KYORITSU **PACKTEST** INSTRUCTIONS

# Nitrate

**Naphthylethylenediamine Visual Colorimetric Method after Zinc Reduction**

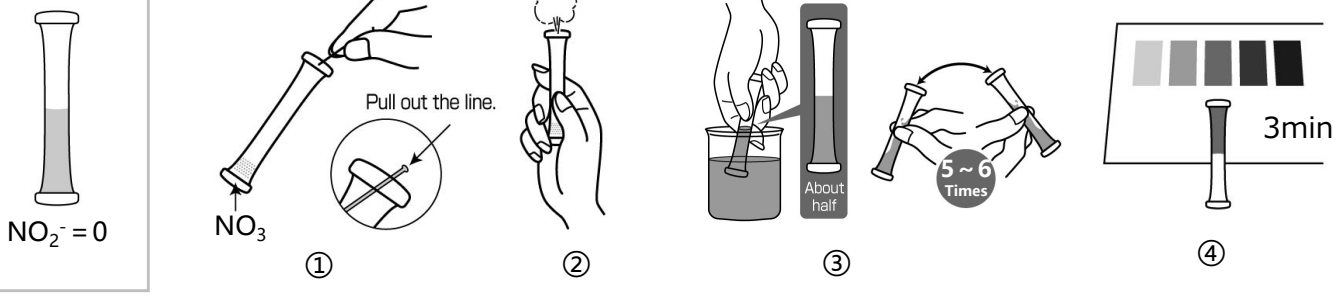
Main Measuring : <Nitrate ion> 1 - 45 mg/L (ppm)
<Nitrate-Nitrogen> 0.2 - 10 mg/L (ppm)

Model : WAK-NO3

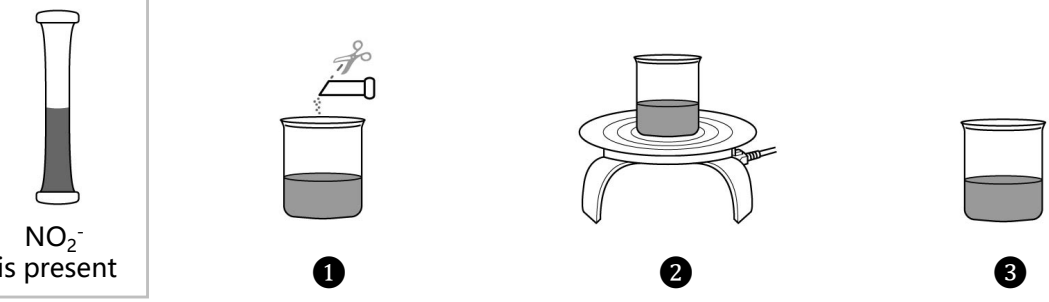
## How to Use

*Be sure to check the presence of nitrite by using PACKTEST Nitrite.

**When Nitrite is "0":** Perform nitrate measurement.




**When Nitrite coexist:** Remove nitrite by pretreatment agent prior to nitrate measurement.




① Remove the colored line at the top of the tube to clear the aperture.

② Press the tube's side wall to expel air and hold the tube.

③ Immerse the aperture of the tube into the sample, release the finger to fill up the tube halfway. Invert the tube back and forth lightly for 5-6 times.

④ After 3min, place the tube on the provided Color Sheet as shown to compare the color.

❶ Take 30 mL of sample water in a beaker and add Pretreatment Reagent for Nitrate Measurement (model: NO3-RA) which is sold separately.

❷ Bring to boil for about 2 min.

❸ Cool down to room temperature. If the sample volume decreases, add pure water to make it 30mL. Follow procedure from ① to measure nitrate.

## How to Read the Result

After the reaction time, compare the color of the tube with Standard Color. The nearest color indicates the concentration value of the analyte in your sample. A color between two standard colors indicate the value between them.
Standard color has Nitrate and Nitrate-Nitrogen printed on each side. Please use them accordingly.

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# Handling of PACKTEST Before and After Use

## First Aid

**Eye Contact** → Immediately flush eyes with plenty of water.
**Skin/Cloth Contact** → Immediately flush contacted area with water.
**Ingestion** → Immediately rinse mouth.

If swallowed the content or any symptom appears, seek medical advice immediately.
Please refer to SDS for further information.

## Storage

Keep unused PACKTEST tubes in the provided preserving bag after opening the laminated package and use them as soon as possible. Depending on the storage condition, the reagent may deteriorate in several days especially under the hot and humid weather.

## Disposal

For business use, please follow in the manner consistent with relevant laws and regulations. Otherwise, the tube can be disposed as combustible waste.

