

# Nitrate Rapid Test Strip

#T001/50T

The test strip consists of reaction zone and alert zone. Nitrate ions are reduced to nitrite ions by a reducing agent. In the presence of an acidic buffer, these nitrite ions react with an aromatic amine to form a diazonium salt, which in turn reacts with N-(1-naphthyl)-ethylene-diamine to form a red-violet azo dye. The nitrate concentration is measured semi-quantitatively by visual comparison of the reaction zone of the test strip with the fields of a color scale.

Alert zone: this zone measures the presence of nitrite ions, if homogenous purple appears in this zone within 20s, which means that there exists the interference of nitrite ions.

## 1. Application

This test strip can be used in the semi-quantitative detection of nitrate in milk powder, and raw milk. (please consult the technique for more details if you want to test other samples)

## 2. Components

- Tube containing 50 test strips
- Manual 1 piece

## 3. Preparation

**Whole milk powder:** Weight 1 gram (accurate to 0.01g) of milk powder, then add 8 ml of distilled water to dissolve it.

**Raw milk:** No treatment is needed.

**Note:** Milk samples should be fully liquid without any agglomeration and deposition. Samples containing more than 500 mg/l  $\text{NO}_3^-$  must be diluted with distilled water. In addition, the pH of the aqueous sample must be within the range 2-12. (Adjust the pH with sodium acetate or tartaric acid.)

## 4. Procedure

- 1) Read the instructions before experiment. Bring the test kit and samples to room temperature.
- 2) Immerse the reaction zone and alert zone of the test strip in the pretreated sample (15 – 30 °C) for 1 s. Seal the cap of the bottles and store the unneeded kit.
- 3) Shake off excess liquid from the strip and after 70 s determine with which color field on the label the color of the reaction zone coincides most exactly.
- 4) Read off the corresponding result in mg/l  $\text{NO}_3^-$  or  $\text{NO}_3\text{-N}$ .

## 5. Influence of foreign substances

This was checked individually in solutions with 50 and 0 mg/l  $\text{NO}_3^-$ . The determination is not yet interfered with up to the concentrations of foreign substances given in the table.

Concentrations of foreign substances in mg/l			
$\text{Ag}^+$	1000	$\text{Mn}^{2+}$	1000
$\text{Al}^{3+}$	1000	$\text{SO}_4^{2-}$	1000
$\text{Mg}^{2+}$	1000	$[\text{Fe}(\text{CN})_6]^{4-}$	100

<b>Zn<sup>2+</sup></b>	1000	<b>NO<sub>2</sub><sup>-</sup></b>	1000
<b>Co<sup>2+</sup></b>	1000	<b>Cl<sup>-</sup></b>	1000
<b>Cd<sup>2+</sup></b>	1000	<b>MnO<sub>4</sub><sup>-</sup></b>	10
<b>Cu<sup>2+</sup></b>	1000	<b>CrO<sub>4</sub><sup>-</sup></b>	20
<b>Ni<sup>2+</sup></b>	1000	<b>SO<sub>3</sub><sup>2-</sup></b>	500
<b>Fe<sup>2+</sup></b>	1000	<b>S<sub>2</sub>O<sub>3</sub><sup>2-</sup></b>	500
<b>Fe<sup>3+</sup></b>	100	<b>PO<sub>4</sub><sup>3-</sup></b>	1000
<b>K<sup>+</sup></b>	1000	<b>Na<sup>+</sup></b>	1000

## 6. Storage

The test strips are stable up to the date stated on the pack when stored at 2 – 8 °C. Lot number and expired date are printed on the package.

## 7. Notice and Precautions for a successful experiment.

Please perform the assay following the instruction, do not touch the membrane of the strip.

The color of reaction zone may continue to change after the specified reaction time has elapsed.

This must not be considered in the measurement.

If the color of the reaction zone is equal to or more intense than the darkest color on the scale, repeat the measurement using fresh, diluted samples until a value of less than 500 mg/l.

Reclose the tube containing the test strips immediately after use.

### Annexed table 1: Measuring range and number of determinations

Items	Measuring range / color scale graduation (mg/l)
NO <sub>3</sub> <sup>-</sup>	10 – 25 – 50 – 100 – 250 - 500
NO <sub>3</sub> -N	2.3 – 5.6 – 11 – 23 – 56 - 113

### Annexed table 2: Conversions

Units requires	=	Units given	x	Conversion factor
NO <sub>3</sub> -N mg/l		NO <sub>3</sub> <sup>-</sup> mg/l		0.226
NO <sub>3</sub> <sup>-</sup> mg/l		NO <sub>3</sub> -N mg/l		4.43