snap-cap tubes of color reagent powder (in amber bag)

### Materials you will need:

- Marker for labeling tubes and cuvette caps
- Scissors (to remove tip from *snip off* squeeze bulb)
- Pen (for recording data on data sheet)



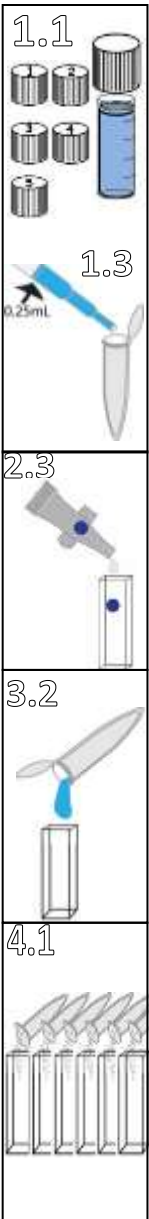
### DO:

- ✓ Store this kit in a cool and dark place (below 72°F/22°C), refrigerate if possible
- ✓ Test water samples soon after collection
- ✓ Run tests and standard all at once to ensure accuracy
- ✓ Label collected sample tubes and reaction cuvettes accordingly
- ✓ Gently shake cuvettes several times throughout reaction without inverting them.

### DO NOT:

- \*Open sealed packets or mix cuvette contents until ready to use
- \*Add more than *one drop* of sample water to reaction cuvette
- \*Compare samples to color chart before waiting at least 10 minutes
- \*Invert reaction cuvettes when mixing or get liquid in the cap portion before step 4

## Procedure



### Step 1 Collecting Your Samples

- 1) Collect approximately 5mL of water in each sample collection tube. Recap the tubes and label caps. (1.1)
- 2) Place aliquots in small cardboard holder. Label caps. Record location and numbers on data sheet provided.
- 3) Use a pipette to transfer 0.25mL (first graduation from the tip) sample to corresponding aliquot. (1.3)
- 4) Repeat for each sample, using a new pipette for each. Aliquots should contain 1 mL liquid. Cap and mix.

### Step 2 Preparing the Nitrate Standard

- 1) Remove the 6 square reaction cuvettes from the foil pouch and place them in the large cardboard holder, *keeping the one with the blue dot separate from the others (this is for your nitrate standard)*.
- 2) Tap cuvettes to settle contents *making sure to keep them upright* to not lose contents.
- 3) Twist off the end of the squeeze bulb with the blue dot and empty the entire contents into the cuvette with the blue dot. This is the *nitrate standard*. (2.3)
- 4) Let this cuvette develop for at least 10 minutes, gently mixing every few minutes. Continue to step 3 while cuvette develops.

### Step 3 Adding samples to Reaction Cuvettes

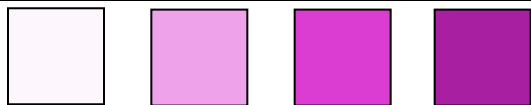
- 1) *Label the cuvette caps* with numbers, letters, or location to match the data sheet. (1-5, A-E, etc.)
- 2) Empty entire contents of each snap-cap aliquot with liquid buffer to each corresponding cuvette. (3.2)
- 3) Recap the cuvettes and mix by gently shaking side to side. Do not invert.
- 4) Let set for **at least 10 minutes**, mixing gently every few minutes.

### Step 4 Color development

- 1) Tap each snap-cap tube to a hard surface to settle color reagent powder; open tubes.
- 2) Add color reagent powder *to all reaction cuvettes, including the nitrate standard*. (4.1)
- 3) Firmly seal the cuvettes with square caps and vigorously mix each cuvette rapidly.
- 4) Let cuvettes develop color for about 5 minutes, mixing them several times to dissolve most of the powder. Some powder may settle to the bottom of tube; this is okay.

### Step 5 Evaluating your results

After color development, compare your results within one hour using the *nitrate standard* and this chart or download NECi's free color slider application for mobile devices. The *nitrate standard* is set at 1 part per million Nitrate-N (1 ppm Nitrate-N). Unimpaired waters should be no higher than 2ppm Nitrate-N. Color will remain stable for a few days.



Nitrate-N (ppm)	0	0.4	1	2	US EPA
Nitrate (ppm)	0	1.8	4.5	9	California & Europe
Molar Concentration (µM)	0	29	72	145	Chemical Labs

Download our free Nitrate Color Slider app available on Google Play and iTunes for easy color matching of your samples for data. Visit [www.nitrate.com/mobile-apps](http://www.nitrate.com/mobile-apps) on your mobile device's web browser, or search "Nitrate Color Slider" in the app store. Check out NECi's Handheld Photometer and app for digital data on your mobile device!