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## Caution

1. This product allows to measure both nitrate ion ($NO_3^-$) and nitrate-nitrogen ($NO_3^-$-N).
2. The optimum pH upon reaction will be around 3. If the pH of the sample exceeds 2-9, please neutralize with dilute sodium hydroxide solution or dilute sulfuric acid prior to measurement.
3. A 1000mg/L Nitrate standard solution develops a color equal to or greater than “45” on Standard Color. When the value is expected to be high, please dilute the sample prior to use.
4. Keep the sample temperature between 15-40℃.
5. Ensure that the PACKTEST tube is filled up to half.
6. Partially undissolved reagent will not affect the measurement.
7. When comparing to the Standard Color, please be sure to read under the daylight. It may be difficult to determine the color under the direct sunlight, certain florescent lights, mercury lamp or LED.
8. You can put the line back into the aperture to seal. This will avoid possibility of spilling the content of the tube.

# PACKTEST Nitrate

## Interference

Standard Color is prepared based on the standard solution. If there are some coexisting substances that may cause interference, please compare the result with official method or standard addition method for verification. Below is the list of interference data for on color development when adding each of the single substances to the standard solution.

| | | |
|---|---|---|
| ≤1000mg/L | will not affect | ··· $Al^{3+}$, B(III), $Ba^{2+}$, $Ca^{2+}$, $Cl^-$, $CN^-$, $F^-$, $Mg^{2+}$, $Mn^{2+}$, $Na^+$, $NH_4^+$, $PO_4^{3-}$, $SO_4^{2-}$, $Zn^{2+}$, Phenol |
| ≤250mg/L | 〃 | ··· $K^+$ |
| ≤100mg/L | 〃 | ··· $Co^{2+}$, $Cr^{3+}$ |
| ≤50mg/L | 〃 | ··· $Fe^{2+}$, $Ni^{2+}$ |
| ≤20mg/L | 〃 | ··· $Fe^{3+}$ |
| ≤5mg/L | 〃 | ··· $I^-$ |
| ≤2mg/L | 〃 | ··· $Cd^{2+}$, Residual Chlorine |
| ≤1mg/L | 〃 | ··· Cr(VI) |
| Any Level | will affect | ··· $Cu^{2+}$, $NO_2^-$ (see below), $Sn^{2+}$, Anionic surfactant |

Seawater cannot be measured.

Oxidizing and Reducing substances may interfere the result.

## Precautions when nitrite coexists

When nitrite ion ($NO_2^-$) coexists with nitrate ion ($NO_3^-$), it develops color stronger to cause positive false reading, so please be sure to measure and check the nitrite level. PACKTEST Nitrite (model: WAK-NO2) is recommended.

1. If Nitrite coexists and you want to obtain an accurate nitrate measurement, use a Pretreatment Reagent for Nitrate Measurement (model: NO3-RA) following “how to use" procedure on first page. Measure after removing nitrite ions. However, if nitrite ion ($NO_2^-$) coexists more than 10mg/L, this pretreatment procedure cannot remove nitrite.
2. For sample water with less nitrite than nitrate (river water, etc.), it can be corrected to some extent without pretreatment procedure as shown below. However, the error margin will be bigger than procedure 1. mentioned above.
   ① Use PACKTEST Nitrite to measure nitrite.
   ② Use PACKTEST Nitrate to measures apparent Nitrate.
   ③ Calculate the approximate nitrate value using the following formula:
   <For Nitrate ion>
   Apparent Nitrate ion value - Measured Nitrite ion × 10 = Concentration of Nitrate ion
   (Measured value of ②) (Measured value of ① × 10)
   <For Nitrate-Nitrogen>
   Apparent Nitrate Nitrogen value - Measured Nitrite Nitrogen × 8
   (Measured value of ②) (Measured value of ① × 8)
   =Concentration of Nitrate-Nitrogen

## 【Caution】

- This product is made for analyzing water quality purpose only. Do not use for any other purpose.
- This product contains small amount of chemicals. Please read instruction manual, GHS labels, SDS, and other necessary document thoroughly prior to use.
- Please keep this information handy for future reference.

<Safety>
- Please wash your hands thoroughly before and after the test. Do not inhale the chemical reagents.
- It is highly recommended to wear protective gloves, eye protection, and mask upon using this product.
- Avoid release chemical reagents or waste solution to the environment.

<Storage>
- Please keep this product out of reach of children. Keep it in the dry and dark place at room temperature.

<Other>
- Please check the expiration date shown on the box, and make sure to use within the date.
- Specifications are subject to change without notice.

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