



KYORITSU

PACKTEST
ION SELECTIVE

INSTRUCTIONS

Nitrate (High Range)

<Nitrate-Nitrogen>

Model WAK-NO₃(C)

Reduction and Griess Romijn Method

Main reagent: Zinc, Sulfanilic acid

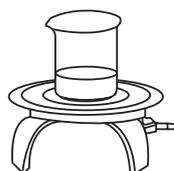
Range: NO₃⁻ 90 - 4500 mg/L (ppm)NO₃⁻- N 20 - 1000 mg/L (ppm)

How to use

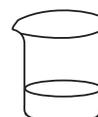
! Nitrite concentration must be checked before. We recommend to use the Nitrite PACKTEST, ref: WAK-NO₂ (optional). If the sample contains nitrite, the optional kit NO₃-RA should be used.



(1) Add one piece of Pretreatment Reagent for Nitrate ref: NO₃-RA (optional) to 30mL of sample.

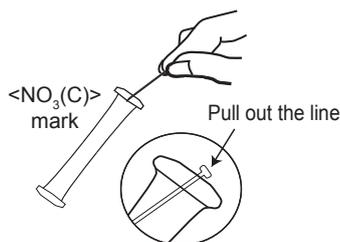


(2) Heat the sample up to boiling for about 2 minutes.



(3) Cool down the beaker till the room temperature.

If the sample contains Nitrite more than 1mg/L, start from the step (1)



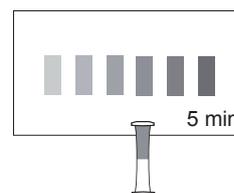
(4) Remove the line to clear the aperture from the top of the tube.



(5) Press the sides of the tube to expel approximately half of volume. Maintain pressed.



(6) Immerse the tube in the sample. Release the sides to fill the tube up to the half. Shake the tube lightly few times.



(7) After 5 minutes, put the tube on the color chart as shown and compare with the standard colors.

If the sample contains Nitrite less than 1mg/L, start from the step (4)

How to read the test

After the reaction time, compare the color of the tube with the standard colors. The nearest color indicates the measured value of the sample. A color between two standard colors indicates a value between the two standard values.

Care in handling of PACKTEST before and after use

Keep PACKTEST out of the reach of children. Keep PACKTEST in a cool, dry and dark place. PACKTEST should be thrown with burnable garbage. Conform to the legislation of waste management. Use a package as soon as possible after opening. The PACKTEST tube must not be opened before and after use.

First Aid Measures

Eye contact → Immediately rinse eyes with water for at least 15 minutes. Consult a physician.

Skin contact → Immediately flush skin with water.

Ingestion → Immediately rinse mouth. Consult a physician.

In case of doubt, consult a physician.

**KYORITSU CHEMICAL-CHECK Lab., Corp.**37-11, DEN-ENCHOFU 5 CHOME, OHTA-KU, TOKYO 145-0071 JAPAN
FAX: 81-3-3721-0666 <http://kyoritsu-lab.co.jp>

PACKTEST Nitrate (High Range)

Features

The Nitrate (High Range) PACKTEST is based on a reduction by Zinc and the naphthylethylenediamine color comparison method. It allows to measure easily Nitrate ion (NO_3^-) in various samples like industrial waste water, environmental water, and so on. For lower concentrations of Nitrate, we recommend to use the Nitrate PACKTEST (NO_3^- - 1 - 45 mg/L), ref:WAK- NO_3 .

Cautions

1. The Nitrate PACKTEST allows to measure both Nitrate (NO_3^-) and Nitrate-nitrogen (NO_3^- -N) concentrations.
2. The normal pH range is 2 - 9. If necessary, adjust the pH with diluted sulfuric acid or sodium hydroxide solution.
3. The reaction color becomes stronger than 4500mg/L of standard color when the nitrate standard solution is higher than 10000mg/L.
A sample water which is expected high concentration, should be diluted in advance.
4. Ensure that PACKTEST tube is filled up to the half.
5. Shake the tube immediately after filling. If the shaking is delayed, the color may vary.
6. If air bubbles adhere onto the tube surface, reverse the tube several times slowly to remove them. Bubbles may induce wrong color interpretation.
7. Partially undissolved reagent will not affect the measurement.
8. Keep sample temperature in the range 15°C - 30°C. Lower temperature necessitates longer reaction time.
9. Read the test under a daylight type lamp.
10. Put the line back into the aperture after use to prevent reagent spilt.

Interferences

Standard colors were determined from standard solutions. However, coexisting substances will cause inaccurate results. The list below reports ion concentrations under which ones interferences are insignificant:

≤ 1000 mg/L : B^{3+} , Ba^{2+} , Ca^{2+} , Cl^- , F^- , I^- , K^+ , Mg^{2+} , Mn^{2+} , Na^+ , NH_4^+ , PO_4^{3-} , SO_4^{2-} , Phenol
 ≤ 500 mg/L : CN^-
 ≤ 250 mg/L : Al^{3+}
 ≤ 20 mg/L : As^{3+} , Pd^{2+} , Zn^{2+}
 ≤ 5 mg/L : Cr^{3+} , Anionic surfactant, Residual chlorine
 ≤ 1 mg/L : Co^{2+} , Ni^{2+} , NO_2^- ,
 Sub-ppm level: Ag^+ , Cd^{2+} , Cr^{6+} , Cu^{2+} , Fe^{2+} , Fe^{3+} , Mo^{6+} , Pb^{2+}

The Nitrate(High range) PACKTEST is suitable for sea water samples, but some sea water need 10 - 20 minutes for reaction.

Oxidative and reductive chemical can interfere.

Caution in case of Nitrite

Nitrite ion strongly interferes (positively) with the Nitrate (High Range) PACKTEST. Be sure to measure nitrite concentration before to use the Nitrate (High Range) PACKTEST. For the NO_2^- measurement, we recommend to use the Nitrite PACKTEST (ref: WAK- NO_2), the Nitrite (High Range) PACKTEST (ref: WAK- NO_2 (C)) or the Nitrite Ion Selective Test Paper (ref: WAP- NO_2).

1. In case of nitrite, we recommend to use the optional pretreatment reagent for nitrate measurement (ref: NO_3 -RA). However, the NO_2^- ion can not completely be removed if the concentration is ≥ 10 mg/L.
2. It is possible to get a good approximation without pretreatment by the following procedure:
 - (1) Measure the nitrite concentration using the Nitrite (High Range) PACKTEST (ref: WAK- NO_2 (C)).
 - (2) Find the closest value in the row.(a)
 - (3) Measure the nitrate concentration using a Nitrate (High Range) PACKTEST.
 - (4) Find the closest value on the horizontal axis.(b)
 - (5) The junction of the line and the row of the measured values indicates the estimated nitrate concentration.

(a)	(b)	Measured value of Nitrate conc.by Pack Test Nitrate (High range) (mg NO_3^- /L)				
		225	450	900	2250	4500
Measured value of Nitrite (mg NO_2^- /L)	6.6	190	340	800	1500	2300
	16	150	300	600	1100	1900
	66	100	250	450	850	1400
	160	-	-	225	500	930